SIEMENS

SIMATIC

Products for Totally Integrated Automation

Catalog
News
ST 70 N

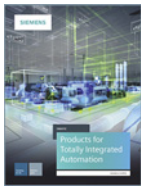
Edition
2018

siemens.com/tia

Related catalogs

SIMATIC ST 70
Products for
Totally Integrated Automation

E86060-K4670-A101-B6-7600



SIMATIC HMI /
PC-based Automation ST 80/ST PC
Human Machine Interface Systems
PC-based Automation

E86060-K4680-A101-C5-7600

Industrial Communication IK PI
SIMATIC NET

E86060-K6710-A101-B8-7600

SIMATIC ST PCS 7
SIMATIC PCS 7
Process Control System
System components

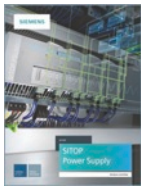
E86060-K4678-A111-C5-7600

SIMATIC ST 400
SIMATIC S7-400 advanced controller

PDF (E86060-K4678-A151-A1-7600)

SITOP KT 10.1
SITOP
Power supply

E86060-K2410-A101-B3-7600



SIMATIC Ident ID 10
Industrial Identification Systems

E86060-K8310-A101-B1-7600

Motion Control System PM 21
SIMOTION
Equipment for Production Machines

E86060-K4921-A101-A4-7600

SITRAIN
Training for Industry

www.siemens.com/sitrain

Siemens TIA Selection Tool
for the selection, configuration and ordering of
TIA products and devices

www.siemens.com/tst

Products for Automation and Drives CA 01
Interactive Catalog
Download

www.siemens.com/ca01download

Industry Mall
Information and Ordering Platform
on the Internet:

www.siemens.com/industrymall

Contact
Your personal contact can be found in our
Contacts Database at:

www.siemens.com/automation-contact

TIA Selection Tool

The smart configurator for the entire Siemens automation portfolio

Prime reasons for the TIA Selection Tool

Quick, easy and secure

Components can be selected, configured and ordered quickly, easily and securely from the Siemens automation portfolio

Intelligent

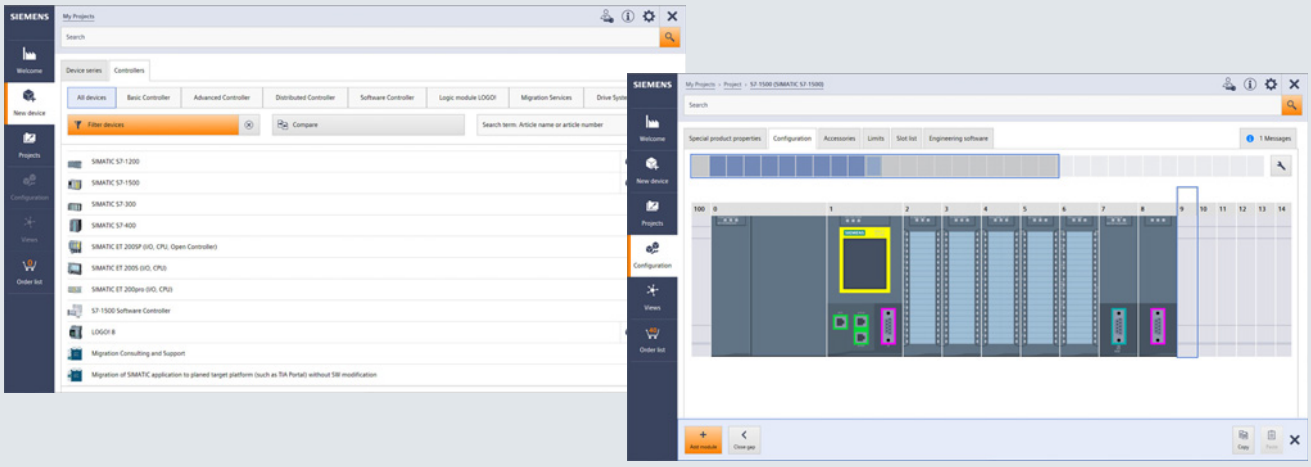
Intelligent selection wizards check the compatibility of the configured components and enable error-free ordering

Clear

Required modules, devices and networks are automatically generated and clearly compared to one another

Time-saving

Time savings of 80% in design – thanks to ease of use and intelligent support



The TIA Selection Tool is a completely paperless solution.

Download it now:

www.siemens.com/tst

For more information, scan the QR code

Products for Totally Integrated Automation

SIMATIC

Catalog News ST 70 N · 2018

Refer to the Industry Mall for current updates of this catalog:
www.siemens.com/industrymall

The products contained in this catalog can also be found in the Interactive Catalog CA 01.
Please contact your local Siemens branch.

The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with DIN EN ISO 9001 (Certified Registration No. 1323QM-08). The certificate is recognized by all IQNet countries.

Digital Enterprise

The building blocks that ensure everything works together perfectly in the digital enterprise

Digitalization is already changing all areas of life and existing business models. It is placing greater pressure on industry while at the same time creating new business opportunities. Today, thanks to scalable solutions from Siemens, companies can already become a digital enterprise and ensure their competitiveness.

Industry faces tremendous challenges

Reduce time-to-market

Today manufacturers have to bring products to market at an ever-increasing pace despite the growing complexity of these products. In the past, a major manufacturer would push aside a small one, but now it is a fast manufacturer that overtakes a slow one.

Boost flexibility

Consumers want customized products, but at a price they would pay for a mass-produced item. That only works if production is more flexible than ever before.

Improve quality

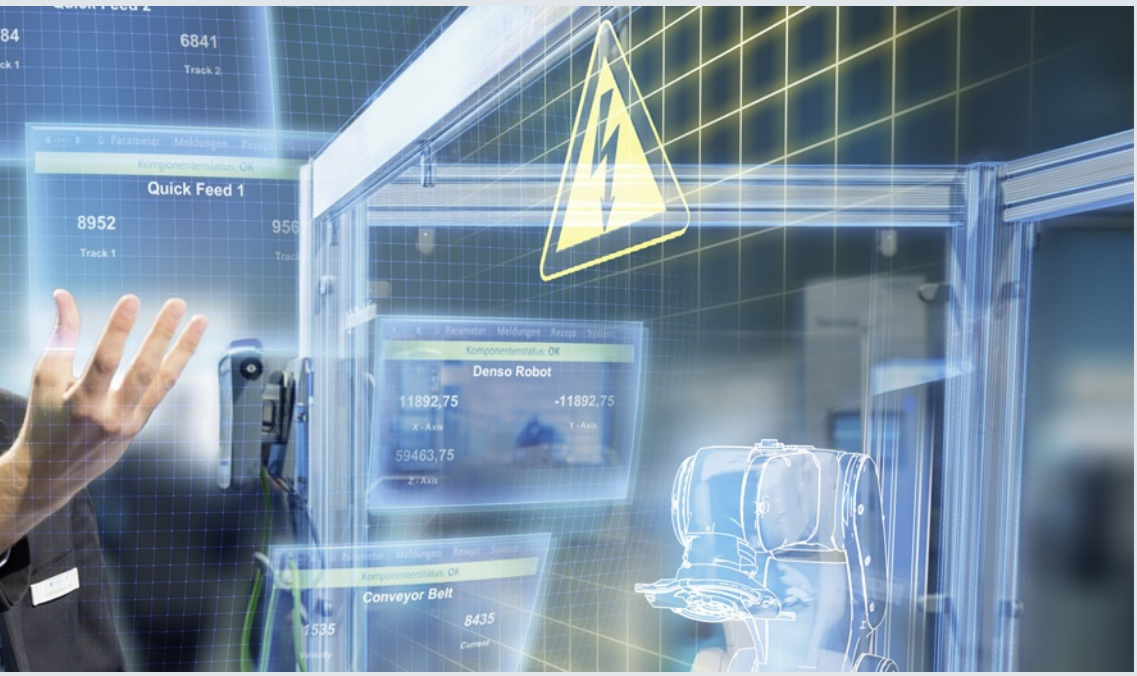
To ensure a high level of quality while meeting legal requirements, companies have to establish closed quality loops and enable the traceability of products.

Boost efficiency

Today the product itself needs to be sustainable and environmentally friendly, while energy efficiency in production has become a competitive advantage.

Increase security

Increasing networking escalates the threat to production facilities of cyberattacks. Today more than ever, companies need suitable security measures.



The digital enterprise has already become a reality

To fully benefit from all the advantages of digitalization, companies first have to achieve complete consistency of their data. Fully digitally integrated business processes, including those of suppliers, can help to create a digital representation of the entire value chain. This requires

- the integration of industrial software and automation,
- expansion of the communication networks,
- security in automation,
- and the use of business-specific industrial services.

MindSphere

The cloud-based open IoT operating system from Siemens

With MindSphere, Siemens offers a cost-effective and scalable cloud platform as a service (PaaS) for the development of applications. The platform, designed as an open operating system for the Internet of Things, makes it possible to improve the efficiency of plants by collecting and analyzing large volumes of production data.

Totally Integrated Automation (TIA)

Where digitalization becomes reality

Totally Integrated Automation (TIA) ensures the seamless transition from the virtual to the real world. It already encompasses all the necessary conditions for transforming the benefits of digitalization into true added value. The data that will form the digital twin for actual production is generated from a common base.

Digital Plant
Learn more about the digital enterprise for the process industry
www.siemens.com/digitalplant

Digital Enterprise Suite
Learn more about the digital enterprise for the discrete industry
www.siemens.com/digital-enterprise-suite

LOGO! logic modules

Brochures

For brochures serving as selection guides for SIMATIC products, refer to

www.siemens.com/simatic/printmaterial

LOGO! basic modules with display

Overview

- The space-saving basic variants
- Interface for the connection of expansion modules, up to 24 digital inputs, 20 digital outputs, 8 analog inputs and 8 analog outputs can be addressed
- All basic units with integrated web server
- Enclosure width 72 mm (4 U)
- All basic units with Ethernet interface for communication with LOGO! 8, LOGO! TDE, SIMATIC Controllers, SIMATIC Panels and PCs
- Use of standard micro CF cards

Technical specifications

Article number	**6ED1052-1CC08-0BA0** LOGO! 24CE, 8DI(4AI)/4DO, 400 BLOCKS	**6ED1052-1MD08-0BA0** LOGO!12/24RCE, 8DI(4AI)/4DO, 400 BLOCKS	**6ED1052-1HB08-0BA0** LOGO! 24RCE, 8DI/4DO, 400 BLOCKS	**6ED1052-1FB08-0BA0** LOGO!230RCE, 8DI/4DO, 400 BLOCKS
Display				
with display	Yes	Yes	Yes	Yes
Installation type/mounting				
Mounting	on 35 mm DIN rail, 4 spacing units wide	on 35 mm DIN rail, 4 spacing units wide	on 35 mm DIN rail, 4 spacing units wide	on 35 mm DIN rail, 4 spacing units wide
Supply voltage				
Rated value (DC)				
• 12 V DC		Yes		
• 24 V DC	Yes	Yes	Yes	
• 115 V DC				Yes
• 230 V DC				Yes
permissible range, lower limit (DC)	20.4 V	10.8 V	20.4 V	100 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	253 V
Rated value (AC)				
• 24 V AC			Yes	
• 115 V AC				Yes
• 230 V AC				Yes
Time of day				
Time switching clocks				
• Number	400; Max. 400, function-specific	400; Max. 400, function-specific	400; Max. 400, function-specific	400; Max. 400, function-specific
• Power reserve	480 h	480 h	480 h	480 h
Digital inputs				
Number of digital inputs	8; Of which 4 can be used in analog mode (0 to 10 V)	8; Of which 4 can be used in analog mode (0 to 10 V)	8	8
Digital outputs				
Number of digital outputs	4; Transistor	4; Relays	4; Relays	4; Relays
Short-circuit protection	Yes; electrical (1 A)	No; external fusing necessary	No; external fusing necessary	No; external fusing necessary
Output current				
• for signal "1" permissible range for 0 to 55 °C, max.	0.3 A	10 A		
Relay outputs				
Switching capacity of contacts				
- with inductive load, max.		3 A	3 A	3 A
- with resistive load, max.		10 A	10 A	10 A

Technical specifications (continued)

Article number	**6ED1052-1CC08-0BA0** LOGO! 24CE, 8DI(4AI)/4DO, 400 BLOCKS	**6ED1052-1MD08-0BA0** LOGO!12/24RCE, 8DI(4AI)/4DO, 400 BLOCKS	**6ED1052-1HB08-0BA0** LOGO! 24RCE, 8DI/4DO, 400 BLOCKS	**6ED1052-1FB08-0BA0** LOGO!230RCE, 8DI/4DO, 400 BLOCKS
EMC				
Emission of radio interference acc. to EN 55 011				
• Limit class B, for use in residential areas	Yes; Radio interference suppression according to EN55011, Limit Value Class B	Yes	Yes	Yes
Degree and class of protection				
Degree of protection acc. to EN 60529				
• IP20	Yes	Yes	Yes	Yes
Standards, approvals, certificates				
CE mark	Yes	Yes	Yes	Yes
CSA approval	Yes	Yes	Yes	Yes
UL approval	Yes	Yes	Yes	Yes
FM approval	Yes	Yes	Yes	Yes
developed in accordance with IEC 61131	Yes	Yes	Yes	Yes
according to VDE 0631	Yes	Yes	Yes	Yes
Marine approval	Yes	Yes	Yes	Yes
Ambient conditions				
Ambient temperature during operation				
• min.	-20 °C; No condensation	-20 °C; No condensation	-20 °C; No condensation	-20 °C; No condensation
• max.	55 °C	55 °C	55 °C	55 °C
Ambient temperature during storage/transportation				
• min.	-40 °C	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C	70 °C
Altitude during operation relating to sea level				
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)		Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Dimensions				
Width	71.5 mm	71.5 mm	71.5 mm	71.5 mm
Height	90 mm	90 mm	90 mm	90 mm
Depth	60 mm	60 mm	60 mm	60 mm

LOGO! basic modules with display

Ordering data	Article No.
LOGO! 8 logic module	
LOGO! 24CE Supply voltage 24 V DC, 8 digital inputs 24 V DC, of which 4 can be used in analog mode (0 to 10 V), 4 digital outputs 24 V DC, 0.3 A, integrated time switch Ethernet interface; 400 function blocks can be interlinked, modular expansion capability	**6ED1052-1CC08-0BA0**
LOGO! 12/24RCE Supply voltage 12...24 V DC, 8 digital inputs 12/24 V DC, of which 4 can be used in analog mode (0 to 10 V) 4 relay outputs 10 A, integral time switch Ethernet interface; 400 function blocks can be interlinked, modular expansion capability	**6ED1052-1MD08-0BA0**
LOGO! 24RCE Supply voltage 24 V AC/DC, 8 digital inputs 24 V AC/DC, 4 relay outputs 10 A, integral time switch Ethernet interface; 400 function blocks can be interlinked, modular expansion capability	**6ED1052-1HB08-0BA0**
LOGO! 230RCE Supply voltage 115...230 V AC/DC, 8 digital inputs 115...230 V AC/DC, 4 relay outputs 10 A, integral time switch Ethernet interface; 400 function blocks can be interlinked, modular expansion capability	**6ED1052-1FB08-0BA0**

Accessories	Article No.
LOGO! 8 text display HMI 6-line text display, can be connected to all LOGO! 8 variants with and without display, with 2 Ethernet interfaces; incl. installation accessories. Requires additional 12 V DC or 24 V AC/DC power supply	**6ED1055-4MH08-0BA0**
LOGO!Soft Comfort V8 For programming on the PC in LAD/FBD; executes on Windows 8, 7, XP, Linux and Mac OSX; on DVD	**6ED1058-0BA08-0YA1**
LOGO! Starter Kits In TANOS Box, LOGO! Soft Comfort V8, WinCC Basic, Ethernet cable	
LOGO! Starter Kit 12/24RCE With LOGO! 12/24RCE, power supply, screw driver, in systainer	**6ED1057-3BA01-0AA8**
LOGO! Starter Kit 130RCE With LOGO! 230RCE, power supply, screw driver, in systainer	**6ED1057-3BA03-0AA8**
LOGO! Starter Kit 12/24V With LOGO! 12/24RCEO, LOGO! TD, power supply, screw driver, in systainer	**6ED1057-3BA11-0AA8**
LOGO! 8 KP300 Basic Starter Kit With LOGO! 12/24RCE, LOGO! Power 24 V 1.3 A, KP300 Basic mono PN	**6AV2132-0HA00-0AA1**
LOGO! 8 KTP400 Basic Starter Kit With LOGO! 12/24RCE, LOGO! Power 24 V 1.3 A, KTP400 Basic	**6AV2132-0KA00-0AA1**
LOGO! 8 KTP700 Basic Starter Kit With LOGO! 12/24RCE, LOGO! Power 24 V 1.3 A, KTP700 Basic	**6AV2132-3GB00-0AA1**
Front panel mounting set	
Width 4 U, with keys	**6AG1057-1AA00-0AA3**
Width 8 U, with keys	**6AG1057-1AA00-0AA2**

Overview

- Basic variants optimized for costs
- Interface for the connection of expansion modules, up to 24 digital inputs, 20 digital outputs, 8 analog inputs and 8 analog outputs can be addressed
- With connection option for LOGO! TDE text display
- All basic units with integrated web server
- Enclosure width 72 mm (4 U)
- All basic units with Ethernet interface for communication with LOGO! 8, LOGO! TDE, SIMATIC Controllers, SIMATIC Panels and PCs
- Use of standard micro CF cards

Technical specifications

Article number	**6ED1052-2CC08-0BA0** LOGO! 24CEO, 8DI(4AI)/4DO, 400 BLOCKS	**6ED1052-2MD08-0BA0** LOGO!12/24RCEO, 8DI(4AI)/4DO, 400 BLOCKS	**6ED1052-2HB08-0BA0** LOGO! 24RCEO, 8DI/4DO, 400 BLOCKS
Installation type/mounting			
Mounting	on 35 mm DIN rail, 4 spacing units wide	on 35 mm DIN rail, 4 spacing units wide	on 35 mm DIN rail, 4 spacing units wide
Supply voltage			
Rated value (DC)			
• 12 V DC		Yes	
• 24 V DC	Yes	Yes	Yes
permissible range, lower limit (DC)	20.4 V	10.8 V	20.4 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V
Rated value (AC)			
• 24 V AC			Yes
Time of day			
Time switching clocks			
• Number	400; Max. 400, function-specific	400; Max. 400, function-specific	400; Max. 400, function-specific
• Power reserve	480 h	480 h	480 h
Digital inputs			
Number of digital inputs	8; Of which 4 can be used in analog mode (0 to 10 V)	8; Of which 4 can be used in analog mode (0 to 10 V)	8
Digital outputs			
Number of digital outputs	4; Transistor	4; Relays	4; Relays
Short-circuit protection	Yes; electrical (1 A)	No; external fusing necessary	No; external fusing necessary
Output current			
• for signal "1" permissible range for 0 to 55 °C, max.	0.3 A	10 A	
Relay outputs			
Switching capacity of contacts			
- with inductive load, max.		3 A	3 A
- with resistive load, max.		10 A	10 A
EMC			
Emission of radio interference according to EN 55 011			
• Limit class B, for use in residential areas	Yes; Radio interference suppression according to EN55011, Limit Value Class B	Yes	Yes
Degree and class of protection			
Degree of protection according to EN 60529			
• IP20	Yes	Yes	Yes

Technical specifications (continued)

Article number	6ED1052-2CC08-0BA0 LOGO! 24CEO, 8DI(4AI)/4DO, 400 BLOCKS	6ED1052-2MD08-0BA0 LOGO!12/24RCEO, 8DI(4AI)/4DO, 400 BLOCKS	6ED1052-2HB08-0BA0 LOGO! 24RCEO, 8DI/4DO, 400 BLOCKS
Standards, approvals, certificates			
CE mark	Yes	Yes	Yes
CSA approval	Yes	Yes	Yes
UL approval	Yes	Yes	Yes
FM approval	Yes	Yes	Yes
developed in accordance with IEC 61131	Yes	Yes	Yes
according to VDE 0631	Yes	Yes	Yes
Marine approval	Yes	Yes	Yes
Ambient conditions			
Ambient temperature during operation			
• min.	-20 °C; No condensation	-20 °C; No condensation	-20 °C; No condensation
• max.	55 °C	55 °C	55 °C
Ambient temperature during storage/transportation			
• min.	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C
Altitude during operation relating to sea level			
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)		Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Dimensions			
Width	71.5 mm	71.5 mm	71.5 mm
Height	90 mm	90 mm	90 mm
Depth	58 mm	60 mm	58 mm

Article number	6ED1052-2FB08-0BA0 LOGO!230RCEO, 8DI/4DO, 400 BLOCKS
Display	
with display	No
Installation type/mounting	
Mounting	on 35 mm DIN rail, 4 spacing units wide
Supply voltage	
Rated value (DC)	
• 115 V DC	Yes
• 230 V DC	Yes
permissible range, lower limit (DC)	100 V
permissible range, upper limit (DC)	253 V
Rated value (AC)	
• 115 V AC	Yes
• 230 V AC	Yes
Time of day	
Time switching clocks	
• Number	400; Max. 400, function-specific
• Power reserve	480 h
Digital inputs	
Number of digital inputs	8
Digital outputs	
Number of digital outputs	4; Relays
Short-circuit protection	No; external fusing necessary

Article number	6ED1052-2FB08-0BA0 LOGO!230RCEO, 8DI/4DO, 400 BLOCKS
Relay outputs	
Switching capacity of contacts	
- with inductive load, max.	3 A
- with resistive load, max.	10 A
EMC	
Emission of radio interference according to EN 55 011	
• Limit class B, for use in residential areas	Yes
Degree and class of protection	
Degree of protection according to EN 60529	
• IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
FM approval	Yes
developed in accordance with IEC 61131	Yes
according to VDE 0631	Yes
Marine approval	Yes

Technical specifications (continued)

Article number	6ED1052-2FB08-0BA0 LOGO!230RCEO, 8DI/4DO, 400 BLOCKS
Ambient conditions	
Ambient temperature during operation	
• min.	-20 °C; No condensation
• max.	55 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)

Article number	6ED1052-2FB08-0BA0 LOGO!230RCEO, 8DI/4DO, 400 BLOCKS
Dimensions	
Width	71.5 mm
Height	90 mm
Depth	60 mm

Ordering data

	Article No.
LOGO! 8 logic module	
LOGO! 24CEo logic module 24 V DC supply voltage, 8 digital inputs 24 V DC, of which 4 can be used in analog mode (0 to 10 V), 4 digital outputs 24 V DC, 0.3 A, integral time switch, Ethernet interface; without display and keyboard; 400 function blocks can be interlinked, modular expansion capability	6ED1052-2CC08-0BA0
LOGO! 12/24RCEo logic module 12...24 V DC supply voltage, 8 digital inputs 12...24 V DC, of which 4 can be used in analog mode (0 to 10 V), 4 relay outputs 10 A, integral time switch; Ethernet interface; without display or keyboard; 400 function blocks can be interlinked, modular expansion capability	6ED1052-2MD08-0BA0
LOGO! 24RCEo logic module 24 V AC/DC supply voltage, 8 digital inputs 24 V AC/DC, 4 relay outputs 10 A, integral time switch; Ethernet interface; without display or keyboard; 400 function blocks can be interlinked, modular expansion capability	6ED1052-2HB08-0BA0
LOGO! 230RCEo logic module 115...230 V AC/DC supply voltage, 8 digital inputs 115...230 V AC/DC, 4 relay outputs 10 A, integral time switch; Ethernet interface; without display or keyboard; 400 function blocks can be interlinked, modular expansion capability	6ED1052-2FB08-0BA0

	Article No.
Accessories	
LOGO! TDE text display 6-line text display, can be connected to all LOGO! 8 variants with and without display, with 2 Ethernet interfaces; incl. installation accessories. Requires additional 12 V DC or 24 V AC/DC power supply	6ED1055-4MH08-0BA0
LOGO!Soft Comfort V8 For programming on the PC in LAD/FBD; executes on Windows 8, 7, XP, Linux and Mac OSX; on DVD	6ED1058-0BA08-0YA1
LOGO! Starter Kits In TANOS Box, LOGO! Soft Comfort V8, WinCC Basic, Ethernet cable	
LOGO! Starter Kit 12/24RCE With LOGO! 12/24RCE, power supply, screw driver, in systainer	6ED1057-3BA01-0AA8
LOGO! Starter Kit 230RCE With LOGO! 230RCE, power supply, screw driver, in systainer	6ED1057-3BA03-0AA8
LOGO! Starter Kit 12/24V With LOGO! 12/24RCEO, LOGO! TD, power supply, screw driver, in systainer	6ED1057-3BA11-0AA8
LOGO! 8 KP300 Basic Starter Kit With LOGO! 12/24RCE, LOGO! Power 24 V 1.3 A, KP300 Basic mono PN	6AV2132-0HA00-0AA1
LOGO! 8 KTP400 Basic Starter Kit With LOGO! 12/24RCE, LOGO! Power 24 V 1.3 A, KTP400 Basic	6AV2132-0KA00-0AA1
LOGO! 8 KTP700 Basic Starter Kit With LOGO! 12/24RCE, LOGO! Power 24 V 1.3 A, KTP700 Basic	6AV2132-3GB00-0AA1

SIPLUS LOGO!Power

Overview

Thanks to its stepped profile design, the SIPLUS LOGO!Power product family is ideally suited for low installation depths, such as in miniature distribution boards. The stabilized power supplies with a wide range input of 100 … 240 V AC (85 … 264 V) and 110 ... 300 V DC are available with an output voltage of 24 V in four performance classes. The 24 V versions are ideal for supplying SIPLUS LOGO! controllers with the corresponding voltage input. The high level of efficiency across the entire load range as well as the low no-load losses result in lower overall energy consumption. Greater convenience when commissioning and servicing thanks to integrated current monitor (for devices at least 36 mm wide). The extended temperature range enables a host of additional applications.

Main product highlights

- 24 V DC / 0.6 A, 1.3 A, 2.5 A and 4.0 A
- Narrow unit with width of 18 mm, 36 mm, 54 mm or 72 mm and overall depth of 53 mm in LOGO! design
- Flexible mounting: DIN rail or wall mounting in a range of installation positions
- Higher energy efficiency: up to 90% efficiency over the entire load range as well as no-load power losses of < 0.3 W
- Integrated current monitor: Actual output current measurement directly at the power supply unit (for devices at least 36 mm wide)
- Global use: International certifications such as UL, CSA, FM or ATEX

Technical specifications

Article number	**6AG1331-6SB00-7AY0**	**6AG1332-6SB00-7AY0**	**6AG1333-6SB00-7AY0**
Based on	**6EP1331-6SB00-0AY0**	**6EP1332-6SB00-0AY0**	**6EP1333-6SB00-0AY0**
Product	SIPLUS LOGO!Power	SIPLUS LOGO!Power	SIPLUS LOGO!Power
Power supply, type	24 V/1.3 A	24 V/2.5 A	24 V/4 A
Operating data			
Ambient temperature			
• during operation	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C
- Note	with natural convection	with natural convection	with natural convection
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• on cold restart minimum	-25 °C	-25 °C	-25 °C
Relative humidity with condensation maximum	100 %; Relative humidity, incl. condensation/frost permitted (no commissioning under condensation conditions)	100 %; Relative humidity, incl. condensation/frost permitted (no commissioning under condensation conditions)	100 %; Relative humidity, incl. condensation/frost permitted (no commissioning under condensation conditions)
Resistance to biologically active substances conformity acc. to EN 60721-3-3	Yes	Yes	Yes
Resistance to chemically active substances conformity acc. to EN 60721-3-3	Yes	Yes	Yes
Resistance to mechanically active substances conformity acc. to EN 60721-3-3	Yes	Yes	Yes

Ordering data

	Article No.
SIPLUS LOGO!Power 24 V 1.3 A extended temperature range and exposure to environmental substances Input 100 ... 240 V AC Output 24 V DC, 1.3 A	**6AG1331-6SB00-7AY0**
SIPLUS LOGO!Power 24 V 2.5 A extended temperature range and exposure to environmental substances Input 100 ... 240 V AC Output 24 V DC, 2.5 A	**6AG1332-6SB00-7AY0**
SIPLUS LOGO!Power 24 V 4 A extended temperature range and exposure to environmental substances Input 100 ... 240 V AC Output 24 V DC, 4 A	**6AG1333-6SB00-7AY0**

Overview

LOGO! and SIPLUS LOGO! are designed for quick and easy mounting on standard rails. With the mounting kit, these devices can also be easily and safely installed in front panels. If the supplied washer and seals are used, the devices are reliably protected against harsh environmental conditions up to the IP65 degree of protection.

Ordering data

	Article No.
Front panel mounting kit	
Width 4 U, with keys	**6AG1057-1AA00-0AA3**
Width 8 U, with keys	**6AG1057-1AA00-0AA2**

Notes

Brochures

For brochures serving as selection guides for SIMATIC products, refer to

www.siemens.com/simatic/printmaterial

SIPLUS fail-safe CPUs

Overview

The fail-safe SIPLUS S7-1200 Controllers are based on the SIPLUS S7-1200 standard CPUs and offer additional safety-related functions.

They can be used for safety-oriented tasks according to IEC 61508 up to SIL 3 and ISO 13849-1 up to PL e.

Safety-related programs are created in the TIA Portal. The STEP 7 Safety engineering tool offers commands, operations and blocks for safety-related programs in the LAD and FBD languages. To this end, there is a library with pre-configured blocks for safety-related functions certified by the German Technical Inspectorate (TÜV).

- Standard controller with integrated safety functions:
  - Standardized and convenient diagnostic functions for standard and safety
  - Uniform symbols, data consistency, ...
- Modular system with scalable range of CPUs and expandable I/O quantity structure:
  - One engineering for standard and fail-safe automation
  - Use of the standard I/O modules together with the fail-safe I/O modules in the central system
  - Integrated standard PROFINET functionalities for PROFINET controllers and PROFINET iDevice services
  - Connection of distributed standard I/O via fieldbus such as PROFINET or PROFIBUS
  - TÜV-approved F-library for all common safety functions
  - Free programming of the safety logic using FBD and LAD
  - Standard-compliant printout of the F-program
- One integrated engineering for both standard and safety from S7-1200 to S7-300/400/1500 and WinAC RTX F:
  - STEP 7 Safety Basic for easy engineering of the CPU 1200 FC
  - STEP 7 Safety Advanced for the entire fail-safe SIMATIC S7 portfolio
- Integrated system diagnosis of the CPUs, for standard and safety:
  - Consistent plain text display of system diagnostic information in the TIA Portal, HMI and web server
  - Messages are updated even if the CPU is in STOP state
  - System diagnostics integrated in the CPU firmware. Configuration by user not required
  - The diagnostics is automatically updated on configuration changes.
- 2 fail-safe compact controllers with graded performances in the versions DC/DC/DC and DC/DC/relay

Characteristics	SIPLUS CPU 1214 FC	SIPLUS CPU 1215 FC
Variants	DC/DC/DC, DC/DC/relay	DC/DC/DC
Work memory, integrated	125 KB	150 KB
Load memory, integrated	4 MB	4 MB
Memory card	SIMATIC Memory Card (optional)	SIMATIC Memory Card (optional)
Standard digital inputs/outputs, integrated	14/10	14/10
Standard analog inputs, integrated	2	2
Standard analog outputs, integrated	-	2
Process image	1024 bytes for inputs, 1024 bytes for outputs	1024 bytes for inputs, 1024 bytes for outputs
Expansion by signal board	Max. 1	Max. 1
Expansion by signal modules	Max. 8	Max. 8
Expansion by communication modules	Max. 3	Max. 3

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Technical specifications

Article number based on	**6AG1214-1AF40-5XB0** **6ES7214-1AF40-0XB0** SIPLUS S7-1200 CPU 1214FC DC/DC/DC	**6AG1214-1HF40-5XB0** **6ES7214-1HF40-0XB0** SIPLUS S7-1200 CPU 1214FC DC/DC/RLY	**6AG1215-1AF40-5XB0** **6ES7215-1AF40-0XB0** SIPLUS S7-1200 CPU 1215FC DC/DC/DC
Ambient conditions			
Ambient temperature during operation			
• min.	-25 °C; = Tmin	-25 °C; = Tmin	-25 °C; = Tmin
• max.	55 °C; = Tmax	55 °C; = Tmax	55 °C; = Tmax
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	2 000 m	2 000 m	
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity			
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; incl. condensation / frost permitted (no commissioning under condensation conditions)
Resistance			
Coolants and lubricants			
- Resistant to commercially available coolants and lubricants	Yes	Yes	
Use in stationary industrial systems			
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
Use on ships/at sea			
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *
from supply voltage 1L+			
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

SIPLUS fail-safe CPUs

3

Ordering data	Article No.
CPU 1214 FC	
(extended temperature range and exposure to environmental substances)	
Fail-safe compact CPU, DC/DC/DC; integrated program/data memory 125 KB, load memory 4 MB; supply voltage 24 V DC; Boolean execution times 0.085 µs per operation; 14 digital inputs, 10 digital outputs, 2 analog inputs; expandable by up to 3 communication modules, 8 signal modules, and 1 signal board/communication board; digital inputs can be used as HSC at 100 kHz, 24 V DC digital outputs can be used as pulse outputs (PTO) or pulse-width modulated outputs (PWM) at 100 kHz	**6AG1214-1AF40-5XB0**
Fail-safe compact CPU, DC/DC/relay; integrated program/data memory 125 KB, load memory 4 MB; supply voltage 24 V DC; Boolean execution times 0.085 µs per operation; 14 digital inputs, 10 digital outputs (relays), 2 analog inputs; expandable by up to 3 communication modules, 8 signal modules, and 1 signal board/communication board; digital inputs can be used as HSC at 100 kHz	**6AG1214-1HF40-5XB0**

	Article No.
CPU 1215 FC	
(extended temperature range and exposure to environmental substances)	
Fail-safe compact CPU, DC/DC/DC; integrated program/data memory 150 KB, load memory 4 MB; supply voltage 24 V DC; Boolean execution times 0.085 µs per operation; 14 digital inputs, 10 digital outputs; 2 analog inputs; 2 analog outputs; expandable by up to 3 communication modules, 8 signal modules, and 1 signal board/communication board; digital inputs can be used as HSC at 100 kHz, 24 V DC digital outputs can be used as pulse outputs (PTO) or pulse-width modulated outputs (PWM) at 100 kHz	**6AG1215-1AF40-5XB0**
Accessories	See Catalog ST 70 · 2017, SIMATIC CPU 121x FC

Overview

- For the convenient recording of temperatures with great accuracy
- 1 input with 16-bit resolution
- Common resistance-type temperature detectors can be used
- Can easily be retrofitted to existing plant
- Can be plugged directly into the CPU

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Technical specifications

Article number	**6AG1231-5PA30-5XB0**
based on	**6ES7231-5PA30-0XB0**
	SIPLUS S7-1200 SB 1231 1AI RTD
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-40 °C; = Tmin; Startup @ -25 °C
• max.	60 °C; = Tmax
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
- Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *
Note	
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIPLUS RTD-Signal Board SB 1231	**6AG1231-5PA30-5XB0**
(extended temperature range and exposure to media)	
1 input for resistance temperature sensors Pt 100, Pt 200, Pt 500, Pt 1000, resolution 15 bits + sign	
Accessories	see Catalog ST 70 · 2017, SIMATIC S7-1200 RTD-Signal Board SB 1231

Overview

The CP 1243-1 communications processor is used for connecting the SIMATIC S7-1200 to telecontrol centers via remote networks and telecontrol protocols (DNP3, IEC 60870-5-104, TeleControl Basic), and for safe communication via IP-based networks.

The CP has the following features:

- Ethernet-based connection to TeleControl Server Basic, e.g. via Internet
- Data transfer of measured values, control variables, or alarms optimized for telecontrol systems
- Automatic sending of alert emails
- Data buffering of up to 64,000 values ensures a secure database even with temporary connection failures
- Secure communication via VPN connections based on IPSec
- Access protection via Stateful Inspection Firewall
- Clearly laid out LED signaling for fast and easy diagnostics
- Compact industrial enclosure in S7-1200 design for mounting on a standard mounting rail
- Fast commissioning thanks to easy configuration using STEP 7

Technical specifications

Article number	**6GK7243-1BX30-0XE0**
Product type designation	CP 1243-1
Transmission rate	
Transfer rate	
• at the 1st interface	10 ... 100 Mbit/s
Interfaces	
Number of interfaces acc. to Industrial Ethernet	1
Number of electrical connections	
• at the 1st interface acc. to Industrial Ethernet	1
• for power supply	0
Type of electrical connection	
• at the 1st interface acc. to Industrial Ethernet	RJ45 port
Supply voltage, current consumption, power loss	
Type of voltage of the supply voltage	DC
Supply voltage 1 from backplane bus	5 V
Consumed current	
• from backplane bus at DC at 5 V typical	0.25 A
Power loss [W]	1.25 W
Permitted ambient conditions	
Ambient temperature	
• for vertical installation during operation	-20 ... +60 °C
• for horizontally arranged busbars during operation	-20 ... +70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Relative humidity at 25 °C without condensation during operation maximum	95 %
Protection class IP	IP20

Article number	**6GK7243-1BX30-0XE0**
Product type designation	CP 1243-1
Design, dimensions and weight	
Module format	Compact module S7-1200 single width
Width	30 mm
Height	110 mm
Depth	75 mm
Net weight	0.122 kg
Mounting type	
• 35 mm DIN rail mounting	Yes
• wall mounting	Yes
Product properties, functions, components general	
Number of units	
• per CPU maximum	3
Performance data S7 communication	
Number of possible connections for S7 communication	
• Note	like CPU
Performance data telecontrol	
Suitability for use	
• Node station	No
• substation	Yes
• TIM control center	No
Control center connection	
• by means of a permanent connection	supported
• Note	
Protocol is supported	
• DNP3	Yes
• IEC 60870-5	Yes
Product function data buffering if connection is aborted	Yes; 64,000 values
Number of data points per station maximum	200

Overview (continued)

Article number	**6GK7243-1BX30-0XE0**
Product type designation	CP 1243-1
Performance data Teleservice	
Diagnostics function online diagnostics with SIMATIC STEP 7	Yes
Product function	
• program download with SIMATIC STEP 7	Yes
• Remote firmware update	Yes
Configuration software	
• required	STEP 7 Basic/Professional
Product functions Diagnosis	
Product function Web-based diagnostics	Yes
Product functions Security	
Firewall version	stateful inspection
Product function with VPN connection	IPSec
Type of encryption algorithms with VPN connection	AES-256, AES-192, AES-128, 3DES-168
Type of authentication procedure with VPN connection	Preshared key (PSK), X.509v3 certificates
Number of possible connections with VPN connection	8
Product function	
• password protection for Web applications	No
• password protection for teleservice access	No
• encrypted data transmission	Yes
• ACL - IP-based	No
• ACL - IP-based for PLC/routing	No
• switch-off of non-required services	Yes
• Blocking of communication via physical ports	No
• log file for unauthorized access	No
Product functions Time	
Protocol is supported	
• NTP	Yes
• NTP (secure)	Yes
time synchronization	
• from NTP-server	Yes
• from control center	Yes

Ordering data

	Article No.
CP 1243-1 communications processor	
CP 1243-1 communications processor for connecting SIMATIC S7-1200 as an additional Ethernet interface and for connection to control centers via telecontrol protocols (DNP3, IEC 60870, TeleControl Basic), security (firewall, VPN)	**6GK7243-1BX30-0XE0**
Accessories	
TeleControl Server Basic V3.1	
Software for 8 up to 5 000 stations; single license for one installation; OPC (UA) server for GPRS and Ethernet/Internet communication with SIMATIC S7-1200 and SIMATIC S7-200 (GPRS only); connection management to remote stations; routing for connections between S7 stations; English and German user interface; operating systems: Windows 7 Pro, Ultimate, Enterprise + SP1 (64-bit) Windows 8.1 Pro (64-bit) Windows 10 Pro, Enterprise (64-bit) Windows Server 2008 R2 Standard + SP1 (64-bit) Windows Server 2012 R2 Standard (64-bit) Windows Server 2016 (64-bit)	
• **TeleControl Server Basic 8 V3.1** Connection management for 8 SIMATIC S7-1200 or S7-200 stations	**6NH9910-0AA31-0AA0**
• **TeleControl Server Basic 32 V3.1** Connection management for 32 SIMATIC S7-1200 or S7-200 stations	**6NH9910-0AA31-0AF0**
• **TeleControl Server Basic 64 V3.1** Connection management for 64 SIMATIC S7-1200 or S7-200 stations	**6NH9910-0AA31-0AB0**
• **TeleControl Server Basic 256 V3.1** Connection management for 256 SIMATIC S7-1200 or S7-200 stations	**6NH9910-0AA31-0AC0**
• **TeleControl Server Basic 1000 V3.1** Connection management for 1 000 SIMATIC S7-1200 or S7-200 stations	**6NH9910-0AA31-0AD0**
• **TeleControl Server Basic 5000 V3.1** Connection management for 5 000 SIMATIC S7-1200 or S7-200 stations	**6NH9910-0AA31-0AE0**
• **TeleControl Server Basic UPGR V3.1** Upgrade package from version V2.x to V3 for all license sizes	**6NH9910-0AA31-0GA0**
Compact Switch Module CSM 1277	
Unmanaged switch for connecting a SIMATIC S7-1200 and up to three further nodes to Industrial Ethernet with 10/100 Mbps; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-1200 module including electronic device manual on CD-ROM	**6GK7277-1AA10-0AA0**

3

Ordering data	Article No.
IE FC RJ45 Plugs	
RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables	
IE FC RJ45 plug 180	
180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC TP Standard Cable GP 2 x 2 (Type A)	
4-core, shielded TP installation cable for connection to IE FC outlet RJ45/IE F RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC stripping tool	
Pre-adjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	**6GK1901-1GA00**
STEP 7 Basic V15	
Target system: SIMATIC S7-1200 Requirement: Windows 7 Home Premium SP1 (64-bit) Windows 7 Professional SP1 (64-bit), Windows 7 Enterprise SP1 (64-bit), Windows 7 Ultimate SP1 (64-bit), Windows 10 Home Version 1703, Windows 10 Professional Version 1703, Windows 10 Enterprise Version 1703, Windows 10 Enterprise 2016 LTSB, Windows 10 IoT Enterprise 2015 LTSB, Windows 10 IoT Enterprise 2016 LTSB, Windows Server 2012 R2 StdE (full installation), Windows Server 2016 Standard (full installation); Type of delivery: German, English, Chinese, Italian, French, Spanish	
STEP 7 Basic V15, floating license	**6ES7822-0AA05-0YA5**
STEP 7 Basic V15, floating license, software download incl. license key[1]	**6ES7822-0AE05-0YA5**
Email address required for delivery	
STEP 7 Basic/Professional V15, trial license	**6ES7822-1AA05-0YA7**

	Article No.
Upgrade STEP 7 Basic V11...V14 to STEP 7 Basic V15, floating license	**6ES7822-0AA05-0YE5**
Upgrade STEP 7 Basic V11...V14 to STEP 7 Basic V15, floating license, software download incl. license key[1]	**6ES7822-0AE05-0YE5**
Email address required for delivery	
Powerpack STEP 7 Basic V15 to STEP 7 Professional V15, floating license	**6ES7822-1AA05-0YC5**
Powerpack STEP 7 Basic V15 to STEP 7 Professional V15, floating license, software download incl. license key [1]	**6ES7822-1AE05-0YC5**
Email address required for delivery	
Software Update Service	
For a period of 12 months and for a fixed price, the customer is automatically provided with all upgrades and service packs for each installed software package. The contract is automatically extended by a further year unless canceled at least 12 weeks prior to expiration. Requires the current software version	
Software Update Service (Standard Edition) [2]	
The delivery is implemented according to the number of ordered SUS products (e.g. 10 upgrade packages with 10 DVDs, 10 USB flash drives, etc.)	
• STEP 7 Basic	**6ES7822-0AA00-0YL0**
Software Update Service (Compact Edition) [2]	
The delivery items are combined. For multiple contracts, only 1 package with 1 data storage medium set, 1 USB flash drive with the corresponding number of licenses and the corresponding number of CoLs will be supplied.	
Delivery items to be combined must be ordered as one item.	
• STEP 7 Basic	**6ES7822-0AA00-0YM0**
Software Update Service (Download) [2]	
The upgrades and service packs are available for downloading.	
Email address required for delivery	
• STEP 7 Basic	**6ES7822-0AE00-0YY0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

[2] For more information on the Software Update Service, see Catalog ST 70

Overview

The CP 1243-8 IRC (Industrial Remote Communication) communications processor is used for connecting a SIMATIC S7-1200 via the SINAUT ST7 telecontrol protocol to higher-level ST7 stations or to an ST7 control center. The CP 1243-8 IRC (as of HW2 and firmware V3.0) also offers connection to a DNP3 or IEC-capable control center via a corresponding open DNP3 or IEC 60870-5-104 telecontrol protocol.

The CP has the following features:

- Support for telecontrol protocol SINAUT ST7, DNP3, IEC 60870-5-104
- Two WAN connections for selecting the communication paths:
  - Ethernet-based connection: RJ45 port on the module for connecting external routers, e.g. SCALANCE M
  - Additional connection configurable via plug-in TS modules
- Both WAN interfaces can also be operated simultaneously: Route redundancy
- Data transfer of measured values, control variable values or alarms optimized for telecontrol systems
- Automatic transmission of alarms per email or text message
- Time synchronization based on NTP (Network Time Protocol) or via the SINAUT system
- Data buffering of up to 16 000 data messages prevents data loss in the event of temporary connection failures
- Secure communication via VPN connections based on IPSec
- Access protection via Stateful Inspection Firewall
- Fast and simple diagnostics via clear LED indicators, STEP 7 and web browser
- Compact industrial enclosure in S7-1200 design for mounting on a standard mounting rail

The integrated Ethernet interface and the option of using the TS modules provide flexible connection options for the CP. The following TS modules are available:

- TS module RS232
- TS module MODEM
- TS module ISDN and
- TS module GSM.

Technical specifications

Article number	**6GK7243-8RX30-0XE0**
Product type designation	CP 1243-8 IRC
Transmission rate	
Transfer rate	
• at the 1st interface	10 ... 100 Mbit/s
• at the 2nd interface	0.3 ... 115.2 kbit/s
Interfaces	
Number of interfaces acc. to Industrial Ethernet	1
Number of electrical connections	
• at the 1st interface acc. to Industrial Ethernet	1
• for power supply	1
Type of electrical connection	
• at the 1st interface acc. to Industrial Ethernet	RJ45 port
• at interface 2 for external data transmission	Interface to the TS Module
• for power supply	3-pole terminal block
Supply voltage, current consumption, power loss	
Type of voltage of the supply voltage	DC
Supply voltage 1 from backplane bus	5 V
Supply voltage external	24 V
Supply voltage external	19.2 ... 28.8 V
Supply voltage external at DC Rated value	24 V
Supply voltage external at DC rated value	19.2 ... 28.8 V
Consumed current	
• from backplane bus at DC at 5 V typical	0.25 A
• from external supply voltage at DC at 24 V typical	0.1 A
Power loss [W] Note	1.25 W from S7-1200 backplane without TS module. 2.4 W from 24 V DC external with TS module
Power loss [W]	2.4 W
Permitted ambient conditions	
Ambient temperature	
• for vertical installation during operation	-20 ... +60 °C
• for horizontally arranged busbars during operation	-20 ... +70 °C
• during storage	-40 ... -70 °C
• during transport	-40 ... +70 °C
Relative humidity at 25 °C without condensation during operation maximum	95 %
Protection class IP	IP20
Design, dimensions and weight	
Module format	Compact module S7-1200 single width
Width	30 mm
Height	110 mm
Depth	75 mm
Net weight	0.122 kg
Mounting type	
• 35 mm DIN rail mounting	Yes
• S7-300 rail mounting	No
• wall mounting	Yes

3

Technical specifications (continued)

Article number	6GK7243-8RX30-0XE0
Product type designation	CP 1243-8 IRC
Product properties, functions, components general	
Number of units	
• per CPU maximum	1
• Note	One CP pluggable on left side of CPU, one TS Module pluggable left side of CP.
Performance data open communication	
Number of possible connections for open communication	
• by means of T blocks maximum	like CPU
Performance data S7 communication	
Number of possible connections for S7 communication	
• with PG connections maximum	2
• with OP connections maximum	1
• Note	Configured S7-Connection for ST7-Communication
Service	
• SINAUT ST7 via S7 communication	Yes
Performance data IT functions	
Number of possible connections	
• as e-mail client maximum	1
Performance data telecontrol	
Suitability for use	
• Node station	No
• substation	Yes
• TIM control center	No
• Note	Ethernet and TS Module can be operated in parallel
Control center connection	control center with ST7 function
• by means of a permanent connection	supported
Protocol is supported	
• DNP3	Yes
• IEC 60870-5	Yes
• SINAUT ST7 protocol	Yes
Product function data buffering if connection is aborted	Yes; 16,000 data messages
Number of data points per station maximum	200
Transmission format	
• for SINAUT ST7 protocol with multi-master polling 10-bit	Yes
• for SINAUT ST7 protocol with polling or spontaneous 10-bit or 11-bit	Yes
Operating mode for scanning of data transmission	
• with dedicated line/radio link with SINAUT ST7 protocol	Polling
• with dial-up network with SINAUT ST7 protocol	spontaneous
Hamming distance	
• for SINAUT ST7 protocol	4

Article number	6GK7243-8RX30-0XE0
Product type designation	CP 1243-8 IRC
Performance data Teleservice	
Diagnostics function online diagnostics with SIMATIC STEP 7	Yes
Product function	
• program download with SIMATIC STEP 7	Yes
• Remote firmware update	Yes
Protocol is supported	
• SNMP v3	Yes
• DCP	Yes
Configuration software	
• required	SINAUT ES V5.5 and STEP7 V13 SP1 or higher
• for PG configuring required SINAUT ST7 configuration software for PG	Yes
Product functions Diagnosis	
Product function Web-based diagnostics	Yes
Product functions Security	
Firewall version	stateful inspection
Suitability for operation Virtual Private Network	Yes
Product function with VPN connection	IPSec
Type of encryption algorithms with VPN connection	AES-256, AES-192, AES-128, 3DES-168, DES-56
Type of authentication procedure with VPN connection	Preshared key (PSK), X.509v3 certificates
Type of hashing algorithms with VPN connection	MD5, SHA-1
Number of possible connections with VPN connection	8
Product function	
• password protection for teleservice access	No
• encrypted data transmission	Yes
• MSC client via GPRS modem with MSC capability	Yes
Protocol	
• is supported MSC protocol	Yes
• with Virtual Private Network MSC is supported	TCP/IP
Key length for MSC with Virtual Private Network	128 bit
Number of possible connections	
• as MSC client with VPN connection	1
• as MSC server with VPN connection	0
Product functions Time	
Protocol is supported	
• NTP	Yes
time synchronization	
• from NTP-server	Yes
• from control center	Yes
Accessories	
accessories	TS Module RS232 or TS Module MODEM or TS Module ISDN or TS Module GSM pluggable

Ordering data

	Article No.
CP 1243-8 IRC communications processor Communications processor for connecting a SIMATIC S7-1200 via the SINAUT ST7 telecontrol protocol to higher-level ST7 stations or to an ST7 control center, or a DNP3 or IEC-capable control center via a corresponding DNP3 or IEC 60870-5-104 open telecontrol protocols	**6GK7243-8RX30-0XE0**
Accessories	
STEP 7 Professional 2017/V15, floating combo license on DVD	**6ES7810-5CC12-0YA5**
SINAUT Engineering Software V5.5 On CD-ROM, comprising • SINAUT ST7/DNP3 configuration and diagnostic software for STEP 7 V5.5 incl. SP4 • SINAUT TD7 block library • Electronic manual in German and English	**6NH7997-0CA55-0AA0**
SINAUT Engineering Software V5.5 Upgrade from V5.0, V5.1, V5.2, V5.3 or V5.4 for upgrading functional expansions; on CD ROM / DVD	**6NH7997-0CA55-0GA0**
TeleService module Connection to TS Adapter IE Basic/ Advanced or CP 1243-8 IRC. Power supply via TS Adapter IE Basic/Advanced or CP 1243-8 IRC.	
TS module RS232	**6ES7972-0MS00-0XA0**
TS module modem	**6ES7972-0MM00-0XA0**
TS module ISDN	**6ES7972-0MD00-0XA0**
TS module GSM GSM/GPRS modem for SIMATIC Teleservice [1]	**6GK7972-0MG00-0XA0**

[1] Note country approvals under http://www.siemens.com/mobilenetwork-approvals.

3

Overview

Comfort Panel family, KP, TP, KTP

SIMATIC HMI Comfort Panels - Standard devices

- Excellent HMI functionality for demanding applications
- Widescreen TFT displays with 4", 7", 9", 12", 15", 19" and 22" diagonals (all 16 million colors) with up to 40% more visualization area as compared to the predecessor devices
- Integrated high-end functionality with archives, scripts, PDF/Word/Excel viewer, Internet Explorer, Media Player and Web Server
- Dimmable displays from 0 to 100% via PROFIenergy, via the HMI project or via a controller
- Modern industrial design, cast aluminum fronts for 7" upwards
- Upright installation for all touch devices
- Data security in the event of a power failure for the device and for the SIMATIC HMI Memory Card
- Innovative service and commissioning concept
- Maximum performance with short screen refresh times
- Suitable for extremely harsh industrial environments thanks to extended approvals such as ATEX 2/22 and marine approvals
- All versions can be used as an OPC UA client or server
- Key-operated devices with LED in every function key and new text input mechanism, similar to the keypads of mobile phones
- All keys have a service life of 2 million operations
- Configuring with the WinCC engineering software of the TIA Portal

Note:

A 7" and a 15" Comfort Outdoor version are available. These devices have been specially designed for outdoor applications in difficult environments. Best display quality, even under sunlight, UV-resistant fronts and much more.

For further information, see:

http://www.siemens.com/comfort-panels

Ordering data	Article No.
SIMATIC HMI Comfort Panels	
Key and touch devices	
SIMATIC HMI KTP400 Comfort Key/touch-screen operation; 4" widescreen display	**6AV2124-2DC01-0AX0**
Touch devices	
SIMATIC HMI TP700 Comfort Touch-screen operation; 7" widescreen display	**6AV2124-0GC01-0AX0**
SIMATIC HMI TP900 Comfort Touch-screen operation; 9" widescreen display	**6AV2124-0JC01-0AX0**
SIMATIC HMI TP1200 Comfort Touch-screen operation; 12" widescreen display	**6AV2124-0MC01-0AX0**
SIMATIC HMI TP1500 Comfort Touch-screen operation; 15" widescreen display	**6AV2124-0QC02-0AX1**
SIMATIC HMI TP1900 Comfort Touch-screen operation; 19" widescreen display	**6AV2124-0UC02-0AX1**
SIMATIC HMI TP2200 Comfort Touch-screen operation; 22" widescreen display	**6AV2124-0XC02-0AX1**
Key devices	
SIMATIC HMI KP400 Comfort Key operation; 4" widescreen display	**6AV2124-1DC01-0AX0**
SIMATIC HMI KP700 Comfort Key operation; 7" widescreen display	**6AV2124-1GC01-0AX0**
SIMATIC HMI KP900 Comfort Key operation; 9" widescreen display	**6AV2124-1JC01-0AX0**
SIMATIC HMI KP1200 Comfort Key operation; 12" widescreen display	**6AV2124-1MC01-0AX0**
SIMATIC HMI KP1500 Comfort Key operation; 15" widescreen display	**6AV2124-1QC02-0AX1**

	Article No.
Starter kits for SIMATIC HMI Comfort Panels Consisting of: the respective SIMATIC HMI Comfort Panel, SIMATIC WinCC Comfort, Ethernet cable, 2 m SIMATIC HMI Memory Card 2 GB 10 protective films for touch screen devices	
Starter kit for SIMATIC HMI KTP400 Comfort, Key and Touch	**6AV2181-4DB20-0AX0**
Starter kit for SIMATIC HMI TP700 Comfort, Touch	**6AV2181-4GB00-0AX0**
Starter kit for SIMATIC HMI TP900 Comfort, Touch	**6AV2181-4JB00-0AX0**
Starter kit for SIMATIC HMI TP1200 Comfort, Touch	**6AV2181-4MB00-0AX0**
Starter kit for SIMATIC HMI TP1500 Comfort, Touch	**6AV2181-4QB00-0AX0**
Starter kit for SIMATIC HMI TP1900 Comfort, Touch	**6AV2181-4UB00-0AX0**
Starter kit for SIMATIC HMI TP2200 Comfort, Touch	**6AV2181-4XB00-0AX0**
Starter kit for SIMATIC HMI KP400 Comfort, Key	**6AV2181-4DB10-0AX0**
Starter kit for SIMATIC HMI KP700 Comfort, Key	**6AV2181-4GB10-0AX0**
Starter kit for SIMATIC HMI KP900 Comfort, Key	**6AV2181-4JB10-0AX0**
Starter kit for SIMATIC HMI KP1200 Comfort, Key	**6AV2181-4MB10-0AX0**
Starter kit for SIMATIC HMI KP1500 Comfort, Key	**6AV2181-4QB10-0AX0**
Accessories	See Catalog ST 80 / ST PC or Industry Mall

Notes

Brochures

For brochures serving as selection guides for SIMATIC products, refer to

www.siemens.com/simatic/printmaterial

SIPLUS CPU 1515F-2 PN

Overview

- The CPU for applications with medium to high requirements for program/data storage in the S7-1500 controller product range
- Can be used for failsafe functions up to SIL 3 according to IEC 61508 and up to PLe according to ISO 13849.
- Medium to high processing speed for binary and floating-point arithmetic
- Used as central controller in production lines with central and distributed I/O
- Supports PROFIsafe in centralized and distributed configurations
- PROFINET IO IRT interface with 2-port switch
- Additional PROFINET interface with separate IP address
- PROFINET IO Controller for operating distributed I/O on PROFINET
- PROFINET I-Device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO Controller
- Isochronous mode
- Integrated Motion Control functionalities for controlling speed-controlled and positioning axes, support for external encoders
- Integrated web server with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operation of the CPU.

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Technical specifications

Article number	**6AG1515-2FM01-2AB0**
based on	**6ES7515-2FM01-0AB0**
	SIPLUS S7-1500 CPU 1515F-2 PN
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-25 °C; = Tmin
• horizontal installation, max.	60 °C; = Tmax; display: 50 °C, the display is switched off at an operating temperature of typically 50 °C
• vertical installation, min.	-25 °C
• vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; incl. condensation / frost permitted (no commissioning under condensation conditions)
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *
Note	
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIPLUS CPU 1515F-2 PN	**6AG1515-2FM01-2AB0**
(extended temperature range and exposure to environmental substances)	
Fail-safe CPU, 750 KB work memory for program, 3 MB for data, PROFINET IRT interface with 2-port switch, PROFINET RT interface; SIMATIC Memory Card required	
Accessories	
Load power supply	
(extended temperature range and exposure to environmental substances)	
24 V DC/3A	**6AG1332-4BA00-7AA0**
24 V DC/8A	**6AG1333-4BA00-7AA0**
Power supply	
(extended temperature range and exposure to environmental substances)	
For supplying the backplane bus of the S7-1500	
24 V DC input voltage, power 25 W	**6AG1505-0KA00-7AB0**
24/48/60 V DC input voltage, power 60 W	**6AG1505-0RA00-7AB0**
120/230 V AC input voltage, power 60 W	**6AG1507-0RA00-7AB0**
Display	**6AG1591-1BA01-2AA0**
(extended temperature range and exposure to environmental substances)	
For SIPLUS CPU 1515F-2 PN/DP; spare part	
Additional accessories	see Catalog ST 70, SIMATIC S7-1500, CPU 1515F-2 PN/DP

Overview CPU 1511T-1 PN

- Entry-level CPU in the S7-1500T Controller product range
- Suitable for applications with medium requirements for program scope and processing speed
- Used as central controller in production lines with central and distributed I/O
- PROFINET IO IRT interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- OPC UA Server (Data Access) as runtime option for the easy connection of SIMATIC S7-1500s to third-party devices/ systems
- Isochronous mode
- Integrated Motion Control functionalities for controlling speed-controlled, positioning and synchronized axes (gearing and camming), support for external encoders, cams/cam tracks and probes.
  Technology object for controlling kinematics with up to 4 interpolating axes, e.g. Cartesian portal, delta picker, roll picker, articulated arm, cylindrical robot, tripod picker and SCARA. User-defined kinematics are also supported.
- Integrated web server for diagnostics with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operating the CPU

Overview CPU 1511TF-1 PN

- Entry-level CPU in the S7-1500T Controller product range
- Suitable for standard and fail-safe applications with medium requirements for program scope and processing speed
- Used as central controller in production lines with central and distributed I/O
- Can be used for safety functions up to SIL 3 according to IEC 61508 and up to PLe according to ISO 13849
- PROFINET IO IRT interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- OPC UA Server (Data Access) as runtime option for the easy connection of SIMATIC S7-1500s to third-party devices/ systems
- Isochronous mode
- Integrated Motion Control functionalities for controlling speed-controlled, positioning and synchronized axes (gearing and camming), support for external encoders, cams/cam tracks and probes.
  Technology object for controlling kinematics with up to 4 interpolating axes, e.g. Cartesian portal, delta picker, roll picker, articulated arm, cylindrical robot, tripod picker and SCARA. User-defined kinematics are also supported.
- Integrated web server for diagnostics with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operation of the CPU.

4

Overview CPU 1515T-2 PN

- The CPU for applications with medium to high requirements regarding program/data storage in the S7-1500T Controller product range
- Medium to high processing speed for binary and floating-point arithmetic
- Used as central controller in production lines with central and distributed I/O
- PROFINET IO IRT interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- Additional PROFINET interface with separate IP address for network separation, for connecting further PROFINET IO RT devices, or for high-speed communication as an I-device
- OPC UA Server (Data Access) as runtime option for the easy connection of SIMATIC S7-1500s to third-party devices/systems
- Isochronous mode
- Integrated Motion Control functionalities for controlling speed-controlled, positioning and synchronized axes (gearing and camming), support for external encoders, cams/cam tracks and probes.
  Technology object for controlling kinematics with up to 4 interpolating axes, e.g. Cartesian portal, delta picker, roll picker, articulated arm, cylindrical robot, tripod picker and SCARA.
  User-defined kinematics are also supported.
- Integrated web server for diagnostics with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operation of the CPU.

Overview CPU 1515TF-2 PN

- The CPU for standard and fail-safe applications with medium to high requirements regarding program/data storage in the S7-1500T Controller product range
- Medium to high processing speed for binary and floating-point arithmetic
- Used as central controller in production lines with central and distributed I/O
- Can be used for safety functions up to SIL 3 according to IEC 61508 and up to PLe according to ISO 13849
- PROFINET IO IRT interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- Additional PROFINET interface with separate IP address for network separation, for connecting further PROFINET IO RT devices, or for high-speed communication as an I-device
- OPC UA Server (Data Access) as runtime option for the easy connection of SIMATIC S7-1500s to third-party devices/systems
- Isochronous mode
- Integrated Motion Control functionalities for controlling speed-controlled, positioning and synchronized axes (gearing and camming), support for external encoders, cams/cam tracks and probes.
  Technology object for controlling kinematics with up to 4 interpolating axes, e.g. Cartesian portal, delta picker, roll picker, articulated arm, cylindrical robot, tripod picker and SCARA.
  User-defined kinematics are also supported.
- Integrated web server for diagnostics with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operation of the CPU.

Overview CPU 1516T-3 PN/PD

- The CPU with a very large program and data memory in the S7-1500 Controller product range for applications with high requirements regarding program scope and networking.
- High processing speed for binary and floating-point arithmetic
- For cross-industry automation tasks in series machines, special machines and plant construction
- Used as central controller in production lines with central and distributed I/O
- PROFINET IO IRT interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- Additional PROFINET interface with separate IP address for network separation, for connecting further PROFINET IO RT devices, or for high-speed communication as an I-device
- PROFIBUS DP master interface
- OPC UA Server (Data Access) as runtime option for the easy connection of SIMATIC S7-1500 to third-party devices/ systems
- Isochronous mode on PROFIBUS and PROFINET
- Integrated Motion Control functionalities for controlling speed-controlled, positioning and synchronized axes (gearing and camming), support for external encoders, cams/cam tracks and probes.
  Technology object for controlling kinematics with up to 4 interpolating axes, e.g. Cartesian portal, delta picker, roll picker, articulated arm, cylindrical robot, tripod picker and SCARA.
  User-defined kinematics are also supported.
- Integrated web server for diagnostics with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operation of the CPU.

Overview CPU 1516TF-3 PN/PD

- The CPU with a large program and data memory in the S7-1500 Controller product range for standard and fail-safe applications with high requirements regarding program scope and networking.
- Can be used for safety functions up to SIL 3 according to IEC 61508 and up to PLe according to ISO 13849
- High processing speed for binary and floating-point arithmetic
- For cross-industry automation tasks in series machines, special machines and plant construction
- Used as central controller in production lines with central and distributed I/O
- PROFINET IO IRT interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- Additional PROFINET interface with separate IP address for network separation, for connecting further PROFINET IO RT devices, or for high-speed communication as an I-device
- PROFIBUS DP master interface
- OPC UA Server (Data Access) as runtime option for the easy connection of SIMATIC S7-1500 to third-party devices/ systems
- Isochronous mode on PROFIBUS and PROFINET
- Integrated Motion Control functionalities for controlling speed-controlled, positioning and synchronized axes (gearing and camming), support for external encoders, cams/cam tracks and probes.
  Technology object for controlling kinematics with up to 4 interpolating axes, e.g. Cartesian portal, delta picker, roll picker, articulated arm, cylindrical robot, tripod picker and SCARA.
  User-defined kinematics are also supported.
- Integrated web server for diagnostics with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operation of the CPU.

Overview CPU 1517T-3 PN/PD

- The CPU with a very large program and data memory in the S7-1500 Controller product range for applications with high requirements regarding program scope and networking.
- High processing speed for binary and floating-point arithmetic
- For cross-industry automation tasks in series machines, special machines and plant construction
- Used as central controller in production lines with central and distributed I/O
- PROFINET IO IRT interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- Additional PROFINET interface with separate IP address for network separation, for connecting further PROFINET IO RT devices, or for high-speed communication as an I-device
- PROFIBUS DP master interface
- OPC UA Server (Data Access) as runtime option for the easy connection of SIMATIC S7-1500 to third-party devices/ systems
- Isochronous mode on PROFIBUS and PROFINET
- Integrated Motion Control functionalities for controlling speed-controlled, positioning and synchronized axes (gearing and camming), support for external encoders, cams/cam tracks and probes.
  Technology object for controlling kinematics with up to 4 interpolating axes, e.g. Cartesian portal, delta picker, roll picker, articulated arm, cylindrical robot, tripod picker and SCARA.
  User-defined kinematics are also supported.
- Integrated web server for diagnostics with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operation of the CPU.

Overview CPU 1517TF-3 PN/PD

- The CPU with a very large program and data memory in the S7-1500 Controller product range for failsafe applications with high requirements regarding program scope and networking.
- Can be used for safety functions up to SIL 3 according to IEC 61508 and up to PLe according to ISO 13849
- High processing speed for binary and floating-point arithmetic
- For cross-industry automation tasks in series machines, special machines and plant construction
- Used as central controller in production lines with central and distributed I/O
- PROFINET IO IRT interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- Additional PROFINET interface with separate IP address for network separation, for connecting further PROFINET IO RT devices, or for high-speed communication as an I-device
- PROFIBUS DP master interface
- OPC UA Server (Data Access) as runtime option for the easy connection of SIMATIC S7-1500 to third-party devices/ systems
- Isochronous mode on PROFIBUS and PROFINET
- Integrated Motion Control functionalities for controlling speed-controlled, positioning and synchronized axes (gearing and camming), support for external encoders, cams/cam tracks and probes.
  Technology object for controlling kinematics with up to 4 interpolating axes, e.g. Cartesian portal, delta picker, roll picker, articulated arm, cylindrical robot, tripod picker and SCARA.
  User-defined kinematics are also supported.
- Integrated web server for diagnostics with the option of creating user-defined web pages

Note

SIMATIC Memory Card required for operation of the CPU.

Technical specifications

Article number	**6ES7511-1TK01-0AB0** CPU 1511T-1PN, 225KB progr., 1MB data	**6ES7515-2TM01-0AB0** CPU 1515T-2 PN, 750KB progr, 3MB data	**6ES7516-3TN00-0AB0** CPU 1516T-3 PN/DP, 1.5MB prog./5MB data	**6ES7517-3TP00-0AB0** CPU 1517T-3 PN/DP, 3MB prog./8MB data
General information				
Product type designation	CPU 1511T-1 PN	CPU 1515T-2 PN	CPU 1516T-3 PN/DP	CPU 1517T-3 PN/DP
Engineering with				
• STEP 7 TIA Portal configurable/ integrated as of version	V15 (FW V2.5) / V14 (FW V2.0) or higher	V15 (FW V2.5) / V14 (FW V2.0) or higher	V15 (FW V2.5)	V15 (FW V2.5) / V14 (FW V2.0) or higher
Display				
Screen diagonal [cm]	3.45 cm	6.1 cm	6.1 cm	6.1 cm
Supply voltage				
Type of supply voltage	24 V DC	24 V DC	24 V DC	24 V DC
Power loss				
Power loss, typ.	5.7 W	6.3 W	24 W	24 W
Memory				
Work memory				
• integrated (for program)	225 kbyte	750 kbyte	1.5 Mbyte	3 Mbyte
• integrated (for data)	1 Mbyte	3 Mbyte	5 Mbyte	8 Mbyte
Load memory				
• Plug-in (SIMATIC Memory Card), max.	32 Gbyte	32 Gbyte	32 Gbyte	32 Gbyte
CPU processing times				
for bit operations, typ.	60 ns	30 ns	10 ns	2 ns
for word operations, typ.	72 ns	36 ns	12 ns	3 ns
for fixed point arithmetic, typ.	96 ns	48 ns	16 ns	3 ns
for floating point arithmetic, typ.	384 ns	192 ns	64 ns	12 ns
Counters, timers and their retentivity				
S7 counter				
• Number	2 048	2 048	2 048	2 048
IEC counter				
• Number	Any (only limited by the main memory)	Any (only limited by the main memory)	Any (only limited by the main memory)	Any (only limited by the main memory)
S7 times				
• Number	2 048	2 048	2 048	2 048
IEC timer				
• Number	Any (only limited by the main memory)	Any (only limited by the main memory)	Any (only limited by the main memory)	Any (only limited by the main memory)
Data areas and their retentivity				
Flag				
• Number, max.	16 kbyte	16 kbyte	16 kbyte	16 kbyte
Address area				
I/O address area				
• Inputs	32 kbyte; All inputs are in the process image	32 kbyte; All inputs are in the process image	32 kbyte; All inputs are in the process image	32 kbyte; All inputs are in the process image
• Outputs	32 kbyte; All outputs are in the process image	32 kbyte; All outputs are in the process image	32 kbyte; All outputs are in the process image	32 kbyte; All outputs are in the process image
Time of day				
Clock				
• Type	Hardware clock	Hardware clock	Hardware clock	Hardware clock
1. Interface				
Interface types				
• Number of ports	2	2	2	2
• integrated switch	Yes	Yes	Yes	Yes
• RJ 45 (Ethernet)	Yes; X1	Yes; X1	Yes; X1	Yes; X1
Functionality				
• IP protocol	Yes; IPv4	Yes; IPv4	Yes; IPv4	Yes; IPv4
• PROFINET IO Controller	Yes	Yes	Yes	Yes
• PROFINET IO Device	Yes	Yes	Yes	Yes
• SIMATIC communication	Yes	Yes	Yes	Yes
• Open IE communication	Yes	Yes	Yes	Yes
• Web server	Yes	Yes	Yes	Yes
• Media redundancy	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0

4

Technical specifications (continued)

Article number	6ES7511-1TK01-0AB0 CPU 1511T-1PN, 225KB progr., 1MB data	6ES7515-2TM01-0AB0 CPU 1515T-2 PN, 750KB progr, 3MB data	6ES7516-3TN00-0AB0 CPU 1516T-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3TP00-0AB0 CPU 1517T-3 PN/DP, 3MB prog./8MB data
PROFINET IO Controller				
Services				
- PG/OP communication	Yes	Yes	Yes	Yes
- S7 routing	Yes	Yes	Yes	Yes
- Isochronous mode	Yes	Yes	Yes	Yes
- Open IE communication	Yes	Yes	Yes	Yes
- IRT	Yes	Yes	Yes	Yes
- MRP	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50
- MRPD	Yes; Requirement: IRT	Yes; Requirement: IRT	Yes; Requirement: IRT	Yes; Requirement: IRT
- PROFIenergy	Yes	Yes	Yes	Yes
- Prioritized startup	Yes; Max. 32 PROFINET devices	Yes; Max. 32 PROFINET devices	Yes; Max. 32 PROFINET devices	Yes; Max. 32 PROFINET devices
- Number of connectable IO Devices, max.	128; In total, up to 256 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	256; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	256; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	512; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
- Of which IO devices with IRT, max.	64	64	64	64
- Number of connectable IO Devices for RT, max.	128	256	256	512
- of which in line, max.	128	256	256	512
- Number of IO Devices that can be simultaneously activated/ deactivated, max.	8; in total across all interfaces	8; in total across all interfaces	8; in total across all interfaces	8; in total across all interfaces
- Number of IO Devices per tool, max.	8	8	8	8
- Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Update time for IRT				
- for send cycle of 250 µs	250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive	250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 500 µs of the isochronous OB is decisive	250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 500 µs of the isochronous OB is decisive	250 µs to 4 ms
- for send cycle of 500 µs	500 µs to 8 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive	500 µs to 8 ms	500 µs to 8 ms	500 µs to 8 ms
- for send cycle of 1 ms	1 ms to 16 ms	1 ms to 16 ms	1 ms to 16 ms	1 ms to 16 ms
- for send cycle of 2 ms	2 ms to 32 ms	2 ms to 32 ms	2 ms to 32 ms	2 ms to 32 ms
- for send cycle of 4 ms	4 ms to 64 ms	4 ms to 64 ms	4 ms to 64 ms	4 ms to 64 ms
- With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)
Update time for RT				
- for send cycle of 250 µs	250 µs to 128 ms	250 µs to 128 ms	250 µs to 128 ms	250 µs to 128 ms
- for send cycle of 500 µs	500 µs to 256 ms	500 µs to 256 ms	500 µs to 256 ms	500 µs to 256 ms
- for send cycle of 1 ms	1 ms to 512 ms	1 ms to 512 ms	1 ms to 512 ms	1 ms to 512 ms
- for send cycle of 2 ms	2 ms to 512 ms	2 ms to 512 ms	2 ms to 512 ms	2 ms to 512 ms
- for send cycle of 4 ms	4 ms to 512 ms	4 ms to 512 ms	4 ms to 512 ms	4 ms to 512 ms

Technical specifications (continued)

Article number	6ES7511-1TK01-0AB0 CPU 1511T-1PN, 225KB progr., 1MB data	6ES7515-2TM01-0AB0 CPU 1515T-2 PN, 750KB progr, 3MB data	6ES7516-3TN00-0AB0 CPU 1516T-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3TP00-0AB0 CPU 1517T-3 PN/DP, 3MB prog./8MB data
PROFINET IO Device				
Services				
- PG/OP communication	Yes	Yes	Yes	Yes
- S7 routing	Yes	Yes	Yes	Yes
- Isochronous mode	No	No	No	No
- Open IE communication	Yes	Yes	Yes	Yes
- IRT	Yes	Yes	Yes	Yes
- MRP	Yes	Yes	Yes	Yes
- MRPD	Yes; Requirement: IRT	Yes; Requirement: IRT	Yes; Requirement: IRT	Yes; Requirement: IRT
- PROFIenergy	Yes	Yes	Yes	Yes
- Shared device	Yes	Yes	Yes	Yes
- Number of IO Controllers with shared device, max.	4	4	4	4
- Asset management record	Yes; Per user program	Yes; Per user program	Yes; Per user program	Yes; Per user program
2. Interface				
Interface types				
• Number of ports		1	1	1
• integrated switch		No	No	No
• RJ 45 (Ethernet)		Yes; X2	Yes; X2	Yes; X2
Functionality				
• IP protocol		Yes; IPv4	Yes; IPv4	Yes; IPv4
• PROFINET IO Controller		Yes	Yes	Yes
• PROFINET IO Device		Yes	Yes	Yes
• SIMATIC communication		Yes	Yes	Yes
• Open IE communication		Yes	Yes	Yes
• Web server		Yes	Yes	Yes
• Media redundancy		No	No	No
PROFINET IO Controller				
Services				
- PG/OP communication		Yes	Yes	Yes
- S7 routing		Yes	Yes	Yes
- Isochronous mode		No	No	No
- Open IE communication		Yes	Yes	Yes
- IRT		No	No	No
- MRP		No	No	No
- PROFIenergy		Yes	Yes	Yes
- Prioritized startup		No	No	No
- Number of connectable IO Devices, max.		32; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	32; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	128; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
- Number of connectable IO Devices for RT, max.		32	32	128
- of which in line, max.		32	32	128
- Number of IO Devices that can be simultaneously activated/ deactivated, max.		8; in total across all interfaces	8; in total across all interfaces	8; in total across all interfaces
- Number of IO Devices per tool, max.		8	8	8
- Updating times		The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Update time for RT				
- for send cycle of 1 ms		1 ms to 512 ms	1 ms to 512 ms	1 ms to 512 ms

4

Technical specifications (continued)

Article number	6ES7511-1TK01-0AB0 CPU 1511T-1PN, 225KB progr., 1MB data	6ES7515-2TM01-0AB0 CPU 1515T-2 PN, 750KB progr, 3MB data	6ES7516-3TN00-0AB0 CPU 1516T-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3TP00-0AB0 CPU 1517T-3 PN/DP, 3MB prog./8MB data
PROFINET IO Device				
Services				
- PG/OP communication		Yes	Yes	Yes
- S7 routing		Yes	Yes	Yes
- Isochronous mode		No	No	No
- Open IE communication		Yes	Yes	Yes
- IRT		No	No	No
- MRP		No	No	No
- MRPD		No	No	No
- PROFIenergy		Yes	Yes	Yes
- Prioritized startup		No	No	No
- Shared device		Yes	Yes	Yes
- Number of IO Controllers with shared device, max.		4	4	4
- Asset management record		Yes; Per user program	Yes; Per user program	Yes; Per user program
3. Interface				
Interface types				
• Number of ports			1	1
• RS 485			Yes; X3	Yes; X3
Functionality				
• PROFIBUS DP master			Yes	Yes
• PROFIBUS DP slave			No	No
• SIMATIC communication			Yes	Yes
Protocols				
Supports protocol for PROFINET IO	Yes	Yes	Yes	Yes
PROFIsafe	No	No	No	No
PROFIBUS	No	No	Yes	Yes
Number of connections				
• Number of connections, max.	96; via integrated interfaces of the CPU and connected CPs / CMs	192; via integrated interfaces of the CPU and connected CPs / CMs	256; via integrated interfaces of the CPU and connected CPs / CMs	320; via integrated interfaces of the CPU and connected CPs / CMs
PROFINET IO Controller				
Services				
- Number of connectable IO Devices, max.	128; In total, up to 256 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET			
- Of which IO devices with IRT, max.	64			
- Number of connectable IO Devices for RT, max.	128			
PROFIBUS DP master				
Services				
- Number of DP slaves			125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
OPC UA				
• OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space	Yes; Data access (read, write, subscribe), method call, custom address space	Yes; Data access (read, write, subscribe), method call, custom address space	Yes; Data access (read, write, subscribe), method call, custom address space
Isochronous mode				
Isochronous operation (application synchronized up to terminal)	Yes; With minimum OB 6x cycle of 625 µs	Yes; With minimum OB 6x cycle of 500 µs	Yes; With minimum OB 6x cycle of 375 µs	Yes; With minimum OB 6x cycle of 250 µs

Technical specifications (continued)

Article number	**6ES7511-1TK01-0AB0** CPU 1511T-1PN, 225KB progr., 1MB data	**6ES7515-2TM01-0AB0** CPU 1515T-2 PN, 750KB progr, 3MB data	**6ES7516-3TN00-0AB0** CPU 1516T-3 PN/DP, 1.5MB prog./5MB data	**6ES7517-3TP00-0AB0** CPU 1517T-3 PN/DP, 3MB prog./8MB data
Supported technology objects				
Motion Control	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER
• Number of available Motion Control resources for technology objects (except cam disks)	800	2 400	6 400	10 240
• Required Motion Control resources				
- per speed-controlled axis	40	40	40	40
- per positioning axis	80	80	80	80
- per synchronous axis	160	160	160	160
- per external encoder	80	80	80	80
- per output cam	20	20	20	20
- per cam track	160	160	160	160
- per probe	40	40	40	40
• Number of available Extended Motion Control resources for technology objects	40	120	192	256
• Required Extended Motion Control resources				
- for each cam	2	2	2	2
- for each set of kinematics	30	30	30	30
Controller				
• PID_Compact	Yes; Universal PID controller with integrated optimization	Yes; Universal PID controller with integrated optimization	Yes; Universal PID controller with integrated optimization	Yes; Universal PID controller with integrated optimization
• PID_3Step	Yes; PID controller with integrated optimization for valves	Yes; PID controller with integrated optimization for valves	Yes; PID controller with integrated optimization for valves	Yes; PID controller with integrated optimization for valves
• PID-Temp	Yes; PID controller with integrated optimization for temperature	Yes; PID controller with integrated optimization for temperature	Yes; PID controller with integrated optimization for temperature	Yes; PID controller with integrated optimization for temperature
Counting and measuring				
• High-speed counter	Yes	Yes	Yes	Yes
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.	0 °C	0 °C	0 °C	0 °C
• horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
• vertical installation, min.	0 °C	0 °C	0 °C	0 °C
• vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Configuration				
Programming				
Programming language				
- LAD	Yes	Yes	Yes	Yes
- FBD	Yes	Yes	Yes	Yes
- STL	Yes	Yes	Yes	Yes
- SCL	Yes	Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes	Yes
Know-how protection				
• User program protection/password protection	Yes	Yes	Yes	Yes
• Copy protection	Yes	Yes	Yes	Yes
• Block protection	Yes	Yes	Yes	Yes

4

Technical specifications (continued)

Article number	6ES7511-1TK01-0AB0 CPU 1511T-1PN, 225KB progr., 1MB data	6ES7515-2TM01-0AB0 CPU 1515T-2 PN, 750KB progr, 3MB data	6ES7516-3TN00-0AB0 CPU 1516T-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3TP00-0AB0 CPU 1517T-3 PN/DP, 3MB prog./8MB data
Access protection				
• Password for display	Yes	Yes	Yes	Yes
• Protection level: Write protection	Yes	Yes	Yes	Yes
• Protection level: Read/write protection	Yes	Yes	Yes	Yes
• Protection level: Complete protection	Yes	Yes	Yes	Yes
Dimensions				
Width	35 mm	70 mm	175 mm	175 mm
Height	147 mm	147 mm	147 mm	147 mm
Depth	129 mm	129 mm	129 mm	129 mm
Weights				
Weight, approx.	430 g	830 g	1 978 g	1 978 g

Article number	6ES7511-1UK01-0AB0 CPU 1511TF-1PN, 225KB progr., 1MB data	6ES7515-2UM01-0AB0 CPU 1515TF-2 PN, 750KB progr, 3MB data	6ES7516-3UN00-0AB0 CPU 1516TF-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3UP00-0AB0 CPU 1517TF-3 PN/DP, 3MB prog., 8MB data
General information				
Product type designation	CPU 1511TF-1 PN	CPU 1515TF-2 PN	CPU 1516TF-3 PN/DP	CPU 1517TF-3 PN/DP
Engineering with				
• STEP 7 TIA Portal configurable/ integrated as of version	V15 (FW V2.5) / V14 SP1 (FW V2.1) or higher	V15 (FW V2.5) / V14 SP1 (FW V2.1) or higher	V15 (FW V2.5)	V15 (FW V2.5) / V14 (FW V2.0) or higher
Display				
Screen diagonal [cm]	3.45 cm	6.1 cm	6.1 cm	6.1 cm
Supply voltage				
Type of supply voltage	24 V DC	24 V DC	24 V DC	24 V DC
Power loss				
Power loss, typ.	5.7 W	6.3 W	24 W	24 W
Memory				
Work memory				
• integrated (for program)	225 kbyte	750 kbyte	1.5 Mbyte	3 Mbyte
• integrated (for data)	1 Mbyte	3 Mbyte	5 Mbyte	8 Mbyte
Load memory				
• Plug-in (SIMATIC Memory Card), max.	32 Gbyte	32 Gbyte	32 Gbyte	32 Gbyte
CPU processing times				
for bit operations, typ.	60 ns	30 ns	10 ns	2 ns
for word operations, typ.	72 ns	36 ns	12 ns	3 ns
for fixed point arithmetic, typ.	96 ns	48 ns	16 ns	3 ns
for floating point arithmetic, typ.	384 ns	192 ns	64 ns	12 ns
Counters, timers and their retentivity				
S7 counter				
• Number	2 048	2 048	2 048	2 048
IEC counter				
• Number	Any (only limited by the main memory)	Any (only limited by the main memory)	Any (only limited by the main memory)	Any (only limited by the main memory)
S7 times				
• Number	2 048	2 048	2 048	2 048
IEC timer				
• Number	Any (only limited by the main memory)	Any (only limited by the main memory)	Any (only limited by the main memory)	Any (only limited by the main memory)
Data areas and their retentivity				
Flag				
• Number, max.	16 kbyte	16 kbyte	16 kbyte	16 kbyte

Technical specifications (continued)

Article number	6ES7511-1UK01-0AB0 CPU 1511TF-1PN, 225KB progr., 1MB data	6ES7515-2UM01-0AB0 CPU 1515TF-2 PN, 750KB progr, 3MB data	6ES7516-3UN00-0AB0 CPU 1516TF-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3UP00-0AB0 CPU 1517TF-3 PN/DP, 3MB prog., 8MB data
Address area				
I/O address area				
• Inputs	32 kbyte; All inputs are in the process image	32 kbyte; All inputs are in the process image	32 kbyte; All inputs are in the process image	32 kbyte; All inputs are in the process image
• Outputs	32 kbyte; All outputs are in the process image	32 kbyte; All outputs are in the process image	32 kbyte; All outputs are in the process image	32 kbyte; All outputs are in the process image
Time of day				
Clock				
• Type	Hardware clock	Hardware clock	Hardware clock	Hardware clock
1. Interface				
Interface types				
• Number of ports	2	2	2	2
• integrated switch	Yes	Yes	Yes	Yes
• RJ 45 (Ethernet)	Yes; X1	Yes; X1	Yes; X1	Yes; X1
Functionality				
• IP protocol	Yes; IPv4	Yes; IPv4	Yes; IPv4	Yes; IPv4
• PROFINET IO Controller	Yes	Yes	Yes	Yes
• PROFINET IO Device	Yes	Yes	Yes	Yes
• SIMATIC communication	Yes	Yes	Yes	Yes
• Open IE communication	Yes	Yes	Yes	Yes
• Web server	Yes	Yes	Yes	Yes
• Media redundancy	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0
PROFINET IO Controller				
Services				
- PG/OP communication	Yes	Yes	Yes	Yes
- S7 routing	Yes	Yes	Yes	Yes
- Isochronous mode	Yes	Yes	Yes	Yes
- Open IE communication	Yes	Yes	Yes	Yes
- IRT	Yes	Yes	Yes	Yes
- MRP	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50
- MRPD	Yes; Requirement: IRT	Yes; Requirement: IRT	Yes; Requirement: IRT	Yes; Requirement: IRT
- PROFIenergy	Yes	Yes	Yes	Yes
- Prioritized startup	Yes; Max. 32 PROFINET devices	Yes; Max. 32 PROFINET devices	Yes; Max. 32 PROFINET devices	Yes; Max. 32 PROFINET devices
- Number of connectable IO Devices, max.	128; In total, up to 256 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	256; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	256; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	512; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
- Of which IO devices with IRT, max.	64	64	64	64
- Number of connectable IO Devices for RT, max.	128	256	256	512
- of which in line, max.	128	256	256	512
- Number of IO Devices that can be simultaneously activated/ deactivated, max.	8; in total across all interfaces	8; in total across all interfaces	8; in total across all interfaces	8; in total across all interfaces
- Number of IO Devices per tool, max.	8	8	8	8
- Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data

4

Technical specifications (continued)

Article number	6ES7511-1UK01-0AB0 CPU 1511TF-1PN, 225KB progr., 1MB data	6ES7515-2UM01-0AB0 CPU 1515TF-2 PN, 750KB progr, 3MB data	6ES7516-3UN00-0AB0 CPU 1516TF-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3UP00-0AB0 CPU 1517TF-3 PN/DP, 3MB prog., 8MB data
Update time for IRT				
- for send cycle of 250 µs	250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive	250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 500 µs of the isochronous OB is decisive	250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 500 µs of the isochronous OB is decisive	250 µs to 4 ms
- for send cycle of 500 µs	500 µs to 8 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive	500 µs to 8 ms	500 µs to 8 ms	500 µs to 8 ms
- for send cycle of 1 ms	1 ms to 16 ms	1 ms to 16 ms	1 ms to 16 ms	1 ms to 16 ms
- for send cycle of 2 ms	2 ms to 32 ms	2 ms to 32 ms	2 ms to 32 ms	2 ms to 32 ms
- for send cycle of 4 ms	4 ms to 64 ms	4 ms to 64 ms	4 ms to 64 ms	4 ms to 64 ms
- With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs ... 3 875 µs)
Update time for RT				
- for send cycle of 250 µs	250 µs to 128 ms	250 µs to 128 ms	250 µs to 128 ms	250 µs to 128 ms
- for send cycle of 500 µs	500 µs to 256 ms	500 µs to 256 ms	500 µs to 256 ms	500 µs to 256 ms
- for send cycle of 1 ms	1 ms to 512 ms	1 ms to 512 ms	1 ms to 512 ms	1 ms to 512 ms
- for send cycle of 2 ms	2 ms to 512 ms	2 ms to 512 ms	2 ms to 512 ms	2 ms to 512 ms
- for send cycle of 4 ms	4 ms to 512 ms	4 ms to 512 ms	4 ms to 512 ms	4 ms to 512 ms
PROFINET IO Device				
Services				
- PG/OP communication	Yes	Yes	Yes	Yes
- S7 routing	Yes	Yes	Yes	Yes
- Isochronous mode	No	No	No	No
- Open IE communication	Yes	Yes	Yes	Yes
- IRT	Yes	Yes	Yes	Yes
- MRP	Yes	Yes	Yes	Yes
- MRPD	Yes; Requirement: IRT	Yes; Requirement: IRT	Yes; Requirement: IRT	Yes; Requirement: IRT
- PROFIenergy	Yes	Yes	Yes	Yes
- Shared device	Yes	Yes	Yes	Yes
- Number of IO Controllers with shared device, max.	4	4	4	4
- Asset management record	Yes; Per user program	Yes; Per user program	Yes; Per user program	Yes; Per user program
2. Interface				
Interface types				
• Number of ports		1	1	1
• integrated switch		No	No	No
• RJ 45 (Ethernet)		Yes; X2	Yes; X2	Yes; X2
Functionality				
• IP protocol		Yes; IPv4	Yes; IPv4	Yes; IPv4
• PROFINET IO Controller		Yes	Yes	Yes
• PROFINET IO Device		Yes	Yes	Yes
• SIMATIC communication		Yes	Yes	Yes
• Open IE communication		Yes	Yes	Yes
• Web server		Yes	Yes	Yes
• Media redundancy		No	No	No

Technical specifications (continued)

Article number	6ES7511-1UK01-0AB0 CPU 1511TF-1PN, 225KB progr., 1MB data	6ES7515-2UM01-0AB0 CPU 1515TF-2 PN, 750KB progr, 3MB data	6ES7516-3UN00-0AB0 CPU 1516TF-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3UP00-0AB0 CPU 1517TF-3 PN/DP, 3MB prog., 8MB data
PROFINET IO Controller				
Services				
- PG/OP communication		Yes	Yes	Yes
- S7 routing		Yes	Yes	Yes
- Isochronous mode		No	No	No
- Open IE communication		Yes	Yes	Yes
- IRT		No	No	No
- MRP		No	No	No
- PROFIenergy		Yes	Yes	Yes
- Prioritized startup		No	No	No
- Number of connectable IO Devices, max.		32; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	32; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	128; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
- Number of connectable IO Devices for RT, max.		32	32	128
- of which in line, max.		32	32	128
- Number of IO Devices that can be simultaneously activated/ deactivated, max.		8; in total across all interfaces	8; in total across all interfaces	8; in total across all interfaces
- Number of IO Devices per tool, max.		8	8	8
- Updating times		The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Update time for RT				
- for send cycle of 1 ms		1 ms to 512 ms	1 ms to 512 ms	1 ms to 512 ms
PROFINET IO Device				
Services				
- PG/OP communication		Yes	Yes	Yes
- S7 routing		Yes	Yes	Yes
- Isochronous mode		No	No	No
- Open IE communication		Yes	Yes	Yes
- IRT		No	No	No
- MRP		No	No	No
- MRPD		No	No	No
- PROFIenergy		Yes	Yes	Yes
- Prioritized startup		No	No	No
- Shared device		Yes	Yes	Yes
- Number of IO Controllers with shared device, max.		4	4	4
- Asset management record		Yes; Per user program	Yes; Per user program	Yes; Per user program
3. Interface				
Interface types				
• Number of ports			1	1
• RS 485			Yes; X3	Yes; X3
Functionality				
• PROFIBUS DP master			Yes	Yes
• PROFIBUS DP slave			No	No
• SIMATIC communication			Yes	Yes
Protocols				
Supports protocol for PROFINET IO	Yes	Yes	Yes	Yes
PROFIsafe	Yes	Yes	Yes	Yes
PROFIBUS	No	No	Yes	Yes

Technical specifications (continued)

Article number	6ES7511-1UK01-0AB0 CPU 1511TF-1PN, 225KB progr., 1MB data	6ES7515-2UM01-0AB0 CPU 1515TF-2 PN, 750KB progr, 3MB data	6ES7516-3UN00-0AB0 CPU 1516TF-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3UP00-0AB0 CPU 1517TF-3 PN/DP, 3MB prog., 8MB data
Number of connections				
• Number of connections, max.	96; via integrated interfaces of the CPU and connected CPs / CMs	192; via integrated interfaces of the CPU and connected CPs / CMs	256; via integrated interfaces of the CPU and connected CPs / CMs	320; via integrated interfaces of the CPU and connected CPs / CMs
PROFINET IO Controller				
Services				
- Number of connectable IO Devices, max.	128; In total, up to 256 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET			
- Of which IO devices with IRT, max.	64			
- Number of connectable IO Devices for RT, max.	128			
PROFIBUS DP master				
Services				
- Number of DP slaves			125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
OPC UA				
• OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space	Yes; Data access (read, write, subscribe), method call, custom address space	Yes; Data access (read, write, subscribe), method call, custom address space	Yes; Data access (read, write, subscribe), method call, custom address space
Isochronous mode				
Isochronous operation (application synchronized up to terminal)	Yes; With minimum OB 6x cycle of 625 µs	Yes; With minimum OB 6x cycle of 500 µs	Yes; With minimum OB 6x cycle of 375 µs	Yes; With minimum OB 6x cycle of 250 µs
Supported technology objects				
Motion Control	Yes; Note: The number of axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER	Yes; Note: The number of axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER	Yes; Note: The number of axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER	Yes; Note: The number of axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER
• Number of available Motion Control resources for technology objects (except cam disks)	800	2 400	6 400	10 240
• Required Motion Control resources				
- per speed-controlled axis	40	40	40	40
- per positioning axis	80	80	80	80
- per synchronous axis	160	160	160	160
- per external encoder	80	80	80	80
- per output cam	20	20	20	20
- per cam track	160	160	160	160
- per probe	40	40	40	40
• Number of available Extended Motion Control resources for technology objects	40	120	192	256
• Required Extended Motion Control resources				
- for each cam	2	2	2	2
- for each set of kinematics	30	30	30	30
Controller				
• PID_Compact	Yes; Universal PID controller with integrated optimization	Yes; Universal PID controller with integrated optimization	Yes; Universal PID controller with integrated optimization	Yes; Universal PID controller with integrated optimization
• PID_3Step	Yes; PID controller with integrated optimization for valves	Yes; PID controller with integrated optimization for valves	Yes; PID controller with integrated optimization for valves	Yes; PID controller with integrated optimization for valves
• PID-Temp	Yes; PID controller with integrated optimization for temperature	Yes; PID controller with integrated optimization for temperature	Yes; PID controller with integrated optimization for temperature	Yes; PID controller with integrated optimization for temperature
Counting and measuring				
• High-speed counter	Yes	Yes	Yes	Yes

Technical specifications (continued)

Article number	6ES7511-1UK01-0AB0 CPU 1511TF-1PN, 225KB progr., 1MB data	6ES7515-2UM01-0AB0 CPU 1515TF-2 PN, 750KB progr, 3MB data	6ES7516-3UN00-0AB0 CPU 1516TF-3 PN/DP, 1.5MB prog./5MB data	6ES7517-3UP00-0AB0 CPU 1517TF-3 PN/DP, 3MB prog., 8MB data
Highest safety class achievable in safety mode				
Probability of failure (for service life of 20 years and repair time of 100 hours)				
- Low demand mode: PFDavg in accordance with SIL3	< 2.00E-05	< 2.00E-05	< 2.00E-05	< 2.00E-05
- High demand/continuous mode: PFH in accordance with SIL3	< 1.00E-09	< 1.00E-09	< 1.00E-09 1/h	< 1.00E-09 1/h
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.	0 °C	0 °C	0 °C	0 °C
• horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
• vertical installation, min.	0 °C	0 °C	0 °C	0 °C
• vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Configuration				
Programming				
Programming language				
- LAD	Yes; incl. failsafe	Yes; incl. failsafe	Yes; incl. failsafe	Yes; incl. failsafe
- FBD	Yes; incl. failsafe	Yes; incl. failsafe	Yes; incl. failsafe	Yes; incl. failsafe
- STL	Yes	Yes	Yes	Yes
- SCL	Yes	Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes	Yes
Know-how protection				
• User program protection/password protection	Yes	Yes	Yes	Yes
• Copy protection	Yes	Yes	Yes	Yes
• Block protection	Yes	Yes	Yes	Yes
Access protection				
• Password for display	Yes	Yes	Yes	Yes
• Protection level: Write protection	Yes	Yes	Yes	Yes
• Protection level: Read/write protection	Yes	Yes	Yes	Yes
• Protection level: Write protection for Failsafe	Yes	Yes	Yes	Yes
• Protection level: Complete protection	Yes	Yes	Yes	Yes
Dimensions				
Width	35 mm	70 mm	175 mm	175 mm
Height	147 mm	147 mm	147 mm	147 mm
Depth	129 mm	129 mm	129 mm	129 mm
Weights				
Weight, approx.	430 g	830 g	1 978 g	1 978 g

4

Ordering data	Article No.
CPU 1511T-1 PN	**6ES7511-1TK01-0AB0**
225 KB work memory for program, 1 MB for data, PROFINET IRT interface with 2-port switch; SIMATIC Memory Card required	
CPU 1511TF-1 PN	**6ES7511-1UK01-0AB0**
225 KB work memory for program, 1 MB for data, PROFINET IRT interface with 2-port switch; SIMATIC Memory Card required	
CPU 1515T-2 PN	**6ES7515-2TM01-0AB0**
750 KB work memory for program, 3 MB for data, PROFINET IRT interface with 2-port switch, Ethernet interface; SIMATIC Memory Card required	
CPU 1515TF-2 PN	**6ES7515-2UM01-0AB0**
750 KB work memory for program, 3 MB for data, PROFINET IRT interface with 2-port switch, Ethernet interface; SIMATIC Memory Card required	
CPU 1516T-3 PN/DP	**6ES7516-3TN00-0AB0**
1.5 MB work memory for program, 5 MB for data, PROFINET IRT interface with 2-port switch, Ethernet interface, PROFIBUS interface; SIMATIC Memory Card required	
CPU 1516TF-3 PN/DP	**6ES7516-3UN00-0AB0**
1.5 MB work memory for program, 5 MB for data, PROFINET IRT interface with 2-port switch, Ethernet interface, PROFIBUS interface; SIMATIC Memory Card required	
CPU 1517T-3 PN/DP	**6ES7517-3TP00-0AB0**
3 MB work memory for program, 8 MB for data, PROFINET IRT interface with 2-port switch, Ethernet interface, PROFIBUS interface; SIMATIC Memory Card required	
CPU 1517T-3 PN/DP	**6ES7517-3UP00-0AB0**
3 MB work memory for program, 8 MB for data, PROFINET IRT interface with 2-port switch, Ethernet interface, PROFIBUS interface; SIMATIC Memory Card required	
Accessories	
SIMATIC Memory Card	
4 MB	**6ES7954-8LC02-0AA0**
12 MB	**6ES7954-8LE03-0AA0**
24 MB	**6ES7954-8LF03-0AA0**
256 MB	**6ES7954-8LL03-0AA0**
2 GB	**6ES7954-8LP02-0AA0**
32 GB	**6ES7954-8LT03-0AA0**

	Article No.
SIMATIC S7-1500 DIN rail	
Fixed lengths, with grounding elements	
• 160 mm	**6ES7590-1AB60-0AA0**
• 245 mm	**6ES7590-1AC40-0AA0**
• 482 mm	**6ES7590-1AE80-0AA0**
• 530 mm	**6ES7590-1AF30-0AA0**
• 830 mm	**6ES7590-1AJ30-0AA0**
For cutting to length by customer, without drill holes; grounding elements must be ordered separately	
• 2000 mm	**6ES7590-1BC00-0AA0**
PE connection element for DIN rail 2000 mm	**6ES7590-5AA00-0AA0**
20 units	
Power supply	
For supplying the backplane bus of the S7-1500	
24 V DC input voltage, power 25 W	**6ES7505-0KA00-0AB0**
24/48/60 V DC input voltage, power 60 W	**6ES7505-0RA00-0AB0**
24/48/60 V DC input voltage, power 60 W, buffering functionality	**6ES7505-0RB00-0AB0**
120/230 V AC input voltage, power 60 W	**6ES7507-0RA00-0AB0**
Power connector	**6ES7590-8AA00-0AA0**
With coding element for power supply module; spare part, 10 units	
Load power supply	
24 V DC/3 A	**6EP1332-4BA00**
24 V DC/8 A	**6EP1333-4BA00**
Power supply connector	
Spare part; for connecting the 24 V DC supply voltage	
• With push-in terminals	**6ES7193-4JB00-0AA0**
PROFIBUS FastConnect RS 485 bus connector with 90° cable outlet	
With insulation displacement, max. transmission rate 12 Mbps	
Without PG interface, grounding via control cabinet contact surface; 1 unit	**6ES7972-0BA70-0XA0**
With PG interface, grounding via control cabinet contact surface; 1 unit	**6ES7972-0BB70-0XA0**
PROFIBUS FC Standard Cable GP	**6XV1830-0EH10**
Standard type with special design for fast mounting, 2-wire, shielded; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	
PROFIBUS FC Robust Cable	**6XV1830-0JH10**
2-wire, shielded; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	
PROFIBUS FC Flexible Cable	**6XV1831-2K**
2-wire, shielded; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	

Ordering data	Article No.
PROFIBUS FC Trailing Cable	
2-wire, shielded; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	
Sheath color: Petrol	**6XV1830-3EH10**
Sheath color: Violet	**6XV1831-2L**
PROFIBUS FC Food Cable	**6XV1830-0GH10**
2-wire, shielded; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	
PROFIBUS FC Ground Cable	**6XV1830-3FH10**
2-wire, shielded; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	
PROFIBUS FC FRNC Cable GP	**6XV1830-0LH10**
2-wire, shielded, flame-retardant, with copolymer outer sheath FRNC; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	
PROFIBUS FastConnect Stripping Tool	**6GK1905-6AA00**
Preadjusted stripping tool for fast stripping of PROFIBUS FastConnect bus cables	
IE FC RJ45 plugs	
RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables	
IE FC RJ45 Plug 180	
180° cable outlet	
1 unit	**6GK1901-1BB10-2AA0**
10 units	**6GK1901-1BB10-2AB0**
50 units	**6GK1901-1BB10-2AE0**
IE FC TP Standard Cable GP 2x2	**6XV1840-2AH10**
4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	
IE FC TP Trailing Cable 2 x 2 (Type C)	**6XV1840-3AH10**
4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug 180/90 for use as trailing cable; PROFINET-compatible; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	
IE FC TP Marine Cable 2 x 2 (Type B)	**6XV1840-4AH10**
4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug 180/90 with marine approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	

	Article No.
IE FC Stripping Tool	**6GK1901-1GA00**
Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables	
Display	
For CPU 1511T-1 PN and CPU 1511TF-1 PN; spare part	**6ES7591-1AA01-0AA0**
For CPU 1515T-2 PN, CPU 15115TF-2 PN, CPU 1517T-3 PN/DP and CPU 1517TF-3 PN/DP; spare part	**6ES7591-1BA01-0AA0**
Front cover for PROFIBUS DP interface	**6ES7591-8AA00-0AA0**
For CPU 1517T-3 PN/DP and CPU 1517TF-3 PN/DP; spare part	
SIMATIC S7-1500T Starter Kit	**6ES7511-1TK01-4YB5**
Comprising: CPU 1511T-1 PN, SIMATIC Memory Card 4 MB, 160 mm DIN rail, front connector, STEP 7 Professional 365-day license, PM 70 W 120/230 V AC power supply, Ethernet cable, documentation	
STEP 7 Professional V15	
Target system: SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC Requirement: Windows 7 Professional SP1 (64 bit), Windows 7 Enterprise SP1 (64 bit), Windows 7 Ultimate SP1 (64 bit), Windows 8.1 Professional (64 bit), Windows 8.1 Enterprise (64 bit), Windows 10 Professional Version 1607, Windows 10 Enterprise Version 1607, Windows 10 Enterprise 2016 LTSB, Windows 10 Enterprise 2015 LTSB, Windows Server 2008 R2 StdE (full installation), Windows Server 2012 StdE (full installation), Windows Server 2016 Standard (full installation); Type of delivery: English, German, Chinese, Italian, French, Spanish	
STEP 7 Professional V15, floating license	**6ES7822-1AA05-0YA5**
STEP 7 Professional V15, floating license Software download incl. license key [1]	**6ES7822-1AE05-0YA5**
Email address required for delivery	

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

4

Ordering data	Article No.
STEP 7 Safety Advanced V15	
Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe ET 200SP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco I/O Requirement: STEP 7 Professional V15	
Floating license for 1 user, software and documentation on DVD, license key on USB flash drive	**6ES7833-1FA15-0YA5**
Floating license for 1 user, software, documentation and license key for download[1]; email address required for delivery	**6ES7833-1FA15-0YH5**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Overview

- 2-channel counter and position detection module with RS422 interface
- Comprehensive parameterization options for optimum adaptation to the task
- Offloading of controller through preprocessing on the module
- Position detection with incremental and SSI absolute-value encoders
- Speed and time period measuring
- Storage and comparison functions
- Connection of encoders with RS422 signals or 5 V TTL signals

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Technical specifications

Article number	**6AG1551-1AB00-7AB0**
based on	**6ES7551-1AB00-0AB0**
	SIPLUS S7-1500 TM POSINPUT 2
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-40 °C; = Tmin; Startup @ -25 °C
• horizontal installation, max.	70 °C; Please note derating for inductive loads
• vertical installation, min.	0 °C
• vertical installation, max.	40 °C; Please note derating for inductive loads
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
- Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *
Note	
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIPLUS TM PosInput 2 counter and positioning module	**6AG1551-1AB00-7AB0**
(extended temperature range and medial exposure)	
With 2 channels, max. 1 MHz counter frequency; for SSI and incremental encoders with RS422 or 5 V TTL interface	
Accessories	See Catalog ST 70, SIMATIC S7-1500, TM PosInput 2 counter and positioning module

TIM 1531 IRC (for S7-1500)

Overview

- TIM 1531 IRC communication module for telecontrol applications with four interfaces as a stand-alone device for SIMATIC S7-1500 for use in wide area networks (WANs)
- For universal use in a station, node station and control center
- Communication via integrated MSC tunnel with direct connection to DSL router or operation via VPN (IPsec/ OpenVPN) with additional SIMATIC NET components
- Wireless communication via mobile wireless routers, modems or radio devices
- Wired communication via Ethernet, Internet, 2/4 wire cables (SHDSL), dialup modems or dedicated line modem
- Frame buffer for seamless recording of data
- Support of redundant communication paths
- Easy configuration in the TIA Portal

Technical specifications

Article number	**6GK7543-1MX00-0XE0**
Product type designation	TIM 1531 IRC
Transmission rate	
Transfer rate	
• at the 1st interface	10 ... 1 000 Mbit/s
• at the 2nd interface	10 ... 100 Mbit/s
• at interface 3	10 ... 100 Mbit/s
• acc. to RS 232	300 ... 115 200 bit/s
Interfaces	
Number of interfaces acc. to Industrial Ethernet	3
Number of electrical connections	
• for external data transmission acc. to RS 232	1
• for power supply	1
Number of slots	
• for memory cards	1
Type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
• at interface 1 for external data transmission	9 pin Sub-D-connector, RS 232 switchable to RS 485
• for power supply	2-pole plugable terminal block
Slot version	
• of the memory card	SD 1.0, SD 1.1, SDHC, Siemens SMC
Storage capacity of the memory card maximum	32 Gibyte

Article number	**6GK7543-1MX00-0XE0**
Product type designation	TIM 1531 IRC
Supply voltage, current consumption, power loss	
Type of voltage of the supply voltage	DC
Supply voltage	24 V
Supply voltage	20.4 ... 28.8 V
Supply voltage external at DC Rated value	24 V
Supply voltage external at DC rated value	20.4 ... 28.8 V
Consumed current	
• from external supply voltage at DC at 24 V typical	0.15 A
• from external supply voltage at DC at 24 V maximum	0.3 A
Power loss [W] with external supply voltage at 24 V DC	
• in update mode typical	3.9 W
• in communication mode typical	3.9 W
Product extension optional Backup battery	No
Permitted ambient conditions	
Ambient temperature	
• during operation	0 ... 70 °C
• for vertical installation during operation	0 ... 50 °C
• for horizontally arranged busbars during operation	0 ... 70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Relative humidity at 25 °C without condensation during operation maximum	95 %
Protection class IP	IP20
Design, dimensions and weight	
Width	70 mm
Height	147 mm
Depth	129 mm
Net weight	0.525 kg
Mounting type	
• 35 mm DIN rail mounting	No
• S7-300 rail mounting	No
• S7-1500 rail mounting	Yes
Product properties, functions, components general	
Product function	
• Dynamic DNS	No
Wire length	
• with RS 232 interface maximum	6 m
• with RS 485 interface maximum	30 m
Performance data S7 communication	
Number of possible connections for S7 communication	
• maximum	62
• with PG connections maximum	2
• with OP connections maximum	1
• Note	only via LAN
Service	
• of SIMATIC communication as server	Yes
• SINAUT ST7 via S7 communication	Yes
• PG/OP communication	Yes

Technical specifications (continued)

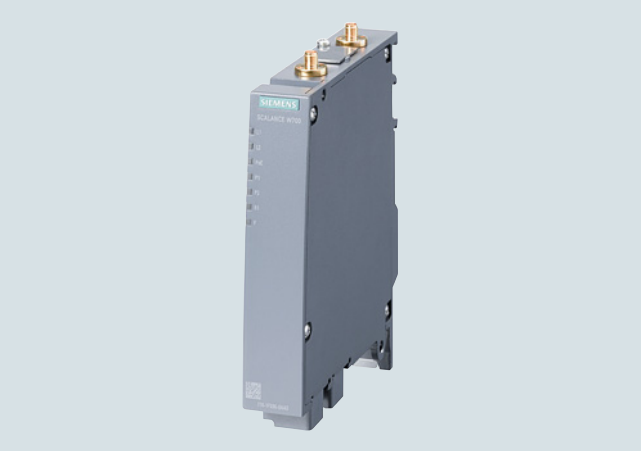
Article number	6GK7543-1MX00-0XE0
Product type designation	TIM 1531 IRC
Performance data IT functions	
Number of possible connections	
• as e-mail client maximum	1
Performance data telecontrol	
Suitability for use	
• Node station	Yes
• substation	Yes
• TIM control center	Yes
Protocol is supported	
• TCP/IP	Yes
• DNP3	No
• IEC 60870-5	No
• SINAUT ST1 protocol	No
• SINAUT ST7 protocol	Yes
• Modbus RTU	No
Product function data buffering if connection is aborted	Yes
Number of data points per station maximum	1 000
Product feature Buffered message frame memory	Yes
Transmission format	
• for SINAUT ST7 protocol with polling or spontaneous 10-bit or 11-bit	Yes
Operating mode for scanning of data transmission	
• with dial-up network with SINAUT ST7 protocol	spontaneous
Hamming distance	
• for SINAUT ST7 protocol	4
Performance data Teleservice	
Diagnostics function online diagnostics with SIMATIC STEP 7	Yes
Product function	
• program download with SIMATIC STEP 7	Yes
• Remote firmware update	Yes
• remote configuration	No
Product function MIB support	Yes
Protocol is supported	
• SNMP v1	Yes
• SNMP v3	Yes
• DCP	Yes
• LLDP	No
Configuration software	
• for CPU configuring required SINAUT TD7 block library for CPU	No
• for PG configuring required SINAUT ST7 configuration software for PG	No

Article number	6GK7543-1MX00-0XE0
Product type designation	TIM 1531 IRC
Identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 - higher-level designation/ location designation	Yes
• I&M2 - installation date	Yes
• I&M3 - comment	Yes
Product functions Diagnosis	
Product function Web-based diagnostics	Yes
Product functions Security	
Product function	
• MSC client via GPRS modem with MSC capability	Yes
Protocol	
• is supported MSC protocol	Yes
• with Virtual Private Network MSC is supported	TCP/IP
Key length for MSC with Virtual Private Network	128 bit
Number of possible connections	
• as MSC client with VPN connection	1
• as MSC server with VPN connection	127
Product functions Time	
Product function SICLOCK support	No
Product function pass on time synchronization	Yes
Protocol is supported	
• NTP	Yes
• NTP (secure)	Yes
Product component Hardware real-time clock	No
Product feature Hardware real-time clock w. battery backup	No
time synchronization	
• from NTP-server	Yes
• from GPS-signal	No
• from control center	Yes
• from mobile network provider	No
• PC	No
• manual setting	No
Product functions Position recognition	
Product function	
• position detection with GPS	No
• pass on position data	No

TIM 1531 IRC (for S7-1500)

Ordering data	Article No.
TIM 1531 IRC communication module TIM 1531 IRC communication module for SIMATIC S7-1500, S7-400, S7-300 with SINAUT ST7 with three RJ45 interfaces for communication via IP-based networks (WAN/LAN) and an RS 232/RS 485 interface for communication via conventional WANs	**6GK7543-1MX00-0XE0**
Engineering Software STEP 7 Professional V15	
STEP 7 Professional V15, floating license	**6ES7822-1AA05-0YA5**
Software download incl. license key; email address required for delivery	**6ES7822-1AE05-0YA5**
STEP 7 Professional V15, trial license	**6ES7822-1AA05-0YA7**
Accessories	
Mounting rail SIMATIC S7-1500, 160 mm mounting rail; incl. grounding screw, integrated DIN rail for mounting small material, such as terminals, relays	**6ES7590-1AB60-0AA0**
SIMATIC Memory Card SIMATIC S7, Memory Card for S7-1x 00 CPU/SINAMICS, 3.3 V flash, 24 MB	**6ES7954-8LF03-0AA0**
SCALANCE M874-2 2G mobile wireless routers (GPRS/EDGE); 2 RJ45 ports, firewall, VPN, NAT	**6GK5874-2AA00-2AA2**
SCALANCE M874-3 3G mobile wireless routers (GPRS/EDGE/HSPA+); 2 RJ45 ports, firewall, VPN, NAT	**6GK5874-3AA00-2AA2**
SCALANCE M876-3 3G router; for wireless IP communication of Ethernet-based programmable controllers via 3G mobile radio HSPA+/EV-DO, VPN, firewall, NAT 4-port switch; antenna diversity; 1 x digital input, 1 x digital output; note national approvals. note provider approvals!	**6GK5876-3AA02-2BA2**
SCALANCE M876-4 (EU) 4G router; for wireless IP communication of Ethernet-based programmable controllers via LTE (4G) mobile radio optimized for use in Europe, VPN, firewall, NAT; 4-port switch; 2 x SMA antenna, MIMO technology; 1 x digital input, 1 x digital output; note national approvals.	**6GK5876-4AA00-2BA2**
SCALANCE M876-4 (NAM) 4G router (NAM); for wireless IP communication of Ethernet-based programmable controllers via LTE (4G) mobile radio optimized for use in North America, VPN, firewall, NAT; 4-port switch; 2 x SMA antenna, MIMO technology; 1 x digital input, 1 x digital output; note national approvals.	**6GK5876-4AA00-2DA2**
Connecting cable With one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); cable length 2.5 m	**6NH7701-4BN**
Connecting cable For connecting two TIMs via their RS 232 interfaces without modems (null modem); cable length 6 m	**6NH7701-0AR**
SITOP compact 24 V/0.6 A Single-phase power supply with wide range input 85 ... 264 V AC/110 ... 300 V DC, 24 V stabilized output voltage, 0.6 A nominal value of output current, slim design	**6EP1331-5BA00**
SIMATIC PM 1507 24 V/3 A Stabilized power supply for SIMATIC S7-1500 input: 120/230 V AC output: 24 V DC/3 A	**6EP1332-4BA00**
SIMATIC PM 1507 24 V/8 A Stabilized power supply for SIMATIC S7-1500 input: 120/230 V AC output: 24 V DC/8 A	**6EP1333-4BA00**

Overview



- Access points in SIMATIC design suitable for applications where the device is to be mounted in the control cabinet

Technical specifications

Article number	**6GK5774-1FX00-0AA0**
	6GK5774-1FX00-0AB0 [1]
	6GK5774-1FX00-0AC0 [2]
Product type designation	SCALANCE W774-1 RJ45
Transmission rate	
Transfer rate	
• with WLAN maximum	300 Mbit/s
• for Industrial Ethernet	10, 100 Mbit/s
Transfer rate for Industrial Ethernet	
• minimum	10 Mbit/s
• maximum	100 Mbit/s
Interfaces	
Number of electrical connections	
• for network components or terminal equipment	2
• for power supply	1
• for redundant voltage supply	1
Type of electrical connection	
• for network components or terminal equipment	RJ45 socket
• for power supply	4-pole screw terminal, PoE
design of the removable storage	
• C-PLUG	Yes
• KEY-PLUG	Yes
Interfaces wireless	
Number of radio cards permanently installed	1
Transmission mode for multiple input multiple output (MIMO)	2x2
Number of spatial streams	2
Number of electrical connections for external antenna(s)	2
Type of electrical connection for external antenna(s)	R-SMA (socket)
Product feature external antenna can be mounted directly on device	Yes

Article number	**6GK5774-1FX00-0AA0**
	6GK5774-1FX00-0AB0 [1]
	6GK5774-1FX00-0AC0 [2]
Product type designation	SCALANCE W774-1 RJ45
Supply voltage, current consumption, power loss	
Type of voltage of the supply voltage	DC
Supply voltage 1	
• from terminal block	19.2 V
Supply voltage 2	
• from terminal block	28.8 V
Supply voltage	
• from Power-over-Ethernet acc. to IEEE802.3at for type 1 and IEEE802.3af	48 V
Consumed current	
• at DC at 24 V typical	0.25 A
• with Power-over-Ethernet according to IEEE802.3at for type 1 and IEEE802.3af typical	0.125 A
Power loss [W]	
• at DC at 24 V typical	6 W
• with Power-over-Ethernet according to IEEE802.3at for type 1 and IEEE802.3af typical	6 W
Permitted ambient conditions	
Ambient temperature	
• during operation	-20 ... +60 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
Relative humidity at 25 °C without condensation during operation maximum	97 %
Ambient condition for operation	When used under hazardous conditions (Zone 2), the SCALANCE W774-1 RJ45 or W734-1 RJ45 product must be installed in an enclosure. To comply with EN 50021, this enclosure must meet the requirements of at least IP 54 in compliance with EN 60529.
Protection class IP	IP30

[1] Wireless approval in the USA
[2] Wireless approval in Israel

4

Technical specifications (continued)

Article number	6GK5774-1FX00-0AA0 6GK5774-1FX00-0AB0 [1] 6GK5774-1FX00-0AC0 [2]
Product type designation	SCALANCE W774-1 RJ45
Design, dimensions and weight	
Width	26 mm
Height	156 mm
Depth	127 mm
Width of the enclosure without antenna	26 mm
Height of the enclosure without antenna	147 mm
Depth of the enclosure without antenna	127 mm
Net weight	0.52 kg
Mounting type	wall mounting only if flat mounted
• S7-300 rail mounting	Yes
• S7-1500 rail mounting	Yes
• 35 mm DIN rail mounting	Yes
• wall mounting	Yes
Wireless frequencies	
Operating frequency	
• for WLAN in 2.4 GHz frequency band	2.41 ... 2.48 GHz
• for WLAN in 5 GHz frequency band	4.9 ... 5.8 GHz
Product properties, functions, components general	
Product function Access Point Mode	Yes
Product function Client Mode	Yes
Number of SSIDs	4
Product function	
• iPCF Access Point	Yes; Only in combination with the 'KEY-PLUG W780 iFeatures'
• iPCF client	Yes; Only in combination with the 'KEY-PLUG W740 iFeatures'
• iPCF-MC Access Point	No
• iPCF-MC client	Yes; Only in combination with the 'KEY-PLUG W740 iFeatures'
Number of iPCF-capable radio modules	1
Product function iREF	Yes
Number of iREF-capable radio modules	1
Product function iPRP	Yes; In combination with the 'KEY-PLUG W780 iFeatures' only
Product functions management, configuration	
Number of manageable IP addresses in client	8
Product function	
• CLI	Yes
• web-based management	Yes
• MIB support	Yes
• TRAPs via email	Yes
• Configuration with STEP 7	Yes
• configuration with STEP 7 in the TIA Portal	Yes
• operation with IWLAN controller	No
• operation with Enterasys WLAN controller	No
• forced roaming on IP down with IWLAN	Yes
• forced roaming on link down with IWLAN	Yes
• WDS	Yes

Article number	6GK5774-1FX00-0AA0 6GK5774-1FX00-0AB0 [1] 6GK5774-1FX00-0AC0 [2]
Product type designation	SCALANCE W774-1 RJ45
Protocol is supported	
• Address Resolution Protocol (ARP)	Yes
• ICMP	Yes
• Telnet	Yes
• HTTP	Yes
• HTTPS	Yes
• TFTP	Yes
• DCP	Yes
• LLDP	Yes
Identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 - higher-level designation/ location designation	Yes
Product functions Diagnosis	
Product function	
• PROFINET IO diagnosis	Yes
• Link Check	No
• connection monitoring IP-Alive	No
• localization via Aeroscout	Yes
• SysLog	Yes
Protocol is supported	
• SNMP v1	Yes
• SNMP v2	Yes
• SNMP v3	Yes
Product functions VLAN	
Product function	
• function VLAN with IWLAN	Yes
Product functions DHCP	
Product function	
• DHCP client	Yes
• in Client Mode DHCP server via LAN	Yes
• DHCP Option 82	Yes
Product functions Redundancy	
Protocol is supported	
• STP/RSTP	Yes
• MSTP	Yes
• RSTP	Yes
Product functions Security	
Product function	
• ACL - MAC-based	Yes
• Management security, ACL-IP based	Yes
• IEEE 802.1x (radius)	Yes
• NAT/NAPT	No
• access protection according to IEEE802.11i	Yes
• WPA/WPA2	Yes
• TKIP/AES	Yes
Protocol is supported	
• SSH	Yes
• RADIUS	Yes
Product functions Time	
Protocol is supported	
• NTP	Yes
• SNTP	Yes
• SIMATIC Time	Yes

[1] Wireless approval in the USA
[2] Wireless approval in Israel

Technical specifications (continued)

Article number	**6GK5774-1FX00-0AA0** 6GK5774-1FX00-0AB0 [1] 6GK5774-1FX00-0AC0 [2]
Product type designation	SCALANCE W774-1 RJ45
Standards, specifications, approvals	
Standard	
• for FM	FM 3611: Class I, Division 2, Groups A,B,C,D, T4 / Class 1, Zone 2, Group IIC, T4
• for hazardous zone	EN 60079-15:2005, EN 60079-0:2006, II 3 G Ex nA II T4 KEMA 07 ATEX 0145X
• for safety from CSA and UL	UL 60950-1 CSA C22.2 No. 60950-1
Certificate of suitability	
• EC declaration of conformity	Yes
• CE marking	Yes
• C-Tick	Yes
• E1 approval	No
• Railway application in accordance with EN 50155	No
• Railway application in accordance with EN 50121-4	No
• NEMA TS2	No
• IEC 61375	No
• IEC 61850-3	No
• NEMA4X	No
• Power-over-Ethernet according IEEE802.3at for type 1 and IEEE802.3af	Yes
• Power-over-Ethernet according to IEEE802.3at for type 2	Yes
Standard for wireless communication	
• IEEE 802.11a	Yes
• IEEE 802.11b	Yes
• IEEE 802.11e	Yes
• IEEE 802.11g	Yes
• IEEE 802.11h	Yes
• IEEE 802.11i	Yes
• IEEE 802.11n	Yes
Wireless approval	You will find the current list of countries at: www.siemens.com/wireless-approvals
Marine classification association	
• American Bureau of Shipping Europe Ltd. (ABS)	Yes
• Bureau Veritas (BV)	Yes
• DNV GL	Yes
• Lloyds Register of Shipping (LRS)	Yes
• Nippon Kaiji Kyokai (NK)	Yes
• Polski Rejestr Statkow (PRS)	Yes
• Royal Institution of Naval Architects (RINA)	Yes
Accessories	
accessories	24 V DC screw terminal included in scope of delivery

[1] Wireless approval in the USA

[2] Wireless approval in Israel

Ordering data

Access Points SCALANCE W774	
IWLAN access points with built-in wireless interface for establishing wireless connections with iFeatures; wireless networks IEEE 802.11a/b/g/h/n at 2.4/5 GHz up to 300 Mbps; WPA2/AES; integrated 2-port switch; Power over Ethernet (PoE), IP30 degree of protection (-20°C to +60°C); scope of delivery: Mounting hardware, 4-pin screw terminal for 24V DC; manual on CD-ROM; German/English	
SCALANCE W774-1 RJ45	
IWLAN Access Point with one built-in wireless interface	
• National approvals for operation outside the USA	**6GK5774-1FX00-0AA0**
• National approvals for operation within the USA [3]	**6GK5774-1FX00-0AB0**
• National approvals for operation in Israel [3]	**6GK5774-1FX00-0AC0**
Accessories	
KEY-PLUG W780 iFeatures	**6GK5907-8PA00**
Swap medium for enabling additional iFeatures, for simple device replacement if a fault occurs and for storage of configuration data; can be used in SCALANCE W access points with PLUG compartment	
C-PLUG	**6GK1900-0AB00**
Swap medium for simple replacement of devices if a fault occurs; for storing configuration data; can be used in SIMATIC NET products with PLUG compartment	
IE FC RJ45 Plug 180 2 x 2	
RJ45 connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation-displacement contacts for connecting Industrial Ethernet FC installation cables; with a 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC Standard Cable GP 2 x 2	**6XV1840-2AH10**
4-core, shielded TP installation cable for connection to IE FC outlet RJ45 plug / IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. quantity 1000 m, minimum order 20 m	
IE FC Stripping Tool	**6GK1901-1GA00**
Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	
Antennas and miscellaneous IWLAN accessories	See catalog IK PI, Industrial Wireless LAN/ accessories

[3] Please note national approvals under http://www.siemens.com/wireless-approvals

Brochures

For brochures serving as selection guides for SIMATIC products, refer to

www.siemens.com/simatic/printmaterial

SIPLUS TIM 3V-IE DNP3

Overview

In a station for the S7-CPU, the new SIPLUS communication module TIM 3V-IE DNP3 V3.0 (TeleControl Interface Module) handles the data exchange with the assigned master system SIMATIC PCS 7 TeleControl V8.0 using the open DNP3 protocol. In addition, the V3.0 module now also supports master and node functionality.

- With the S7-300 housing, the module can be fully integrated into the S7-300 system
- The module has an RS232 interface for the connection of an external modem for data transmission via a conventional WAN or the connection of a Modbus RTU slave to an S7-300 system
- The RJ45 port is used for data transmission via IP-based networks

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. Information specific to SIPLUS extreme was added.

SIPLUS TIM 3V-IE	
Article No.	**6AG1803-3BA00-7AA0**
Article No. based on	**6NH7803-3BA00**
Ambient temperature range	-25 … +70 °C
Conformal coating	Coating of the printed circuit boards and the electronic components
Technical specifications	The technical specifications of the standard product apply except for the ambient conditions.
Ambient conditions	
Relative humidity	100%, condensation/frost permissible. No commissioning if condensation present.
Biologically active substances, compliance with EN 60721-3-3	Class 3B2 mold and fungal spores (excluding fauna). The supplied plug covers must remain in place over the unused interfaces during operation.
Chemically active substances, compliance with EN 60721-3-3	Class 3C4 incl. salt spray in accordance with EN60068-2-52 (degree of severity 3). The supplied plug covers must remain in place over the unused interfaces during operation.
Mechanically active substances, compliance with EN 60721-3-3	Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
Air pressure (depending on the highest positive temperature range specified)	1 080 ... 795 hPa (-1 000 ... +2 000 m) see ambient temperature range 795 ... 658 hPa (+2 000 ... +3 500 m) derating 10 K 658 ... 540 hPa (+3 500 ... +5 000 m) derating 20 K

Technical documentation on SIPLUS can be found here:
http://www.siemens.com/siplus-extreme

Ordering data

	Article No.
SIPLUS TIM 3V-IE DNP3 communication module With an RS232 interface for SINAUT communication via a conventional WAN and an IP-based network (WAN or LAN)	**6AG1803-3BA00-7AA0**
Accessories	
Consumables	
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC RJ45 Plug 180 RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/ CPUs with Industrial Ethernet interface • 1 pack = 1 unit -40 ... +70 °C, medial exposure	**6AG1901-1BB10-7AA0**
IE FC Stripping Tool Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	**6GK1901-1GA00**

Overview

In a station for the S7-CPU, the SIPLUS communication module TIM 4R-IE DNP3 (TeleControl Interface Module) handles the data exchange with the assigned SIMATIC PCS7 TeleControl V8.0 master system using the open DNP3 protocol. In addition, the V3.0 module now also supports master and node functionality.

- With the double-width S7-300 housing, the module can be fully integrated into the S7-300 system
- Can be connected as a stand-alone module to a SIMATIC S7-400 and SIMATIC S7-400 H System
- Two RS232/RS485 interfaces support connection of an external modem for data transmission via a conventional WAN or of a Modbus RTU slave to an S7-300 system
- The module has two RJ45 interfaces for data transmission via IP-based networks
- By using physically separate connection paths, the module permits media redundancy without loss of data during the switchover

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. Information specific to SIPLUS extreme was added.

SIPLUS TIM 4R-IE DNP3	
Article No.	**6AG1803-4BA00-7AA0**
Article No. based on	**6NH7803-4BA00-0AA0**
Ambient temperature range	-25 … +70 °C
Conformal coating	Coating of the printed circuit boards and the electronic components
Technical specifications	The technical specifications of the standard product apply except for the ambient conditions.
Ambient conditions	
Relative humidity	100%, condensation/frost permissible. No commissioning if condensation present.
Biologically active substances, compliance with EN 60721-3-3	Class 3B2 mold and fungal spores (excluding fauna). The supplied plug covers must remain in place over the unused interfaces during operation.
Chemically active substances, compliance with EN 60721-3-3	Class 3C4 incl. salt spray in accordance with EN60068-2-52 (degree of severity 3). The supplied plug covers must remain in place over the unused interfaces during operation.
Mechanically active substances, compliance with EN 60721-3-3	Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
Air pressure (depending on the highest positive temperature range specified)	1 080 ... 795 hPa (-1 000 ... +2 000 m) see ambient temperature range 795 ... 658 hPa (+2 000 ... +3 500 m) derating 10 K 658 ... 540 hPa (+3 500 ... +5 000 m) derating 20 K

Technical documentation on SIPLUS can be found here:
http://www.siemens.com/siplus-extreme

Ordering data

	Article No.
SIPLUS TIM 4R-IE DNP3 communication module With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 interfaces for SINAUT communication via IP-based networks (WAN or LAN)	**6AG1803-4BA00-7AA0**
Accessories	
Consumables	
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m	**6XV1840-2AH10**

	Article No.
IE FC RJ45 Plug 180 RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/ CPUs with Industrial Ethernet interface • 1 pack = 1 unit -40 ... +70 °C, medial exposure	**6AG1901-1BB10-7AA0**
IE FC Stripping Tool Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	**6GK1901-1GA00**

Notes

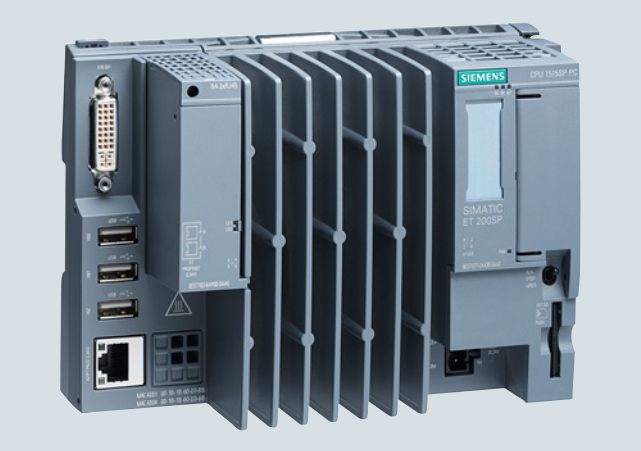
Brochures

For brochures serving as selection guides for SIMATIC products, refer to

www.siemens.com/simatic/printmaterial

SIPLUS CPU 1515SP PC

Overview



- Turnkey, all-in-one solution with pre-installed SIMATIC S7-1500 Software Controller or fail-safe, optionally pre-installed WinCC Runtime Advanced
- Fail-safe versions make it possible to control machines or plants in a fail-safe environment. This makes it possible to address applications which require an SIL3 (Safety Integrity Level) safety class according to IEC 61508 2nd Edition or a PL e (Performance Level) according to ISO 13849.
- Central expansion via ET 200SP modules (station width up to 1 m or up to 64 modules)
- SIMATIC Hypervisor: for separating Windows systems from control functions
- Dual-core processor for optimal use of the hypervisor
- Swappable flash memory (CFast card) for operating system, runtime and project data
- Integrated DVI-I graphics connection; 3x USB 2.0 connection
- 2 PROFINET interfaces: X1 via PN-IO bus adapter (RJ45 or FC) with 2 ports; X2: GB-Ethernet interface (RJ45)
- PROFINET IRT
- Open Ethernet communication (TCP/IP, UDP, Iso-on-TCP)
- Web server functionality for information, status, diagnostics and user-defined webpages
- PROFIBUS DP communication optionally via CM DP module as DP master
- Configuration control (option handling)
- Improved know-how and copy protection; Security Integrated
- Integrated system diagnostics
- Integrated Motion Control functionalities for controlling speed-controlled and positioning axes with support for external encoders.
- Trace function
- Especially suitable for high data volumes and user-specific, open applications
- Integration of control functions and applications implemented in C/C++ (using SIMATIC ODK-1500S Open Development Kit)

Note

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Technical specifications

Article number	**6AG1677-2AA31-4EB0**	**6AG1677-2AA40-4AA0**
based on	**6ES7677-2AA31-0EB0**	**6ES7677-2AA40-0AA0**
	SIPLUS ET 200SP CPU 1515SP PC 4GB	SIPLUS ET 200SP CPU 1515SP PC SPARE 4GB
Ambient conditions		
Ambient temperature during operation		
• min.	0 °C	0 °C
• max.	60 °C; Up to 60 °C with max. 32 ET 200SP modules and 3x 100 mA USB load; up to 55 °C with max. 64 ET 200SP modules and 2x max. 500 mA and 1x max. 100 mA USB load	60 °C; Up to 60 °C with max. 32 ET 200SP modules and 3x 100 mA USB load; up to 55 °C with max. 64 ET 200SP modules and 2x max. 500 mA and 1x max. 100 mA USB load
• horizontal installation, min.	0 °C; = Tmin	0 °C; = Tmin
• horizontal installation, max.	60 °C; = Tmax; up to 60 °C with max. 32 ET 200SP modules and 3x 100 mA USB load; up to 55 °C with max. 64 ET 200SP modules and 2x max. 500 mA and 1x max. 100 mA USB load	60 °C; = Tmax; up to 60 °C with max. 32 ET 200SP modules and 3x 100 mA USB load; up to 55 °C with max. 64 ET 200SP modules and 2x max. 500 mA and 1x max. 100 mA USB load
• vertical installation, min.	0 °C; = Tmin	0 °C; = Tmin
• vertical installation, max.	50 °C; = Tmax; at max. 32 ET 200SP modules and 3x 100 mA USB load	50 °C; = Tmax; at max. 32 ET 200SP modules and 3x 100 mA USB load
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation

Technical specifications (continued)

Article number	**6AG1677-2AA31-4EB0**	**6AG1677-2AA40-4AA0**
based on	**6ES7677-2AA31-0EB0**	**6ES7677-2AA40-0AA0**
	SIPLUS ET 200SP CPU 1515SP PC 4GB	SIPLUS ET 200SP CPU 1515SP PC SPARE 4GB
Resistance		
Coolants and lubricants		
- Resistant to commercially available coolants and lubricants	Yes	Yes
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *
from supply voltage 1L+		
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIMATIC ET 200SP Open Controller CPU 1515SP PC	
(Extended temperature range and exposure to environmental substances)	
ET 200SP CPU with Windows Embedded Standard 7 and pre-installed SIMATIC S7-1500 Software Controller (optionally with WinCC RT Advanced) Type of delivery: English, German, Chinese, Italian, French, Spanish	
Windows embedded Standard 7 E 32-bit, 8 GB CFast card	
• CPU 1515SP PC (4 GB RAM)	**6AG1677-2AA31-4EB0**
Spare part, without CFast card	
• CPU 1515SP PC (4 GB RAM)	**6AG1677-2AA40-4AA0**

	Article No.
Accessories	
BusAdapter BA 2xRJ45	**6AG1193-6AR00-7AA0**
(Extended temperature range and exposure to environmental substances)	
BusAdapter BA 2xFC for increased vibration and EMC loads	**6AG1193-6AF00-7AA0**
(Extended temperature range and exposure to environmental substances)	
Other accessories	See Catalog ST 70, SIMATIC CPU 1515SP PC (F)

Notes

Brochures

For brochures serving as selection guides for SIMATIC products, refer to:

https://www.siemens.com/simatic/printmaterial

Overview

Thanks to their wide scope of functions, the interface modules of the scalable SIMATIC ET 200SP I/O system, even in their basic versions, cover a wide range of applications. The basic functions of the interface modules include:

- Short data update times of typically 1 ms
- Single Hot Swap (withdrawing and insertion of an I/O module during operation without impairing the communication with the remaining modules)
- Operation with gaps (empty BaseUnits)
- Complete diagnostic support, extending to channel-by-channel diagnostics
- Configuration control / option handling (adaptation of the actual configuration via user software)
- Device replacement without PG, with automatic re-initialization, with and without topological configuring
- I&M data 0 to 3 (electronic rating plate with non-volatile storage of plant data)
- Firmware update
- Pluggable 24 V DC supply connection
- Mains/voltage failure buffering time of at least 5 ms or 10 ms
- Labeling option via optional labeling strips and equipment labeling plates

When using PROFINET interface modules, the following basic functions are also included:

- Media redundancy (MRP)
- Integrated 2-port switch
- Freely selectable connection system (Standard function class and above) and physical connection (High Feature function class and above) by means of SIMATIC BusAdapters, also as system-integrated media converter from fiber-optic to copper cable
- Reset button for simple return to factory settings without the need for programming device
- Automatic synchronization of the backplane bus to the PROFINET cycle to minimize the response time fluctuations (jitter)

Listed below is a short overview of the interface modules available for the ET 200SP, showing the essential differences. An up-to-date, clear and more precise comparison of functions of the different interface modules is offered by the TIA Selection Tool.

SIMATIC IM155-6DP High Feature with PROFIBUS connection

- Max. 32 I/O modules, also PROFIsafe modules with complete diagnostic support.
- Expansion option with max. 16 modules from the ET 200AL series using the BU-Send BaseUnit and the BA-Send BusAdapter
- Max. 244 bytes in each case for input and output data per module and per station
- Data update time: typ. 5 ms
- PROFIBUS connection via 9-pin sub D socket
- Package inclusive of server module and PROFIBUS connector with programming device socket

SIMATIC IM155-6PN Basic with PROFINET access

- Max. 12 I/O modules, no PROFIsafe modules, with complete diagnostic support
- Max. 32 bytes in each case for input and output data per module and per station
- Data update time: typ.1 ms
- PROFINET connection via 2 integrated RJ45 sockets (integrated 2-port switch)
- Package inclusive of server module

SIMATIC IM 155-6PN Standard with a PROFINET interface for SIMATIC BusAdapters

- Max. 32 I/O modules, also PROFIsafe modules, with complete diagnostic support
- Expansion option with max. 16 modules from the ET 200AL series using the BU-Send BaseUnit and the BA-Send BusAdapter
- Max. 256 bytes in each case for input and output data per module and max. 512 bytes per station (depending on configuration)
- Data update time: typ.1 ms
- Selection of the type of connection of the PROFINET by means of SIMATIC BusAdapter (BusAdapter for copper cables only)
- Two types of delivery:
  - As package with IM155-6PN ST, with pre-assembled BA 2xRJ45 BusAdapter, including server module
  - As package with IM155-6PN ST, without BusAdapter, including server module

SIMATIC IM 155-6PN High Feature with a PROFINET interface for SIMATIC BusAdapters

- Max. 64 I/O modules, also PROFIsafe modules, with complete diagnostic support
- Expansion option with max. 16 modules from the ET 200AL series using the BU-Send BaseUnit and the BA-Send BusAdapter
- Max. 288 bytes in each case for input and output data per module and max. 1440 bytes per station (depending on configuration)
- Fast data refresh time from 250 µs, also in isochronous mode
- S2 system redundancy
- Choice of connection type and physical connection of the PROFINET by means of SIMATIC BusAdapter. All BusAdapters with a connection for copper and/or fiber-optic cables can be used; BusAdapter must be ordered separately
- Package includes server module

Overview (continued)

SIMATIC IM 155-6PN Speed with a PROFINET interface for SIMATIC BusAdapters

- Max. 30 I/O modules, also PROFIsafe modules, with complete diagnostic support
- Max. 32 bytes in each case for input and output data per module and max. 968 bytes per station (depending on configuration)
- Fast data refresh time from 250 µs, also in isochronous mode
- Performance upgrade for PROFINET
- Choice of connection type and physical connection of the PROFINET by means of SIMATIC BusAdapter. All BusAdapters with a connection for copper and/or fiber-optic cables can be used; BusAdapter must be ordered separately
- Package inclusive of server module

Technical specifications

Article number	**6ES7155-6AR00-0AN0**	**6ES7155-6AA01-0BN0**	**6ES7155-6AU00-0BN0**	**6ES7155-6AU00-0CN0**	**6ES7155-6AU00-0DN0**	**6ES7155-6BA00-0CN0**
	ET 200SP, IM155-6PN BASIC	ET 200SP, IM155-6PN ST INCL. BA 2XRJ45	ET 200SP, IM155-6PN ST	ET 200SP, IM155-6PN HF	ET 200SP, IM155-6PN HS	ET 200SP, IM155-6DP HF INCL. DP-CONNECT.
General information						
Product type designation	IM 155-6 PN BA	IM 155-6 PN ST	IM 155-6 PN ST	IM 155-6 PN HF	IM 155-6 PN HS	IM 155-6 DP HF
Product function						
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M4	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
• Module swapping during operation (hot swapping)	Yes; Single hot swapping	Yes; Single hot swapping	Yes; Single hot swapping	Yes; Multi-hot swapping	Yes; Multi-hot swapping	Yes; Multi-hot swapping
Engineering with						
• STEP 7 TIA Portal configurable/ integrated as of version	V13 SP1	V14	V13 SP1	V13 SP1 Update 6	STEP 7 V14 or higher	V13 SP1
• STEP 7 configurable/integrated as of version	V5.5 SP4 and higher	V5.5 SP4 and higher	V5.5 SP4 and higher	V5.5 SP4 and higher	V5.5 SP4 and higher	V5.5 SP4 and higher
• PROFIBUS as of GSD version/GSD revision						One GSD file each, Revision 3 and 5 and higher
• PROFINET as of GSD version/ GSD revision	V2.3 / -	V2.3 / -	V2.3 / -	- / V2.3	- / V2.3	
Supply voltage						
Type of supply voltage						DC
Rated value (DC)	24 V	24 V	24 V	24 V	24 V	24 V
Reverse polarity protection	Yes	Yes	Yes	Yes	Yes	Yes
Short-circuit protection		Yes				
Mains buffering						
• Mains/voltage failure stored energy time	5 ms	10 ms	5 ms	5 ms	5 ms	5 ms
Power loss						
Power loss, typ.	1.8 W	1.9 W	1.9 W	2.4 W	1.7 W	1.5 W
Hardware configuration						
Rack						
• Modules per rack, max.	12	32; + 16 ET 200AL modules	32; + 16 ET 200AL modules	64; + 16 ET 200AL modules	30	32; + 16 ET 200AL modules
Submodules						
• Number of submodules per station, max.		256	256	256	125	
Interfaces						
Number of PROFINET interfaces	1; 2 ports (switch)	1; 2 ports (switch)	1; 2 ports (switch)	1; 2 ports (switch)	1; 2 ports (switch)	
Number of PROFIBUS interfaces						1

Technical specifications (continued)

Article number	6ES7155-6AR00-0AN0	6ES7155-6AA01-0BN0	6ES7155-6AU00-0BN0	6ES7155-6AU00-0CN0	6ES7155-6AU00-0DN0	6ES7155-6BA00-0CN0
	ET 200SP, IM155-6PN BASIC	ET 200SP, IM155-6PN ST INCL. BA 2XRJ45	ET 200SP, IM155-6PN ST	ET 200SP, IM155-6PN HF	ET 200SP, IM155-6PN HS	ET 200SP, IM155-6DP HF INCL. DP-CONNECT.
1. Interface						
Interface types						
• Number of ports	2	2	2	2	2	
• integrated switch	Yes	Yes	Yes	Yes	Yes	
• RJ45 (Ethernet)	Yes; 2 integrated RJ45 ports	Yes; Pre-assembled BusAdapter BA 2x RJ45				
• RS 485						Yes
• BusAdapter (PROFINET)	No	Yes; Applicable BusAdapter: BA 2x RJ45, BA 2x FC	Yes; Applicable BusAdapter: BA 2x RJ45, BA 2x FC	Yes; Compatible BusAdapter: BA 2x RJ45, BA 2x FC, BA 2x SCRJ (from FS03, V2.2), BA SCRJ / RJ45 (from FS03, V3.1), BA SCRJ / FC (from FS03, V3.1), BA 2x LC (from FS03, V3.3), BA LC / RJ45 (from FS03, V3.3), BA LC / FC (from FS03, V3.3)	Yes; Compatible BusAdapter: BA 2x RJ45, BA 2x FC, BA 2x SCRJ, BA SCRJ / RJ45, BA SCRJ / FC, BA 2x LC, BA LC / RJ45, BA LC / FC	
• Output current of the interface, max.						90 mA
Functionality						
• PROFINET IO Device	Yes	Yes	Yes	Yes	Yes	
• PROFIBUS DP slave						Yes
• Open IE communication	Yes	Yes	Yes	Yes	Yes	
• Media redundancy	Yes; PROFINET MRP	Yes; PROFINET MRP	Yes; PROFINET MRP	Yes; PROFINET MRP	Yes; As MRP or MRPD client; max. 50 or 30 devices in the ring	
Interface types						
RJ45 (Ethernet)						
• Transmission procedure	PROFINET with 100 Mbit/s full duplex (100BASE-TX)	PROFINET with 100 Mbit/s full duplex (100BASE-TX)	PROFINET with 100 Mbit/s full duplex (100BASE-TX)	PROFINET with 100 Mbit/s full duplex (100BASE-TX)	PROFINET with 100 Mbit/s full duplex (100BASE-TX)	
• 10 Mbps	No	Yes; for Ethernet services	No	No	No	
• 100 Mbps	Yes; PROFINET with 100 Mbit/s full duplex (100BASE-TX)	Yes; PROFINET with 100 Mbit/s full duplex (100BASE-TX)	Yes; PROFINET with 100 Mbit/s full duplex (100BASE-TX)	Yes; PROFINET with 100 Mbit/s full duplex (100BASE-TX)	Yes; PROFINET with 100 Mbit/s full duplex (100BASE-TX)	
• Autonegotiation	Yes	Yes	Yes	Yes	Yes	
• Autocrossing	Yes	Yes	Yes	Yes	Yes	
RS 485						
• Transmission rate, max.						12 Mbit/s
PROFINET IO Device						
Services						
- Isochronous mode	No	No	No	Yes; Bus cycle time: min. 250 µs	Yes; Bus cycle time: min. 125 µs	
- Open IE communication	Yes	Yes	Yes	Yes	Yes	
- IRT	No	Yes; with send cycles of between 250 µs and 4 ms in increments of 125 µs	Yes; with send cycles of between 250 µs and 4 ms in increments of 125 µs	Yes; 250 µs, 500 µs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 µs to 4 ms in 125 µs frame	Yes; 125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 µs to 4 ms in 125 µs frame	

Technical specifications (continued)

Article number	**6ES7155-6AR00-0AN0**	**6ES7155-6AA01-0BN0**	**6ES7155-6AU00-0BN0**	**6ES7155-6AU00-0CN0**	**6ES7155-6AU00-0DN0**	**6ES7155-6BA00-0CN0**
	ET 200SP, IM155-6PN BASIC	ET 200SP, IM155-6PN ST INCL. BA 2XRJ45	ET 200SP, IM155-6PN ST	ET 200SP, IM155-6PN HF	ET 200SP, IM155-6PN HS	ET 200SP, IM155-6DP HF INCL. DP-CONNECT.
Services (continued)						
- PROFIenergy	No	Yes	Yes	Yes	Yes	
- Prioritized startup	No	Yes	Yes	Yes	Yes	
- Shared device	No	Yes	Yes	Yes	Yes	
- Number of IO Controllers with shared device, max.		2	2	4	4	
Redundancy mode						
- MRP	Yes	Yes	Yes	Yes	Yes	
- MRPD	No	No	No	No	Yes	
- PROFINET system redundancy (S2)	No	No	No	Yes; NAP S2	No	
Open IE communication						
• TCP/IP	Yes	Yes	Yes	Yes	Yes	
• SNMP	Yes	Yes	Yes	Yes	Yes	
• LLDP	Yes	Yes	Yes	Yes	Yes	
PROFIBUS DP						
Services						
- SYNC capability						Yes
- FREEZE capability						Yes
- DPV0						Yes
- DPV1						Yes
Isochronous mode						
Isochronous operation (application synchronized up to terminal)	No	No	No	Yes	Yes	No
Equidistance	No		No	Yes	Yes	
shortest clock pulse				250 µs	125 µs	
max. cycle				4 ms	4 ms	
Bus cycle time (TDP), min.				250 µs	125 µs	
Interrupts/diagnostics/ status information						
Status indicator	Yes	Yes	Yes	Yes	Yes	Yes
Alarms	Yes	Yes	Yes	Yes	Yes	Yes
Diagnostic functions	Yes	Yes	Yes	Yes	Yes	Yes
Diagnostics indication LED						
• RUN LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• ERROR LED	Yes; Red LED	Yes; Red LED	Yes; Red LED	Yes; Red LED	Yes; Red LED	Yes; Red LED
• MAINT LED	Yes; yellow LED	Yes; yellow LED	Yes; yellow LED	Yes; yellow LED	Yes; yellow LED	Yes; yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Connection display LINK TX/RX	Yes; 2x green LED		Yes; 2x green link LEDs on BusAdapter			
• Connection display DP						Yes; Green DP LED
• Connection to network LINK (green)		Yes; 2x green link LEDs on BusAdapter		Yes; 2x green link LEDs on BusAdapter	Yes; 2x green link LEDs on BusAdapter	
Isolation						
Isolation tested with		707 V DC (type test)	707 V DC between supply voltage and electronics; 1 500 V AC between Ethernet and electronics	707 V DC between supply voltage and electronics (type test); 1 500 V AC between Ethernet and electronics (type test)	707 V DC between supply voltage and electronics (type test); 1 500 V AC between Ethernet and electronics (type test)	707 V DC (type test)
Standards, approvals, certificates						
Network loading class	2	2	2	3	3	
Security level		According to Security Level 1 Test Cases V1.1.1	According to Security Level 1 Test Cases V1.1.1	According to Security Level 1 Test Cases V1.1.1	According to Security Level 1 Test Cases V1.1.1	

Technical specifications (continued)

Article number	6ES7155-6AR00-0AN0 ET 200SP, IM155-6PN BASIC	6ES7155-6AA01-0BN0 ET 200SP, IM155-6PN ST INCL. BA 2XRJ45	6ES7155-6AU00-0BN0 ET 200SP, IM155-6PN ST	6ES7155-6AU00-0CN0 ET 200SP, IM155-6PN HF	6ES7155-6AU00-0DN0 ET 200SP, IM155-6PN HS	6ES7155-6BA00-0CN0 ET 200SP, IM155-6DP HF INCL. DP-CONNECT.
Ambient conditions						
Ambient temperature during operation						
• horizontal installation, min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
• horizontal installation, max.	60 °C	60 °C	60 °C	60 °C	60 °C	60 °C
• vertical installation, min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
• vertical installation, max.	50 °C	50 °C	50 °C	50 °C	50 °C	50 °C
Dimensions						
Width	35 mm	50 mm	50 mm	50 mm	50 mm	50 mm
Height	117 mm	117 mm	117 mm	117 mm	117 mm	117 mm
Depth	74 mm	74 mm	74 mm	74 mm	74 mm	74 mm
Weights						
Weight, approx.	125 g	190 g; IM 155-6 PN BA with 2x RJ45 ports and server module	147 g; without BusAdapter	147 g; without BusAdapter	147 g; without BusAdapter	150 g

Ordering data

	Article No.
IM155-6PN Basic PROFINET interface module With server module; two integrated RJ45 sockets	**6ES7155-6AR00-0AN0**
IM155-6PN Basic PROFINET interface module With server module	
• With attached SIMATIC BA 2xRJ45 BusAdapter	**6ES7155-6AA01-0BN0**
• Without SIMATIC BusAdapter	**6ES7155-6AU00-0BN0**
IM155-6PN High Feature PROFINET interface module With server module, without SIMATIC BusAdapter	**6ES7155-6AU00-0CN0**
IM155-6PN High Speed PROFINET interface module With server module, without SIMATIC BusAdapter	**6ES7155-6AU00-0DN0**
IM155-6DP High Feature PROFIBUS interface module With server module, with PROFIBUS plug with PG socket	**6ES7155-6BA00-0CN0**
Accessories	
SIMATIC BA 2xRJ45 BusAdapter For PROFINET interface modules from Standard function class or above; max. cable length 50 m	**6ES7193-6AR00-0AA0**
SIMATIC BA 2xFC BusAdapter For PROFINET interface modules from Standard function class or above; for increased vibration and EMC loads; max. cable length 50 m	**6ES7193-6AF00-0AA0**
SIMATIC BA 2xSCRJ BusAdapter For PROFINET interface modules from High Feature function class or above; fiber-optic cable connection for POF or PCF; for increased vibration and EMC load capacity; max. cable length 50 m (POF) or 100 m (PCF)	**6ES7193-6AP00-0AA0**
SIMATIC BA SCRJ/RJ45 BusAdapter For PROFINET interface modules from High Feature function class or above; with media converter FOC-Cu; for increased vibration and EMC loads; max. cable length 50 m (POF, copper) or 100 m (PCF)	**6ES7193-6AP20-0AA0**
SIMATIC BA SCRJ/FC BusAdapter For PROFINET interface modules from High Feature function class or above; with media converter FOC-Cu; for increased vibration and EMC loads; max. cable length 50 m (POF, copper) or 100 m (PCF)	**6ES7193-6AP40-0AA0**
SIMATIC BA 2XLC BusAdapter For PROFINET interface modules from High Feature function class or above; with LC fiber-optic connection; for increased vibration and EMC load capacity; max. cable length 2 km	**6ES7193-6AG00-0AA0**
SIMATIC BA LC/RJ45 BusAdapter For PROFINET interface modules from High Feature function class or above; with media converter FOC-Cu; for increased vibration and EMC loads; max. cable length 2 km (glass) or 50 m (copper)	**6ES7193-6AG20-0AA0**
SIMATIC BA LC/FC BusAdapter For PROFINET interface modules from High Feature function class or above; with media converter FOC-Cu; for increased vibration and EMC loads; max. cable length 2 km (glass) or 50 m (copper)	**6ES7193-6AG40-0AA0**
Station expansion with IP67 I/O system ET 200AL	
ET 200SP BA-Send 1 x FC BusAdapter	**6ES7193-6AS00-0AA0**
BaseUnit BU-Send	**6ES7193-6BN00-0NE0**

Ordering data	Article No.
Additional accessories	
Labeling strips	
500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AA0**
500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AG0**
1000 labeling strips DIN A4, light gray, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AA0**
1000 labeling strips DIN A4, yellow, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AG0**
Reference identification label	**6ES7193-6LF30-0AW0**
10 sheets of 16 labels, for printing with thermal transfer card printer or plotter	
DIN rail 35 mm	
Length: 483 mm for 19" cabinets	**6ES5710-8MA11**
Length: 530 mm for 600 mm cabinets	**6ES5710-8MA21**
Length: 830 mm for 900 mm cabinets	**6ES5710-8MA31**
Length: 2 m	**6ES5710-8MA41**
Manuals for ET 200SP distributed I/O system	
SIMATIC ET 200SP Manual Collection: PDF file with the following content: • Basic information System manual, product information, overview tables, correction information or manual supplements • Device-specific information Device manuals for the interface modules, PLC, OC and I/O modules, including fail-safe and motor starters • Comprehensive information Function manuals The Manual Collection can be downloaded from the Internet as a PDF file: https://support.industry.siemens.com/cs/de/en/view/84133942	

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	
Spare parts	
Server module	**6ES7193-6PA00-0AA0**
Terminates an ET 200SP station; included in the scope of delivery of the interface modules	
Power supply connector for ET 200SP head-end stations (interface module, CPU and open controller)	
For connecting the 24 V DC supply voltage, push-in version; included in scope of delivery of the head-end station	
with push-in terminals (10 units)	**6ES7193-4JB00-0AA0**
with screw-type terminals (10 units)	**6ES7193-4JB50-0AA0**

Overview

- Interface module for linking the I/O modules to a higher-level controller with PROFINET or PROFIBUS
- Server module included in the scope of supply
- Station expansion with IP67 I/O system ET 200AL via ET-connection to BU-Send / BA-Send
- PROFINET bus connection
  - 2 ports for line configuration
  - PN connection selected via BusAdapter (ST, HF)
  - Two integrated RJ45 sockets (BA)
- PROFIBUS bus connection
  - 9-pin sub D socket
  - PROFIBUS connector included in scope of delivery
  - Hot swapping (module replacement during operation)
  - Startup and operation with gaps
  - Dynamic re-parameterization in RUN mode
  - Configuration control (option handling)
  - Pluggable 24 V DC supply connector
  - Electronically readable rating plate (I&M data)

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Technical specifications

Article number	**6AG1155-6AA01-7BN0**	**6AG1155-6AU00-2CN0**	**6AG1155-6AU01-7BN0**	**6AG1155-6BA00-7CN0**
based on	**6ES7155-6AA01-0BN0**	**6ES7155-6AU00-0CN0**	**6ES7155-6AU01-0BN0**	**6ES7155-6BA00-0CN0**
	SIPLUS ET 200SP IM155-6PN ST / BA	SIPLUS ET 200SP IM155-6PN HF	SIPLUS ET 200SP IM155-6PN ST	SIPLUS ET 200SP IM155-6DP HF
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.	-40 °C; = Tmin	-40 °C; = Tmin; Startup @ -25 °C	-40 °C; = Tmin	-40 °C; = Tmin; Startup @ -25 °C
• horizontal installation, max.	70 °C; = Tmax	60 °C; = Tmax	70 °C; = Tmax	70 °C; = Tmax
• vertical installation, min.	-40 °C; = Tmin	0 °C	-40 °C; = Tmin	-40 °C; = Tmin; Startup @ -25 °C
• vertical installation, max.	50 °C; = Tmax	50 °C	50 °C; = Tmax	50 °C; = Tmax
Altitude during operation relating to sea level				
• Installation altitude above sea level, max.	5 000 m	5 000 m	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity				
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation	100 %; RH incl. condensation / frost (no commissioning in bedewed state)
Resistance				
Coolants and lubricants				
- Resistant to commercially available coolants and lubricants		Yes		Yes

Technical specifications (continued)

Article number	**6AG1155-6AA01-7BN0**	**6AG1155-6AU00-2CN0**	**6AG1155-6AU01-7BN0**	**6AG1155-6BA00-7CN0**
based on	**6ES7155-6AA01-0BN0**	**6ES7155-6AU00-0CN0**	**6ES7155-6AU01-0BN0**	**6ES7155-6BA00-0CN0**
	SIPLUS ET 200SP IM155-6PN ST / BA	SIPLUS ET 200SP IM155-6PN HF	SIPLUS ET 200SP IM155-6PN ST	SIPLUS ET 200SP IM155-6DP HF
Use in stationary industrial systems				
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea				
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *
Note				
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIPLUS PROFINET IM155-6PN Standard interface module	
(extended temperature range and exposure to environmental substances)	
• IM 155-6PN ST, with server module and installed BA 2xRJ45 BusAdapter, plus extended power failure backup time	**6AG1155-6AA01-7BN0**
SIPLUS interface module High Feature	
(extended temperature range and exposure to environmental substances)	
• IM 155-6DP HF, with server module, with multi-hot-swap, incl. PROFIBUS connector	**6AG1155-6BA00-7CN0**
• IM 155-6PN HF, incl. server module, without BusAdapter	**6AG1155-6AU00-2CN0**
• IM 155-6PN HF, including server module, without BusAdapter, plus extended power failure backup time	**6AG1155-6AU01-7BN0**
Accessories	See SIMATIC ET 200SP, IM 155-6 interface module

9

Overview

- 4, 8 and 16-channel digital input (DI) modules
- Apart from the standard type of delivery in an individual package, selected I/O modules and BaseUnits are also available in a pack of 10 units. The pack of 10 units enables the amount of waste to be reduced considerably, as well as saving the time of unpacking individual modules.

For different requirements, the digital input modules offer:

- Function classes Basic, Standard, High Feature and High Speed as well as fail-safe DI (see "Fail-safe I/O modules")
- BaseUnits for single or multiple-conductor connection with automatic slot coding
- Potential distribution modules for system-integrated expansion with additional potential terminals
- Individual system-integrated load group formation with self-assembling voltage distribution bars (a separate power module is no longer required for ET 200SP)
- Option of connecting sensors compliant with IEC 61131 type 1, 2 or 3 (module-dependent) for rated voltages of up to 24 V DC or 230 V AC
- PNP (sink input) and NPN (source input) versions
- Clear labeling on front of module
- LEDs for diagnostics, status, supply voltage and faults (e.g. wire break/short-circuit)
- Electronically readable and non-volatile writable rating plate (I&M data 0 to 3)
- Extended functions and additional operating modes in some cases
  - MSI operating mode (simultaneous reading of input data from as many as three other controllers)
  - Counting operating mode (multi-channel counter for pulse generators with 32-bit counting width and up to 10 kHz counting frequency)
  - Oversampling operating mode (n-fold equidistant acquisition of digital values within one PN cycle for increasing the time resolution for slow CPU cycles)
  - Parameterizable input delay time
  - Isochronous mode (simultaneous equidistant reading of all input channels)
  - Hardware interrupts
  - Pulse extension
  - Re-parameterization during operation
  - Firmware update
  - Diagnosis of wire break and short-circuit (on channel or module basis)
  - Value status (optional binary validity information of the input signal in the process image)
  - Supports the PROFIenergy profile
- Optional accessories
  - Labeling strips (film or card)
  - Equipment labeling plate
  - Color-coded label with module-specific CC code
  - Shielding terminal

A quick and clear comparison of the functions of the different DI modules is offered by the TIA Selection Tool.

Overview of digital input modules

Digital input	PU	Article No.	CC code	BU type
DI 16 x 24 V DC ST	1	6ES7131-6BH01-0BA0	CC00	A0
DI 16 x 24 V DC ST	10	6ES7131-6BH01-2BA0	CC00	A0
DI 8 x 24 V DC BA	1	6ES7131-6BF01-0AA0	CC01	A0
DI 8 x 24 V DC BA	10	6ES7131-6BF01-2AA0	CC01	A0
DI 8 x 24 V DC SRC BA	1	6ES7131-6BF61-0AA0	CC02	A0
DI 8 x 24 V DC ST	1	6ES7131-6BF01-0BA0	CC01	A0
DI 8 x 24 V DC ST	10	6ES7131-6BF01-2BA0	CC01	A0
DI 8 x 24 V DC HF	1	6ES7131-6BF00-0CA0	CC01	A0
DI 8 x NAMUR HF	1	6ES7131-6TF00-0CA0	CC01	A0
DI 8 x 24 V DC HS With three operating modes: • High-speed isochronous DI • 4 pulse counters, 32-bit, 10 kHz • Oversampling	1	6ES7131-6BF00-0DA0	CC01	A0
DI 4 x 120 ... 230 V AC ST	1	6ES7131-6FD01-0BB1	CC41	B1

Overview (continued)

Overview of BaseUnits

BaseUnit	PU	Article No.	CC codes for process terminals	CC codes for AUX terminals
BU type A0 • New load group (light) • 16 process terminals • With 10 AUX terminals	1	6ES7193-6BP20-0DA0	CC00 to CC05	CC71 to CC73
BU type A0 • New load group (light) • 16 process terminals • With 10 AUX terminals	10	6ES7193-6BP20-2DA0	CC00 to CC05	CC71 to CC73
BU type A0 • New load group (light) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0DA0	CC00 to CC05	--
BU type A0 • New load group (light) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2DA0	CC00 to CC05	--
BU type A0 • Forwarding of load group (dark) • 16 process terminals • With 10 AUX terminals	1	6ES7193-6BP20-0BA0	CC00 to CC05	CC71 to CC73
BU type A0 • Forwarding of load group (dark) • 16 process terminals • With 10 AUX terminals	10	6ES7193-6BP20-2BA0	CC00 to CC05	CC71 to CC73
BU type A0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0BA0	CC00 to CC05	--
BU type A0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2BA0	CC00 to CC05	--
BU type B1 • Forwarding of load group (dark) • 12 process terminals • 2 x 2 (1L, 2L, 1N, 2N) direct infeed module • Without AUX terminals	1	6ES7193-6BP20-0BB1	CC41	--

Overview of potential distribution modules

Potential distribution module	PU	Article No.	CC codes for process terminals
PotDis BU Type P1 (light), 17x P1 potential, 1x P2 potential, for beginning a new load group (max. 10 A)	1	6ES7193-6UP00-0DP1	CC00, CC62
PotDis BU Type P1 (dark), 17x P1 potential, 1x P2 potential, for continuing the load group	1	6ES7193-6UP00-0BP1	CC00, CC62
PotDis BU Type P2 (light), 1x P1 potential, 17x P2 potential, for beginning a new load group (max. 10 A)	1	6ES7193-6UP00-0DP2	CC00, CC63
PotDis BU Type P2 (dark), 1x P1 potential, 17x P2 potential, for continuing the load group	1	6ES7193-6UP00-0BP2	CC00, CC63

Overview (continued)

Potential distribution module	PU	Article No.	CC codes for process terminals
PotDis TB Type BR-W, 18x internally jumpered terminals, without connection to P1, P2 or AUX, (total current max. 10 A)	1	6ES7193-6TP00-0TP0	CC10 to CC13
PotDis TB Type P1-R, 18x P1 potential, (total current max. 10 A)	1	6ES7193-6TP00-0TP1	CC10, CC12
PotDis TB Type P2-B, 18x P2 potential, (total current max. 10 A)	1	6ES7193-6TP00-0TP2	CC10, CC13
PotDis TB Type n.c.-G, 18x n.c. (not connected) terminals, without reference to P1, P2 or AUX	1	6ES7193-6TP00-0TN0	CC10

Technical specifications

Article number	**6ES7131-6BF01-0AA0** ET 200SP, DI 8x 24V DC Basic, PU 1	**6ES7131-6BF61-0AA0** ET 200SP, DI 8x 24V DC SRC BA	**6ES7131-6BF01-0BA0** ET 200SP, DI 8x 24V DC ST, PU 1	**6ES7131-6BH01-0BA0** ET 200SP, DI 16x 24V DC ST, PU 1
General information				
Product type designation	DI 8x24 VDC BA	DI 8x24 VDC SRC BA	DI 8x24 VDC ST	DI 16x24 VDC ST
Product function				
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with				
• STEP 7 TIA Portal configurable/ integrated as of version	V14	V14	V14	V14
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 or higher	V5.5 SP3
• PCS 7 configurable/integrated as of version			V8.1 SP1	V8.1 SP1
• PROFIBUS as of GSD version/ GSD revision	One GSD file each, Revision 3 and 5 and higher	One GSD file each, Revision 3 and 5 and higher	One GSD file each, Revision 3 and 5 and higher	One GSD file each, Revision 3 and 5 and higher
• PROFINET as of GSD version/ GSD revision	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3
Operating mode				
• DI	Yes	Yes	Yes	Yes
• Counter	No	No	No	No
• Oversampling	No	No	No	No
• MSI	No	No	No	No
Supply voltage				
Type of supply voltage	DC	24 V DC	DC	DC
Rated value (DC)	24 V	24 V	24 V	24 V
Reverse polarity protection	Yes	Yes	Yes	Yes
Encoder supply				
Number of outputs	8		8	
Output voltage encoder supply, min.	19.2 V		19.2 V	
Short-circuit protection	Yes; per module	No	Yes; per module	
24 V encoder supply				
• 24 V	Yes		Yes	No
• Short-circuit protection	Yes		Yes	
• Output current, max.			700 mA; Total current of all encoders	

Technical specifications (continued)

Article number	6ES7131-6BF01-0AA0	6ES7131-6BF61-0AA0	6ES7131-6BF01-0BA0	6ES7131-6BH01-0BA0
	ET 200SP, DI 8x 24V DC Basic, PU 1	ET 200SP, DI 8x 24V DC SRC BA	ET 200SP, DI 8x 24V DC ST, PU 1	ET 200SP, DI 16x 24V DC ST, PU 1
Digital inputs				
Number of digital inputs	8	8	8	16
Digital inputs, parameterizable	Yes	Yes	Yes	Yes
Source/sink input	P-reading	m-reading	P-reading	P-reading
Input characteristic curve in accordance with IEC 61131, type 1		Yes		
Input characteristic curve in accordance with IEC 61131, type 2	Yes			
Input characteristic curve in accordance with IEC 61131, type 3			Yes	Yes
Input voltage				
• Type of input voltage	DC	DC	DC	DC
• Rated value (DC)	24 V	24 V	24 V	24 V
• for signal "0"	-30 to +5V	30 V to -5 V (reference potential is L+)	-30 to +5V	-30 to +5V
• for signal "1"	+11 to +30V	-11 V to -30 V (reference potential is L+)	+11 to +30V	+11 to +30V
Input current				
• for signal "1", typ.	6.8 mA	6 mA	2.5 mA	2.5 mA
Input delay (for rated value of input voltage)				
for standard inputs				
- parameterizable	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)
Cable length				
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m
• unshielded, max.	600 m	200 m	600 m	600 m
Encoder				
Connectable encoders				
• 2-wire sensor	Yes	Yes	Yes	Yes
- permissible quiescent current (2-wire sensor), max.	2 mA	1.5 mA	1.5 mA	1.5 mA
Isochronous mode				
Isochronous operation (application synchronized up to terminal)	No	No	No	No
Interrupts/diagnostics/ status information				
Diagnostics function	Yes	Yes	Yes	Yes
Alarms				
• Diagnostic alarm	Yes	Yes	Yes	Yes
Diagnostic messages				
• Diagnostic information readable	Yes	Yes	Yes	Yes
• Monitoring the supply voltage	Yes	Yes	Yes	Yes
- parameterizable	Yes	Yes	Yes	Yes
• Monitoring of encoder power supply	No	No	Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm	No
• Wire-break	No	No	Yes; Module-wise	Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm
• Short-circuit	No	No	Yes; Module-wise	No
• Group error				Yes

9

Technical specifications (continued)

Article number	6ES7131-6BF01-0AA0 ET 200SP, DI 8x 24V DC Basic, PU 1	6ES7131-6BF61-0AA0 ET 200SP, DI 8x 24V DC SRC BA	6ES7131-6BF01-0BA0 ET 200SP, DI 8x 24V DC ST, PU 1	6ES7131-6BH01-0BA0 ET 200SP, DI 16x 24V DC ST, PU 1
Diagnostics indication LED				
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• for channel diagnostics	No	No	No	No
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation				
Potential separation channels				
• between the channels and backplane bus	Yes	Yes	Yes	Yes
Isolation				
Isolation tested with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)
Standards, approvals, certificates				
Suitable for safety functions		No		No
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.	0 °C		0 °C	0 °C
• horizontal installation, max.	60 °C		60 °C	60 °C
• vertical installation, min.	0 °C		0 °C	0 °C
• vertical installation, max.	50 °C		50 °C	50 °C
Altitude during operation relating to sea level				
• Ambient air temperature-barometric pressure-altitude	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m
Dimensions				
Width	15 mm	15 mm	15 mm	15 mm
Height	73 mm	73 mm	73 mm	73 mm
Depth	58 mm	58 mm	58 mm	58 mm
Weights				
Weight, approx.	28 g	28 g	28 g	28 g

Article number	6ES7131-6BF00-0CA0 ET 200SP, DI 8X24VDC HF	6ES7131-6BF00-0DA0 ET 200SP, DI 8X24VDC HIGH SPEED	6ES7131-6TF00-0CA0 ET 200SP, DI 8XNAMUR HF	6ES7131-6FD01-0BB1 ET 200SP, DI 4x 120..230V AC ST
General information				
Product type designation	DI 8x24 V DC HF	DI 8x24 V DC HS	DI 8xNAMUR HF	DI 4x120 … 230 V AC ST
Product function				
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with				
• STEP 7 TIA Portal configurable/integrated as of version	V13 SP1 / -	V13 SP1	V13 / V13	V14
• STEP 7 configurable/integrated as of version	V5.5 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3
• PCS 7 configurable/integrated as of version	V8.1 SP1			
• PROFIBUS as of GSD version/GSD revision	One GSD file each, Revision 3 and 5 and higher	GSD Revision 5	GSD Revision 5	One GSD file each, Revision 3 and 5 and higher
• PROFINET as of GSD version/GSD revision	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3
Operating mode				
• DI	Yes	Yes	Yes	Yes
• Counter	No	Yes	No	No
• Oversampling	No	Yes	No	No
• MSI	Yes	No	No	No

Technical specifications (continued)

Article number	**6ES7131-6BF00-0CA0**	**6ES7131-6BF00-0DA0**	**6ES7131-6TF00-0CA0**	**6ES7131-6FD01-0BB1**
	ET 200SP, DI 8X24VDC HF	ET 200SP, DI 8X24VDC HIGH SPEED	ET 200SP, DI 8XNAMUR HF	ET 200SP, DI 4x 120..230V AC ST
Supply voltage				
Type of supply voltage	DC	DC	24 V DC	100 - 240 V AC
Rated value (DC)	24 V	24 V	24 V	
Rated value (AC)				230 V
Reverse polarity protection	Yes	Yes	Yes	No
Encoder supply				
Number of outputs	8		8	4
Output voltage encoder supply, min.	19.2 V			
Short-circuit protection	Yes		Yes	No; when using BU type B1, a fuse with 10 A tripping current must be provided
Output current				
• up to 60 °C, max.				10 A
24 V encoder supply				
• 24 V	Yes	Yes	No	
• Short-circuit protection	Yes; per channel, electronic	Yes; per module, electronic	No	
• Output current, max.		700 mA		
Digital inputs				
Number of digital inputs	8	8	8; NAMUR	4
Digital inputs, parameterizable	Yes		Yes	
Source/sink input	P-reading	P-reading		
Input characteristic curve in accordance with IEC 61131, type 3	Yes			Yes
Pulse extension	Yes; Pulse duration from 4 µs	Yes	Yes; 0.5 s, 1 s, 2 s	
• Length	2 s; 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 2 s	2 s; 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 2 s		
Edge evaluation	Yes; rising edge, falling edge, edge change		Yes; rising edge, falling edge, edge change	
Signal change flutter			Yes; 2 to 32 signal changes	
Flutter observation window			Yes; 0.5 s, 1 s to 100 s in 1-s steps	
Digital input functions, parameterizable				
• Gate start/stop		Yes		
• Freely usable digital input		Yes		
• Counter		Yes		
- Number, max.		4		
- Counting frequency, max.		10 kHz		
- Counting width		32 bit		
- Counting direction up/down		Yes		
• Digital input with oversampling		Yes		
- Number, max.		8		
- Values per cycle, max.		32		
- Resolution, min.		7.8125 µs		
Input voltage				
• Type of input voltage	DC	DC	DC	120/230 V AC (47 Hz to 63 Hz)
• Rated value (DC)	24 V	24 V	8.2 V	
• Rated value (AC)				230 V
• for signal "0"	-30 to +5V	-30 to +5V		0V AC to 40V AC
• for signal "1"	+11 to +30V	+11 to +30V		74 V AC to 264 V AC

Technical specifications (continued)

Article number	6ES7131-6BF00-0CA0 ET 200SP, DI 8X24VDC HF	6ES7131-6BF00-0DA0 ET 200SP, DI 8X24VDC HIGH SPEED	6ES7131-6TF00-0CA0 ET 200SP, DI 8XNAMUR HF	6ES7131-6FD01-0BB1 ET 200SP, DI 4x 120..230V AC ST
Input current				
• for signal "1", typ.	2.5 mA	6 mA		10.8 mA
for 10 k switched contact				
- for signal "0"			0.35 to 1.2 mA	
- for signal "1"			2.1 to 7 mA	
for unswitched contact				
- for signal "0", max. (permissible quiescent current)			0.5 mA	
- for signal "1"			typ. 8 mA	
for NAMUR encoders				
- for signal "0"			0.35 to 1.2 mA	
- for signal "1"			2.1 to 7 mA	
Input delay (for rated value of input voltage)				
• tolerated changeover time for changeover contacts			300 ms	
for standard inputs				
- parameterizable	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms	No	No
for interrupt inputs				
- parameterizable		Yes		
for counter/technological functions				
- parameterizable		Yes		
for NAMUR inputs				
- at "0" to "1", max.			12 ms	
- at "1" to "0", max.			12 ms	
Cable length				
• shielded, max.	1 000 m	50 m	200 m	1 000 m
• unshielded, max.	600 m	50 m		600 m
Encoder				
Connectable encoders				
• NAMUR encoder / changeover contact according to EN 60947			Yes	
• Single contact / changeover contact unconnected			Yes	
• Single contact / changeover contact connected with 10 kΩ			Yes	
• 2-wire sensor	Yes	Yes		Yes
- permissible quiescent current (2-wire sensor), max.	1.5 mA	1.5 mA		
Isochronous mode				
Isochronous operation (application synchronized up to terminal)	Yes	Yes	No	No
Filtering and processing time (TCI), min.	420 µs			
Bus cycle time (TDP), min.	500 µs	125 µs		
Interrupts/diagnostics/ status information				
Diagnostics function	Yes	Yes	Yes	
Alarms				
• Diagnostic alarm	Yes; channel by channel	Yes	Yes; channel by channel	No
• Hardware interrupt	Yes; Parameterizable, channels 0 to 7	Yes	Yes; Parameterizable, channels 0 to 7	No

Technical specifications (continued)

Article number	**6ES7131-6BF00-0CA0** ET 200SP, DI 8X24VDC HF	**6ES7131-6BF00-0DA0** ET 200SP, DI 8X24VDC HIGH SPEED	**6ES7131-6TF00-0CA0** ET 200SP, DI 8XNAMUR HF	**6ES7131-6FD01-0BB1** ET 200SP, DI 4x 120..230V AC ST
Diagnostic messages				
• Diagnostic information readable	Yes	Yes	Yes	
• Monitoring the supply voltage	Yes	Yes	Yes	No
- parameterizable	Yes	Yes	Yes	
• Monitoring of encoder power supply	Yes; channel by channel	Yes; Module-wise	Yes; channel by channel	
• Wire-break	Yes; Channel by channel, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm	No	Yes; channel by channel	No
• Short-circuit	Yes; channel by channel	Yes; Module-wise	Yes; channel by channel	No
• Group error			Yes	
Diagnostics indication LED				
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• for channel diagnostics	Yes; Red LED	No	Yes; Red LED	No
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation				
Potential separation channels				
• between the channels and backplane bus	Yes	Yes	Yes	Yes
Isolation				
Isolation tested with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	2 545 V DC/2 s (routine test)
Standards, approvals, certificates				
Suitable for safety functions	No	No	No	No
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.	0 °C			
• horizontal installation, max.	60 °C			
• vertical installation, min.	0 °C			
• vertical installation, max.	50 °C			
Altitude during operation relating to sea level				
• Ambient air temperature-barometric pressure-altitude	On request: Negative ambient temperature down to -30 °C (without condensation), installation altitudes between 2 000 m and 5 000 m			On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m
Dimensions				
Width	15 mm	15 mm	15 mm	20 mm
Height	73 mm	73 mm	73 mm	73 mm
Depth	58 mm	58 mm	58 mm	58 mm
Weights				
Weight, approx.	28 g	28 g	32 g	36 g

Ordering data	Article No.
Digital input modules	
Delivery options: Apart from the standard type of delivery in an individual package, selected I/O modules and BaseUnits are also available in a pack of 10 units. The pack of 10 units enables the amount of waste to be reduced considerably, as well as saving the time of unpacking individual modules. The number of modules required is the number of modules ordered. The type of packaging is chosen by selecting the article number. Packs of 10 can therefore only be ordered in integer multiples of 10.	
Digital input module DI 8x24 V DC, Basic, BU type A0, color code CC01	
• PU: 1 unit	**6ES7131-6BF01-0AA0**
• PU: 10 units	**6ES7131-6BF01-2AA0**
Digital input module DI 8x24 V DC Source Input, Basic, BU type A0, color code CC02; PU: 1 unit	**6ES7131-6BF61-0AA0**
Digital input module DI 8x24 V DC Standard, BU type A0, color code CC01	
• PU: 1 unit	**6ES7131-6BF01-0BA0**
• PU: 10 units	**6ES7131-6BF01-2BA0**
Digital input module DI 16 x 24 V DC Standard, BU type A0, color code CC00	
• PU: 1 unit	**6ES7131-6BH01-0BA0**
• PU: 10 units	**6ES7131-6BH01-2BA0**
Digital input module DI 8x24 V DC High Feature, BU type A0, color code CC01, channel-specific diagnostics, isochronous mode, shared input (MSI); PU: 1 unit	**6ES7131-6BF00-0CA0**
Digital input module DI 8x24 V DC High Speed, BU type A0, color code CC01; 3 operating modes (fast isochronous DI, 4 pulse counters 32-bit 10 kHz, oversampling); PU: 1 unit	**6ES7131-6BF00-0DA0**
Digital input module DI 8xNAMUR High Feature, BU type A0, color code CC01; PU: 1 unit	**6ES7131-6TF00-0CA0**
Digital input module DI 4x120 V AC ... 230 V AC Standard, BU type B1, color code CC41; PU: 1 unit	**6ES7131-6FD01-0BB1**
Usable BaseUnits	
BU15-P16+A10+2D	
BU type A0; BaseUnit (light) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP20-0DA0**
• 10 units	**6ES7193-6BP20-2DA0**
BU15-P16+A0+2D	
BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP00-0DA0**
• 10 units	**6ES7193-6BP00-2DA0**
BU15-P16+A10+2B	
BU type A0; BaseUnit (dark) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	
• 1 unit	**6ES7193-6BP20-0BA0**
• 10 units	**6ES7193-6BP20-2BA0**
BU15-P16+A0+2B	
BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
• 1 unit	**6ES7193-6BP00-0BA0**
• 10 units	**6ES7193-6BP00-2BA0**
BU20-P12+A0+4B	**6ES7193-6BP20-0BB1**
BU type B1; BaseUnit (dark) with 12 process terminals to the module; for continuing the load group; 1 unit	
Potential distribution modules	
PotDis BU	
PotDis BU, type P1 (light), 17x P1 potential, 1x P2 potential, for beginning a new load group (max. 10 A)	**6ES7193-6UP00-0DP1**
PotDis BU, type P1 (dark), 17x P1 potential, 1x P2 potential, for continuing the load group	**6ES7193-6UP00-0BP1**
PotDis BU, type P2 (light), 1x P1 potential, 17x P2 potential, for beginning a new load group (max. 10 A)	**6ES7193-6UP00-0DP2**
PotDis BU, type P2 (dark), 1x P1 potential, 17x P2 potential, for continuing the load group	**6ES7193-6UP00-0BP2**
PotDis TB	
PotDis TB, type BR-W, 18x internally jumpered terminals, without connection to P1, P2 or AUX, (total current max. 10 A)	**6ES7193-6TP00-0TP0**
PotDis TB, type P1-R, 18x P1 potential, (total current max. 10 A)	**6ES7193-6TP00-0TP1**
PotDis TB, type P2-B, 18x P2 potential, (total current max. 10 A)	**6ES7193-6TP00-0TP2**
PotDis TB, type n.c.-G, 18x n.c. (not connected) terminals, without reference to P1, P2 or AUX	**6ES7193-6TP00-0TN0**

Ordering data	Article No.
Accessories	
Equipment labeling plate	**6ES7193-6LF30-0AW0**
10 sheets of 16 labels, for printing with thermal transfer card printer or plotter	
Labeling strips	
500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AA0**
500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AG0**
1000 labeling strips DIN A4, light gray, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AA0**
1000 labeling strips DIN A4, yellow, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AG0**
BU cover	
For covering empty slots (gaps); 5 units	
• 15 mm wide	**6ES7133-6CV15-1AM0**
• 20 mm wide	**6ES7133-6CV20-1AM0**
Shield connection	**6ES7193-6SC00-1AM0**
5 shield supports and 5 shield terminals	
Color-coded labels for 15 mm-wide BaseUnits	
Color code CC00, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 10 units	**6ES7193-6CP00-2MA0**
Color code CC01, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 10 units	**6ES7193-6CP01-2MA0**
Color code CC01, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 50 units	**6ES7193-6CP01-4MA0**
Color code CC02, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), blue (terminals 9 to 16); 10 units	**6ES7193-6CP02-2MA0**
Color code CC02, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), blue (terminals 9 to 16); 50 units	**6ES7193-6CP02-4MA0**
Color code CC71, for 10 AUX terminals, BU type A0, yellow/green (terminals 1 A to 10 A); 10 units	**6ES7193-6CP71-2AA0**
Color code CC72, for 10 AUX terminals, BU type A0, red (terminals 1 A to 10 A); 10 units	**6ES7193-6CP72-2AA0**
Color code CC73, for 10 AUX terminals, BU type A0, blue (terminals 1 A to 10 A); 10 units	**6ES7193-6CP73-2AA0**
Color code CC73, for 10 AUX terminals, BU type A0, blue (terminals 1 A to 10 A); 50 units	**6ES7193-6CP73-4AA0**

	Article No.
Color-coded labels for 20 mm-wide BaseUnits	
Color code CC41, for 16 push-in terminals; BU type B1, gray (terminals 1 to 4), red (terminals 5 to 8), blue (terminals 9 to 12); 10 units	**6ES7193-6CP41-2MB0**
Color-coded labels for PotDis BU	
Color code CC62, for 16 process terminals, PotDis BU type P1, red (terminals 1 to 16); 10 units	**6ES7193-6CP62-2MA0**
Color code CC63, for 16 process terminals, PotDis BU type P2, blue (terminals 1 to 16); 10 units	**6ES7193-6CP63-2MA0**
Color-coded labels for PotDis TB	
Color code CC10, for 18 process terminals, PotDis TB, gray (terminals 1 to 18); 10 units	**6ES7193-6CP10-2MT0**
Color code CC11, for 18 process terminals, PotDis TB, yellow/green (terminals 1 to 18); 10 units	**6ES7193-6CP11-2MT0**
Color code CC12, for 18 process terminals, PotDis TB, type P1 and BR, red (terminals 1 to 18); 10 units	**6ES7193-6CP12-2MT0**
Color code CC13, for 18 process terminals, PotDis TB, type P2 and BR, blue (terminals 1 to 18); 10 units	**6ES7193-6CP13-2MT0**

Overview

- 4, 8 and 16-channel digital output (DQ) modules
- Apart from the standard type of delivery in an individual package, selected I/O modules and BaseUnits are also available in a pack of 10 units. The pack of 10 units enables the amount of waste to be reduced considerably, as well as saving the time of unpacking individual modules.

For different requirements, the digital output modules offer:

- Function classes Basic, Standard, High Feature and High Speed as well as fail-safe DQ (see "Fail-safe I/O modules")
- BaseUnits for single or multiple-conductor connection with automatic slot coding
- Potential distribution modules for system-integrated expansion with potential terminals
- Individual system-integrated load group formation with self-assembling voltage distribution bars (a separate power module is no longer required for ET 200SP)
- Option of connecting actuators with rated load voltages of up to 120 V DC or 230 V AC and load currents of up to 5 A (depending on module)
- Relay modules
  - NO contact or changeover contact
  - for load or signal voltages (coupling relay)
  - with manual operation (as simulation module for inputs and outputs, jog mode for commissioning or emergency operation on failure of controller)
- PNP (source output) and NPN (sink output) versions
- Clear labeling on front of module
- LEDs for diagnostics, status, supply voltage and faults
- Electronically readable and non-volatile writable rating plate (I&M data 0 to 3)
- Extended functions and additional operating modes in some cases
  - MSO operating mode (simultaneous reading of input data from as many as three other controllers)
  - Pulse width modulation mode (output value as pulse-pause ratio of between 0.0% and 100.0% for controlling the output current)
  - Oversampling (n-fold equidistant output of digital values within a PN cycle for the precise time control of an output or a sequence of output values)
  - Isochronous mode (simultaneous equidistant output of all output channels)
  - Output of substitute value in the event of interruptions to communication (0, 1 or last value retained)
  - Re-parameterization during operation
  - Firmware update
  - Valve control (output signal does not switch automatically after a set pickup time to a current-saving PWM output)
  - Diagnosis of wire break and short-circuit (on channel or module basis)
  - Value status (optional binary validity information of the output signal in the process image)
  - Supports the PROFIenergy profile
- Optional accessories
  - Labeling strips (film or card)
  - Equipment labeling plate
  - Color-coded label with module-specific CC code
  - Shielding terminal

A quick and clear comparison of the functions of the different DQ modules is offered by the TIA Selection Tool.

Overview (continued)

Overview of digital output modules

Digital output	PU	Article No.	CC code	BU type
DQ 16 x 24 V DC/0.5 A BA	1	6ES7132-6BH00-0AA0	CC00	A0
DQ 16 x 24 V DC/0.5 A BA	10	6ES7132-6BH00-2AA0	CC00	A0
DQ 16 x 24 V DC/0.5 A ST	1	6ES7132-6BH01-0BA0	CC00	A0
DQ 16 x 24 V DC/0.5 A ST	10	6ES7132-6BH01-2BA0	CC00	A0
DQ 8 x 24 V DC/0.5 A SNK BA	1	6ES7132-6BF61-0AA0	CC01	A0
DQ 8 x 24 V DC/0.5 A BA	1	6ES7132-6BF01-0AA0	CC02	A0
DQ 8 x 24 V DC/0.5 A BA	10	6ES7132-6BF01-2AA0	CC02	A0
DQ 8 x 24 V DC/0.5 A ST	1	6ES7132-6BF01-0BA0	CC02	A0
DQ 8 x 24 V DC/0.5 A ST	10	6ES7132-6BF01-2BA0	CC02	A0
DQ 8 x 24 V DC/0.5 A HF	1	6ES7132-6BF00-0CA0	CC02	A0
DQ 4 x 24 V DC/2 A ST	1	6ES7132-6BD20-0BA0	CC02	A0
DQ 4 x 24 V DC/2 A ST	10	6ES7132-6BD20-2BA0	CC02	A0
DQ 4 x 24 V DC/2 A HF	1	6ES7132-6BD20-0CA0	CC02	A0
DQ 4 x 24 V DC/2 A HS With three operating modes: • Fast isochronous DQ with valve control • Pulse width modulation • Oversampling	1	6ES7132-6BD20-0DA0	CC02	A0
DQ 4 x 24 ... 230 V AC/2 A ST	1	6ES7132-6FD00-0BB1	CC41	B0, B1
DQ 4 x 24 ... 230 V AC/2 A ST	10	6ES7132-6FD00-2BB1	CC41	B0, B1
DQ 4 x 24 ... 230 V AC/2 A HF With two operating modes: • DQ • PC: Power control via phase angle, half-wave or full-wave control	1	6ES7132-6FD00-0CU0	CC20	U0
RQ 4 x 24 V UC/2 A CO ST	1	6ES7132-6GD51-0BA0	--	A0
RQ 4 x 120 V DC-230 V AC/ 5 A NO ST	1	6ES7132-6HD01-0BB1	--	B0, B1
RQ 4 x 120 V DC-230 V AC/ 5 A NO ST	10	6ES7132-6HD01-2BB1	--	B0, B1
RQ MA 4 x 120 V DC ... 230 V AC/ 5A NO ST	1	6ES7132-6MD00-0BB1	--	B0, B1

Overview of BaseUnits

BaseUnit	PU	Article No.	CC codes for process terminals	CC codes for AUX terminals
BU type A0 • New load group (light) • 16 process terminals • With 10 AUX terminals	1	6ES7193-6BP20-0DA0	CC01 to CC05	CC71 to CC73
BU type A0 • New load group (light) • 16 process terminals • With 10 AUX terminals	10	6ES7193-6BP20-2DA0	CC01 to CC05	CC71 to CC73
BU type A0 • New load group (light) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0DA0	CC01 to CC05	--
BU type A0 • New load group (light) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2DA0	CC01 to CC05	--
BU type A0 • Forwarding of load group (dark) • 16 process terminals • With 10 AUX terminals	1	6ES7193-6BP20-0BA0	CC01 to CC05	CC71 to CC73

Overview (continued)

BaseUnit	PU	Article No.	CC codes for process terminals	CC codes for AUX terminals
BU type A0 • Forwarding of load group (dark) • 16 process terminals • With 10 AUX terminals	10	6ES7193-6BP20-2BA0	CC01 to CC05	CC71 to CC73
BU type A0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0BA0	CC01 to CC05	--
BU type A0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2BA0	CC01 to CC05	--
BU type B0 • Forwarding of load group (dark) • 12 process terminals • With 4 AUX terminals	1	6ES7193-6BP20-0BB0	CC41	CC81 to CC83
BU type B0 • Forwarding of load group (dark) • 12 process terminals • With 4 AUX terminals	10	6ES7193-6BP20-0BB0	CC41	CC81 to CC83
BU type B1 • Forwarding of load group (dark) • 12 process terminals • 2 x 2 (1L, 2L, 1N, 2N) direct in-feed module • Without AUX terminals	1	6ES7193-6BP20-0BB1	CC41	--
BU type U0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0BU0	CC20	--
BU type U0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2BU0	CC20	--
BU type U0 • New load group (light) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0DU0	CC20	--
BU type U0 • New load group (light) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2DU0	CC20	--

Overview of potential distribution modules

Potential distribution module	PU	Article No.	CC codes for process terminals
PotDis BU Type P1 (light), 17x P1 potential, 1x P2 potential, for beginning a new load group (max. 10 A)	1	6ES7193-6UP00-0DP1	CC00, CC62
PotDis BU Type P1 (dark), 17x P1 potential, 1x P2 potential, for continuing the load group	1	6ES7193-6UP00-0BP1	CC00, CC62
PotDis BU Type P2 (light), 1x P1 potential, 17x P2 potential, for beginning a new load group (max. 10 A)	1	6ES7193-6UP00-0DP2	CC00, CC63
PotDis BU Type P2 (dark), 1x P1 potential, 17x P2 potential, for continuing the load group	1	6ES7193-6UP00-0BP2	CC00, CC63

Overview (continued)

Potential distribution module	PU	Article No.	CC codes for process terminals
PotDis TB Type BR-W, 18x internally jumpered terminals, without connection to P1, P2 or AUX, (total current max. 10 A)	1	6ES7193-6TP00-0TP0	CC10 to CC13
PotDis TB Type P1-R, 18x P1 potential, (total current max. 10 A)	1	6ES7193-6TP00-0TP1	CC10, CC12
PotDis TB Type P2-B, 18x P2 potential, (total current max. 10 A)	1	6ES7193-6TP00-0TP2	CC10, CC13
PotDis TB Type n.c.-G, 18x n.c. (not connected) terminals, without reference to P1, P2 or AUX	1	6ES7193-6TP00-0TN0	CC10

Technical specifications

Article number	**6ES7132-6BH00-0AA0** ET 200SP, DQ 16X24VDC/ 0.5A BA, PU 1	**6ES7132-6BH01-0BA0** ET 200SP, DQ 16x 24V DC/ 0.5A ST, PU 1	**6ES7132-6BF61-0AA0** ET 200SP, DQ 8x 24VDC/ 0.5A SINK BA, PU 1	**6ES7132-6BF01-0AA0** ET 200SP, DQ 8x 24V DC/ 0.5A Basic, PU 1	**6ES7132-6BF01-0BA0** ET 200SP, DQ 8x 24V DC/ 0.5A ST, PU 1
General information					
Product type designation	DQ 16x 24 V DC/ 0.5 A BA, PU 1	DQ 16x24VDC/ 0.5A ST	DQ 8x 24 V DC/ 0.5 A SNK BA, PU 1	DQ 8x24 VDC/ 0.5 A BA	DQ 8x24VDC/ 0.5A ST, PU 1
Product function					
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with					
• STEP 7 TIA Portal configurable/ integrated as of version	V14	V14	V14	V14	V14
• STEP 7 configurable/integrated as of version	STEP 7 V5.5 or higher	V5.5 SP3	V5.5 SP3	V5.5 SP3	V5.5 SP3 or higher
• PCS 7 configurable/integrated as of version		V8.1 SP1			V8.1 SP1
• PROFIBUS as of GSD version/ GSD revision	One GSD file each, Revision 3 and 5 and higher	One GSD file each, Revision 3 and 5 and higher	One GSD file each, Revision 3 and 5 and higher	One GSD file each, Revision 3 and 5 and higher	One GSD file each, Revision 3 and 5 and higher
• PROFINET as of GSD version/ GSD revision	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3
Operating mode					
• DQ	Yes	Yes	Yes	Yes	Yes
• DQ with energy-saving function	No	No	No	No	No
• PWM	No	No	No	No	No
• Oversampling	No	No	No	No	No
• MSO	No	No	No	No	No
Supply voltage					
Type of supply voltage	DC	DC	DC	DC	DC
Rated value (DC)	24 V	24 V	24 V	24 V	24 V
Reverse polarity protection	Yes	Yes		Yes	Yes
Digital outputs					
Type of digital output	Source output (PNP, current-sourcing)	Source output (PNP, current-sourcing)	Sink output (NPN, M switching)	Source output (PNP, current-sourcing)	Source output (PNP, current-sourcing)
Number of digital outputs	16	16	8	8	8
Current-sinking	No	No	Yes		
Current-sourcing	Yes	Yes		Yes	Yes
Digital outputs, parameterizable	Yes	Yes	Yes	Yes	Yes
Short-circuit protection	Yes	Yes	Yes	Yes; per channel, electronic	Yes
Open-circuit detection	No	Yes			
Limitation of inductive shutdown voltage to	Typ. L+ (-53 V)	Typ. L+ (-50 V)	Typ. 47 V	Typ. L+ (-50 V)	Typ. L+ (-50 V)
Controlling a digital input	Yes	Yes	Yes	Yes	Yes

Technical specifications (continued)

Article number	6ES7132-6BH00-0AA0 ET 200SP, DQ 16X24VDC/ 0.5A BA, PU 1	6ES7132-6BH01-0BA0 ET 200SP, DQ 16x 24V DC/ 0.5A ST, PU 1	6ES7132-6BF61-0AA0 ET 200SP, DQ 8x 24VDC/ 0.5A SINK BA, PU 1	6ES7132-6BF01-0AA0 ET 200SP, DQ 8x 24V DC/ 0.5A Basic, PU 1	6ES7132-6BF01-0BA0 ET 200SP, DQ 8x 24V DC/ 0.5A ST, PU 1
Switching capacity of the outputs					
• with resistive load, max.	0.5 A	0.5 A	0.5 A	0.5 A	0.5 A
• on lamp load, max.	5 W	5 W	5 W	5 W	5 W
Load resistance range					
• lower limit	48 Ω	48 Ω	48 Ω	48 Ω	48 Ω
• upper limit	100 kΩ	12 kΩ	3 400 Ω	100 kΩ	12 kΩ
Output voltage					
• Type of output voltage			DC	DC	DC
• for signal "1", min.					L+ (-0.8 V)
Output current					
• for signal "1" rated value	0.5 A	0.5 A	0.5 A	0.5 A	0.5 A
• for signal "0" residual current, max.	30 µA	0.1 mA	5 µA	10 µA	0.1 mA
Output delay with resistive load					
• "0" to "1", typ.	80 µs; at rated load	50 µs			
• "0" to "1", max.	150 µs; at rated load		300 µs	100 µs; at rated load	50 µs; at rated load
• "1" to "0", typ.	100 µs; at rated load	100 µs			
• "1" to "0", max.	200 µs; at rated load		600 µs	150 µs; at rated load	100 µs; at rated load
Parallel switching of two outputs					
• for uprating	No	No	No	No	No
• for redundant control of a load	Yes	Yes	Yes	Yes	Yes
Switching frequency					
• with resistive load, max.	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz
• with inductive load, max.	2 Hz	2 Hz	0.5 Hz	2 Hz	2 Hz
• on lamp load, max.	10 Hz	10 Hz	10 Hz	10 Hz	10 Hz
Total current of the outputs					
• Current per channel, max.	0.5 A	0.5 A	0.5 A	0.5 A	0.5 A
• Current per module, max.	8 A	8 A	4 A	4 A	4 A
Total current of the outputs (per module)					
horizontal installation					
- up to 30 °C, max.		8 A		4 A	4 A
- up to 40 °C, max.		8 A		4 A	4 A
- up to 50 °C, max.		6 A		4 A	4 A
- up to 60 °C, max.	8 A	4 A	4 A	4 A	4 A
vertical installation					
- up to 30 °C, max.		8 A; in all other mounting positions		4 A; in all other mounting positions	4 A; in all other mounting positions
- up to 40 °C, max.		6 A; in all other mounting positions		4 A; in all other mounting positions	4 A; in all other mounting positions
- up to 50 °C, max.	8 A	4 A; in all other mounting positions	4 A; in all other mounting positions	4 A; in all other mounting positions	4 A; in all other mounting positions
Cable length					
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m
• unshielded, max.	600 m	600 m	600 m	600 m	600 m
Isochronous mode					
Isochronous operation (application synchronized up to terminal)	No	No	No	No	No
Interrupts/diagnostics/ status information					
Diagnostics function	Yes	Yes	Yes	Yes	Yes
Substitute values connectable	Yes	Yes	Yes	Yes	Yes
Alarms					
• Diagnostic alarm	Yes	Yes	Yes	Yes	Yes

Technical specifications (continued)

Article number	**6ES7132-6BH00-0AA0** ET 200SP, DQ 16X24VDC/ 0.5A BA, PU 1	**6ES7132-6BH01-0BA0** ET 200SP, DQ 16x 24V DC/ 0.5A ST, PU 1	**6ES7132-6BF61-0AA0** ET 200SP, DQ 8x 24VDC/ 0.5A SINK BA, PU 1	**6ES7132-6BF01-0AA0** ET 200SP, DQ 8x 24V DC/ 0.5A Basic, PU 1	**6ES7132-6BF01-0BA0** ET 200SP, DQ 8x 24V DC/ 0.5A ST, PU 1
Diagnostic messages					
• Monitoring the supply voltage	Yes	Yes	Yes	Yes	Yes
• Wire-break	No	Yes; Module-wise	No	No	Yes; Module-wise
• Short-circuit	No		No	No	
• Short-circuit to M		Yes; Module-wise			Yes; Module-wise
• Short-circuit to L+		Yes; Module-wise			Yes; Module-wise
• Group error	Yes		Yes		
Diagnostics indication LED					
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• for channel diagnostics	No	No	No	No	No
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation					
Potential separation channels					
• between the channels and backplane bus	Yes	Yes	Yes	Yes	Yes
Isolation					
Isolation tested with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)
Standards, approvals, certificates					
Suitable for safety functions	No	No	No	No	No
Suitable for safety-oriented group deactivation		Yes		Yes	Yes
Ambient conditions					
Ambient temperature during operation					
• horizontal installation, min.	0 °C	0 °C	0 °C	0 °C	0 °C
• horizontal installation, max.	60 °C	60 °C	60 °C	60 °C	60 °C
• vertical installation, min.	0 °C	0 °C; in all other mounting positions	0 °C; in all other mounting positions	0 °C; in all other mounting positions	0 °C; in all other mounting positions
• vertical installation, max.	50 °C	50 °C; in all other mounting positions	50 °C; in all other mounting positions	50 °C; in all other mounting positions	50 °C; in all other mounting positions
Altitude during operation relating to sea level					
• Ambient air temperature-barometric pressure-altitude	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m
Dimensions					
Width	15 mm	15 mm	15 mm	15 mm	15 mm
Height	73 mm	73 mm	73 mm	73 mm	73 mm
Depth	58 mm	58 mm	58 mm	58 mm	58 mm
Weights					
Weight, approx.	30 g	30 g	30 g	30 g	30 g

Technical specifications (continued)

Article number	6ES7132-6BF00-0CA0	6ES7132-6BD20-0BA0	6ES7132-6BD20-0CA0	6ES7132-6BD20-0DA0	6ES7132-6FD00-0BB1
	ET 200SP, DQ 8X24VDC/0.5A HF	ET 200SP, DQ 4X24VDC/2A ST	ET 200SP, DQ 4X24VDC/2A HF	ET 200SP, DQ 4X24VDC/2A HIGH SPEED, PU 1	ET 200SP, DQ 4X24..230VAC/2A ST
General information					
Product type designation	DQ 8x24 V DC/0.5 A HF	DQ 4x24 V DC/2 A ST	DQ 4x24 V DC/2 A HF	DQ 4x24 V DC/2 A HS	DQ 4x24 ... 230 V AC/2 A ST
Product function					
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with					
• STEP 7 TIA Portal configurable/ integrated as of version	V13 SP1 / -	V11 SP2 / V13	V13 / V13	V13 SP1	V13 / V13
• STEP 7 configurable/integrated as of version	V5.5 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -
• PCS 7 configurable/integrated as of version	V8.1 SP1	V8.1 SP1			
• PROFIBUS as of GSD version/ GSD revision	One GSD file each, Revision 3 and 5 and higher	GSD Revision 5	GSD Revision 5	GSD Revision 5	GSD Revision 5
• PROFINET as of GSD version/ GSD revision	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3
Operating mode					
• DQ	Yes	Yes	Yes	Yes	Yes
• DQ with energy-saving function	No	No	No	Yes; Valve control	No
• PWM	No	No	No	Yes	No
• Oversampling	No	No	No	Yes	No
• MSO	Yes	No	Yes	No	No
Supply voltage					
Type of supply voltage	DC	DC	DC	DC	24V AC to 230V AC
Rated value (DC)	24 V	24 V	24 V	24 V	
Rated value (AC)					230 V
Reverse polarity protection	Yes	Yes	Yes	Yes	
Digital outputs					
Type of digital output	Source output (PNP, current-sourcing)	Source output (PNP, current-sourcing)	Source output (PNP, current-sourcing)	Source output (PNP, current-sourcing)	Triac with zero point detection
Number of digital outputs	8	4	4	4	4
Current-sinking	No	No	No	No	No
Current-sourcing	Yes	Yes	Yes	Yes; Push-pull output	Yes
Digital outputs, parameterizable	Yes	Yes	Yes	Yes	No
Short-circuit protection	Yes	Yes	Yes	Yes	No; When using BU type B1, a miniature, quick-response fuse with 10 A tripping current must be provided
Limitation of inductive shutdown voltage to	Typ. L+ (-50 V)	Typ. L+ (-50 V)	L+ -(37 to 41V)	M (-1 V)	
Controlling a digital input	Yes	Yes	Yes; Minimum current consumption 7 mA	No	Yes
Digital output functions, parameterizable					
• PWM output				Yes	
- Number, max.				4	
- Cycle duration, parameterizable				Yes; 0 ms, 0.2 ms, 0.4 ms, 0.93 ms, 1.33 ms, 4.27 ms, 10.67 ms, 21.33 ms, 34.13 ms, 59.73 ms	
• Digital output with oversampling				Yes	
- Number, max.				4	
- Values per cycle, max.				32	
- Resolution, min.				100 µs	
Switching capacity of the outputs					
• with resistive load, max.	0.5 A	2 A	2 A	2 A	2 A
• on lamp load, max.	5 W	10 W	10 W	10 W	100 W

Technical specifications (continued)

Article number	**6ES7132-6BF00-0CA0**	**6ES7132-6BD20-0BA0**	**6ES7132-6BD20-0CA0**	**6ES7132-6BD20-0DA0**	**6ES7132-6FD00-0BB1**
	ET 200SP, DQ 8X24VDC/0.5A HF	ET 200SP, DQ 4X24VDC/2A ST	ET 200SP, DQ 4X24VDC/2A HF	ET 200SP, DQ 4X24VDC/2A HIGH SPEED, PU 1	ET 200SP, DQ 4X24..230VAC/2A ST
Load resistance range					
• lower limit	48 Ω	12 Ω	12 Ω	12 Ω	
• upper limit	12 kΩ	3 400 Ω	3 400 Ω	3 400 Ω	
Output voltage					
• Type of output voltage	DC	DC	DC	DC	24V AC to 230V AC
• for signal "1", min.					20.4 V
Output current					
• for signal "1" rated value	0.5 A	2 A	2 A	2 A	2 A
• for signal "0" residual current, max.	0.1 mA	0.1 mA	0.1 mA	0.1 mA	460 µA
Output delay with resistive load					
• "0" to "1", typ.	50 µs	50 µs	50 µs		
• "0" to "1", max.		50 µs		1 µs	10 ms
• "1" to "0", typ.	100 µs	100 µs	100 µs		
• "1" to "0", max.		100 µs		1 µs	10 ms
Parallel switching of two outputs					
• for logic links					No
• for uprating	No	No	No	No	No
• for redundant control of a load	Yes	Yes			Yes
Switching frequency					
• with resistive load, max.	100 Hz	100 Hz	100 Hz	5 kHz	10 Hz
• with inductive load, max.	2 Hz	2 Hz	2 Hz	5 kHz	0.5 Hz; Higher frequencies are possible, see Equipment Manual / Product Information
• on lamp load, max.	10 Hz	10 Hz	10 Hz	5 kHz	1 Hz
Total current of the outputs					
• Current per channel, max.	0.5 A	2 A	2 A	2 A	2 A
• Current per module, max.	4 A	8 A	8 A	8 A	8 A
Total current of the outputs (per module)					
horizontal installation					
- up to 30 °C, max.		8 A	8 A	8 A; DQ mode	
- up to 40 °C, max.		8 A	8 A	6.9 A; DQ mode	8 A
- up to 50 °C, max.		6 A	6 A	4.7 A; DQ mode	6 A
- up to 60 °C, max.	4 A	4 A	4 A	2.5 A; DQ mode	4 A
vertical installation					
- up to 30 °C, max.		8 A	8 A	7.2 A; DQ mode	8 A
- up to 40 °C, max.		6 A	6 A	5.6 A; DQ mode	6 A
- up to 50 °C, max.	4 A; in all other mounting positions	4 A	4 A	4 A; DQ mode	4 A
- up to 60 °C, max.		4 A	4 A	4 A; DQ mode	
Triac outputs					
• Size of motor starters according to NEMA, max.					5
Cable length					
• shielded, max.	1 000 m	1 000 m	1 000 m	50 m	1 000 m
• unshielded, max.	600 m	600 m	600 m	50 m	600 m
Isochronous mode					
Isochronous operation (application synchronized up to terminal)	Yes	No	Yes	Yes; Operating modes DQ and OVS only	No
Execution and activation time (TCO), min.	48 µs				
Bus cycle time (TDP), min.	500 µs		500 µs	125 µs	

Technical specifications (continued)

Article number	6ES7132-6BF00-0CA0	6ES7132-6BD20-0BA0	6ES7132-6BD20-0CA0	6ES7132-6BD20-0DA0	6ES7132-6FD00-0BB1
	ET 200SP, DQ 8X24VDC/0.5A HF	ET 200SP, DQ 4X24VDC/2A ST	ET 200SP, DQ 4X24VDC/2A HF	ET 200SP, DQ 4X24VDC/2A HIGH SPEED, PU 1	ET 200SP, DQ 4X24..230VAC/2A ST
Interrupts/diagnostics/ status information					
Diagnostics function	Yes	Yes	Yes	Yes	No
Substitute values connectable	Yes	Yes	Yes	Yes	Yes
Alarms					
• Diagnostic alarm	Yes	Yes	Yes	Yes	No
Diagnostic messages					
• Monitoring the supply voltage	Yes	Yes	Yes	Yes	No
• Wire-break	Yes; channel by channel	Yes; Module-wise	Yes; channel by channel	No	No
• Short-circuit	Yes; channel by channel	Yes; Module-wise	Yes; channel by channel	Yes; Module-wise	No
• Group error	Yes	Yes	Yes	Yes	Yes
Diagnostics indication LED					
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; green LED	Yes; green LED	Yes; green LED	Yes; green LED	Yes; green LED
• for channel diagnostics	Yes; red LED	No	Yes; red LED	No	No
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation					
Potential separation channels					
• between the channels and backplane bus	Yes	Yes	Yes	Yes	Yes
Isolation					
Isolation tested with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	2 545 V DC/2 s (routine test)
Standards, approvals, certificates					
Suitable for safety functions	No	No	No	No	No
Dimensions					
Width	15 mm	15 mm	15 mm	15 mm	20 mm
Height	73 mm	73 mm	73 mm	73 mm	73 mm
Depth	58 mm	58 mm	58 mm	58 mm	58 mm
Weights					
Weight, approx.	30 g	30 g	30 g	31 g	50 g

Article number	6ES7132-6FD00-0CU0	6ES7132-6GD51-0BA0	6ES7132-6HD01-0BB1	6ES7132-6MD00-0BB1
	ET 200SP, DQ 4X24..230VAC/ 2A HF, PU 1	ET 200SP, RQ CO 4x 24V DC/ 2A ST, PU 1	ET 200SP, RQ NO 4x 120VDC..230VAC/ 5A, PU 1	ET 200SP, RQ NO-MA 4X120VDC..230VAC/5A ST
General information				
Product type designation	DQ 4x24 ... 230 V AC/ 2 A HF, PU 1	RQ CO 4x 24 V DC/ 2 A ST, PU 1	RQ 4x120 VDC … 230 VAC/ 5 A NO ST	RQ 4x120 V DC ... 230 V AC/ 5 A NO MA ST
Product function				
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with				
• STEP 7 TIA Portal configurable/ integrated as of version	V14	V14	V14	V13 SP1
• STEP 7 configurable/integrated as of version	STEP 7 V5.5 or higher	V5.5 SP3	V5.5 SP3	V5.5 SP3 / -
• PCS 7 configurable/integrated as of version			V8.1 SP1	
• PROFIBUS as of GSD version/ GSD revision	GSD as of Revision 5	One GSD file each, Revision 3 and 5 and higher	One GSD file each, Revision 3 and 5 and higher	GSD Revision 5
• PROFINET as of GSD version/ GSD revision	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3

Technical specifications (continued)

Article number	**6ES7132-6FD00-0CU0**	**6ES7132-6GD51-0BA0**	**6ES7132-6HD01-0BB1**	**6ES7132-6MD00-0BB1**
	ET 200SP, DQ 4X24..230VAC/ 2A HF, PU 1	ET 200SP, RQ CO 4x 24V DC/ 2A ST, PU 1	ET 200SP, RQ NO 4x 120VDC..230VAC/ 5A, PU 1	ET 200SP, RQ NO-MA 4X120VDC..230VAC/5A ST
Operating mode				
• DQ	Yes	Yes	Yes	Yes
• DQ with energy-saving function	Yes	No	No	No
• PWM	No	No	No	No
• Oversampling	No	No	No	No
• MSO	No	No	No	No
• Phase control	Yes; Control area: 8.5 ... 100% of the phase angle			
• Trailing-edge phase	No			
• Half-wave	Yes			
• Full-wave	Yes			
Supply voltage				
Type of supply voltage	24 V AC to 230 V AC, 47 ... 63 Hz	DC	DC	DC
Rated value (DC)		24 V	24 V	24 V
Rated value (AC)	230 V; 47 ... 63 Hz, max. rate of change of frequency 1 mHz/s			
Reverse polarity protection		Yes	Yes	Yes
Digital outputs				
Type of digital output		Relays	Relays	Relays
Number of digital outputs	4	4	4	4
Current-sinking	No	Yes	Yes	
Current-sourcing	Yes	Yes	Yes	
Digital outputs, parameterizable	Yes	Yes	Yes	
Short-circuit protection	No; external fusing necessary	No	No	No
Open-circuit detection	Yes; channel by channel			
Overload protection	No; A miniature fuse with 10 tripping current and tripping characteristic "quick response" must be provided in the module supply			
Controlling a digital input	Yes			
Switching capacity of the outputs				
• with resistive load, max.	2 A; Max. 4 A, see additional description in manual			
• with inductive load, max.	2 A			
• on lamp load, max.	100 W; Tungsten rating in accordance with UL; for thermistors with higher power ratings, see the notes in the manual			
Output voltage				
• Type of output voltage	24V AC to 230V AC			AC/DC
• for signal "1", min.	20.4 V			
Output current				
• for signal "1" rated value	2 A			
• for signal "0" residual current, max.	3 mA			
Output delay with resistive load				
• "0" to "1", max.	40 ms; 2 AC cycles			
• "1" to "0", max.	20 ms; 1 AC cycle			
Parallel switching of two outputs				
• for logic links	No	Yes	Yes	
• for uprating	No	No	No	
• for redundant control of a load	Yes	Yes	Yes	

Technical specifications (continued)

Article number	6ES7132-6FD00-0CU0 ET 200SP, DQ 4X24..230VAC/ 2A HF, PU 1	6ES7132-6GD51-0BA0 ET 200SP, RQ CO 4x 24V DC/ 2A ST, PU 1	6ES7132-6HD01-0BB1 ET 200SP, RQ NO 4x 120VDC..230VAC/ 5A, PU 1	6ES7132-6MD00-0BB1 ET 200SP, RQ NO-MA 4X120VDC..230VAC/5A ST
Switching frequency				
• with resistive load, max.	10 Hz; Applies to DQ mode; limited by line frequency in PC mode	2 Hz	2 Hz	2 Hz
• with inductive load, max.			0.5 Hz	0.5 Hz
• with inductive load (acc. to IEC 60947-5-1, AC15), max.	10 Hz; Applies to DQ mode; limited by line frequency in PC mode			
• on lamp load, max.	1 Hz; Applies to DQ mode; limited by line frequency in PC mode		2 Hz	2 Hz
Total current of the outputs				
• Current per channel, max.	2 A; Max. 4 A, see additional description in manual	2 A	5 A	5 A
• Current per module, max.	8 A	8 A	20 A	20 A
Total current of the outputs (per module)				
horizontal installation				
- up to 40 °C, max.	8 A; Applicable for current channels up to 2 A. For current channels between 2 A and 4 A, note derating data in the manual	8 A		
- up to 50 °C, max.	8 A; Applicable for current channels up to 2 A. For current channels between 2 A and 4 A, note derating data in the manual	6 A	20 A	20 A
- up to 60 °C, max.	8 A; Applicable for current channels up to 2 A. For current channels between 2 A and 4 A, note derating data in the manual	4 A	16 A	16 A
vertical installation				
- up to 30 °C, max.	8 A; Applicable for current channels up to 2 A. For current channels between 2 A and 4 A, note derating data in the manual	8 A		
- up to 40 °C, max.	8 A; Applicable for current channels up to 2 A. For current channels between 2 A and 4 A, note derating data in the manual	6 A	20 A	20 A
- up to 50 °C, max.	8 A; Applicable for current channels up to 2 A. For current channels between 2 A and 4 A, note derating data in the manual	4 A; in all other mounting positions	16 A; in all other mounting positions	16 A

Technical specifications (continued)

Article number	**6ES7132-6FD00-0CU0**	**6ES7132-6GD51-0BA0**	**6ES7132-6HD01-0BB1**	**6ES7132-6MD00-0BB1**
	ET 200SP, DQ 4X24..230VAC/ 2A HF, PU 1	ET 200SP, RQ CO 4x 24V DC/ 2A ST, PU 1	ET 200SP, RQ NO 4x 120VDC..230VAC/ 5A, PU 1	ET 200SP, RQ NO-MA 4X120VDC..230VAC/5A ST
Relay outputs				
• Number of relay outputs		4	4	4
• Rated supply voltage of relay coil L+ (DC)		24 V	24 V	24 V
• Current consumption of relays (coil current of all relays), max.		40 mA	40 mA	40 mA
• external protection for relay outputs			Yes, with 6A	Yes, with 6A
• Number of operating cycles, max.			7 000 000; see additional description in the manual	7 000 000; see additional description in the manual
Switching capacity of contacts				
- with inductive load, max.			2 A; see additional description in the manual	2 A; see additional description in the manual
- with resistive load, max.		2 A	5 A; see additional description in the manual	5 A; see additional description in the manual
- Thermal continuous current, max.		2 A	5 A; Max. 1 385 VA, 150 W	5 A
- Switching current, min.		1 mA; 5 V DC	100 mA; 5 V DC	100 mA; 5 V DC
- Rated switching voltage (DC)		24 V	24 V DC to 120 V DC	24 V DC to 120 V DC
- Rated switching voltage (AC)		24 V	24V AC to 230V AC	24V AC to 230V AC
Cable length				
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m
• unshielded, max.	600 m	200 m	200 m	200 m
Isochronous mode				
Isochronous operation (application synchronized up to terminal)	No	No	No	No
Interrupts/diagnostics/ status information				
Diagnostics function	Yes	Yes	Yes	Yes
Substitute values connectable	Yes	Yes	Yes	Yes
Alarms				
• Diagnostic alarm	Yes	Yes	Yes	Yes
Diagnostic messages				
• Diagnostic information readable	Yes			
• Monitoring the supply voltage	Yes	Yes	Yes	Yes
• Wire-break	Yes; channel by channel	No	No	No
• Short-circuit	No	No	No	No
• Group error	Yes			Yes
Diagnostics indication LED				
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; green LED	Yes; green LED	Yes; green LED	Yes; green LED
• for channel diagnostics	Yes; red Fn LED	No	No	No
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation				
Potential separation channels				
• between the channels and backplane bus	Yes	Yes	Yes	Yes
Isolation				
Isolation tested with	2 545 V DC/2 s (routine test)	707 V DC (type test)	2 500 V DC (type test)	2 500 V DC (type test)
tested with				
• between channels and backplane bus/supply voltage			2500 V DC	2500 V DC
• between backplane bus and supply voltage			707 V DC (type test)	707 V DC (type test)
Standards, approvals, certificates				
Suitable for safety functions	No	No	No	No

Technical specifications (continued)

Article number	6ES7132-6FD00-0CU0	6ES7132-6GD51-0BA0	6ES7132-6HD01-0BB1	6ES7132-6MD00-0BB1
	ET 200SP, DQ 4X24..230VAC/ 2A HF, PU 1	ET 200SP, RQ CO 4x 24V DC/ 2A ST, PU 1	ET 200SP, RQ NO 4x 120VDC..230VAC/ 5A, PU 1	ET 200SP, RQ NO-MA 4X120VDC..230VAC/5A ST
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.			0 °C	
• horizontal installation, max.			60 °C	
• vertical installation, min.			0 °C; in all other mounting positions	
• vertical installation, max.			50 °C; in all other mounting positions	
Altitude during operation relating to sea level				
• Ambient air temperature-barometric pressure-altitude		On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m	
Dimensions				
Width	20 mm	15 mm	20 mm	20 mm
Height	73 mm	73 mm	73 mm	73 mm
Depth	58 mm	58 mm	58 mm	58 mm
Weights				
Weight, approx.	50 g	30 g	40 g	45 g

Ordering data

	Article No.
Digital output modules	
Type of delivery: Apart from the standard type of delivery in an individual package, selected I/O modules and BaseUnits are also available in a pack of 10 units. The pack of 10 units enables the amount of waste to be reduced considerably, as well as saving the time of unpacking individual modules.	
The number of modules required is the number of modules ordered. The type of packaging is chosen by selecting the article number. Packs of 10 can therefore only be ordered in integer multiples of 10.	
Digital output module DQ 16x24 V DC/0.5 A Basic, BU type A0, color code CC00	
• PU: 1 unit	**6ES7132-6BH00-0AA0**
• PU: 10 units	**6ES7132-6BH00-2AA0**
Digital output module DQ 16x24 V DC/0.5 A Standard, BU type A0, color code CC00	
• PU: 1 unit	**6ES7132-6BH01-0BA0**
• PU: 10 units	**6ES7132-6BH01-2BA0**
Digital output module DQ 8x24 V DC/0.5 A Sink Output, Basic, BU type A0, color code CC01	
• PU: 1 unit	**6ES7132-6BF61-0AA0**
Digital output module DQ 8x24 V DC/0.5 A Basic, BU type A0, color code CC02	
• PU: 1 unit	**6ES7132-6BF01-0AA0**
• PU: 10 units	**6ES7132-6BF01-2AA0**
Digital output module DQ 8x24 V DC/0.5 A Standard, BU type A0, color code CC02	
• PU: 1 unit	**6ES7132-6BF01-0BA0**
• PU: 10 units	**6ES7132-6BF01-2BA0**
Digital output module DQ 8x24 V DC/0.5A High Feature, BU type A0, color code CC02	
• PU: 1 unit	**6ES7132-6BF00-0CA0**
Digital output module DQ 4x24 V DC/2 A Standard, BU type A0, color code CC02	
• PU: 1 unit	**6ES7132-6BD20-0BA0**
• PU: 10 units	**6ES7132-6BD20-2BA0**
Digital output module DQ 4x24 V DC/2 A High Feature, BU type A0, color code CC02, channel-precise diagnostics, isochronous mode, shared output (MSO)	
• PU: 1 unit	**6ES7132-6BD20-0CA0**
Digital output module DQ 4x24 V DC/2 A High Speed, BU type A0, color code CC02, 3 operating modes (fast isochronous DQ with valve control, pulse width modulation, oversampling)	
• PU: 1 unit	**6ES7132-6BD20-0DA0**
Digital output module DQ 4x24 V AC ... 230 V AC/ 2 A Standard for BU type B1, color code CC41	
• PU: 1 unit	**6ES7132-6FD00-0BB1**
• PU: 10 units	**6ES7132-6FD00-2BB1**

Ordering data	Article No.
Digital output module DQ 4x24 V AC ... 230 V AC/2 A High Feature for BU type U0, color code CC20, 2 operating modes: DQ and PC (power control via phase angle, half-wave and full-wave control)	
• PU: 1 unit	**6ES7132-6FD00-0CU0**
Signal relay module RQ CO 4x24 V UC/2 A Standard, changeover contact, BU type A0, color code CC00	
• PU: 1 unit	**6ES7132-6GD51-0BA0**
Relay module RQ NO 4x120 V DC-230 V AC/5 A Standard, NO contact, BU type B0, B1	
• PU: 1 unit	**6ES7132-6HD01-0BB1**
• PU: 10 units	**6ES7132-6HD01-2BB1**
Relay module RQ NO 4x120 V DC-230 V AC/5 A Standard, NO contact, with manual operation, BU type B0, B1	**6ES7132-6MD00-0BB1**
Usable BaseUnits	
BU15-P16+A10+2D	
BU type A0; BaseUnit (light) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	
• PU: 1 unit	**6ES7193-6BP20-0DA0**
• PU: 10 units	**6ES7193-6BP20-2DA0**
BU15-P16+A0+2D	
BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
• PU: 1 unit	**6ES7193-6BP00-0DA0**
• PU: 10 units	**6ES7193-6BP00-2DA0**
BU15-P16+A10+2B	
BU type A0; BaseUnit (dark) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	
• PU: 1 unit	**6ES7193-6BP20-0BA0**
• PU: 10 units	**6ES7193-6BP20-2BA0**
BU15-P16+A0+2B	
BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
• PU: 1 unit	**6ES7193-6BP00-0BA0**
• PU: 10 units	**6ES7193-6BP00-2BA0**
BU20-P12+A4+0B	
BU type B0; BaseUnit (dark) with 12 process terminals (1 ... 12) to the module and an additional 4 internally jumpered AUX terminals (1 A to 4 A); for continuing the load group	
• PU: 1 unit	**6ES7193-6BP20-0BB0**
• PU: 10 units	**6ES7193-6BP20-2BB0**
BU20-P12+A0+4B	**6ES7193-6BP20-0BB1**
BU type B1; BaseUnit (dark) with 12 process terminals to the module; for continuing the load group; PU: 1 unit	

	Article No.
BU20-P16+A0+2D	
BU type U0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
• PU: 1 unit	**6ES7193-6BP00-0DU0**
• PU: 10 units	**6ES7193-6BP00-2DU0**
BU20-P16+A0+2B	
BU type U0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
• PU: 1 unit	**6ES7193-6BP00-0BU0**
• PU: 10 units	**6ES7193-6BP00-2BU0**
Potential distribution modules	
PotDis BU	
PotDis BU, type P1 (light), 17x P1 potential, 1x P2 potential, for beginning a new load group (max. 10 A)	**6ES7193-6UP00-0DP1**
PotDis BU, type P1 (dark), 17x P1 potential, 1x P2 potential, for continuing the load group	**6ES7193-6UP00-0BP1**
PotDis BU, type P2 (light), 1x P1 potential, 17x P2 potential, for beginning a new load group (max. 10 A)	**6ES7193-6UP00-0DP2**
PotDis BU, type P2 (dark), 1x P1 potential, 17x P2 potential, for continuing the load group	**6ES7193-6UP00-0BP2**
PotDis TB	
PotDis TB, type BR-W, 18x internally jumpered terminals, without connection to P1, P2 or AUX, (total current max. 10 A)	**6ES7193-6TP00-0TP0**
PotDis TB, type P1-R, 18x P1 potential, (total current max. 10 A)	**6ES7193-6TP00-0TP1**
PotDis TB, type P2-B, 18x P2 potential, (total current max. 10 A)	**6ES7193-6TP00-0TP2**
PotDis TB, type n.c.-G, 18x n.c. (not connected) terminals, without reference to P1, P2 or AUX	**6ES7193-6TP00-0TN0**
Accessories	
Equipment labeling plate 10 sheets of 16 labels, for printing with thermal transfer card printer or plotter	**6ES7193-6LF30-0AW0**
Labeling strips	
500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AA0**
500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AG0**
1000 labeling strips DIN A4, light gray, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AA0**
1000 labeling strips DIN A4, yellow, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AG0**
BU cover	
For covering empty slots (gaps); 5 units	
• 15 mm wide	**6ES7133-6CV15-1AM0**
• 20 mm wide	**6ES7133-6CV20-1AM0**

Ordering data	Article No.
Shield connection 5 shield supports and 5 shield terminals	**6ES7193-6SC00-1AM0**
Color-coded labels for 15 mm-wide BaseUnits	
Color code CC00, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 10 units	**6ES7193-6CP00-2MA0**
Color code CC01, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 10 units	**6ES7193-6CP01-2MA0**
Color code CC01, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 50 units	**6ES7193-6CP01-4MA0**
Color code CC02, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), blue (terminals 9 to 16); 10 units	**6ES7193-6CP02-2MA0**
Color code CC02, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), blue (terminals 9 to 16); 50 units	**6ES7193-6CP02-4MA0**
Color code CC71, for 10 AUX terminals, BU type A0, yellow/green (terminals 1 A to 10 A); 10 units	**6ES7193-6CP71-2AA0**
Color code CC72, for 10 AUX terminals, BU type A0, red (terminals 1 A to 10 A); 10 units	**6ES7193-6CP72-2AA0**
Color code CC73, for 10 AUX terminals, BU type A0, blue (terminals 1 A to 10 A); 10 units	**6ES7193-6CP73-2AA0**
Color code CC73, for 10 AUX terminals, BU type A0, blue (terminals 1 A to 10 A); 50 units	**6ES7193-6CP73-4AA0**

	Article No.
Color-coded labels for 20 mm-wide BaseUnits	
Color code CC41, for 16 push-in terminals; BU type B1, gray (terminals 1 to 4), red (terminals 5 to 8), blue (terminals 9 to 12); 10 units	**6ES7193-6CP41-2MB0**
Color code CC81, for 4 AUX terminals, BU type B0, yellow/green (terminals 1 A to 4 A); 10 units	**6ES7193-6CP81-2AB0**
Color code CC82, for 4 AUX terminals, BU type B0, red (terminals 1 A to 4 A); 10 units	**6ES7193-6CP82-2AB0**
Color code CC83, for 4 AUX terminals, BU type B0, blue (terminals 1 A to 4 A); 10 units	**6ES7193-6CP83-2AB0**
Color-coded labels for PotDis BU	
Color code CC62, for 16 process terminals, PotDis BU type P1, red (terminals 1 to 16); 10 units	**6ES7193-6CP62-2MA0**
Color code CC63, for 16 process terminals, PotDis BU type P2, blue (terminals 1 to 16); 10 units	**6ES7193-6CP63-2MA0**
Color-coded labels for PotDis TB	
Color code CC10, for 18 process terminals, PotDis TB, gray (terminals 1 to 18); 10 units	**6ES7193-6CP10-2MT0**
Color code CC11, for 18 process terminals, PotDis TB, yellow/green (terminals 1 to 18); 10 units	**6ES7193-6CP11-2MT0**
Color code CC12, for 18 process terminals, PotDis TB, type P1 and BR, red (terminals 1 to 18); 10 units	**6ES7193-6CP12-2MT0**
Color code CC13, for 18 process terminals, PotDis TB, type P2 and BR, blue (terminals 1 to 18); 10 units	**6ES7193-6CP13-2MT0**

Overview

- 2, 4 and 8-channel analog input (AI) modules
- Apart from the standard type of delivery in an individual package, selected I/O modules and BaseUnits are also available in a pack of 10 units. The pack of 10 units enables the amount of waste to be reduced considerably, as well as saving the time of unpacking individual modules.

For different requirements, the digital output modules offer:

- Function classes Basic, Standard, High Feature and High Speed
- BaseUnits for single or multiple-conductor connection with automatic slot coding
- Potential distribution modules for system-integrated expansion with potential terminals
- Individual system-integrated load group formation with self-assembling voltage distribution bars (a separate power module is no longer required for ET 200SP)
- Option of connecting current, voltage and resistance sensors, as well as thermocouples
- Option of connecting force and torque sensors
- Energy Meter for recording up to 200 electrical variables
- Clear labeling on front of module
- LEDs for diagnostics, status, supply voltage and faults
- Electronically readable and non-volatile writable rating plate (I&M data 0 to 3)
- Extended functions and additional operating modes in some cases
  - MSI operating mode (simultaneous reading of input data from as many as three other controllers)
  - Oversampling operating mode (n-fold equidistant acquisition of analog values within one PN cycle for increasing the time resolution for slow CPU cycles)
  - Isochronous mode (simultaneous equidistant reading in of all analog values)
  - Scalable measuring range (adaptation of measuring range, increase of the 16-bit resolution by adapting the measuring range to a limited section)
  - Scaling of the measured values (transmission of the analog value normalized to the required physical value as a 32-bit floating point value)
  - Internal compensation of the line resistance for thermo-couples by means of terminal temperature measurement in the BaseUnit for BU type A1
  - Internal compensation also for 2-conductor resistance measurement by means of adjustable line resistance
  - Calibration during runtime
  - Single-channel electrical isolation
  - HART communication
  - Re-parameterization during operation
  - Firmware update
  - Diagnosis of wire break, short circuit, overflow, underflow
  - Two upper and lower hardware interrupts in each case, interference frequency suppression, smoothing
  - Value status (optional binary validity information of the analog signal in the process image)
  - Supports the PROFIenergy profile
- Optional accessories
  - Labeling strips (film or card)
  - Equipment labeling plate
  - Color-coded label with module-specific CC code
  - Shielding terminal

A quick and clear comparison of the functions of the AI modules is offered by the TIA Selection Tool.

Overview (continued)

Overview of analog input modules

Analog input	PU	Article No.	CC code	BU type
AI 8 x I 2/4-wire BA	1	6ES7134-6GF00-0AA1	CC01	A0, A1
AI 2 x U ST	1	6ES7134-6FB00-0BA1	CC00	A0, A1
AI 8 x U BA	1	6ES7134-6FF00-0AA1	CC02	A0, A1
AI 4 x U/I 2-wire ST	1	6ES7134-6HD00-0BA1	CC03	A0, A1
AI 4 x U/I 2-wire ST	10	6ES7134-6HD00-2BA1	CC03	A0, A1
AI 2 x I 2/4-wire ST	1	6ES7134-6GB00-0BA1	CC05	A0, A1
AI 4 x I 2/4-wire ST	1	6ES7134-6GD00-0BA1	CC03	A0, A1
AI 4 x I 2-wire 4 ... 20 mA HART	1	6ES7134-6TD00-0CA1	CC03	A0, A1
AI 2 x U/I 2/4-wire HF	1	6ES7134-6HB00-0CA1	CC05	A0, A1
AI 2xU/I 2/4-wire HS With two operating modes: • High-speed isochronous AI • Oversampling	1	6ES7134-6HB00-0DA1	CC00	A0, A1
AI 8 x RTD/TC 2-wire HF	1	6ES7134-6JF00-0CA1	CC00	A0, A1
AI 8 x RTD/TC 2-wire HF	10	6ES7134-6JF00-2CA1	CC00	A0, A1
AI 4 x RTD/TC 2/3/4-wire HF	1	6ES7134-6JD00-0CA1	CC00	A0, A1
AI 4 x RTD/TC 2/3/4-wire HF	10	6ES7134-6JD00-2CA1	CC00	A0, A1
AI 2 x SG 4/6-wire High Speed	1	7MH4134-6LB00-0DA0	CC00	A0
AI Energy Meter 400 V AC ST	1	6ES7134-6PA01-0BD0	--	D0
AI Energy Meter 480 V AC ST	1	6ES7134-6PA20-0BD0	--	D0

Overview of BaseUnits

BaseUnit	PU	Article No.	CC codes for process terminals	CC codes for AUX terminals
BU type A0 • New load group (light) • 16 process terminals • With 10 AUX terminals	1	6ES7193-6BP20-0DA0	CC01 to CC05	CC71 to CC73
BU type A0 • New load group (light) • 16 process terminals • With 10 AUX terminals	10	6ES7193-6BP20-2DA0	CC01 to CC05	CC71 to CC73
BU type A0 • New load group (light) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0DA0	CC01 to CC05	--
BU type A0 • New load group (light) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2DA0	CC01 to CC05	--
BU type A0 • Forwarding of load group (dark) • 16 process terminals • With 10 AUX terminals	1	6ES7193-6BP20-0BA0	CC01 to CC05	CC71 to CC73
BU type A0 • Forwarding of load group (dark) • 16 process terminals • With 10 AUX terminals	10	6ES7193-6BP20-2BA0	CC01 to CC05	CC71 to CC73
BU type A0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0BA0	CC01 to CC05	--
BU type A0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2BA0	CC01 to CC05	--

Overview (continued)

BaseUnit	PU	Article No.	CC codes for process terminals	CC codes for AUX terminals
BU type A1 • New load group (light) • With temperature sensor • 16 process terminals • With 2x5 additional terminals	1	6ES7193-6BP40-0DA1	CC01 to CC05	CC74
BU type A1 • New load group (light) • With temperature sensor • 16 process terminals • Without 2x5 additional terminals	1	6ES7193-6BP00-0DA1	CC01 to CC05	--
BU type A1 • Forwarding of load group (dark) • With temperature sensor • 16 process terminals • With 2x5 additional terminals	1	6ES7193-6BP40-0BA1	CC01 to CC05	CC74
BU type A1 • Forwarding of load group (dark) • With temperature sensor • 16 process terminals • Without 2x5 additional terminals	1	6ES7193-6BP00-0BA1	CC01 to CC05	--
BU type D0 • Forwarding of load group (dark) • 12 process terminals • Without AUX terminals	1	6ES7193-6BP00-0BD0	--	--

Overview of potential distribution modules

Potential distribution module	PU	Article No.	CC codes for process terminals
PotDis BU Type P1 (light), 17x P1 potential, 1x P2 potential, for beginning a new load group (max. 10 A)	1	6ES7193-6UP00-0DP1	CC00, CC62
PotDis BU Type P1 (dark), 17x P1 potential, 1x P2 potential, for continuing the load group	1	6ES7193-6UP00-0BP1	CC00, CC62
PotDis BU Type P2 (light), 1x P1 potential, 17x P2 potential, for beginning a new load group (max. 10 A)	1	6ES7193-6UP00-0DP2	CC00, CC63
PotDis BU Type P2 (dark), 1x P1 potential, 17x P2 potential, for continuing the load group	1	6ES7193-6UP00-0BP2	CC00, CC63
PotDis TB Type BR-W, 18x internally jumpered terminals, without connection to P1, P2 or AUX, (total current max. 10 A)	1	6ES7193-6TP00-0TP0	CC10 to CC13
PotDis TB Type P1-R, 18x P1 potential, (total current max. 10 A)	1	6ES7193-6TP00-0TP1	CC10, CC12
PotDis TB Type P2-B, 18x P2 potential, (total current max. 10 A)	1	6ES7193-6TP00-0TP2	CC10, CC13
PotDis TB Type n.c.-G, 18x n.c. (not connected) terminals, without reference to P1, P2 or AUX	1	6ES7193-6TP00-0TN0	CC10

Technical specifications

Article number	6ES7134-6GF00-0AA1	6ES7134-6FB00-0BA1	6ES7134-6FF00-0AA1	6ES7134-6HD00-0BA1	6ES7134-6GB00-0BA1
	ET 200SP, AI 8XI 2-/4-WIRE BASIC	ET 200SP, AI 2XU STANDARD, PU 1	ET 200SP, AI 8XU BASIC	ET 200SP, AI 4XU/I 2-WIRE ST	ET 200SP, AI 2XI 2-/4-WIRE ST, PU 1
General information					
Product type designation	AI 8xI 2-/4-wire BA	AI 2xU ST	AI 8xU BA	AI 4xU/I 2-wire ST	AI 2xI 2-/4-wire ST
Product function					
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
• Measuring range scalable	No	No	No	No	No
Engineering with					
• STEP 7 TIA Portal configurable/ integrated as of version	V13 SP1	V13 SP1	V13 SP1	V11 SP2 / V13	V13 SP1
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3
• PCS 7 configurable/integrated as of version				V8.1 SP1	
• PROFIBUS as of GSD version/ GSD revision	GSD Revision 5	GSD Revision 5	GSD Revision 5	GSD Revision 5	GSD Revision 5
• PROFINET as of GSD version/ GSD revision	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3	V2.3 / -
Operating mode					
• Oversampling	No	No	No	No	No
• MSI	No	No	No	No	No
Supply voltage					
Rated value (DC)	24 V	24 V	24 V	24 V	24 V
Reverse polarity protection	Yes	Yes	Yes	Yes	Yes
Power loss					
Power loss, typ.	0.7 W; Without encoder supply voltage	0.9 W	0.7 W	0.85 W; Without encoder supply voltage	1.1 W
Analog inputs					
Number of analog inputs	8; Single-ended	2	8; Single-ended	4; Differential inputs	2
• For current measurement	8			4	2
• For voltage measurement		2	8	4	
permissible input voltage for voltage input (destruction limit), max.		30 V	30 V	30 V	
permissible input current for current input (destruction limit), max.	50 mA			50 mA	50 mA
Cycle time (all channels), min.	1 ms; per channel	500 µs	1 ms; per channel	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)	500 µs
Input ranges (rated values), voltages					
• 0 to +10 V		Yes; 15 bit	Yes; 15 bit	Yes; 15 bit	
• 1 V to 5 V		Yes; 15 bit		Yes; 15 bit	
• -10 V to +10 V		Yes; 16 bit incl. sign	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign	
• -5 V to +5 V		Yes; 16 bit incl. sign		Yes; 16 bit incl. sign	
Input ranges (rated values), currents					
• 0 to 20 mA	Yes			Yes; 15 bit	Yes; 15 bit
• -20 mA to +20 mA	Yes				Yes; 16 bit incl. sign
• 4 mA to 20 mA	Yes			Yes; 15 bit	Yes; 15 bit
Cable length					
• shielded, max.	200 m	200 m	200 m	1 000 m; 200 m for voltage measurement	1 000 m

Technical specifications (continued)

Article number	**6ES7134-6GF00-0AA1**	**6ES7134-6FB00-0BA1**	**6ES7134-6FF00-0AA1**	**6ES7134-6HD00-0BA1**	**6ES7134-6GB00-0BA1**
	ET 200SP, AI 8XI 2-/4-WIRE BASIC	ET 200SP, AI 2XU STANDARD, PU 1	ET 200SP, AI 8XU BASIC	ET 200SP, AI 4XU/I 2-WIRE ST	ET 200SP, AI 2XI 2-/4-WIRE ST, PU 1
Analog value generation for the inputs					
Integration and conversion time/ resolution per channel					
• Resolution with overrange (bit including sign), max.	16 bit	16 bit	16 bit	16 bit	16 bit
• Integration time, parameterizable	Yes	Yes	Yes	Yes	Yes
• Interference voltage suppression for interference frequency f1 in Hz	16.67 / 50 / 60 / 4 800 (16.67 / 50 / 60)	16.6 / 50 / 60 Hz / off	16.67 / 50 / 60 / 4 800 (16.67 / 50 / 60)	16.6 / 50 / 60 Hz	16.6 / 50 / 60 Hz / off
• Conversion time (per channel)	180 / 60 / 50 / 0.625 (67.5 / 22.5 / 18.75) ms	50 ms @ 60 Hz, 60 ms @ 50 Hz, 180 ms @ 16.6 Hz, 250 µs without filter	180 / 60 / 50 / 0.625 (67.5 / 22.5 / 18.75) ms	180 / 60 / 50 ms	50 ms @ 60 Hz, 60 ms @ 50 Hz, 180 ms @ 16.6 Hz, 250 µs without filter
Smoothing of measured values					
• Number of smoothing levels	4; None; 4/8/16 times	4	4; None; 4/8/16 times	4; None; 4/8/16 times	4
• parameterizable	Yes	Yes	Yes	Yes	Yes
Encoder					
Connection of signal encoders					
• for voltage measurement	No	Yes	Yes	Yes	
• for current measurement as 2-wire transducer	Yes			Yes	Yes
- Burden of 2-wire transmitter, max.	650 Ω			650 Ω	650 Ω
• for current measurement as 4-wire transducer	Yes		No	No	Yes
Errors/accuracies					
Basic error limit (operational limit at 25 °C)					
• Voltage, relative to input range, (+/-)		0.3 %	0.3 %	0.3 %	
• Current, relative to input range, (+/-)	0.3 %			0.3 %	0.3 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency					
• Series mode interference (peak value of interference < rated value of input range), min.	70 dB; With conversion time 67.5 / 22.5 / 18.75 ms: 40 dB	70 dB	70 dB; With conversion time 67.5 / 22.5 / 18.75 ms: 40 dB	70 dB	70 dB
• Common mode voltage, max.		10 V		10 V	10 V
• Common mode interference, min.		90 dB		90 dB	90 dB
Isochronous mode					
Isochronous operation (application synchronized up to terminal)	No	No	No	No	No
Interrupts/diagnostics/ status information					
Diagnostics function	Yes	Yes	Yes		Yes
Alarms					
• Diagnostic alarm	Yes	Yes	Yes	Yes	Yes
• Limit value alarm	No	No	No	No	No
Diagnostic messages					
• Monitoring the supply voltage	Yes	Yes	Yes	Yes	Yes
• Wire-break	Yes; at 4 to 20 mA	No	No	Yes; at 4 to 20 mA	Yes; at 4 to 20 mA
• Short-circuit	Yes; Sensor supply to M; module by module	Yes; at 1 to 5 V	No	Yes; with 1 to 5 V or 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply	Yes; Short-circuit of the encoder supply
• Group error	Yes	Yes	Yes	Yes	Yes
• Overflow/underflow	Yes	Yes	Yes	Yes	Yes

Technical specifications (continued)

Article number	6ES7134-6GF00-0AA1	6ES7134-6FB00-0BA1	6ES7134-6FF00-0AA1	6ES7134-6HD00-0BA1	6ES7134-6GB00-0BA1
	ET 200SP, AI 8XI 2-/4-WIRE BASIC	ET 200SP, AI 2XU STANDARD, PU 1	ET 200SP, AI 8XU BASIC	ET 200SP, AI 4XU/I 2-WIRE ST	ET 200SP, AI 2XI 2-/4-WIRE ST, PU 1
Diagnostics indication LED					
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green LED	Yes; green PWR LED
• Channel status display	Yes; green LED	Yes; green LED	Yes; green LED	Yes; green LED	Yes; green LED
• for channel diagnostics	No	No	No	No	No
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red LED	Yes; green/red DIAG LED
Potential separation					
Potential separation channels					
• between the channels and backplane bus	Yes	Yes	Yes	Yes	Yes
Isolation					
Isolation tested with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)
Standards, approvals, certificates					
Suitable for safety functions	No	No	No	No	No
Dimensions					
Width	15 mm	15 mm	15 mm	15 mm	15 mm
Height	73 mm	73 mm	73 mm	73 mm	73 mm
Depth	58 mm	58 mm	58 mm	58 mm	58 mm
Weights					
Weight, approx.	31 g	31 g	31 g	31 g	32 g

Article number	6ES7134-6GD00-0BA1	6ES7134-6TD00-0CA1	6ES7134-6HB00-0CA1	6ES7134-6HB00-0DA1
	ET 200SP, AI 4XI 2-/4-WIRE ST	ET 200SP, AI 4XI 2-WIRE 4...20MA HART	ET 200SP AI 2 X U/I 2-, 4-WIRE HF	ET 200SP AI 2 X U/I 2-, 4-WIRE HS
General information				
Product type designation	AI 4xI 2-/4-wire ST	AI 4xI 2-wire HART	AI 2xU/I 2-/4-wire HF	AI 2xU/I 2-/4-wire HS
Product function				
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
• Measuring range scalable	No	No	No	No
• Scalable measured values				No
• Adjustment of measuring range				No
Engineering with				
• STEP 7 TIA Portal configurable/ integrated as of version	V11 SP2 / V13	V13 SP1	V13	V13 SP1
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -	V5.5 SP4 and higher	V5.5 / -	V5.5 SP3 / -
• PCS 7 configurable/integrated as of version	V8.1 SP1	V8.1 SP1	V8.1 SP1	
• PROFIBUS as of GSD version/ GSD revision	GSD Revision 5	GSD Revision 5	GSD Revision 5	GSD Revision 5
• PROFINET as of GSD version/ GSD revision	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3
Operating mode				
• Oversampling	No	No	No	Yes; 2 channels per module
• MSI	No	No	Yes	No
CiR – Configuration in RUN				
Reparameterization possible in RUN	Yes	Yes	Yes	Yes
Calibration possible in RUN	No	No	Yes	No
Supply voltage				
Rated value (DC)	24 V	24 V	24 V	24 V
Reverse polarity protection	Yes	Yes	Yes	Yes
Analog inputs				
Number of analog inputs	4; Differential inputs	4; Differential inputs	2; Differential inputs	2; Differential inputs
• For current measurement	4	4	2	2
• For voltage measurement			2	2

Technical specifications (continued)

Article number	**6ES7134-6GD00-0BA1** ET 200SP, AI 4XI 2-/4-WIRE ST	**6ES7134-6TD00-0CA1** ET 200SP, AI 4XI 2-WIRE 4...20MA HART	**6ES7134-6HB00-0CA1** ET 200SP AI 2 X U/I 2-, 4-WIRE HF	**6ES7134-6HB00-0DA1** ET 200SP AI 2 X U/I 2-, 4-WIRE HS
permissible input voltage for voltage input (destruction limit), max.			30 V	30 V
permissible input current for current input (destruction limit), max.	50 mA	50 mA	50 mA	50 mA
Cycle time (all channels), min.	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)			125 µs
Analog input with oversampling			No	Yes
• Values per cycle, max.				16
• Resolution, min.				50 µs
Standardization of measured values			Yes	
Input ranges (rated values), voltages				
• 0 to +10 V			Yes; 15 bit	Yes; 15 bit
• 1 V to 5 V			Yes; 15 bit	Yes; 13 bit
• -10 V to +10 V			Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• -5 V to +5 V			Yes; 16 bit incl. sign	Yes; 15 bit incl. sign
Input ranges (rated values), currents				
• 0 to 20 mA	Yes	No	Yes; 15 bit	Yes; 15 bit
• -20 mA to +20 mA	Yes	No	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• 4 mA to 20 mA	Yes	Yes; 15 bit + sign	Yes; 15 bit	Yes; 14 bit
Cable length				
• shielded, max.	1 000 m	800 m	1 000 m; 200 m for voltage measurement	1 000 m; 200 m for voltage measurement
Analog value generation for the inputs				
Integration and conversion time/ resolution per channel				
• Resolution with overrange (bit including sign), max.	16 bit	16 bit	16 bit	16 bit
• Integration time, parameterizable	Yes	Yes; channel by channel	Yes	
• Integration time (ms)			67.5 / 22.5 / 18.75 / 10 / 5 / 2.5 / 1.25 / 0.625 ms	
• Basic conversion time, including integration time (ms)			68.03 / 22.83 / 19.03 / 10.28 / 5.23 / 2.68 / 1.43 / 0.730 ms	
• Interference voltage suppression for interference frequency f1 in Hz	16.6 / 50 / 60 Hz	10 / 50 / 60 Hz	16.6 / 50 / 60 / 300 / 600 / 1 200 / 2 400 / 4 800	No
• Conversion time (per channel)	180 / 60 / 50 ms		68.2 / 23 / 19.2 / 10.45 / 5.40 / 2.85 / 1.6 / 0.9 ms	10 µs
• Basic execution time of the module (all channels released)			1 ms	
Smoothing of measured values				
• Number of smoothing levels	4; None; 4/8/16 times	4; None; 4/8/16 times	6; none; 2-/4-/8-/16-/32-fold	7; none; 2-/4-/8-/16-/32-/64-fold
• parameterizable	Yes	Yes	Yes	Yes
Encoder				
Connection of signal encoders				
• for voltage measurement	No	No	Yes	Yes
• for current measurement as 2-wire transducer	Yes	Yes	Yes	Yes
- Burden of 2-wire transmitter, max.	650 Ω		650 Ω	650 Ω
• for current measurement as 4-wire transducer	Yes		Yes	Yes

Technical specifications (continued)

Article number	6ES7134-6GD00-0BA1 ET 200SP, AI 4XI 2-/4-WIRE ST	6ES7134-6TD00-0CA1 ET 200SP, AI 4XI 2-WIRE 4...20MA HART	6ES7134-6HB00-0CA1 ET 200SP AI 2 X U/I 2-, 4-WIRE HF	6ES7134-6HB00-0DA1 ET 200SP AI 2 X U/I 2-, 4-WIRE HS
Errors/accuracies				
Basic error limit (operational limit at 25 °C)				
• Voltage, relative to input range, (+/-)			0.05 %; 0.1 % at SFU 4.8 kHz	0.2 %
• Current, relative to input range, (+/-)	0.3 %	0.3 %	0.05 %; 0.1 % at SFU 4.8 kHz	0.2 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency				
• Series mode interference (peak value of interference < rated value of input range), min.	70 dB	60 dB		
• Common mode voltage, max.	10 V		35 V	35 V
• Common mode interference, min.	90 dB		90 dB	90 dB
Isochronous mode				
Isochronous operation (application synchronized up to terminal)	No	No	Yes	Yes
Filtering and processing time (TCI), min.			800 µs	80 µs
Bus cycle time (TDP), min.			1 ms	125 µs; Starting from firmware Version V2.0.1
Interrupts/diagnostics/ status information				
Diagnostics function	Yes	Yes	Yes	
Alarms				
• Diagnostic alarm	Yes	Yes	Yes	Yes
• Limit value alarm	No	Yes	Yes; two upper and two lower limit values in each case	Yes; two upper and two lower limit values in each case
Diagnostic messages				
• Monitoring the supply voltage	Yes	Yes	Yes	
• Wire-break	Yes; at 4 to 20 mA	Yes; channel by channel	Yes; Measuring range 4 to 20 mA only	Yes; channel-by-channel, at 4 to 20 mA only
• Short-circuit	Yes; 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply	Yes; Channel-by-channel, short-circuit of the encoder supply to ground or of an input to the encoder supply	Yes; channel-by-channel, at 1 to 5 V or for short-circuit in encoder supply	Yes; channel-by-channel, at 1 to 5 V or for current measuring ranges short-circuit in encoder supply
• Group error	Yes	Yes	Yes	Yes
• Overflow/underflow	Yes	Yes; channel by channel	Yes	Yes
Diagnostics indication LED				
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; green LED	Yes; green LED	Yes; green LED	Yes; green LED
• for channel diagnostics	No	Yes; red LED	Yes; red LED	Yes; red LED
• for module diagnostics	Yes; green/red LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation				
Potential separation channels				
• between the channels and backplane bus	Yes	Yes	Yes	Yes
Isolation				
Isolation tested with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)
Standards, approvals, certificates				
Suitable for safety functions	No		No	No
Dimensions				
Width	15 mm	15 mm	15 mm	15 mm
Height	73 mm	73 mm	73 mm	73 mm
Depth	58 mm	58 mm	58 mm	58 mm
Weights				
Weight, approx.	31 g	31 g	32 g	32 g

Technical specifications (continued)

Article number	**6ES7134-6JF00-0CA1** ET 200SP, AI 8XRTD/TC 2-WIRE HF	**6ES7134-6JD00-0CA1** ET 200SP, AI 4XRTD/TC 2-/3-/4-WIRE HF
General information		
Product type designation	AI 8xRTD/TC 2-wire HF	AI 4xRTD/TC 2-/3-/4-wire HF
Product function		
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with		
• STEP 7 TIA Portal configurable/ integrated as of version	V13	V12 SP1 / V13
• STEP 7 configurable/integrated as of version	V5.5 / -	V5.5 SP3 / V5.5 SP4
• PCS 7 configurable/integrated as of version		V8.1 SP1
• PROFIBUS as of GSD version/ GSD revision	GSD Revision 5	GSD Revision 5
• PROFINET as of GSD version/ GSD revision	GSDML V2.3	GSDML V2.3
Operating mode		
• Oversampling	No	No
• MSI	No	No
CiR – Configuration in RUN		
Reparameterization possible in RUN	Yes	Yes
Calibration possible in RUN	Yes	Yes
Supply voltage		
Rated value (DC)	24 V	24 V
Reverse polarity protection	Yes	Yes
Analog inputs		
Number of analog inputs	8	4
• For voltage measurement	8	4
• For resistance/resistance thermometer measurement	8	4
• For thermocouple measurement	8	4
permissible input voltage for voltage input (destruction limit), max.	30 V	30 V
Constant measurement current for resistance-type transmitter, typ.	2 mA	0.7 mA; 1.7 mA for Cu10 sensors
Cycle time (all channels), min.	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels); for line compensation in case of a three-wire connection, an additional cycle is necessary
Technical unit for temperature measurement adjustable	Yes; °C/°F/K	Yes; °C/°F/K
Input ranges (rated values), voltages		
• -1 V to +1 V	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• -250 mV to +250 mV	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• -50 mV to +50 mV	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• -80 mV to +80 mV	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
Input ranges (rated values), thermocouples		
• Type B	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type C	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type E	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type J	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type K	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type L	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type N	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type R	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type S	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type T	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type U	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Type TXK/TXK(L) to GOST	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign

Technical specifications (continued)

Article number	**6ES7134-6JF00-0CA1**	**6ES7134-6JD00-0CA1**
	ET 200SP, AI 8XRTD/TC 2-WIRE HF	ET 200SP, AI 4XRTD/TC 2-/3-/4-WIRE HF
Input ranges (rated values), resistance thermometer		
• Cu 10		Yes; 16 bit incl. sign
• Ni 100	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Ni 1000	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• LG-Ni 1000	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Ni 120	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Ni 200	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Ni 500	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Pt 100	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Pt 1000	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Pt 200	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• Pt 500	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
Input ranges (rated values), resistors		
• 0 to 150 ohms	Yes; 15 bit	Yes; 15 bit
• 0 to 300 ohms	Yes; 15 bit	Yes; 15 bit
• 0 to 600 ohms	Yes; 15 bit	Yes; 15 bit
• 0 to 3000 ohms	Yes; 15 bit	Yes; 15 bit
• 0 to 6000 ohms	Yes; 15 bit	Yes; 15 bit
• PTC	Yes; 15 bit	Yes; 15 bit
Thermocouple (TC)		
Temperature compensation		
- parameterizable	Yes	Yes
Cable length		
• shielded, max.	200 m; 50 m with thermocouples	200 m; 50 m with thermocouples
Analog value generation for the inputs		
Integration and conversion time/ resolution per channel		
• Resolution with overrange (bit including sign), max.	16 bit	16 bit
• Integration time, parameterizable	Yes	Yes
• Basic conversion time, including integration time (ms)		
- additional processing time for wire-break check	2 ms; In the ranges resistance thermometers, resistors and thermocouples	2 ms; In the ranges resistance thermometers, resistors and thermocouples
- additional power line wire-break check		2 ms; for 3/4 wire transducer (resistance thermometer and resistor)
• Interference voltage suppression for interference frequency f1 in Hz	16.6 / 50 / 60 Hz	16.6 / 50 / 60 Hz
• Conversion time (per channel)	180 / 60 / 50 ms	180 / 60 / 50 ms
Smoothing of measured values		
• Number of smoothing levels	4; None; 4/8/16 times	4; None; 4/8/16 times
• parameterizable	Yes	Yes
Encoder		
Connection of signal encoders		
• for voltage measurement	Yes	Yes
• for resistance measurement with two-wire connection	Yes	Yes
• for resistance measurement with three-wire connection	No	Yes
• for resistance measurement with four-wire connection	No	Yes
Errors/accuracies		
Basic error limit (operational limit at 25 °C)		
• Voltage, relative to input range, (+/-)	0.05 %	0.05 %
• Resistance, relative to input range, (+/-)	0.05 %	0.05 %

Technical specifications (continued)

Article number	**6ES7134-6JF00-0CA1** ET 200SP, AI 8XRTD/TC 2-WIRE HF	**6ES7134-6JD00-0CA1** ET 200SP, AI 4XRTD/TC 2-/3-/4-WIRE HF
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency		
• Series mode interference (peak value of interference < rated value of input range), min.	70 dB	70 dB
• Common mode voltage, max.	10 V	10 V
• Common mode interference, min.	90 dB	90 dB
Isochronous mode		
Isochronous operation (application synchronized up to terminal)	No	No
Interrupts/diagnostics/ status information		
Diagnostics function	Yes	Yes
Alarms		
• Diagnostic alarm	Yes	Yes
• Limit value alarm	Yes; two upper and two lower limit values in each case	Yes; two upper and two lower limit values in each case
Diagnostic messages		
• Monitoring the supply voltage	Yes	Yes
• Wire-break	Yes; channel by channel	Yes; channel by channel
• Group error	Yes	Yes
• Overflow/underflow	Yes; channel by channel	Yes; channel by channel
Diagnostics indication LED		
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; green LED	Yes; green LED
• for channel diagnostics	Yes; red LED	Yes; red LED
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation		
Potential separation channels		
• between the channels and backplane bus	Yes	Yes
Isolation		
Isolation tested with	707 V DC (type test)	707 V DC (type test)
Standards, approvals, certificates		
Suitable for safety functions	No	No
Dimensions		
Width	15 mm	15 mm
Height	73 mm	73 mm
Depth	58 mm	58 mm
Weights		
Weight, approx.	32 g	30 g

Article number	**7MH4134-6LB00-0DA0** ET 200SP AI 2 X SG 4-/6-WIRE HS
General information	
Product type designation	AI 2xSG 4-/6-wire HS
Product function	
• I&M data	Yes; I&M0 to I&M3
• Measuring range scalable	Yes
• Scalable measured values	No
• Adjustment of measuring range	Yes; ±0.5 ... 320 mV/V
Engineering with	
• STEP 7 TIA Portal configurable/ integrated as of version	V14 SP1
• STEP 7 configurable/integrated as of version	V5.6
• PROFIBUS as of GSD version/ GSD revision	V03.01.105
• PROFINET as of GSD version/ GSD revision	GSDML V2.33

Article number	**7MH4134-6LB00-0DA0** ET 200SP AI 2 X SG 4-/6-WIRE HS
Operating mode	
• Oversampling	Yes; 2 channels per module
• MSI	No
CiR – Configuration in RUN	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	No
Supply voltage	
Rated value (DC)	24 V
Reverse polarity protection	Yes
Analog inputs	
Number of analog inputs	2; Differential inputs
Cycle time (all channels), min.	100 µs
Analog input with oversampling	Yes
• Values per cycle, max.	14
• Resolution, min.	100 µs

Technical specifications (continued)

Article number	7MH4134-6LB00-0DA0 ET 200SP AI 2 X SG 4-/6-WIRE HS
Input ranges	
• Strain gauges (full bridges)	Yes
Cable length	
• shielded, max.	500 m
Analog value generation for the inputs	
Measurement principle	Sigma Delta
Integration and conversion time/ resolution per channel	
• Resolution with overrange (bit including sign), max.	28 bit; 16 bits with oversampling
• Integration time, parameterizable	Yes
• Interference voltage suppression for interference frequency f1 in Hz	60 / 50 Hz / no
• Conversion time (per channel)	100 µs
Smoothing of measured values	
• IIR low-pass filter frequency	0.01 ... 600 Hz
• IIR low-pass filter ordinal number	1 ... 4
• Notch filter frequency	0.1 ... 1 000 Hz
• Notch filter quality	5.00 ... 250.00
• Average value filter	0.1 ... 655.3 ms
Encoder	
Connection of signal encoders	
• For strain gauges (full bridges) with 4-conductor connection	Yes
• For strain gauges (full bridges) with 6-conductor connection	Yes
• Resistance of full bridge, min.	80 Ω
• Resistance of full bridge, max.	5 000 Ω
Errors/accuracies	
Temperature coefficient, zero point	≤ ±0.25 µV/K
Temperature coefficient, span, 4-conductor connection (referred to end value)	≤ ±5 ppm/K
Temperature coefficient, span, 6-conductor connection (referred to end value)	≤ ±10 ppm/K
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	0.05 %; See manual for details
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes
Filtering and processing time (TCI), min.	87 µs
Bus cycle time (TDP), min.	125 µs

Article number	7MH4134-6LB00-0DA0 ET 200SP AI 2 X SG 4-/6-WIRE HS
Interrupts/diagnostics/ status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnostic messages	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
• Short-circuit	Yes
• Group error	Yes
• Overflow/underflow	Yes
Diagnostics indication LED	
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; Red LED
• for module diagnostics	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
• between the channels and backplane bus	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-25 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-25 °C
• vertical installation, max.	50 °C
Altitude during operation relating to sea level	
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax – 1 K/100 m) at 795 hPa ... 701 hPa (+2 000 m ... +3 000 m)
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	45 g

Technical specifications (continued)

Article number	**6ES7134-6PA01-0BD0** ET 200SP AI ENERGY METER 400VAC ST	**6ES7134-6PA20-0BD0** ET 200SP AI ENERGY METER 480VAC ST
General information		
Product type designation	AI energy meter 400VAC ST	AI Energy Meter 480VAC ST
Product function		
• Voltage measurement	Yes	Yes
- without voltage transformer		Yes
- with voltage transformer	No	Yes
• Current measurement	Yes	Yes
- without current transformer	No	No
- with current transformer	Yes	Yes
- with Rogowski coil		No
- with current/voltage transformer		No
• Energy measurement	Yes	Yes
• Frequency measurement	Yes	Yes
• Power measurement	Yes	Yes
• Active power measurement	Yes	Yes
• Reactive power measurement	Yes	Yes
• Power factor measurement		Yes
• Active factor measurement		No
• Reactive power compensation		No
• Line analysis		No
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
• Isochronous mode	No	No
Engineering with		
• STEP 7 TIA Portal configurable/ integrated as of version	V13 SP1	V13 SP1
• STEP 7 configurable/integrated as of version	V5.5 SP4 and higher	V5.5 SP4 and higher
• PROFIBUS as of GSD version/ GSD revision	GSD Revision 5	GSD Revision 5
• PROFINET as of GSD version/ GSD revision	V2.3	V2.3
Operating mode		
• cyclic measurement	Yes	
• acyclic measurement	Yes	
• Cyclic measured value access		Yes
• Acyclic measured value access	Yes	Yes
• Fixed measured value sets	Yes	Yes
• Freely definable measured value sets	No	Yes
CiR – Configuration in RUN		
Reparameterization possible in RUN	Yes	Yes
Calibration possible in RUN	No	Yes
Installation type/mounting		
Mounting position	Any	Any
Supply voltage		
Design of the power supply	Supply via voltage measurement channel L1	Supply via voltage measurement channel L1
Type of supply voltage	100 - 240 V AC	AC 100 - 277 V
permissible range, lower limit (AC)	90 V	90 V
permissible range, upper limit (AC)	264 V	293 V
Line frequency		
• permissible range, lower limit	47 Hz	47 Hz
• permissible range, upper limit	63 Hz	63 Hz
Analog inputs		
Cycle time (all channels), typ.	50 ms; Time for consistent update of all measured and calculated values (cyclic und acyclic data)	50 ms; Time for consistent update of all measured and calculated values (cyclic und acyclic data)
Cable length		
• unshielded, max.		200 m
Isochronous mode		
Isochronous operation (application synchronized up to terminal)		No

Technical specifications (continued)

Article number	**6ES7134-6PA01-0BD0** ET 200SP AI ENERGY METER 400VAC ST	**6ES7134-6PA20-0BD0** ET 200SP AI ENERGY METER 480VAC ST
Interrupts/diagnostics/ status information		
Alarms		
• Diagnostic alarm	Yes	Yes
• Limit value alarm	No	Yes
• Hardware interrupt	No	Yes; Monitoring of up to 16 freely selectable process values (exceeding or undershooting of value)
Diagnostics indication LED		
• Monitoring of the supply voltage (PWR-LED)	Yes	Yes
• Channel status display	Yes; green LED	Yes; green LED
• for channel diagnostics	Yes; red Fn LED	Yes; red Fn LED
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Integrated Functions		
Measuring functions		
• Measuring procedure for voltage measurement	TRMS	TRMS
• Measuring procedure for current measurement	TRMS	TRMS
• Type of measured value acquisition	seamless	seamless
• Curve shape of voltage	Sinusoidal or distorted	Sinusoidal or distorted
• Buffering of measured variables	No	Yes
• Parameter length	38 byte	74 byte
• Bandwidth of measured value acquisition	2 kHz; Harmonics: 39 / 50 Hz, 32 / 60 Hz	2 kHz; Harmonics: 39 / 50 Hz, 32 / 60 Hz
Measuring range		
- Frequency measurement, min.	45 Hz	45 Hz
- Frequency measurement, max.	65 Hz	65 Hz
Measuring inputs for voltage		
- Measurable line voltage between phase and neutral conductor	230 V	277 V
- Measurable line voltage between the line conductors	400 V	480 V
- Measurable line voltage between phase and neutral conductor, min.	90 V	90 V
- Measurable line voltage between phase and neutral conductor, max.	264 V	293 V
- Measurable line voltage between the line conductors, min.	155 V	155 V
- Measurable line voltage between the line conductors, max.	460 V	508 V
- Measurement category for voltage measurement in accordance with IEC 61010-2-030	CAT II; CAT III in case of guaranteed protection level of 1.5 kV	CAT II; CAT III in case of guaranteed protection level of 1.5 kV
- Internal resistance line conductor and neutral conductor	3.4 MΩ	3.4 MΩ
- Power consumption per phase	20 mW	20 mW
- Impulse voltage resistance 1,2/ 50µs	1 kV	1 kV

Technical specifications (continued)

Article number	**6ES7134-6PA01-0BD0** ET 200SP AI ENERGY METER 400VAC ST	**6ES7134-6PA20-0BD0** ET 200SP AI ENERGY METER 480VAC ST
Measuring inputs for current		
- measurable relative current (AC), min.	5 %; Relative to the secondary rated current; 1 A, 5 A	1 %; Relative to the secondary rated current 5 A
- measurable relative current (AC), max.	100 %; Relative to the secondary rated current; 1 A, 5 A	100 %; Relative to the secondary rated current 5 A
- Continuous current with AC, maximum permissible	5 A	5 A
- Apparent power consumption per phase for measuring range 5 A	0.6 V·A	0.6 V·A
- Rated value short-time withstand current restricted to 1 s	100 A	100 A
- Input resistance measuring range 0 to 5 A	25 mΩ; At the terminal	25 mΩ; At the terminal
- Zero point suppression	Parameterizable: 20 ... 250 mA, default 50 mA	Parameterizable: 2 ... 250 mA, default 50 mA
- Surge strength	10 A; for 1 minute	10 A; for 1 minute
Accuracy class according to IEC 61557-12		
- Measured variable voltage	0.5	0,2
- Measured variable current	0.5	0,2
- Measured variable apparent power	1	0.5
- Measured variable active power	1	0.5
- Measured variable reactive power	1	1
- Measured variable power factor	0.5	0.5
- Measured variable active energy	1	0.5
- Measured variable reactive energy	2	1
- Measured variable neutral current		0.5; calculated
- Measured variable phase angle	±1 °; not covered by IEC 61557-12	±1 °; not covered by IEC 61557-12
- Measured variable frequency	0.05	0.05
Potential separation		
Potential separation channels		
• between the channels and backplane bus	Yes; 3 700V AC (type test) CAT III	Yes; 3 700V AC (type test) CAT III
Isolation		
Isolation tested with	2 300V AC for 1 min. (type test)	2 300V AC for 1 min. (type test)
Ambient conditions		
Ambient temperature during operation		
• horizontal installation, min.	0 °C	0 °C
• horizontal installation, max.	60 °C	60 °C
• vertical installation, min.	0 °C	0 °C
• vertical installation, max.	50 °C	50 °C
Altitude during operation relating to sea level		
• Ambient air temperature-barometric pressure-altitude		On request: Ambient temperatures lower than 0 °C (without condensation) and/or installation altitudes greater than 2 000 m
Dimensions		
Width	20 mm	20 mm
Height	73 mm	73 mm
Depth	58 mm	58 mm
Weights		
Weight (without packaging)	45 g	45 g
Other		
Data for selecting a voltage transformer		
• Secondary side, max.		296 V
Data for selecting a current transformer		
• Burden power current transformer x/1A, min.	As a function of cable length and cross section, see device manual	As a function of cable length and cross section, see device manual
• Burden power current transformer x/5A, min.	As a function of cable length and cross section, see device manual	As a function of cable length and cross section, see device manual

Ordering data	Article No.
Analog input modules	
Type of delivery: Apart from the standard type of delivery in an individual package, selected I/O modules and BaseUnits are also available in a pack of 10 units. The pack of 10 units enables the amount of waste to be reduced considerably, as well as saving the time of unpacking individual modules. The number of modules required is the number of modules ordered. The type of packaging is chosen by selecting the article number. Packs of 10 can therefore only be ordered in integer multiples of 10.	
Analog input module AI 8xI 2/4-wire BA, BU type A0 or A1, color code CC01	**6ES7 134-6GF00-0AA1**
Analog input module AI 2xU ST, BU type A0 or A1, color code CC00	**6ES7134-6FB00-0BA1**
Analog input module AI 8xU BA, BU type A0 or A1, color code CC02	**6ES7 134-6FF00-0AA1**
Analog input module AI 4xU/I 2-wire Standard, BU type A0 or A1, color code CC03, 16-bit, ±0.3%	
• 1 unit	**6ES7134-6HD00-0BA1**
• 10 units	**6ES7134-6HD00-2BA1**
Analog input module AI 2xI 2/4-wire Standard, BU type A0 or A1, color code CC05, 16-bit	**6ES7134-6GB00-0BA1**
Analog input module AI 4xI 2/4-wire Standard, BU type A0 or A1, color code CC03, 16-bit, ±0.3%	**6ES7134-6GD00-0BA1**
Analog input module AI 4xI 2-wire 4 ... 20 mA HART, BU type A0 or A1, color code CC03	**6ES7134-6TD00-0CA1**
Analog input module AI 2xU/I 2/4-wire High Feature, BU type A0 or A1, color code CC05, 16-bit, ±0.1%, independent channel isolation, isochronous mode above 1 ms	**6ES7134-6HB00-0CA1**
Analog input module AI 2xU/I 2/4-wire High Speed, BU type A0 or A1, color code CC00, 16-bit, ±0.3%, isochronous mode above 250 µs, oversampling above 50 µs	**6ES7134-6HB00-0DA1**
Analog input module AI 8xRTD/TC 2-wire High Feature, BU type A0 or A1, color code CC00, 16-bit, ±0.1%, scalable measuring range	
• 1 unit	**6ES7134-6JF00-0CA1**
• 10 units	**6ES7134-6JF00-2CA1**
Analog input module AI 4xRTD/TC 2/3/4-wire High Feature, BU type A0 or A1, color code CC00, 16-bit, ±0.1%, scalable measuring range	
• 1 unit	**6ES7134-6JD00-0CA1**
• 10 units	**6ES7134-6JD00-2CA1**
Analog input module AI 2xSG, 4/6-wire High Speed, BU type A0, color code CC00, channel diagnostics, 28/16-bit, ±0.05%, for DMS full bridges; for connecting force and torque sensors	**7MH4134-6LB00-0DA0**
Analog input module AI Energy Meter Standard, 400 V AC, BU type D0	**6ES7134-6PA01-0BD0**
Analog input module AI Energy Meter Standard, 480 V AC, BU type D0	**6ES7134-6PA20-0BD0**
Usable type A0 BaseUnits	
BU15-P16+A10+2D BU type A0; BaseUnit (light) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP20-0DA0**
• 10 units	**6ES7193-6BP20-2DA0**
BU15-P16+A0+2D BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP00-0DA0**
• 10 units	**6ES7193-6BP00-2DA0**
BU15-P16+A10+2B BU type A0; BaseUnit (dark) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	
• 1 unit	**6ES7193-6BP20-0BA0**
• 10 units	**6ES7193-6BP20-2BA0**
BU15-P16+A0+2B BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
• 1 unit	**6ES7193-6BP00-0BA0**
• 10 units	**6ES7193-6BP00-2BA0**
Usable type A1 BaseUnits (temperature detection)	
BU15-P16+A0+12D/T BU type A1; BaseUnit (light) with 16 process terminals (1 ... 16) to the module and an additional 2x5 internally jumpered additional terminals (1 B to 5 B and 1 C to 5 C); for starting a new load group (max. 10 A)	**6ES7193-6BP40-0DA1**
BU15-P16+A0+2D/T BU type A1; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	**6ES7193-6BP00-0DA1**
BU15-P16+A0+12B/T BU type A1; BaseUnit (dark) with 16 process terminals (1 ... 16) to the module and an additional 2x5 internally jumpered additional terminals (1 B to 5 B and 1 C to 5 C); for continuing the load group	**6ES7193-6BP40-0BA1**
BU15-P16+A0+2B/T BU type A1; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	**6ES7193-6BP00-0BA1**

Ordering data	Article No.
Usable type D0 BaseUnits	
BU20-P12+A0+0B	**6ES7193-6BP00-0BD0**
BU type D0; BaseUnit with 12 push-in terminals, without AUX terminals, bridged to the left	
Potential distribution modules	
PotDis BU	
PotDis BU, type P1 (light), 17x P1 potential, 1x P2 potential, for beginning a new load group (max. 10 A)	**6ES7193-6UP00-0DP1**
PotDis BU, type P1 (dark), 17x P1 potential, 1x P2 potential, for continuing the load group	**6ES7193-6UP00-0BP1**
PotDis BU, type P2 (light), 1x P1 potential, 17x P2 potential, for beginning a new load group (max. 10 A)	**6ES7193-6UP00-0DP2**
PotDis BU, type P2 (dark), 1x P1 potential, 17x P2 potential, for continuing the load group	**6ES7193-6UP00-0BP2**
PotDis TB	
PotDis TB, type BR-W, 18x internally jumpered terminals, without connection to P1, P2 or AUX, (total current max. 10 A)	**6ES7193-6TP00-0TP0**
PotDis TB, type P1-R, 18x P1 potential, (total current max. 10 A)	**6ES7193-6TP00-0TP1**
PotDis TB, type P2-B, 18x P2 potential, (total current max. 10 A)	**6ES7193-6TP00-0TP2**
PotDis TB, type n.c.-G, 18x n.c. (not connected) terminals, without reference to P1, P2 or AUX	**6ES7193-6TP00-0TN0**
Accessories	
Equipment labeling plate	**6ES7193-6LF30-0AW0**
10 sheets of 16 labels, for printing with thermal transfer card printer or plotter	
Labeling strips	
500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AA0**
500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AG0**
1000 labeling strips DIN A4, light gray, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AA0**
1000 labeling strips DIN A4, yellow, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AG0**
BU cover	
For covering empty slots (gaps); 5 units	
• 15 mm wide	**6ES7133-6CV15-1AM0**
• 20 mm wide	**6ES7133-6CV20-1AM0**
Shield connection	**6ES7193-6SC00-1AM0**
5 shield supports and 5 shield terminals	

	Article No.
Color-coded labels	
Color code CC00, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 10 units	**6ES7193-6CP00-2MA0**
Color code CC01, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 10 units	**6ES7193-6CP01-2MA0**
Color code CC01, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 50 units	**6ES7193-6CP01-4MA0**
Color code CC02, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), blue (terminals 9 to 16); 10 units	**6ES7193-6CP02-2MA0**
Color code CC02, for 16 process terminals, BU type A0, A1, gray (terminals 1 to 8), blue (terminals 9 to 16); 50 units	**6ES7193-6CP02-4MA0**
Color code CC03, for 16 push-in terminals, BU type A0, A1 gray (terminals 1 to 8), red (terminals 9 to 12), gray (terminals 13 to 16); 10 units	**6ES7193-6CP03-2MA0**
Color code CC05, for 16 push-in terminals, BU type A0, A1, gray (terminals 1 to 12), red (terminals 13 to 14), blue (terminals 15 to 16); 10 units	**6ES7193-6CP05-2MA0**
Color code CC71, for 10 AUX terminals, BU type A0, yellow/green (terminals 1 A to 10 A); 10 units	**6ES7193-6CP71-2AA0**
Color code CC72, for 10 AUX terminals, BU type A0, red (terminals 1 A to 10 A); 10 units	**6ES7193-6CP72-2AA0**
Color code CC73, for 10 AUX terminals, BU type A0, blue (terminals 1 A to 10 A); 10 units	**6ES7193-6CP73-2AA0**
Color code CC74, for 2x5 additional terminals, BU type A1, red (terminals 1B to 5B), blue (terminals 1C to 5C); 10 units	**6ES7193-6CP74-2AA0**
Color-coded labels for PotDis BU	
Color code CC62, for 16 process terminals, PotDis BU type P1, red (terminals 1 to 16); 10 units	**6ES7193-6CP62-2MA0**
Color code CC63, for 16 process terminals, PotDis BU type P2, blue (terminals 1 to 16); 10 units	**6ES7193-6CP63-2MA0**
Color-coded labels for PotDis TB	
Color code CC10, for 18 process terminals, PotDis TB, gray (terminals 1 to 18); 10 units	**6ES7193-6CP10-2MT0**
Color code CC11, for 18 process terminals, PotDis TB, yellow/green (terminals 1 to 18); 10 units	**6ES7193-6CP11-2MT0**
Color code CC12, for 18 process terminals, PotDis TB, type P1 and BR, red (terminals 1 to 18); 10 units	**6ES7193-6CP12-2MT0**
Color code CC13, for 18 process terminals, PotDis TB, type P2 and BR, blue (terminals 1 to 18); 10 units	**6ES7193-6CP13-2MT0**

Overview

- 2 and 4-channel analog output (AQ) modules
- Apart from the standard delivery form in an individual package, selected I/O modules and BaseUnits are also available in a pack of 10 units. The pack of 10 units enables the amount of waste to be reduced considerably, as well as saving the time of unpacking individual modules.

For different requirements, the digital output modules offer:

- Function classes Standard, High Feature and High-Speed
- BaseUnits for single or multiple-conductor connection with automatic slot coding
- Potential distributor modules for system-integrated expansion with potential terminals
- Individual system-integrated load group formation with self-assembling voltage distribution bars (a separate power module is no longer required for ET 200SP)
- Option for connecting current and voltage actuators
- Clear labeling on front of module
- LEDs for diagnostics, status, power supply and faults
- Electronically readable and non-volatile writable rating plate (I&M data 0 to 3)
- Extended functions and additional operating modes in some cases
  - Oversampling (n-fold equidistant output of an analog value within one PN cycle and thus the precisely timed output of an analog value or a sequence of analog values)
  - Isochronous mode (simultaneous equidistant output of analog values)
  - Output of substitute value in the event of interruptions to communication (shutdown, output adjustable substitute value, or keep last value)
  - Calibration during runtime
  - Re-parameterization during operation
  - Firmware update
  - Diagnosis of wire break, short circuit, overflow, underflow
  - Value status (optional binary validity information of the analog signal in the process image)
  - Support of the PROFIenergy profile
- Optional accessories
  - Labeling strips (film or card)
  - Equipment labeling plate
  - Color-coded label with module-specific CC code
  - Shielding terminal

A quick and clear comparison of the functions of the AQ modules is offered by the TIA Selection Tool.

9

Overview of analog output modules

Analog output	PU	Article No.	CC code	BU type
AQ 2 x U ST	1	6ES7135-6FB00-0BA1	CC00	A0, A1
AQ 2 x I ST	1	6ES7135-6GB00-0BA1	CC00	A0, A1
AQ 4 x U/I ST	1	6ES7135-6HD00-0BA1	CC00	A0, A1
AQ 2 x U/I HF	1	6ES7135-6HB00-0CA1	CC00	A0, A1
AQ 2xU/I HS With two operating modes • High-speed isochronous AQ • Oversampling	1	6ES7135-6HB00-0DA1	CC00	A0, A1

Overview of BaseUnits

BaseUnit	PU	Article No.	CC codes for process terminals	CC codes for AUX terminals
BU type A0 • New load group (light) • 16 process terminals • With 10 AUX terminals	1	6ES7193-6BP20-0DA0	CC01 to CC05	CC71 to CC73
BU type A0 • New load group (light) • 16 process terminals • With 10 AUX terminals	10	6ES7193-6BP20-2DA0	CC01 to CC05	CC71 to CC73
BU type A0 • New load group (light) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0DA0	CC01 to CC05	--

Overview (continued)

BaseUnit	PU	Article No.	CC codes for process terminals	CC codes for AUX terminals
BU type A0 • New load group (light) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2DA0	CC01 to CC05	--
BU type A0 • Forwarding of load group (dark) • 16 process terminals • With 10 AUX terminals	1	6ES7193-6BP20-0BA0	CC01 to CC05	CC71 to CC73
BU type A0 • Forwarding of load group (dark) • 16 process terminals • With 10 AUX terminals	10	6ES7193-6BP20-2BA0	CC01 to CC05	CC71 to CC73
BU type A0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	1	6ES7193-6BP00-0BA0	CC01 to CC05	--
BU type A0 • Forwarding of load group (dark) • 16 process terminals • Without AUX terminals	10	6ES7193-6BP00-2BA0	CC01 to CC05	--
BU type A1 • New load group (light) • With temperature sensor • 16 process terminals • With 2x5 additional terminals	1	6ES7193-6BP40-0DA1	CC01 to CC05	CC74
BU type A1 • New load group (light) • With temperature sensor • 16 process terminals • Without 2x5 additional terminals	1	6ES7193-6BP00-0DA1	CC01 to CC05	--
BU type A1 • Forwarding of load group (dark) • With temperature sensor • 16 process terminals • With 2x5 additional terminals	1	6ES7193-6BP40-0BA1	CC01 to CC05	CC74
BU type A1 • Forwarding of load group (dark) • With temperature sensor • 16 process terminals • Without 2x5 additional terminals	1	6ES7193-6BP00-0BA1	CC01 to CC05	--

Overview of potential distributor modules

Potential distributor module	PU	Article No.	CC codes for process terminals
PotDis-BU Type P1 (light), 17x P1 potential, 1x P2 potential, for starting a new load group (max. 10 A)	1	6ES7193-6UP00-0DP1	CC00, CC62
PotDis-BU Type P1 (dark), 17x P1 potential, 1x P2 potential, for continuing the load group	1	6ES7193-6UP00-0BP1	CC00, CC62
PotDis-BU Type P2 (light), 1x P1 potential, 17x P2 potential, for starting a new load group (max. 10 A)	1	6ES7193-6UP00-0DP2	CC00, CC63
PotDis-BU Type P2 (dark), 1x P1 potential, 17x P2 potential, for continuing the load group	1	6ES7193-6UP00-0BP2	CC00, CC63

Overview (continued)

Potential distributor module	PU	Article No.	CC codes for process terminals
PotDis-TB Type BR-W, 18x internally jumpered terminals, without reference to P1, P2 and AUX, (total current max. 10 A)	1	6ES7193-6TP00-0TP0	CC10 to CC13
PotDis-TB Type P1-R, 18x P1 potential, (total current max. 10 A)	1	6ES7193-6TP00-0TP1	CC10, CC12
PotDis-TB Type P2-B, 18x P2 potential, (total current max. 10 A)	1	6ES7193-6TP00-0TP2	CC10, CC13
PotDis-TB Type n.c.-G, 18x n.c. (not connected) terminals, without reference to P1, P2 and AUX	1	6ES7193-6TP00-0TN0	CC10

Technical specifications

Article number	**6ES7135-6FB00-0BA1** ET 200SP, AQ 2XU STANDARD, PU 1	**6ES7135-6GB00-0BA1** ET 200SP, AQ 2XI STANDARD, PU 1	**6ES7135-6HD00-0BA1** ET 200SP, AQ 4XU/I ST	**6ES7135-6HB00-0DA1** ET 200SP, AQ 2 X U/I HIGH SPEED	**6ES7135-6HB00-0CA1** ET 200SP, AQ 2 X U/I HIGH FEATURE
General information					
Product type designation	AQ 2xU ST	AQ 2xI ST	AQ 4xU/I ST	AQ 2xU/I HS	AQ 2xU/I HF
Product function					
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
• Output range scalable	No	No	No		
Engineering with					
• STEP 7 TIA Portal configurable/ integrated as of version	V13 SP1 / -	V13 SP1 / -	V11 SP2 / V13	V13 SP1	V13 / V13
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -
• PCS 7 configurable/integrated as of version			V8.1 SP1		V8.1 SP1
• PROFIBUS as of GSD version/ GSD revision	GSD Revision 5	GSD Revision 5	GSD Revision 5	GSD Revision 5	GSD Revision 5
• PROFINET as of GSD version/ GSD revision	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3	GSDML V2.3
Operating mode					
• Oversampling	No	No	No	Yes; 2 channels per module	No
• MSO	No	No	No	No	No
CiR – Configuration in RUN					
Reparameterization possible in RUN	Yes	Yes	Yes	Yes	Yes
Calibration possible in RUN	No	No	No	Yes	Yes
Supply voltage					
Type of supply voltage	DC	DC	DC	DC	DC
Rated value (DC)	24 V	24 V	24 V	24 V	24 V
Reverse polarity protection	Yes	Yes	Yes	Yes	Yes
Analog outputs					
Number of analog outputs	2	2	4	2	2
Cycle time (all channels), min.	1 ms	1 ms	5 ms	125 µs	750 µs
Analog output with oversampling	No	No	No	Yes	
• Values per cycle, max.				16	
• Resolution, min.				45 µs; (2 channels), 35 µs (1 channel)	

Technical specifications (continued)

Article number	**6ES7135-6FB00-0BA1** ET 200SP, AQ 2XU STANDARD, PU 1	**6ES7135-6GB00-0BA1** ET 200SP, AQ 2XI STANDARD, PU 1	**6ES7135-6HD00-0BA1** ET 200SP, AQ 4XU/I ST	**6ES7135-6HB00-0DA1** ET 200SP, AQ 2 X U/I HIGH SPEED	**6ES7135-6HB00-0CA1** ET 200SP, AQ 2 X U/I HIGH FEATURE
Output ranges, voltage					
• 0 to 10 V	Yes; 15 bit		Yes; 15 bit	Yes; 15 bit	Yes; 15 bit
• 1 V to 5 V	Yes; 13 bit		Yes; 13 bit	Yes; 13 bit	Yes; 13 bit
• -5 V to +5 V	Yes; 15 bit incl. sign		Yes; 15 bit incl. sign	Yes; 15 bit incl. sign	Yes; 15 bit incl. sign
• -10 V to +10 V	Yes; 16 bit incl. sign		Yes; 16 bit incl. sign	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
Output ranges, current					
• 0 to 20 mA		Yes; 15 bit	Yes; 15 bit	Yes; 15 bit	Yes; 15 bit
• -20 mA to +20 mA		Yes; 16 bit incl. sign	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• 4 mA to 20 mA		Yes; 14 bit	Yes; 14 bit	Yes; 14 bit	Yes; 14 bit
Connection of actuators					
• for voltage output two-wire connection	Yes		Yes	Yes	Yes
• for voltage output four-wire connection	No		Yes	Yes	Yes
• for current output two-wire connection		Yes	Yes	Yes	Yes
Load impedance (in rated range of output)					
• with voltage outputs, min.	2 kΩ		2 kΩ	2 kΩ	2 kΩ
• with voltage outputs, capacitive load, max.	1 µF		1 µF	1 µF	1 µF
• with current outputs, max.		500 Ω	500 Ω	500 Ω	500 Ω
• with current outputs, inductive load, max.		1 mH	1 mH	1 mH	1 mH
Cable length					
• shielded, max.	200 m	1 000 m	1 000 m; 200 m for voltage output	1 000 m; 200 m for voltage output	1 000 m; 200 m for voltage output
Analog value generation for the outputs					
Integration and conversion time/ resolution per channel					
• Resolution with overrange (bit including sign), max.	16 bit	16 bit	16 bit	16 bit	16 bit
Settling time					
• for resistive load	0.1 ms	0.1 ms; Typical value	0.1 ms	0.05 ms	0.05 ms
• for capacitive load	1 ms		1 ms	0.05 ms; Max. 47 nF and 20 m cable length	0.05 ms; Max. 47 nF and 20 m cable length
• for inductive load		0.5 ms	0.5 ms	0.05 ms	0.05 ms
Errors/accuracies					
Basic error limit (operational limit at 25 °C)					
• Voltage, relative to output range, (+/-)	0.3 %	0.3 %	0.3 %	0.1 %	0.1 %
• Current, relative to output range, (+/-)	0.3 %	0.3 %	0.3 %	0.1 %	0.1 %
Isochronous mode					
Isochronous operation (application synchronized up to terminal)	No	No	No	Yes	Yes
Execution and activation time (TCO), min.				70 µs	500 µs
Bus cycle time (TDP), min.				125 µs	750 µs

Technical specifications (continued)

Article number	**6ES7135-6FB00-0BA1** ET 200SP, AQ 2XU STANDARD, PU 1	**6ES7135-6GB00-0BA1** ET 200SP, AQ 2XI STANDARD, PU 1	**6ES7135-6HD00-0BA1** ET 200SP, AQ 4XU/I ST	**6ES7135-6HB00-0DA1** ET 200SP, AQ 2 X U/I HIGH SPEED	**6ES7135-6HB00-0CA1** ET 200SP, AQ 2 X U/I HIGH FEATURE
Interrupts/diagnostics/ status information					
Diagnostics function	Yes	Yes	Yes	Yes	Yes
Substitute values connectable	Yes	Yes	Yes	Yes	Yes
Alarms					
• Diagnostic alarm	Yes	Yes	Yes	Yes	Yes
Diagnostic messages					
• Monitoring the supply voltage	Yes	Yes	Yes	Yes	Yes
• Wire-break		Yes	Yes	Yes; channel-by-channel, only for output type "current"	Yes; channel-by-channel, only for output type "current"
• Short-circuit	Yes		Yes	Yes; channel-by-channel, only for output type "voltage"	Yes; channel-by-channel, only for output type "voltage"
• Group error	Yes	Yes	Yes	Yes	Yes
• Overflow/underflow	Yes	Yes	Yes	Yes	Yes
Diagnostics indication LED					
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• for channel diagnostics	No	No	No	Yes; Red LED	Yes; Red LED
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation					
Potential separation channels					
• between the channels and backplane bus	Yes	Yes	Yes	Yes	Yes
Isolation					
Isolation tested with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)
Ambient conditions					
Ambient temperature during operation					
• horizontal installation, min.	0 °C	0 °C	0 °C	0 °C	0 °C
• horizontal installation, max.	60 °C	60 °C	60 °C; Observe derating	60 °C	60 °C
• vertical installation, min.	0 °C	0 °C	0 °C	0 °C	0 °C
• vertical installation, max.	50 °C	50 °C	50 °C; Observe derating	50 °C	50 °C
Dimensions					
Width	15 mm	15 mm	15 mm	15 mm	15 mm
Height	73 mm	73 mm	73 mm	73 mm	73 mm
Depth	58 mm	58 mm	58 mm	58 mm	58 mm
Weights					
Weight, approx.	31 g	31 g	31 g	31 g	31 g

Ordering data	Article No.
Analog output modules	
Analog output module AQ 2xU Standard, BU type A0 or A1, color code CC00, 16-bit	**6ES7135-6FB00-0BA1**
Analog output module AQ 2xI Standard, BU type A0 or A1, color code CC00, 16-bit	**6ES7135-6GB00-0BA1**
Analog output module AQ 4xU/I Standard, BU type A0 or A1, color code CC00, 16-bit, ± 0.3%	**6ES7135-6HD00-0BA1**
Analog output module AQ 2xU/I High Feature, BU type A0 or A1, color code CC00, 16-bit, ±0.1%	**6ES7135-6HB00-0CA1**
Analog output module AQ 2xU/I High Speed, BU type A0 or A1, color code CC00, 16-bit, ±0.3%	**6ES7135-6HB00-0DA1**
Usable type A0 BaseUnits	
Type of delivery: Apart from the standard type of delivery in an individual package, selected BaseUnits are also available in a pack of 10 units. The pack of 10 units enables the amount of waste to be reduced considerably, as well as saving the time of unpacking individual modules. The number of modules required is the number of modules ordered. The type of packaging is chosen by selecting the article number. Packs of 10 can therefore only be ordered in integer multiples of 10.	
BU15-P16+A10+2D	
BU type A0; BaseUnit (light) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP20-0DA0**
• 10 units	**6ES7193-6BP20-2DA0**
BU15-P16+A0+2D	
BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP00-0DA0**
• 10 units	**6ES7193-6BP00-2DA0**
BU15-P16+A10+2B	
BU type A0; BaseUnit (dark) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	
• 1 unit	**6ES7193-6BP20-0BA0**
• 10 units	**6ES7193-6BP20-2BA0**
BU15-P16+A0+2B	
BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
• 1 unit	**6ES7193-6BP00-0BA0**
• 10 units	**6ES7193-6BP00-2BA0**

	Article No.
Usable type A1 BaseUnits (temperature detection)	
BU15-P16+A0+12D/T	**6ES7193-6BP40-0DA1**
BU type A1; BaseUnit (light) with 16 process terminals (1 ... 16) to the module and an additional 2x5 internally jumpered additional terminals (1 B to 5 B and 1 C to 5 C); for starting a new load group (max. 10 A)	
BU15-P16+A0+2D/T	**6ES7193-6BP00-0DA1**
BU type A1; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
BU15-P16+A0+12B/T	**6ES7193-6BP40-0BA1**
BU type A1; BaseUnit (dark) with 16 process terminals (1 ... 16) to the module and an additional 2x5 internally jumpered additional terminals (1 B to 5 B and 1 C to 5 C); for continuing the load group	
BU15-P16+A0+2B/T	**6ES7193-6BP00-0BA1**
BU type A1; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
Potential distributor modules	
PotDis-BU	
PotDis-BU, type P1 (light), 17x P1 potential, 1x P2 potential, for starting a new load group (max. 10 A)	**6ES7193-6UP00-0DP1**
PotDis-BU, type P1 (dark), 17x P1 potential, 1x P2 potential, for continuing the load group	**6ES7193-6UP00-0BP1**
PotDis-BU, type P2 (light), 1x P1 potential, 17x P2 potential, for starting a new load group (max. 10 A)	**6ES7193-6UP00-0DP2**
PotDis-BU, type P2 (dark), 1x P1 potential, 17x P2 potential, for continuing the load group	**6ES7193-6UP00-0BP2**
PotDis-TB	
PotDis-TB, type BR-W, 18x internally jumpered terminals, without reference to P1, P2 and AUX, (total current max. 10 A)	**6ES7193-6TP00-0TP0**
PotDis-TB, type P1-R, 18x P1 potential, (total current max. 10 A)	**6ES7193-6TP00-0TP1**
PotDis-TB, type P2-B, 18x P2 potential, (total current max. 10 A)	**6ES7193-6TP00-0TP2**
PotDis-TB, type n.c.-G, 18x n.c. (not connected) terminals, without reference to P1, P2 and AUX	**6ES7193-6TP00-0TN0**

Ordering data	Article No.
Accessories	
Equipment labeling plate	**6ES7193-6LF30-0AW0**
10 sheets of 16 labels, for printing with thermal transfer card printer or plotter	
Labeling strips	
500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AA0**
500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AG0**
1000 labeling strips DIN A4, light gray, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AA0**
1000 labeling strips DIN A4, yellow, card, perforated, for inscription with laser printer	**6ES7193-6LA10-0AG0**
BU cover	
for covering empty slots (gaps); 5 units	
• 15 mm	**6ES7133-6CV15-1AM0**
• 20 mm	**6ES7133-6CV20-1AM0**
Shield connection	**6ES7193-6SC00-1AM0**
5 shield supports and 5 shield terminals	
Color-coded labels	
Color code CC00, for 16 process terminals, for BU type A0, A1, gray (terminals 1 to 8), red (terminals 9 to 16); 10 units	**6ES7193-6CP00-2MA0**
Color code CC71, for 10 AUX terminals, BU type A0, yellow/green (terminals 1 A to 10 A); 10 units	**6ES7193-6CP71-2AA0**
Color code CC72, for 10 AUX terminals, BU type A0, red (terminals 1 A to 10 A); 10 units	**6ES7193-6CP72-2AA0**
Color code CC73, for 10 AUX terminals, BU type A0, blue (terminals 1 A to 10 A); 10 units	**6ES7193-6CP73-2AA0**
Color code CC74, for 2x5 additional terminals, BU type A1, red (terminals 1B to 5B), blue (terminals 1C to 5C); 10 units	**6ES7193-6CP74-2AA0**

	Article No.
Color-coded labels for PotDis-BU	
Color code CC62, for 16 process terminals, PotDis-BU type P1, red (terminals 1 to 16); 10 units	**6ES7193-6CP62-2MA0**
Color code CC63, for 16 process terminals, PotDis-BU type P2, blue (terminals 1 to 16); 10 units	**6ES7193-6CP63-2MA0**
Color-coded labels for PotDis-TB	
Color code CC10, for 18 process terminals, PotDis-TB, gray (terminals 1 to 18); 10 units	**6ES7193-6CP10-2MT0**
Color code CC11, for 18 process terminals, PotDis-TB, yellow-green (terminals 1 to 18); 10 units	**6ES7193-6CP11-2MT0**
Color code CC12, for 18 process terminals, PotDis-TB, type P1 and BR, red (terminals 1 to 18); 10 units	**6ES7193-6CP12-2MT0**
Color code CC13, for 18 process terminals, PotDis-TB, type P2 and BR, blue (terminals 1 to 18); 10 units	**6ES7193-6CP13-2MT0**

Overview

- 4, 8 and 16-channel DQ modules
- 4-channel RQ modules
- BaseUnits for single conductor or multiple-conductor connection
- Function classes Basic, Standard, High Feature and High-Speed as well as fail-safe DQ and RQ
- Clear labeling on front of module
- LEDs for diagnostics, status and errors
- Individual system-integrated load group formation with self-assembling potential multi-terminal busbars (power module not required for ET 200SP)
- Electronically readable rating plate (I&M data)
- Additional operating modes in some cases
- Optional accessories:
  - Labeling strips
  - Equipment marking label
  - Color-coded label with module-specific CC code
  - Shielding terminal

Overview of digital output modules

Digital output	Article No.	CC code	BU type	PU
DQ 16 x 24 V DC/0.5 A ST	6AG1132-6BH00-7BA0	CC00	A0	1
DQ 8 x 24 V DC/0.5 A ST	6AG1132-6BF00-7BA0	CC02	A0	1
DQ 8 x 24 V DC/0.5 A HF	6AG1132-6BF00-7CA0	CC02	A0	1
DQ 4 x 24 V DC/2 A ST	6AG1132-6BD20-7BA0	CC02	A0	1
RQ 4 x 24 V UC/2 A CO ST	6AG1132-6GD50-2BA0	CC00	A0	1
RQ 4 x 120 V DC-230 V AC/ 5 A NO ST	6AG1132-6HD00-7BB1	CC00	B0	1

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Technical specifications

Article number	**6AG1132-6BD20-7BA0**	**6AG1132-6BF00-7BA0**	**6AG1132-6BH00-7BA0**
based on	**6ES7132-6BD20-0BA0**	**6ES7132-6BF00-0BA0**	**6ES7132-6BH00-0BA0**
	SIPLUS ET200SP DQ 4x24VDC/2A ST	SIPLUS ET 200SP DQ 8x24VDC/0.5A ST	SIPLUS ET 200SP DQ 16x24VDC/0.5A ST
Ambient conditions			
Ambient temperature during operation			
• horizontal installation, min.	-40 °C; = Tmin	-40 °C; = Tmin; Startup @ -25 °C	-40 °C; = Tmin
• horizontal installation, max.	70 °C; = Tmax; > +60 °C number of simultaneously controllable outputs max. 2 x 0.25 A or max. 4 x 0.125 A, max. total current 0.5 A	70 °C; = Tmax; > +60 °C max. total current 1.0 A	70 °C; = Tmax; > +60 °C max. total current 1.0 A
• vertical installation, min.	-40 °C; = Tmin	-40 °C; = Tmin; Startup @ -25 °C	-40 °C; = Tmin
• vertical installation, max.	50 °C; = Tmax	50 °C; = Tmax	50 °C; = Tmax
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	5 000 m	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)

Technical specifications (continued)

Article number based on	**6AG1132-6BD20-7BA0** **6ES7132-6BD20-0BA0** SIPLUS ET200SP DQ 4x24VDC/2A ST	**6AG1132-6BF00-7BA0** **6ES7132-6BF00-0BA0** SIPLUS ET 200SP DQ 8x24VDC/0.5A ST	**6AG1132-6BH00-7BA0** **6ES7132-6BH00-0BA0** SIPLUS ET 200SP DQ 16x24VDC/0.5A ST
Relative humidity			
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance			
Coolants and lubricants			
- Resistant to commercially available coolants and lubricants	Yes	Yes	Yes
Use in stationary industrial systems			
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea			
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *
Note			
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

9

Article number based on	**6AG1132-6BF00-7CA0** **6ES7132-6BF00-0CA0** SIPLUS ET 200SP DQ 8X24VDC/0.5A HF	**6AG1132-6GD50-2BA0** **6ES7132-6GD50-0BA0** SIPLUS ET 200SP RQ 4X24VDC/2A CO ST	**6AG1132-6HD00-7BB1** **6ES7132-6HD00-0BB1** SIPLUS ET 200SP RQ 4x120VDC/230VAC/5A
Ambient conditions			
Ambient temperature during operation			
• horizontal installation, min.	-40 °C; = Tmin	-40 °C; = Tmin; Startup @ -25 °C	-40 °C; = Tmin
• horizontal installation, max.	70 °C; = Tmax; > +60 °C max. total current 1.0 A	60 °C; = Tmax	70 °C; = Tmax; see Derating BasedOn (e.g. manual), additionally Tmax > 60 °C max. continuous current of 3 A per relay
• vertical installation, min.	-40 °C; = Tmin		
• vertical installation, max.	50 °C; = Tmax		
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	5 000 m	5 000 m	3 000 m

• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at
	1 140 hPa ... 795 hPa
	(-1 000 m ... +2 000 m) //
	Tmin ... (Tmax - 10 K) at
	795 hPa ... 658 hPa
	(+2 000 m ... +3 500 m) //
	Tmin ... (Tmax -20 K) at
	658 hPa ... 540 hPa
	(+3 500 m ... +5 000 m)
		Tmin ... Tmax at
		1 140 hPa ... 795 hPa
		(-1 000 m ... +2 000 m) //
		Tmin ... (Tmax - 10 K) at
		795 hPa ... 658 hPa
		(+2 000 m ... +3 500 m) //
		Tmin ... (Tmax -20 K) at
		658 hPa ... 540 hPa
		(+3 500 m ... +5 000 m)
			Tmin ... Tmax at
			1 140 hPa ... 795 hPa
			(-1 000 m ... +2 000 m) //
			Tmin ... Tmax -5K) at
			795 hPa ... 701 hPa
			(+2 000 m ... +3 000 m)

Relative humidity			
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation

Technical specifications (continued)

Article number	**6AG1132-6BF00-7CA0**	**6AG1132-6GD50-2BA0**	**6AG1132-6HD00-7BB1**
based on	**6ES7132-6BF00-0CA0**	**6ES7132-6GD50-0BA0**	**6ES7132-6HD00-0BB1**
	SIPLUS ET 200SP DQ 8X24VDC/0.5A HF	SIPLUS ET 200SP RQ 4X24VDC/2A CO ST	SIPLUS ET 200SP RQ 4x120VDC/230VAC/5A
Resistance			
Coolants and lubricants			
- Resistant to commercially available coolants and lubricants	Yes	Yes	Yes
Use in stationary industrial systems			
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea			
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *
Notes			
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Article number	**6AG1132-6BD20-7CA0**
based on	**6ES7132-6BD20-0CA0**
	SIPLUS ET 200SP DQ 4X24VDC/2A HF
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-40 °C; = Tmin
• horizontal installation, max.	70 °C; = Tmax; see Derating BasedOn (e.g. manual), additionally Tmax > 60 °C max. total current 1 A
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
- Resistant to commercially available coolants and lubricants	Yes

Article number	**6AG1132-6BD20-7CA0**
based on	**6ES7132-6BD20-0CA0**
	SIPLUS ET 200SP DQ 4X24VDC/2A HF
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *
Notes	
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data	Article No.
SIPLUS digital output modules	
(Extended temperature range and exposure to media)	
Digital output module DQ 4x24 V DC/2 A Standard, BU type A0, color code CC02	**6AG1132-6BD20-7BA0**
Digital output module DQ 8x24 V DC/0.5 A Standard, BU type A0, color code CC02	**6AG1132-6BF00-7BA0**
Digital output module DQ 8x24 V DC/0.5 A High Feature, BU type A0, color code CC02	**6AG1132-6BF00-7CA0**
Digital output module DQ 16x24 V DC/0.5 A Standard, BU type A0, color code CC00	**6AG1132-6BH00-7BA0**
Digital output module DQ 4x24 V DC/2 A High Feature, BU type A0, color code CC02, channel-precise diagnostics, isochronous mode, shared output (MSO); PU: 1 unit	**6AG1132-6BD20-7CA0**
Signal relay module RQ CO 4x24 V UC/2 A Standard, changeover contact, BU type A0, color code CC00	**6AG1132-6GD50-2BA0**
Relay module RQ NO 4x120 V DC - 230 V AC/5 A Standard, normally open, BU type B0, color code CC00	**6AG1132-6HD00-7BB1**

	Article No.
Usable SIPLUS BaseUnits	
BU15-P16+A0+2D	**6AG1193-6BP00-7DA0**
(Extended temperature range and exposure to media)	
BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
BU15-P16+A0+2B	**6AG1193-6BP00-7BA0**
(Extended temperature range and exposure to media)	
BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
BU15-P16+A10+2D	**6AG1193-6BP20-7DA0**
(Extended temperature range and exposure to media)	
BU type A0; BaseUnit (light) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	
BU15-P16+A10+2B	**6AG1193-6BP20-7BA0**
(Extended temperature range and exposure to media)	
BU type A0; BaseUnit (dark) with 16 process terminals (1 ... 16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	
BU20-P12+A4+0B	**6AG1193-6BP20-7BB0**
(Extended temperature range and exposure to media)	
BU type B0; BaseUnit (dark) with 12 process terminals (1 ... 12) to the module and an additional 4 internally jumpered AUX terminals (1 A to 4 A); for continuing the load group; 1 unit	
Accessories	See SIMATIC ET 200SP, digital output modules

Overview

SIPLUS and SIMATIC Electrical Charge Controller are the key components in infrastructure solutions for the conductive charging of electric vehicles.

They perform the following functions:

- Detection of the charging cable and its permissible current carrying capacity
- Transfer of the maximum charging current from the charging station to the electric vehicle
- Evaluation of the status signals from the electric vehicle:
  - Ready for charging
  - Charging
  - Charging with ventilation
- Control of load tap-off
- Control of connector lock
- Evaluation of connector lock or load contactor status
- Cost-optimized, space-saving charging infrastructure solutions due to compact design based on SIMATIC ET 200SP
- Control of charging outputs according to IEC 61851 by parameterizable SIMATIC ET 200SP TM ECC 2xPWM ST charge controller

Technical specifications

Article number	**6FE1242-6TM10-0BB1** SIMATIC ET 200SP TM ECC 2xPWM ST
General information	
Product brand name	SIMATIC
Product designation	Charging controller for the conductive charging of electric vehicles
Number of channels	2; According to IEC 61851/SAE J1772
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
Engineering with	
• STEP 7 TIA Portal configurable/ integrated as of version	V14 SP1
Installation type/mounting	
Mounting type	standard rail
Mounting position	Horizontal
Supply voltage	
Type of supply voltage	DC
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes; against destruction
Input current	
Current consumption, typ.	40 mA
Current consumption, max.	90 mA
Digital inputs	
Number of digital inputs	2; 1 per channel
Digital inputs, parameterizable	Yes; 12 V / 24 V
Digital input functions, parameterizable	
• Freely usable digital input	No; Readback contact contactor / connector lock
Input voltage	
• Type of input voltage	DC
• for signal "0"	<0.2 V (nom)
• for signal "1"	>0.6 V (nom)
• permissible voltage at input, min.	0 V
• permissible voltage at input, max.	30 V
Cable length	
• unshielded, max.	30 m

Article number	**6FE1242-6TM10-0BB1** SIMATIC ET 200SP TM ECC 2xPWM ST
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	2; 1 per channel
short-circuit proof	Yes
Short-circuit protection	Yes; electronic/thermal
Digital output functions, parameterizable	
• PWM output	Yes; According to IEC 61851
- Number, max.	2; 1 per channel
• Connection of a DC motor	Yes; ACT p/n connector locking
Switching capacity of the outputs	
• with resistive load, max.	1.3 A
Output voltage	
• Type of output voltage	DC
• Output voltage, min.	24 V
Cable length	
• unshielded, max.	30 m
Protocols	
Bus communication	Yes
Vehicle communication according to IEC 61851	Yes; MODE 3
Interrupts/diagnostics/ status information	
Alarms	
• Diagnostic alarm	Yes
Diagnostic messages	
• Monitoring the supply voltage	No
• Short-circuit	Yes
Diagnostics indication LED	
• ERROR LED	Yes; red LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Channel status display	Yes; green LED
• for module diagnostics	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
• between the channels	No
• between the channels and backplane bus	Yes
Isolation	
Isolation tested with	707 V DC
Degree of pollution	2

Technical specifications (continued)

Article number	**6FE1242-6TM10-0BB1** SIMATIC ET 200SP TM ECC 2xPWM ST
EMC	
Electrostatic discharge acc. to IEC 61000-4-2	4 kV contact discharge / 8 kV air discharge
Field-related interference acc. to IEC 61000-4-3	10 V/m (80 ... 1 000 MHz), 3 V/m (1.4 ... 2.0 GHz), 1 V/m (2.0 ... 2.7 GHz)
Conducted interference due to burst acc. to IEC 61000-4-4	2 kV signal lines
Conducted interference due to surge acc. to IEC 61000-4-5	On DC supply lines: 0.5 kV symmetrical and asymmetrical
Conducted interference due to high-frequency radiation acc. to IEC 61000-4-6	10 V (0.15 ... 80 MHz)
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
Certificate of suitability	CE
Ambient conditions	
Ambient temperature during operation	
• min.	-30 °C
• max.	60 °C
• horizontal installation, min.	-30 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C
• vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• Storage, min.	-40 °C
• Storage, max.	70 °C
• Transportation, min.	-40 °C
• Transportation, max.	70 °C
Altitude during operation relating to sea level	
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity	
• Operation, min.	5 %
• Operation, max.	95 %; no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	10 ... 58 Hz / 0.075 mm, 58 ... 150 Hz / 1 g
Shock testing	
• Shock resistance acc. to IEC 60068-2-27	15 g / 11 ms
Decentralized operation	
to SIMATIC S7-1500	Yes
Dimensions	
Width	20 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	32 g

Ordering data

	Article No.
Charging controller SIMATIC ET200SP TM ECC 2xPWM S Designed for controlling charging outputs according to IEC 61851 and parameterizable, with 2 charging outputs, ambient temperature -30°C...60°C, 2x control pilot, 2x plug present, 2x DQ switching contact for load contactor as open collector, 2x DI for load contactor feedback or connector lock;	**6FE1242-6TM10-0BB1**

Overview

Technical properties

- Counter module for ET 200SP
- Interfaces:
  - 24 V encoder signals A, B and N from P, M or push-pull-switching encoders and sensors
  - 24 V encoder supply output, short-circuit proof
  - 3 digital inputs for controlling the count operation, for saving or for setting the count value
  - 2 digital outputs for fast reactions regardless of the counter status or measured value
- Counting frequency 200 kHz (800 kHz with quadruple evaluation)
- Counting range: +/- 31 bit
- Measurement function
- Parameterizable hardware interrupts
- Parameterizable input filters for suppressing interferences at sensor and digital inputs

Supported types of encoders/signals

- 24 V incremental encoder with and without signal N
- 24 V pulse encoder with direction signal
- 24 V pulse encoder without direction signal
- 24 V pulse encoder for pulse up and down respectively

Supported system functions

- Isochronous mode
- Firmware update
- Identification data I&M

Note

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Technical specifications

Article number	**6AG1138-6AA00-2BA0**
based on	**6ES7138-6AA00-0BA0**
	SIPLUS ET 200SP TM COUNT 1X24V
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-40 °C; = Tmin; Startup @ -25 °C
• horizontal installation, max.	60 °C; = Tmax
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
- Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *
Notes	
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIPLUS TM Count 1x24V counter module (Extended temperature range and medial exposure) With one channel, max. 200 kHz; for 24 V encoder	**6AG1138-6AA00-2BA0**
Usable BaseUnits (Extended temperature range and medial exposure)	
BU15-P16+A0+2D BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	**6AG1193-6BP00-7DA0**
BU15-P16+A0+2B BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	**6AG1193-6BP00-7BA0**
BU15-P16+A10+2D BU type A0; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	**6AG1193-6BP20-7DA0**
BU15-P16+A10+2B BU type A0; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	**6AG1193-6BP20-7BA0**
Further accessories	See catalog ST 70, SIMATIC TM Count 1x24V counter module

Overview

Technical properties

- Counting and position detection module for ET 200SP
- Interfaces:
  - Encoder signals A, B and N for 5 V TTL or RS422 differential signals
  - SSI interface with clock and data for RS422 differential signals
  - 24 V encoder supply output, short-circuit proof
  - 2 digital inputs for controlling the counting process, for saving or setting the counter or position value
  - 2 digital outputs for fast reactions depending on the counter reading, position value or measured value
- Counter frequency 1 MHz (4 MHz with four-fold evaluation)
- Counting range: +/- 31 bit
- Measurement function
- Parameterizable hardware interrupts
- Parameterizable input filters for suppressing interferences at sensor and digital inputs

Supported types of encoders/signals

- Incremental encoders with or without N signal
- Pulse encoders with directional signal
- Pulse encoders without directional signal
- Pulse encoders for forward or reverse pulses
- SSI encoders with a frame length of 10 to 40 bit, of which up to 31 bit position value

Supported system functions

- Isochronous mode
- Firmware update
- Identification data I&M

Note

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Technical specifications

Article number	**6AG1138-6BA00-2BA0**
based on	**6ES7138-6BA00-0BA0**
	SIPLUS ET 200SP TM POSINPUT 1
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-40 °C; = Tmin
• horizontal installation, max.	60 °C; = Tmax; see Derating BasedOn (e.g. manual)
• vertical installation, min.	0 °C
• vertical installation, max.	50 °C; = Tmax; see Derating BasedOn (e.g. manual)
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
- Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *
Notes	
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIPLUS TM PosInput 1 counting and position detection module	
(Extended temperature range and exposure to environmental substances)	
With one channel, max. 1 MHz for 5 V TTL or RS 422 differential signals or SSI absolute encoder	**6AG1138-6BA00-2BA0**
Usable BaseUnits	
(Extended temperature range and exposure to environmental substances)	
BU15-P16+A0+2D	**6AG1193-6BP00-7DA0**
BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
BU15-P16+A0+2B	**6AG1193-6BP00-7BA0**
BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
BU15-P16+A10+2D	**6AG1193-6BP20-7DA0**
BU type A0; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	
BU15-P16+A10+2B	**6AG1193-6BP20-7BA0**
BU type A0; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	
Other accessories	See catalog ST 70, TM PosInput 1 counting and position detection module

Overview

- 4 digital inputs, 6 digital outputs
- Inputs for detecting the input edges with µs accuracy
- Outputs for outputting the switching signals with µs accuracy
- 32x oversampling
- PWM output
- Counter function
- Outputs can be switched between 0.5 A standard and especially fast 0.1 A high-speed mode

Note

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Technical specifications

Article number	**6AG1138-6CG00-2BA0**
based on	**6ES7138-6CG00-0BA0**
	SIPLUS ET 200SP TM TIMER DIDQ 10x24V
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-40 °C
• horizontal installation, max.	60 °C; = Tmax; see Derating BasedOn (e.g. manual)
• vertical installation, min.	0 °C
• vertical installation, max.	50 °C; = Tmax; see Derating BasedOn (e.g. manual)
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
- Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *
Notes	
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data	Article No.
Time-based IO module SIPLUS TM timer DIDQ 10x24 V (Extended temperature range and exposure to environmental substances) 4 time-controlled inputs, 6 time-controlled outputs	**6AG1138-6CG00-2BA0**
Usable BaseUnits (Extended temperature range and exposure to environmental substances)	
BU15-P16+A0+2D BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	**6AG1193-6BP00-7DA0**
BU15-P16+A0+2B BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	**6AG1193-6BP00-7BA0**
BU15-P16+A10+2D BU type A0; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	**6AG1193-6BP20-7DA0**
BU15-P16+A10+2B BU type A0; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	**6AG1193-6BP20-7BA0**
Other accessories	See catalog ST 70, SIMATIC TM Timer DIDQ 10x24 V time-based IO module

Overview

2-channel pulse output module for SIPLUS ET 200SP

- Operating modes:
  - Single pulse with defined length
  - Pulse chain with defined number of pulses
  - Pulse width modulation (with flexible ON period, optional current control and dither function)
  - PWM signal for controlling a DC motor
  - On and OFF delay; rising and falling edge can be delayed separately to the microsecond
  - Frequency output with defined output frequency
- Hardware:
  - 2 24V channels, 2A output current can be switched in parallel to boost performance to 4A of output current
  - Switching frequencies to 10 kHz; at reduced output current to 0.1 A up to 100 kHz
  - Push/pull output driver for especially steep edges at the outputs
  - Polarity change in DC motor operation for direction reversal
  - 1 high-speed 24 V digital input per channel with parameterizable input delay from 4 µs
- Channel functions:
  - HW enable; Start of signal output with the onboard digital input
  - Parameterizable ON delay; for precise deceleration between the HW enable and the start of output
  - Current measurement in the operating modes pulse-width modulation and pulse chain; enables control of the output current mean value over a period. Temperature influences can thus be balanced to the resistance of the actuator.
  - Cyclic control of the respective main setpoint from the PLC in every operating mode; other values can be modified flexibly from the user program.
- Supported system functions:
  - Isochronous mode; enables precision-timed connection of the setpoint output to a higher-level controller
  - Firmware update
  - Identification data I&M

Note

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Technical specifications

Article number	**6AG1138-6DB00-2BB1**
based on	**6ES7138-6DB00-0BB1**
	SIPLUS ET 200SP TM PULSE 2x24V
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-40 °C; = Tmin; Startup @ -25 °C
• horizontal installation, max.	60 °C; Observe derating
• vertical installation, max.	50 °C; Observe derating
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
- Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S4 incl. sand, dust; *
Notes	
- Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data	Article No.
SIPLUS TM Pulse 2x24V pulse output module (Extended temperature range and medial exposure) PWM and pulse output, 2 channels of 2 A for proportional valves and DC motors	**6AG1138-6DB00-2BB1**
Usable BaseUnits (Extended temperature range and medial exposure)	
BU20-P12+A0+4B BU type B1; BaseUnit (dark); without AUX terminals; for continuing the load group	**6AG1193-6BP20-7BB1**
Further accessories	See catalog ST 70, SIMATIC TM Pulse 2x24V pulse output module

Overview

- CM PtP communication module;
  module for serial communication connections with RS232 and RS422 interfaces. RS485 for the Freeport, 3964(R), Modbus RTU, and USS protocols, max. 115.2 kbit/s, 2 KB frame length, 4 KB receive buffer.
- Protocols supported
  - Freeport: User-parameterizable frame format for universal communication
  - 3964(R) for improved transmission reliability
  - Modbus RTU master (requires instructions in SIMATIC S7)
  - Modbus RTU slave (requires instructions in SIMATIC S7)
  - USS, implemented through instructions
- Interface properties
  - RS232 with auxiliary signals
  - RS422 for full-duplex connections
  - RS485 for half-duplex and multi-point connections
  - Transmission rates from 300 to 115200 bit/s
- Can be plugged into Type A0 BaseUnits (BU) with automatic coding
- LED display for errors, operation, and supply voltage
- Communication display for sending and receiving
- Clear labeling on front of module
  - Plain text identification of the module type and function class
  - 2D matrix code (order and serial number)
  - Connection diagram
  - Color coding of the CM module type: Silver
  - Hardware and firmware version
  - Complete Article No.
- Optional labeling accessories
  - Labeling strips
  - Reference identification label
- Optional system-integrated shield connection

Note

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Technical specifications

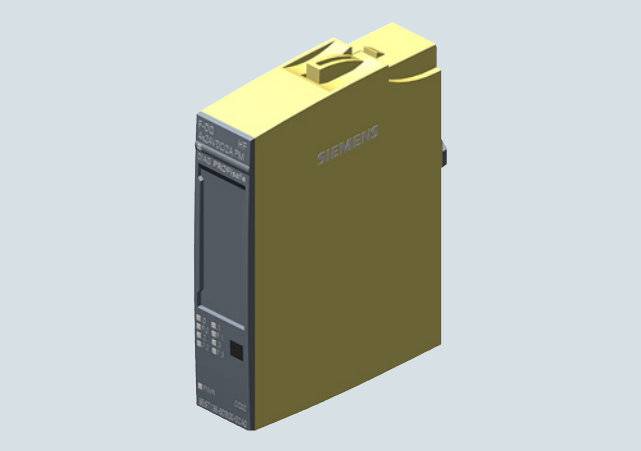
Article number	**6AG1137-6AA00-2BA0**
based on	**6ES7137-6AA00-0BA0**
	SIPLUS ET 200SP CM PTP
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-40 °C; = Tmin; Startup @ -25 °C
• horizontal installation, max.	60 °C; = Tmax
Altitude during operation relating to sea level	

• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at
	1 080 hPa ... 795 hPa
	(-1 000 m ... +2 000 m) //
	Tmin ... (Tmax - 10 K) at
	795 hPa ... 658 hPa
	(+2 000 m ... +3 500 m) //
	Tmin ... (Tmax - 20 K) at
	658 hPa ... 540 hPa
	(+3 500 m ... +5 000 m)

Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!

Ordering data	Article No.
SIPLUS CM PtP communication module (Extended temperature range and medial exposure) PROFIBUS DP master/slave with electrical interface for connecting the ET 200SP CPUs to PROFIBUS up to 12 Mbit/s for serial communication connections with the interfaces RS232, RS422, RS485, BU type A0, color code CC00	**6AG1137-6AA00-2BA0**
Accessories	
SIPLUS BaseUnits type A0 (Extended temperature range and medial exposure)	
BU15-P16+A0+2D BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	**6AG1193-6BP00-7DA0**
BU15-P16+A0+2B BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	**6AG1193-6BP00-7BA0**
BU15-P16+A10+2D BU type A0; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1A to 10A); for starting a new load group (max. 10 A)	**6AG1193-6BP20-7DA0**
BU15-P16+A10+2B BU type A0; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1A to 10A); for continuing the load group	**6AG1193-6BP20-7BA0**
Further accessories	See catalog ST 70, SIMATIC CM PtP

Overview



Digital fail-safe output modules:

- F-DQ 4x24VDC/2A PM High Feature
- F-DQ 8x24VDC/0.5A PP High Feature

Other properties:

- 4- and 8-channel digital fail-safe output modules for the ET 200SP
- Fail-safe 2-channel activation (sink/source output) of actuators
- Actuators can be controlled up to 2 A or 0.5 A
- Certified up to SIL 3 (IEC 61508), PL e (ISO 13849)
- Can be plugged into type A0 BaseUnits (BU) with automatic coding
- LED display for error, operation, supply voltage and status
- Clear labeling on front of module
  - Plain text identification of the module type and function class
  - 2D matrix code (order and serial number)
  - Connection diagram
  - Color coding of the DQ module type: Black
  - Hardware and firmware version
  - Color code CC for module-specific color coding of the potentials at the terminals of the BU
  - Complete Article No.
- Optional labeling accessories
  - Labeling strips
  - Reference identification label
- Optional system-integrated shield connection
- The modules support PROFIsafe in both PROFIBUS and PROFINET configurations
- They can be used with all fail-safe SIMATIC S7 CPUs

Technical specifications

Article number	**6ES7136-6DB00-0CA0** ET 200SP, EL-MOD., F-DQ 4XDC 24V/2A	**6ES7136-6DC00-0CA0** ET 200SP, F-DQ 8X 24VDC/0.5A PP
General information		
Product type designation	F-DQ 4x24 V DC/2 A PM HF	F-DQ 8x24 V DC/0.5 A PP HF
Product function		
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with		
• STEP 7 TIA Portal configurable/ integrated as of version	V12	V14 SP1 with HSP 202
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -	V5.5 SP4 HF5
• PROFINET as of GSD version/ GSD revision	V2.31	
Supply voltage		
Type of supply voltage	24 V DC	24 V DC
Rated value (DC)	24 V	24 V
Reverse polarity protection	Yes	Yes
Digital outputs		
Number of digital outputs	4	8
Digital outputs, parameterizable	Yes	Yes
Short-circuit protection	Yes	Yes
Open-circuit detection	Yes	No
Overload protection	Yes	
Limitation of inductive shutdown voltage to	Typ. -2x 47 V	Typ. -39 V
Controlling a digital input		Yes
Switching capacity of the outputs		
• with resistive load, max.	2 A	0.5 A
• on lamp load, max.	10 W	2 W
Load resistance range		
• lower limit	12 Ω	48 Ω
• upper limit	2 000 Ω	12 000 Ω

Technical specifications (continued)

Article number	**6ES7136-6DB00-0CA0** ET 200SP, EL-MOD., F-DQ 4XDC 24V/2A	**6ES7136-6DC00-0CA0** ET 200SP, F-DQ 8X 24VDC/0.5A PP
Output voltage		
• Type of output voltage	DC	DC
• for signal "1", min.	24 V; L+ (-0.5 V)	24 V; L+ (-0.5 V)
Output current		
• for signal "1" rated value	2 A	0.5 A
• for signal "0" residual current, max.	0.5 mA	0.5 mA
Switching frequency		
• with resistive load, max.	30 Hz; Symmetrical	30 Hz; Symmetrical
• with inductive load, max.	0.1 Hz; according to IEC 60947-5-1, DC-13, symmetrical	0.1 Hz; according to IEC 60947-5-1, DC-13, symmetrical
• with capacitive load, max.		2 Hz; Symmetrical
• on lamp load, max.	10 Hz; Symmetrical	10 Hz; Symmetrical
Total current of the outputs		
• Current per channel, max.	2 A; Note derating data in the manual	0.5 A; Note derating data in the manual
• Current per module, max.	6 A; Note derating data in the manual	3 A; Note derating data in the manual
Total current of the outputs (per module)		
horizontal installation		
- up to 40 °C, max.		3 A
- up to 50 °C, max.		2.5 A
- up to 60 °C, max.		2 A
vertical installation		
- up to 50 °C, max.		2 A
Cable length		
• shielded, max.	1 000 m	100 m
• unshielded, max.	500 m	100 m
Interrupts/diagnostics/ status information		
Diagnostics function	Yes, "Alarms/diagnostic messages" section in the manual	Yes, "Alarms/diagnostic messages" section in the manual
Substitute values connectable	No	No
Alarms		
• Diagnostic alarm	Yes	Yes
Diagnostics indication LED		
• RUN LED	Yes; green LED	Yes; green LED
• ERROR LED	Yes; red LED	Yes; red LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; green LED	Yes; green LED
• for channel diagnostics	Yes; red LED	Yes; red LED
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Potential separation		
Potential separation channels		
• between the channels and backplane bus	Yes	Yes
Isolation		
Isolation tested with	707 V DC (type test)	707 V DC (type test)
Standards, approvals, certificates		
Suitable for safety functions	Yes	Yes
Highest safety class achievable in safety mode		
• Performance level according to ISO 13849-1	PLe	PLe
• Category according to ISO 13849-1		Cat. 4
• SIL acc. to IEC 61508	SIL 3	SIL 3

Technical specifications (continued)

Article number	**6ES7136-6DB00-0CA0**	**6ES7136-6DC00-0CA0**
	ET 200SP, EL-MOD., F-DQ 4XDC 24V/2A	ET 200SP, F-DQ 8X 24VDC/0.5A PP
Probability of failure (for service life of 20 years and repair time of 100 hours)		
- Low demand mode: PFDavg in accordance with SIL3	< 2.00E-05	< 6.00E-05
- High demand/continuous mode: PFH in accordance with SIL3	< 1.00E-09 1/h	< 2.00E-09 1/h
Ambient conditions		
Ambient temperature during operation		
• horizontal installation, min.	0 °C	0 °C
• horizontal installation, max.	60 °C	60 °C
• vertical installation, min.	0 °C	0 °C
• vertical installation, max.	50 °C	50 °C
Dimensions		
Width	15 mm	15 mm
Height	73 mm	
Depth	58 mm	
Weights		
Weight, approx.	57 g	48 g

Ordering data

	Article No.
Digital F output modules	
F-DQ 4x24 V DC High Feature, BU type A0, color code CC01	**6ES7136-6DB00-0CA0**
F-DQ 8x24 V DC High Feature, PP-switching, BU type A0, color code CC01	**6ES7136-6DC00-0CA0**
Usable BaseUnits	
BU15-P16+A0+2D	
BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP00-0DA0**
• 10 units	**6ES7193-6BP00-2DA0**
BU15-P16+A0+2B	
BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
• 1 unit	**6ES7193-6BP00-0BA0**
• 10 units	**6ES7193-6BP00-2BA0**
BU15-P16+A10+2D	
BU type A0; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP20-0DA0**
• 10 units	**6ES7193-6BP20-2DA0**
BU15-P16+A10+2B	
BU type A0; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	
• 1 unit	**6ES7193-6BP20-0BA0**
• 10 units	**6ES7193-6BP20-2BA0**
BU20-P12+A4+0B	**6ES7193-6BP20-0BB0**
BU type B0; BaseUnit (dark) with 12 process terminals (1...12) to the module and an additional 4 internally jumpered AUX terminals (1 A to 4 A); for continuing the load group	
Accessories	
S7 Distributed Safety V5.4 SP5 Update 2 programming tool	
Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit), Windows 10 Professional/Enterprise (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit); STEP 7 as of V5.5 SP1 Please also consider the operating systems that have been released for the used STEP 7 version	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety Upgrade	
From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

9

Ordering data	Article No.
STEP 7 Safety Advanced V15	
Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco I/O Requirement: STEP 7 Professional V15	
Floating license for 1 user, software and documentation on DVD; license key on USB flash drive	**6ES7833-1FA15-0YA5**
Floating license for 1 user, software, documentation and license key for download[1]; email address required for delivery	**6ES7833-1FA15-0YH5**
Equipment labeling plate 10 sheets of 16 labels	**6ES7193-6LF30-0AW0**
Labeling strips	
500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AA0**
500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AG0**
1000 labeling strips DIN A4, light gray, card, for inscription with laser printer	**6ES7193-6LA10-0AA0**
1000 labeling strips DIN A4, yellow, card, for inscription with laser printer	**6ES7193-6LA10-0AG0**

	Article No.
BU cover For covering empty slots (gaps); 5 units	
• 15 mm wide	**6ES7133-6CV15-1AM0**
• 20 mm wide	**6ES7133-6CV20-1AM0**
Shield connection 5 shield supports and 5 shield terminals	**6ES7193-6SC00-1AM0**
Color-coded labels	
• Color code CC02, module-specific, for 16 push-in terminals; for BaseUnit type A0, A1; 10 units	**6ES7193-6CP02-2MA0**
• Color code CC02, module-specific, for 16 push-in terminals; for BaseUnit type A0, A1; 50 units	**6ES7193-6CP02-4MA0**
• Color code CC71, for 10 AUX terminals 1 A to 10 A, for BU type A0, yellow/green, with push-in terminals; 10 units	**6ES7193-6CP71-2AA0**
• Color code CC72, for 10 AUX terminals 1 A to 10 A, for BU type A0, red, with push-in terminals; 10 units	**6ES7193-6CP72-2AA0**
• Color code CC73, for 10 AUX terminals 1 A to 10 A, for BU type A0, blue, with push-in terminals; 10 units	**6ES7193-6CP73-2AA0**
E-coding element type F 5 units, spare part	**6ES7193-6EF00-1AA0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Overview

- For pneumatic control of actuators with ET 200SP
- Can be used together with system and IO components of the ET 200SP distributed I/O system.
- Product of the product partners Bürkert Fluid Control Systems, and can only be obtained from Bürkert Fluid Control Systems.

Note

Product partners are external companies outside Siemens AG and its associated companies. Information and descriptions of products made by product partners are non-binding, and are the responsibility of the product partners. These products are manufactured independently and under the responsibility of the particular product partner, and are sold and supplied by it under its terms of business and delivery.

Unless compulsory by law, Siemens assumes no liability and makes no guarantee for these products or for the connection with these products of the product partners. Please refer also to the note on exemption from liability/use of hyperlinks.

Benefits

- High process safety by using non-return valves and pneumatic infeed modules with pressure monitoring.
- System-wide detailed diagnostics in plain text, and also locally on an LC display
- Quick and easy valve change during operation (hot swapping)
- Reduced number of components in the control cabinet (compact control cabinet is possible)
- Quick installation & configuration of the pneumatic connections

Application

Valve terminals are widely used in industrial automation, and serve as pilot valves for controlling actuators in the food, pharmaceutical and water treatment industries. The ET 200SP, in combination with the AirLINE SP, type 8647 from the Bürkert Co., forms a universal interface between process and plant control, and enables the flexible, modular structure of pilot valves and I/O modules. The valve terminal can also be attached to a control cabinet floor with an AirLINE Quick Adapter, which further reduces the space required in the control cabinet, and significantly simplifies the pneumatic installation.

More information

For more detailed information about the AirLINE SP, type 8647 (e.g. data sheet, operating manual) please contact Bürkert directly:

http://www.burkert.com/en/type/8647

Disclaimer of liability

This information and the descriptions have been compiled with great care. However, it is not possible for Siemens to verify that the data supplied by Product Partners is complete, correct and up-to-date. The possibility that individual items of information might be incorrect, incomplete, or not up-to-date cannot therefore be ruled out. Unless compulsory by law, Siemens accepts no liability for the usability of the data or of the products for the user per se.

Overview

In terms of design and functionality, the SIMATIC ET 200SP PS single-phase load power supply with automatic range switching of the input voltage is perfectly matched to the SIMATIC ET 200SP. The SIMATIC component and the power supply are wired by means of uniform push-in terminal technology. The 24 V supply provides power to the ET 200SP system components, such as interface, technology and communication modules, as well as digital or analog inputs/outputs.
Comprehensive certifications, such as UL, ATEX or GL, facilitate universal use. Its extremely flat design also makes this power supply ideally suited for installation in compact on-site control boxes.

Ordering data

	Article No.
SIMATIC ET 200SP PS Stabilized power supply for SIMATIC ET 200SP Input: 120/230 V AC Output: 24 V DC/5 A	**6EP7133-6AB00-0BN0**
SIMATIC ET 200SP PS Stabilized power supply for SIMATIC ET 200SP Input: 120/230 V AC Output: 24 V DC/10 A	**6EP7133-6AE00-0BN0**

Overview

With the BaseUnits (BUs), the ET 200SP offers a rugged and service-friendly design with permanent wiring:

- No tools needed for one-handed wiring using push-in terminals
- Actuation of the spring NC contacts with a standard screwdriver, with a blade width up to 3.5 mm
- Outstanding access due to arrangement of measuring tap, spring NC contacts and cable entry in columns, while at the same time reducing the space required by 64%
- Fault-proof color coding of the spring NC contacts for better orientation in the terminal panel
- Replacement of I/O modules during operation without affecting the wiring
- Operation with module gaps (gaps without I/O module)
- Automatic coding of the I/O modules prevents destruction of the electronics if a module is accidentally inserted in the wrong slot during replacement
- High EMC interference immunity:
  - self-assembling shielded backplane bus
  - multi-layer conductor plate with shield levels for interference-free signal transmission from the terminal to the I/O module
  - system-integrated, space-saving shield connection for quick installation
- Self-assembling potential groups without external wiring or jumpers
- Replaceable terminal box
- Side-by-side latching of the BUs for high mechanical and EMC loads
- Optional module-specific color identification of the terminals according to the color code CC
- Optional equipment marking using slide-in equipment labeling plates

An ET 200SP station can be expanded via one “BU-Send” BaseUnit with a “BA-Send” BusAdapter plugged onto it with up to 16 modules from the ET 200AL series of I/O devices with IP67 protection.

Technical specifications

Article number	**6ES7193-6BP20-0DA0** BASEUNIT TYPE A0, BU15-P16+A10+2D	**6ES7193-6BP00-0DA0** BASEUNIT TYPE A0, BU15-P16+A0+2D	**6ES7193-6BP20-0BA0** BASEUNIT TYPE A0, BU15-P16+A10+2B	**6ES7193-6BP00-0BA0** BASEUNIT TYPE A0, BU15-P16+A0+2B
General information				
Product type designation	Type A0	Type A0	Type A0	BU type A0, dark version, without AUX terminals, PU 1
Accessories				
Color coding labels				
• for process terminals	CC00 to CC09	CC00 to CC09	CC00 to CC09	CC00 to CC09
• for AUX terminals	CC71 to CC73	does not exist	CC71 to CC73	does not exist
• for add-on terminals	does not exist	does not exist	does not exist	does not exist
Connection method				
Terminals				
• Terminal type	Push-in terminal	Push-in terminal	Push-in terminal	Push-in terminal
• Conductor cross-section, min.	0.14 mm²; AWG 26	0.14 mm²; AWG 26	0.14 mm²; AWG 26	0.14 mm²; AWG 26
• Conductor cross-section, max.	2.5 mm²; AWG 14	2.5 mm²; AWG 14	2.5 mm²; AWG 14	2.5 mm²; AWG 14
• Number of process terminals to I/O module	16	16	16	16
• Number of terminals to AUX bus	0	0	0	0
• Number of add-on terminals	0	0	0	0
• Number of terminals with connection to P1 and P2 bus	2	2	2	2
Dimensions				
Width	15 mm	15 mm	15 mm	15 mm
Height	141 mm	117 mm	141 mm	117 mm
Depth	35 mm	35 mm	35 mm	35 mm
Weights				
Weight, approx.	50 g	40 g	50 g	40 g

Technical specifications (continued)

Article number	6ES7193-6BP20-0BB0	6ES7193-6BP20-0BB1	6ES7193-6BP20-0DC0	6ES7193-6BP00-0BD0	6ES7193-6BP20-0BF0
	BASEUNIT TYPE B0, BU20-P12+A4+0B	BASEUNIT TYPE B1, BU20-P12+A0+4B	BASEUNIT TYPE C0, BU20-P6+A2+4D	BASEUNIT TYPE D0, BU20-P12+A0+0B	BASEUNIT TYPE F0, BU20-P8+A4+0B
General information					
Product type designation	Type B0	Type B1	Type C0	Type D0	Type F0
Dimensions					
Width	20 mm	20 mm	20 mm	20 mm	20 mm
Height	117 mm	117 mm	117 mm	117 mm	117 mm
Depth	35 mm	35 mm	35 mm	35 mm	35 mm
Weights					
Weight, approx.	48 g	48 g	47 g	47 g	48 g

Article number	6ES7193-6BP40-0DA1	6ES7193-6BP00-0DA1	6ES7193-6BP40-0BA1	6ES7193-6BP00-0BA1
	BASEUNIT TYPE A1, BU15-P16+A0+12D/T	BASEUNIT TYPE A1, BU15-P16+A0+2D/T	BASEUNIT TYPE A1, BU15-P16+A0+12B/T	BASEUNIT TYPE A1, BU15-P16+A0+2B/T
General information				
Product type designation	Type A1	Type A1	Type A1	Type A1
Accessories				
Color coding labels				
• for process terminals	CC00 to CC09	CC00 to CC09	CC00 to CC09	CC00 to CC09
• for AUX terminals	does not exist	does not exist	does not exist	does not exist
• for add-on terminals	CC74	does not exist	CC74	does not exist
Connection method				
Terminals				
• Terminal type	Push-in terminal	Push-in terminal	Push-in terminal	Push-in terminal
• Conductor cross-section, min.	0.14 mm²; AWG 26	0.14 mm²; AWG 26	0.14 mm²; AWG 26	0.14 mm²; AWG 26
• Conductor cross-section, max.	2.5 mm²; AWG 14	2.5 mm²; AWG 14	2.5 mm²; AWG 14	2.5 mm²; AWG 14
• Number of process terminals to I/O module	16	16	16	16
• Number of terminals to AUX bus	0	0	0	0
• Number of add-on terminals	0	0	0	0
• Number of terminals with connection to P1 and P2 bus	2	2	2	2
Dimensions				
Width	15 mm	15 mm	15 mm	15 mm
Height	141 mm	117 mm	141 mm	117 mm
Depth	35 mm	35 mm	35 mm	35 mm
Weights				
Weight, approx.	50 g	40 g	50 g	40 g

Article number	6ES7193-6BP00-0DU0	6ES7193-6BP00-0BU0
	BaseUnit type U0, BU20-P16+A0+2D, PU 1	BaseUnit type U0, BU20-P16+A0+2B, PU 1
General information		
Product type designation	BU type U0, BU20-P16+A0+2D, PU 1	BU type U0, BU20-P16+A0+2B, PU 1
Connection method		
Terminals		
• Terminal type	Push-in terminal	Push-in terminal
• Conductor cross-section, min.	0.14 mm²; 0.2 mm² without wire end ferrule	0.14 mm²; 0.2 mm² without wire end ferrule
• Conductor cross-section, max.	2.5 mm²; 1.5 mm² with wire end ferrule	2.5 mm²; 1.5 mm² with wire end ferrule
• Number of process terminals to I/O module	16	16
• Number of terminals to AUX bus	0	0
• Number of add-on terminals	0	0
• Number of terminals with connection to P1 and P2 bus	2	2

Technical specifications (continued)

Article number	**6ES7193-6BP00-0DU0**	**6ES7193-6BP00-0BU0**
	BaseUnit type U0, BU20-P16+A0+2D, PU 1	BaseUnit type U0, BU20-P16+A0+2B, PU 1
Dimensions		
Width	20 mm	20 mm
Height	117 mm	117 mm
Depth	35 mm	35 mm
Weights		
Weight, approx.	50 g	50 g

Article number	**6ES7193-6BN00-0NE0**
	ET 200SP, BASEUNIT BU-SEND
Dimensions	
Width	20 mm
Height	117 mm
Depth	35 mm
Weights	
Weight, approx.	30 g

Ordering data

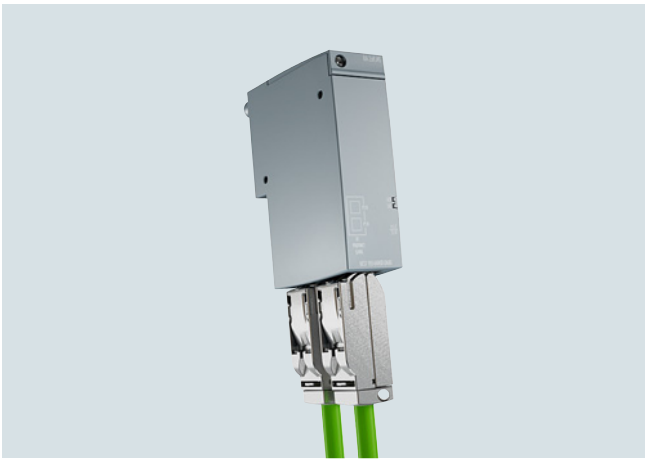
	Article No.
Type A0 BaseUnits	
BU15-P16+A10+2D	
BU type A0; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP20-0DA0**
• 10 units	**6ES7193-6BP20-2DA0**
BU15-P16+A0+2D	
BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP00-0DA0**
• 10 units	**6ES7193-6BP00-2DA0**
BU15-P16+A10+2B	
BU type A0; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	
• 1 unit	**6ES7193-6BP20-0BA0**
• 10 units	**6ES7193-6BP20-2BA0**
BU15-P16+A0+2B	
BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
• 1 unit	**6ES7193-6BP00-0BA0**
• 10 units	**6ES7193-6BP00-2BA0**

	Article No.
Type B0 BaseUnits	
BU20-P12+A4+0B	
BU type B0; BaseUnit (dark) with 12 process terminals (1...12) to the module and an additional 4 internally jumpered AUX terminals (1 A to 4 A); for continuing the load group; 1 unit	
• 1 unit	**6ES7193-6BP20-0BB0**
• 10 units	**6ES7193-6BP20-2BB0**
Type B1 BaseUnits	
BU20-P12+A0+4B	**6ES7193-6BP20-0BB1**
BU type B1; BaseUnit (dark) with 12 process terminals to the module; for continuing the load group; 1 unit	
Type C0 BaseUnits	
BU20-P6+A2+4D	**6ES7193-6BP20-0DC0**
BU type C0; BaseUnit (light) with 6 push-in terminals (1...6) to the module and an additional 2 AUX terminals; new load group	
Type D0 BaseUnits	
BU20-P12+A0+0B	**6ES7193-6BP00-0BD0**
BU type D0; BaseUnit (dark) with 12 push-in terminals, without AUX terminals, bridged to the left	

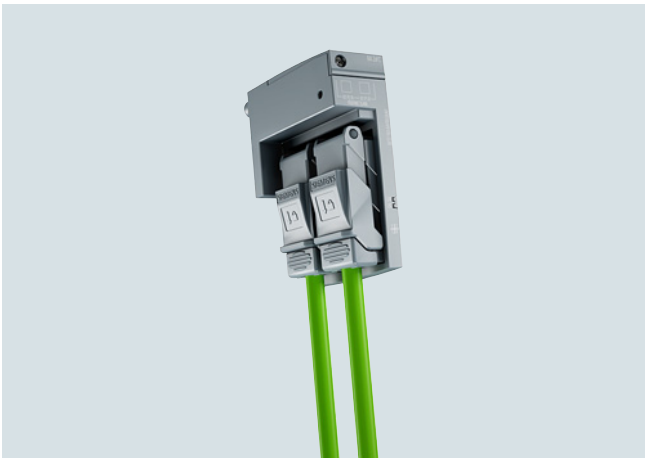
Ordering data	Article No.
Type A1 BaseUnits (with temperature detection)	
BU15-P16+A0+12D/T BU type A1; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 2x5 internally jumpered additional terminals (1 B to 5 B and 1 C to 5 C); for starting a new load group (max. 10 A)	**6ES7193-6BP40-0DA1**
BU15-P16+A0+2D/T BU type A1; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	**6ES7193-6BP00-0DA1**
BU15-P16+A0+12B/T BU type A1; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 2x5 internally jumpered additional terminals (1 B to 5 B and 1 C to 5 C); for continuing the load group	**6ES7193-6BP40-0BA1**
BU15-P16+A0+2B/T BU type A1; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	**6ES7193-6BP00-0BA1**
Type F0 BaseUnits	
BU20-P8+A4+0B BU type F0; BaseUnit (dark) with 8 process terminals to the module and an additional 4 internally jumpered AUX terminals (1 A to 4 A); for continuing the load group	**6ES7193-6BP20-0BF0**
BaseUnits type U0	
BU20-P16+A0+2D BU type U0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	
• 1 unit	**6ES7193-6BP00-0DU0**
• 10 units	**6ES7193-6BP00-2DU0**
BU20-P16+A0+2B BU type U0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	
• 1 unit	**6ES7193-6BP00-0BU0**
• 10 units	**6ES7193-6BP00-2BU0**
Station expansion with IP67 I/O system ET 200AL	
BaseUnit BU-Send	**6ES7193-6BN00-0NE0**
ET 200SP BusAdapter BA-Send 1 x FC	**6ES7193-6AS00-0AA0**

	Article No.
Accessories	
Equipment labeling plate 10 sheets of 16 labels	**6ES7193-6LF30-0AW0**
BU cover For covering empty slots (gaps); 5 units	
• 15 mm wide	**6ES7133-6CV15-1AM0**
• 20 mm wide	**6ES7133-6CV20-1AM0**
Shield connection 5 shield supports and 5 shield terminals	**6ES7193-6SC00-1AM0**
Color-coded labels	
• Color code CC01, module-specific, for 16 push-in terminals; for BaseUnit type A0, A1; 10 units	**6ES7193-6CP01-2MA0**
• Color code CC01, module-specific, for 16 push-in terminals; for BaseUnit type A0, A1; 50 units	**6ES7193-6CP01-4MA0**
• Color code CC02, module-specific, for 16 push-in terminals; for BaseUnit type A0, A1; 10 units	**6ES7193-6CP02-2MA0**
• Color code CC02, module-specific, for 16 push-in terminals; for BaseUnit type A0, A1; 50 units	**6ES7193-6CP02-4MA0**
• Color code CC03, module-specific, for 16 push-in terminals; for BaseUnit type A0, A1; 10 units	**6ES7193-6CP03-2MA0**
• Color code CC04, module-specific, for 16 push-in terminals; for BaseUnit type A0, A1; 10 units	**6ES7193-6CP04-2MA0**
• Color code CC71, for 10 AUX terminals 1 A to 10 A, for BU type A0, yellow/green, with push-in terminals; 10 units	**6ES7193-6CP71-2AA0**
• Color code CC72, for 10 AUX terminals 1 A to 10 A, for BU type A0, red, with push-in terminals; 10 units	**6ES7193-6CP72-2AA0**
• Color code CC73, for 10 AUX terminals 1 A to 10 A, for BU type A0, blue, with push-in terminals; 10 units	**6ES7193-6CP73-2AA0**
• Color code CC74, for 2x5 additional terminals, 5 x red, 5 x blue, for BU type A1 with push-in terminals; 10 units	**6ES7193-6CP74-2AA0**
• Color code CC81, for 4 AUX terminals 1 A to 4 A, yellow/green, for BaseUnit type B0; 10 units	**6ES7193-6CP81-2AB0**
• Color code CC82, for 4 AUX terminals 1 A to 4 A, red, for BaseUnit type B0; 10 units	**6ES7193-6CP82-2AB0**
• Color code CC83, for 4 AUX terminals 1 A to 4 A, blue, for BaseUnit type B0; 10 units	**6ES7193-6CP83-2AB0**
• Color code CC41, module-specific, for 12 push-in terminals; for BaseUnit type B1; 10 units	**6ES7193-6CP41-2MB0**
• Color code CC84, for 2 AUX terminals 1 A to 2 A, yellow/green, for BaseUnit type C0; 10 units	**6ES7193-6CP84-2AC0**
• Color code CC85, for 2 AUX terminals 1 A to 2 A, red, for BaseUnit type C0; 10 units	**6ES7193-6CP85-2AC0**
• Color code CC86, for 2 AUX terminals 1 A to 2 A, blue, for BaseUnit type C0; 10 units	**6ES7193-6CP86-2AC0**

Overview



ET 200SP BusAdapter (RJ45)



BA 2xFC BusAdapter

Some interface modules of the SIPLUS ET 200SP have a universal PROFINET interface for BusAdapters.
With the appropriate bus adapter, the type of connection can be adapted to the requirements of the respective application:

- For standard applications with a moderate mechanical and EMC load, the BA 2xRJ45 BusAdapter is used. It offers two sockets for standard RJ45 plugs.
- For machines and systems in which higher mechanical and/or EMC loads act on the devices, the BA 2xFC BusAdapter is recommended. In this case, the bus cables are connected directly by means of FastConnect terminals – similar to the PROFIBUS connector, proven in millions of applications. The technology is extremely quick to assemble and achieves 5 times better vibration resistance and also 5 times greater resistance to electromagnetic interference, when compared to RJ45 plug connectors.
- BusAdapters with connections for fiber-optic cables can be used to cover high potential differences between two stations and/or high EMC loads.

Another advantage of the BusAdapters: In order to repair defective RJ45 sockets or for subsequent conversion to the rugged FastConnect technology or a fiber-optic connection, only the adapter needs to be replaced.

The following interface modules offer a PROFINET connection via BusAdapter:

- SIPLUS IM 155-6PN Standard
- SIPLUS IM 155-6PN High Feature

Note

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Technical specifications

Article number based on	**6AG1193-6AR00-7AA0** **6ES7193-6AR00-0AA0** SIPLUS ET 200SP BA 2xRJ45	**6AG1193-6AF00-7AA0** **6ES7193-6AF00-0AA0** SIPLUS ET 200SP BA 2XFC PN	**6AG1193-6AP00-2AA0** **6ES7193-6AP00-0AA0** SIPLUS ET 200SP BA 2XSCRJ PN	**6AG1193-6AG00-2AA0** **6ES7193-6AG00-0AA0** SIPLUS ET 200SP BA 2XLC
Ambient conditions				
Ambient temperature during operation				
• min.	-40 °C; = Tmin; Startup @ -25 °C	-40 °C; = Tmin; Startup @ -25 °C	-40 °C; = Tmin; Startup @ -25 °C	-40 °C; = Tmin
• max.	70 °C; = Tmax	70 °C; = Tmax	60 °C; = Tmax	60 °C; = Tmax
Altitude during operation relating to sea level				
• Installation altitude above sea level, max.			5 000 m	5 000 m

• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at
	1 080 hPa ... 795 hPa
	(-1 000 m ... +2 000 m) //
	Tmin ... (Tmax - 10 K) at
	795 hPa ... 658 hPa
	(+2 000 m ... +3 500 m) //
	Tmin ... (Tmax - 20 K) at
	658 hPa ... 540 hPa
	(+3 500 m ... +5 000 m)
		Tmin ... Tmax at
		1 080 hPa ... 795 hPa
		(-1 000 m ... +2 000 m) //
		Tmin ... (Tmax - 10 K) at
		795 hPa ... 658 hPa
		(+2 000 m ... +3 500 m) //
		Tmin ... (Tmax - 20 K) at
		658 hPa ... 540 hPa
		(+3 500 m ... +5 000 m)
			Tmin ... Tmax at
			1 140 hPa ... 795 hPa
			(-1 000 m ... +2 000 m) //
			Tmin ... (Tmax - 10 K) at
			795 hPa ... 658 hPa
			(+2 000 m ... +3 500 m) //
			Tmin ... (Tmax -20 K) at
			658 hPa ... 540 hPa
			(+3 500 m ... +5 000 m)
				Tmin ... Tmax at
				1 140 hPa ... 795 hPa
				(-1 000 m ... +2 000 m) //
				Tmin ... (Tmax - 10 K) at
				795 hPa ... 658 hPa
				(+2 000 m ... +3 500 m) //
				Tmin ... (Tmax -20 K) at
				658 hPa ... 540 hPa
				(+3 500 m ... +5 000 m)

Relative humidity				
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation

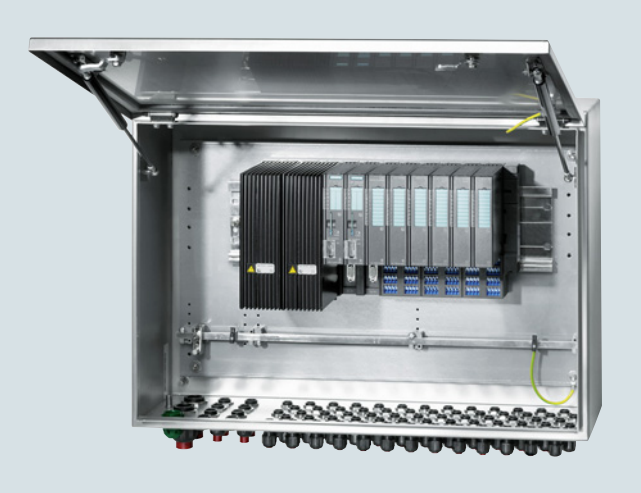
Technical specifications (continued)

Article number	6AG1193-6AR00-7AA0	6AG1193-6AF00-7AA0	6AG1193-6AP00-2AA0	6AG1193-6AG00-2AA0
based on	6ES7193-6AR00-0AA0	6ES7193-6AF00-0AA0	6ES7193-6AP00-0AA0	6ES7193-6AG00-0AA0
	SIPLUS ET 200SP BA 2xRJ45	SIPLUS ET 200SP BA 2XFC PN	SIPLUS ET 200SP BA 2XSCRJ PN	SIPLUS ET 200SP BA 2XLC
Resistance				
Coolants and lubricants				
- Resistant to commercially available coolants and lubricants			Yes	Yes
Use in stationary industrial systems				
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea				
- to biologically active substances according to EN 60721-3-6			Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6			Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6			Yes; Class 6S4 incl. sand, dust; *	Yes; Class 6S4 incl. sand, dust; *
Notes				
- Note regarding classification of environmental conditions acc. to EN 60721			* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIPLUS BA 2xRJ45 BusAdapter (Extended temperature range and exposure to environmental substances) for IM 155-6PN ST, HF	**6AG1193-6AR00-7AA0**
SIPLUS BA 2xFC BusAdapter (Extended temperature range and exposure to environmental substances) for IM 155-6PN ST, HF; for increased resistance to vibration and EMC loads	**6AG1193-6AF00-7AA0**
SIPLUS BA 2xSCRJ BusAdapter (Extended temperature range and exposure to environmental substances) for IM 155-6PN HF; fiber-optic connection for POF or PCF cables up to 250 m, with monitoring of damping	**6AG1193-6AP00-2AA0**
SIPLUS BA 2xLC BusAdapter (Extended temperature range and exposure to environmental substances) For IM 155-6PN HF; 2 glass FO connections	**6AG1193-6AG00-2AA0**
Reference identification label 10 sheets of 16 labels, for printing with thermal transfer card printer or plotter	**6ES7193-6LF30-0AW0**

Design



ET 200iSP modules can also be installed in stainless steel wall enclosures designed to meet more exacting protection requirements. The enclosures are available in various sizes. They comply with degree of protection IP65 and can be used in Ex zones 1 and 21.

Delivery is possible as an empty enclosure or including components, depending on the order.

Send your request to:

Siemens AG
PD PA AE SO
(please insert project name here)
Östl. Rheinbrückenstr. 50
76187 Karlsruhe, Germany

Email: cabinets.industry@siemens.com

Ordering data

	Article No.				
Stainless steel enclosure IP65 for SIMATIC ET 200iSP	**6DL2804-**	■	■	■	■ ■
I/O enclosure					
Surface casing in stainless steel, max. IP66, with mounting plate and equipotential bonding rail, empty enclosure for installation of ET 200iSP components[1]		**0**			
I/O device consisting of surface casing with installed ET 200iSP components[2]		**1**			
I/O device consisting of surface casing with installed ET 200iSP and pneumatic components[2]		**2**			
I/O device consisting of surface casing with installed ET 200iSP and additional components for zone 2[3]		**3**			
I/O device consisting of surface casing with installed ET 200iSP with pneumatic and additional components for zone 2[3]		**4**			
Device group					
Device group II, up to zone 1 (including zone 2)			**A**		
Device group II, up to zone 2 (not zone 1 and not zone 21)			**B**		
Device group II, up to zone 21 (including zone 22)			**D**		
Device group II, up to zone 22 (not zone 1 and not zone 21)			**E**		
Device group I M2 (max. degree of protection IP55), for use in mining			**M**		
Enclosure dimensions W × H × D (in mm)					
650 × 450 × 230, for 15 ET 200iSP modules in non-redundant configuration				**D**	
950 × 450 × 230, for 25 ET 200iSP modules in non-redundant configuration				**E**	
650 × 450 × 350, for 15 ET 200iSP modules for non-redundant configuration				**F**	
950 × 450 × 350, for 25 ET 200iSP modules for non-redundant configuration				**G**	
800 × 800 × 300, for 2 rows with max. 30 ET 200iSP modules				**K**	
800 × 1000 × 300, for 2 rows with max. 30 ET 200iSP modules				**M**	
1000 × 1000 × 300, for 2 rows with max. 42 ET 200iSP modules				**U**	
1000 × 1200 × 300, for 2 rows with max. 42 ET 200iSP modules				**V**	

1) The supplied certificate is only valid for the empty enclosure.
2) The included certificate is valid for the supplied enclosure including the installed components.
3) The included manufacturer's declaration is valid for the supplied enclosure including the installed components.

Stainless steel wall enclosure

Ordering data	Article No.			
Stainless steel enclosure IP65 for SIMATIC ET 200iSP	6DL2804- ■ ■ ■	■	■	
Cable entries/number				
6 × M25 for infeed, 6 or 9 × M32 (1 row) for signal lines[9]		**1**		
6 × M25 for infeed, 12 or 18 × M32 (2 rows) for signal lines[9]		**2**		
M16 cable entries for signals, 3 rows, 39 or 66 pcs.[4], 2 × M32 for power supply, 4 × M20 for bus cables[5]		**3**		
M20 cable entries for signals, 3 rows, 36 or 57 pcs.[4], 2 × M32 for power supply, 4 × M20 for bus cables[5]		**4**		
M16 cable entries for signals, 5 rows, 65 or 110 pcs.[4], 2 × M32 for power supply, 4 × M20 for bus cables[5]		**5**		
M20 cable entries for signals, 3 rows, 60 or 95 pcs.[4], 2 × M32 for power supply, 4 × M20 for bus cables[5]		**6**		
Icotek cable entry strip IP65, for up to 45 or 90 signals[4], 2 × M32 for power supply, 4 × M20 for bus cables[6]		**7**		
Cable entries/material				
Cable entry in **plastic, black** Ambient operating temperatures: • Surface casing -20…+70 °C • I/O device -20 … +xx °C[5][7]			**0**	
Cable entry in **metal (nickel-plated brass)** Ambient operating temperatures: • Surface casing -40…+70 °C • I/O device -30 … +xx °C[5][7][8]			**1**	
Cable entry in **plastic, blue** Ambient operating temperatures: • Surface casing -20…+70 °C • I/O device -20 … +xx °C[5][7]			**2**	
Icotek cable entry in plastic, gray HN-24 frame Ambient operating temperatures: • Surface casing -40…+70 °C • I/O device -40 … +xx °C[5][7][8]			**3**	
Cable glands for use in mining			**6**	

[4] Number of cable entries / signals depending on the enclosure dimensions

[5] Not for device group I M2

[6] Installing these components reduces the degree of protection for the enclosure to IP65

[7] The maximum temperature depends on the installed components.

[8] Only in conjunction with an installed heater.
This takes up 2 slots for ET 200iSP modules.
The heater (6DL9910-8AA) must be ordered separately.

[9] Only for device group I M2, number of signal lines depends on enclosure dimensions

Note:

Depending on the cables used, other types and sizes of cable entries can be fitted (on request).

Overview

Interface module for processing the communication between ET 200pro and a higher-level controller over PROFINET IO.

Technical specifications

Article number	**6ES7154-3AB00-0AB0** ET200PRO, IM 154-3 PN HF	**6ES7154-4AB10-0AB0** ET200PRO, IM 154-4 PN HF
Supply voltage		
Rated value (DC)	24 V	24 V
Reverse polarity protection	Yes; against destruction	Yes; against destruction
Short-circuit protection	Yes; Fuse in lower part is exchangeable, the fuse on the IM-LP is not	Yes; Fuse in lower part is exchangeable, the fuse on the IM-LP is not
Load voltage 2L+		
• Rated value (DC)	24 V	24 V
• Reverse polarity protection	Yes; against destruction	Yes; against destruction
Input current		
from supply voltage 1L+, max.	300 mA	400 mA; Dependent on terminal module, typ. maximum value for FO connection method, full load on RWB and 20.4 V input voltage
Power loss		
Power loss, typ.	5 W	6 W; Dependent on terminal module, typ. maximum value for CU connection method, full load on RWB, for FO the value is approx. 0.7 W higher
Memory		
Micro Memory Card	No; Internal memory medium	No; Internal memory medium
Address area		
Addressing volume		
• Inputs	256 byte	256 byte
• Outputs	256 byte	256 byte
PROFINET IO		
• automatic detection of transmission rate	Yes	Yes
• Transmission rate, max.	100 Mbit/s	100 Mbit/s
Protocols		
Protocols (Ethernet)		
• SNMP	Yes	Yes
• LLDP	Yes	
• ping	Yes	Yes
• ARP	Yes	Yes
Interrupts/diagnostics/ status information		
Alarms		
• Diagnostic alarm	Yes; Parameterizable	Yes; Parameterizable
• Hardware interrupt	Yes; Parameterizable	Yes; Parameterizable

Technical specifications (continued)

Article number	**6ES7154-3AB00-0AB0**	**6ES7154-4AB10-0AB0**
	ET200PRO, IM 154-3 PN HF	ET200PRO, IM 154-4 PN HF
Diagnostics indication LED		
• MAINT LED	Yes	Yes
• LINK LED	Yes	Yes
• RX/TX LED	Yes	Yes
• Bus fault BF (red)	Yes	Yes
• Group error SF (red)	Yes	Yes
• Monitoring 24 V voltage supply ON (green)	Yes	Yes
• Load voltage monitoring 24 V DC (green)	Yes	Yes
Parameter		
Swapping interrupt	Parameterizable	Parameterizable
Startup if setpoint not equal to actual configuration	Parameterizable	Parameterizable
Hot swapping of modules	possible	possible
Potential separation		
between backplane bus and electronics	No	No
between supply voltage and electronics	Yes	Yes
Isolation		
Isolation tested with	707 V DC (type test)	707 V DC (type test)
Degree and class of protection		
Degree of protection acc. to EN 60529		
• IP65	Yes	Yes
• IP66	Yes	Yes
• IP67	Yes	Yes
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C	-25 °C
• max.	55 °C	55 °C
Ambient temperature during storage/transportation		
• min.	-40 °C	-40 °C
• max.	70 °C	70 °C
Dimensions		
Width	90 mm	135 mm
Height	130 mm	130 mm
Depth	60 mm	60 mm
Weights		
Weight, approx.	375 g	490 g

Ordering data	Article No.
IM 154-3 PN High Feature interface module For communication between ET 200pro and higher-level controllers over PROFINET IO; supports PROFIsafe. Terminal module 6ES7194-4AK00-0AA0 must be ordered separately.	**6ES7154-3AB00-0AB0**
IM 154-4 PN High Feature interface module For communication between ET 200pro and higher-level controllers over PROFINET IO; supports PROFIsafe. Terminal module 6ES7194-4A.00-0AA0 to be ordered separately.	**6ES7154-4AB10-0AB0**
Accessories	
Terminal modules for IM 154-3 PN High Feature • **Terminal module CM IM PN M12, 7/8" S** for connecting PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x M12 and 2 x 7/8"	**6ES7194-4AK00-0AA0**
Terminal modules for IM 154-4 PN High Feature • **Terminal module CM IM PN M12, 7/8"** for connecting PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x M12 and 2 x 7/8"	**6ES7194-4AJ00-0AA0**
• **Terminal module CM IM PN 2xRJ45** for connecting PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x RJ45 and 2 x push-pull power connector	**6ES7194-4AF00-0AA0**
• **Terminal module CM IM PN 2xSCRJ FO** for connecting PROFINET PN and 24 V power supply to PROFINET interface modules, 2 x SCRJ FO and 2 x push-pull power connector	**6ES7194-4AG00-0AA0**
M12 sealing cap For protection of unused M12 connections with ET 200pro.	**3RX9802-0AA00**
IE M12 connecting cables Pre-assembled with two M12 connectors, up to 85 m, in various lengths:	
0.3 m	**6XV1870-8AE30**
0.5 m	**6XV1870-8AE50**
1.0 m	**6XV1870-8AH10**
1.5 m	**6XV1870-8AH15**
2.0 m	**6XV1870-8AH20**
3.0 m	**6XV1870-8AH30**
5.0 m	**6XV1870-8AH50**
10 m	**6XV1870-8AN10**
15 m	**6XV1870-8AN15**
Other special lengths with 90° or 180° cable outlet.	See http://support.automation.siemens.com/WW/view/en/26999294

	Article No.
7/8" sealing caps 1 pack = 10 units	**6ES7194-3JA00-0AA0**
7/8" connecting cable to power supply 5-wire, 5 x 1.5 mm^2, trailing type, pre-assembled with two 7/8" connectors, 5-pin, up to 50 m, in various lengths:	
1.5 m	**6XV1822-5BH15**
2.0 m	**6XV1822-5BH20**
3.0 m	**6XV1822-5BH30**
5.0 m	**6XV1822-5BH50**
10 m	**6XV1822-5BN10**
15 m	**6XV1822-5BN15**
Other special lengths with 90° or 180° cable outlet.	See http://support.automation.siemens.com/WW/view/en/26999294
Power line 5-wire, 5 x 1.5 mm^2, trailing type, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m.	**6XV1830-8AH10**
7/8" cable connector For ET 200eco, with axial cable outlet.	
• With male insert, 5-pack	**6GK1905-0FA00**
• With female insert, 5-pack	**6GK1905-0FB00**
Industrial Ethernet FastConnect installation cables	
• **IE FC TP Standard Cable GP 2 x 2**; Sold by the meter, max. delivery unit 1 000 m; minimum order quantity 20 m.	**6XV1840-2AH10**
• **IE FC TP Trailing Cable 2 x 2**; Sold by the meter, max. order quantity 1000 m; minimum order quantity 20 m.	**6XV1840-3AH10**
• **IE FC TP Trailing Cable GP 2 x 2**; sold by the meter, max. delivery unit 1000 m; minimum order quantity 20 m.	**6XV1870-2D**
• **IE TP Torsion Cable GP 2 x 2**; sold by the meter, max. delivery unit 1000 m; minimum order quantity 20 m.	**6XV1870-2F**
• **IE FC TP Marine Cable 2 x 2**; Sold by the meter, max. order quantity 1000 m; minimum order quantity 20 m.	**6XV1840-4AH10**
IE RJ45 Plug PRO RJ45 plug connector in IP65/67-rated design for on-site assembly, plastic housing, insulation/displacement connection system, for SCALANCE X-200IRT PRO and ET 200pro: 1 pack = 1 unit.	**6GK1901-1BB10-6AA0**
IE SC RJ POF Plug PRO SC RJ plug for POF fibers in IP65/67-rated design for on-site assembly, plastic housing, for SCALANCE X-200IRT PRO and ET 200pro 1 pack = 1 unit	**6GK1900-0MB00-6AA0**

Ordering data	Article No.
IE SC RJ PCF Plug PRO SC RJ plug for PCF fibers in IP65/67-rated design for on-site assembly, plastic housing, for SCALANCE X-200IRT PRO 1 pack = 1 unit.	**6GK1900-0NB00-6AA0**
Power Plug PRO 5-pole power plug for 2 x 24 V power supply in IP65/67-rated design, for on-site assembly, plastic housing, for SCALANCE X-200IRT and ET 200 pro 1 pack = 1 unit.	**6GK1907-0AB10-6AA0**
IE panel feed-through Control cabinet feed-through for converting M12 D-coded connection system (IP65) to RJ45 connection system (IP20) • 1 pack = 5 units	**6GK1901-0DM20-2AA5**
Push-pull cable connector For 1L+/ 2L+, non-assembled	**6GK1907-0AB10-6AA0**
Cover caps for push-pull RJ45 female connectors 5 items per pack	**6ES7194-4JD50-0AA0**
Cover caps for push-pull female connectors power (1L+, 2L+) 5 units	**6ES7194-4JA50-0AA0**

	Article No.
General accessories	
ET 200pro rack	
• Narrow, for interface, electronics and power modules	
- 500 mm	**6ES7194-4GA00-0AA0**
- 1000 mm	**6ES7194-4GA60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GA20-0AA0**
• Compact, for interface, electronics and power modules	
- 500 mm	**6ES7194-4GC70-0AA0**
- 1000 mm	**6ES7194-4GC60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GC20-0AA0**
• Wide, for interface, electronics, power modules and motor starters	
- 500 mm	**6ES7194-4GB00-0AA0**
- 1000 mm	**6ES7194-4GB60-0AA0**
- 2000 mm, can be cut to length	**6ES7194-4GB20-0AA0**
• Wide, for I/O modules and motor starters	
- 500 mm	**6ES7194-4GD00-0AA0**
- 1000 mm	**6ES7194-4GD10-0AA0**
- 2000 mm	**6ES7194-4GD20-0AA0**
Spare fuse 12.5 A fast-blow, for interface and power modules, 10 units per pack	**6ES7194-4HB00-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates.	**6ES7998-8XC01-8YE2**

Overview

The Power Output Modules (POMs) are an essential component of the SIPLUS HCS4200 heating control system.
Up to 24 Power Output Modules can be operated on one Central Interface Module (CIM), split over 2 racks.

There are 5 Power Output Module versions:

- POM4220 Lowend
- POM4220 Midrange
- POM4220 Midrange Phase Control
- POM4220 Highend
- POM4220 Flexible

Technical specifications

Article number	**6BK1942-2AA00-0AA0** HCS POM4220 Lowend	**6BK1942-2CA00-0AA0** HCS POM4220 Midrange	**6BK1942-2CA00-0AA1** HCS POM4220 Midrange phase angle control	**6BK1942-2DA00-0AA0** HCS POM4220 Highend	**6BK1942-2FA00-0AA0** HCS POM4220 Flexible
General information					
Product brand name	SIPLUS				
Type of control of heat emitters	Half-wave control	Half-wave control and soft start	Half-wave control, phase control and soft start		Half-wave control
Installation type/mounting					
Mounting type	Screw mounting to rack				
Mounting position	vertical				
Type of ventilation	Self ventilation or forced ventilation				
Supply voltage					
Type of supply voltage	AC				
Rated value (AC)	230 V	277 V			
Relative negative tolerance	10 %	25 %			
Relative positive tolerance	10 %	8 %			
2nd rated value (AC)				480 V	110 V
Relative negative tolerance				25 %	10 %
Relative positive tolerance				8 %	50 %
3rd rated value (AC)					70 V
Relative negative tolerance					10 %
Relative positive tolerance					15 %
4th rated value (AC)					45 V
Relative negative tolerance					10 %
Relative positive tolerance					15 %
Line frequency					
• Rated value 1	50 Hz				
• Rated value 2	60 Hz				
• Relative symmetrical tolerance	5 %				
Mains buffering					
• Recovery time after power failure, typ.	1 s				
Resistance thermometer (RTD)					
• Design of electrical connection for supply voltage	Connector, 3-pole with spring-loaded connection	Connector, 3-pin			
- Connectable conductor cross-sections, solid	1x (0.2 ... 10 mm^2)	1x (0.75 ... 16 mm^2)			
- Connectable conductor cross-sections, finely stranded with wire end processing	1x (0.25 ... 6 mm^2)	1x (0.75 ... 16 mm^2)			
- Connectable conductor cross-sections for AWG cables	1x (24 ... 8)	1x (18 ... 4)			
Power supply for the electronics					
Design of the power supply	Power supply via rack				
Power					
Active power input, max.	1 W				

Technical specifications (continued)

Article number	6BK1942-2AA00-0AA0 HCS POM4220 Lowend	6BK1942-2CA00-0AA0 HCS POM4220 Midrange	6BK1942-2CA00-0AA1 HCS POM4220 Midrange phase angle control	6BK1942-2DA00-0AA0 HCS POM4220 Highend	6BK1942-2FA00-0AA0 HCS POM4220 Flexible
Power electronics					
Type of load	Ohmic load				
Power capacity, max.	16.1 kW	27.7 kW		48 kW	27.7 kW
• for delta connection with fan at 40 °C, max.				48 kW	
• for delta connection without fan at 40 °C, max.				15.6 kW	
• for star connection with fan at 40 °C, max.	16.1 kW	27.7 kW			
• for star connection without fan at 40 °C, max.	7.3 kW	9 kW			
Switching capacity current per phase, max.	35 A	50 A			
Short-time withstand current (SCCR) acc. to UL 508A	50 kA		100 kA		100 kA
Heating power					
• Number of digital outputs	16	12		8	12
• Number of heat emitters per output, max.	1			5	1
• Output voltage for heating power	230 V	277 V			
• 2nd output voltage for heating power				400 V	110 V
• 3rd output voltage for heating power					70 V
• 4th output voltage for heating power					45 V
• Power carrying capacity per output, min.	100 W			400 W	100 W
• Power carrying capacity per output, max.	1 449 W	3 324 W	4 432 W	9 600 W	4 432 W
- for heating elements with high inrush current, max.	750 W	1 600 W		2 760 W	1 600 W
• Output current for heating power	6.3 A	12 A	16 A	20 A	16 A
• Melting I2t value	57 $A^2 \cdot s$	68 $A^2 \cdot s$	20 $A^2 \cdot s$	120 $A^2 \cdot s$	20 $A^2 \cdot s$
• Design of short-circuit protection per output	Safety fuse 6.3 A	Fuse 16 A		Melting fuse 25 A	Fuse 16 A
• Design of overvoltage protection	Transil Diode				
Integration and conversion time/ resolution per channel					
• Design of electrical connection at output for heating and fan	Connector, 8-pin with tension spring connection	Connector, 6-pole with spring-loaded connection		Plug, 4-pole, with spring-loaded connection	Connector, 6-pole with spring-loaded connection
- Connectable conductor cross-sections, solid	1x (0.2 ... 10 mm^2)				
- Connectable conductor cross-sections, finely stranded with wire end processing	1x (0.25 ... 6 mm^2)				
- Connectable conductor cross-sections for AWG cables, stranded	1x (24 ... 8)				
Interfaces					
Interfaces/bus type	system interface				
Interrupts/diagnostics/ status information					
Number of status displays	19	15		11	15
LED status display	LED green = ready, LED yellow = heating on/off, LED red = error display, LED red = error for each channel				
Diagnostics function	Voltage diagnostics			Voltage and current diagnosis	Voltage diagnostics
Diagnostic messages					
• Wire-break	Yes				
• Fuse blown	Yes				
• Heat emitter defect	Yes				
• Parallel-connected heating elements	No			Yes	No

Technical specifications (continued)

Article number	**6BK1942-2AA00-0AA0** HCS POM4220 Lowend	**6BK1942-2CA00-0AA0** HCS POM4220 Midrange	**6BK1942-2CA00-0AA1** HCS POM4220 Midrange phase angle control	**6BK1942-2DA00-0AA0** HCS POM4220 Highend	**6BK1942-2FA00-0AA0** HCS POM4220 Flexible
Integrated Functions					
Monitoring functions					
• Temperature monitoring	Yes				
• Type of temperature monitoring	NTC thermistor				
Measuring functions					
• Voltage measurement	No			Yes	No
• Current measurement	No			Yes	No
Potential separation					
Design of electrical isolation	Optocoupler and/or protective impedance between main circuit and PELV				
between the outputs	No				
Isolation					
Overvoltage category	III				
Degree of pollution	2				
EMC					
EMC interference emission	Limit value in accordance with IEC 61000-6-4:2007 + A1:2011				
Electrostatic discharge acc. to IEC 61000-4-2	4 kV contact discharge / 8 kV air discharge				
Field-related interference acc. to IEC 61000-4-3	10 V/m (80 ... 1 000 MHz), 3 V/m (1.4 ... 2.0 GHz), 1 V/m (2.0 ... 2.7 GHz)				
Conducted interference due to burst acc. to IEC 61000-4-4	2 kV power supply lines, 2 kV load lines				
Conducted interference due to surge acc. to IEC 61000-4-5	Supply and load lines: 1 kV symmetrical, 2 kV asymmetrical				
Conducted interference due to high-frequency radiation acc. to IEC 61000-4-6	10 V (0.15 ... 80 MHz)				
Degree and class of protection					
IP degree of protection	IP20				
Standards, approvals, certificates					
Device tag according to DIN EN 81346-2	Q				
Ambient conditions					
Ambient temperature during operation					
• min.	0 °C				
• max.	55 °C				
Ambient temperature during storage/transportation					
• Storage, min.	-25 °C				
• Storage, max.	70 °C				
• Transportation, min.	-25 °C				
• Transportation, max.	70 °C				
Air pressure acc. to IEC 60068-2-13					
• Operation, min.	860 hPa				
• Operation, max.	1 080 hPa				
• Storage, min.	660 hPa				
• Storage, max.	1 080 hPa				
Relative humidity					
• Operation at 25 °C, max.	95 %				
• Operation at 50 °C, max.	50 %; 95 % at 25 °C, decreasing linearly to 50 % at 50 °C				

Technical specifications (continued)

Article number	6BK1942-2AA00-0AA0 HCS POM4220 Lowend	6BK1942-2CA00-0AA0 HCS POM4220 Midrange	6BK1942-2CA00-0AA1 HCS POM4220 Midrange phase angle control	6BK1942-2DA00-0AA0 HCS POM4220 Highend	6BK1942-2FA00-0AA0 HCS POM4220 Flexible
Vibrations					
• Vibration resistance during operation acc. to IEC 60068-2-6	10 ... 58 Hz / 0.075 mm, 58 ... 150 Hz / 1 g				
• Vibration resistance during storage acc. to IEC 60068-2-6	5 ... 8.5 Hz / 3.5 mm, 8.5 ... 500 Hz / 1 g				
Shock testing					
• Shock resistance during operation acc. to IEC 60068-2-27	15 g / 11 ms / 3 shocks/axis				
• Shock resistance during storage acc. to IEC 60068-2-29	25 g / 6 ms / 1 000 shocks/axis				
Dimensions					
Width	36 mm				
Height	285 mm				
Depth	281 mm				

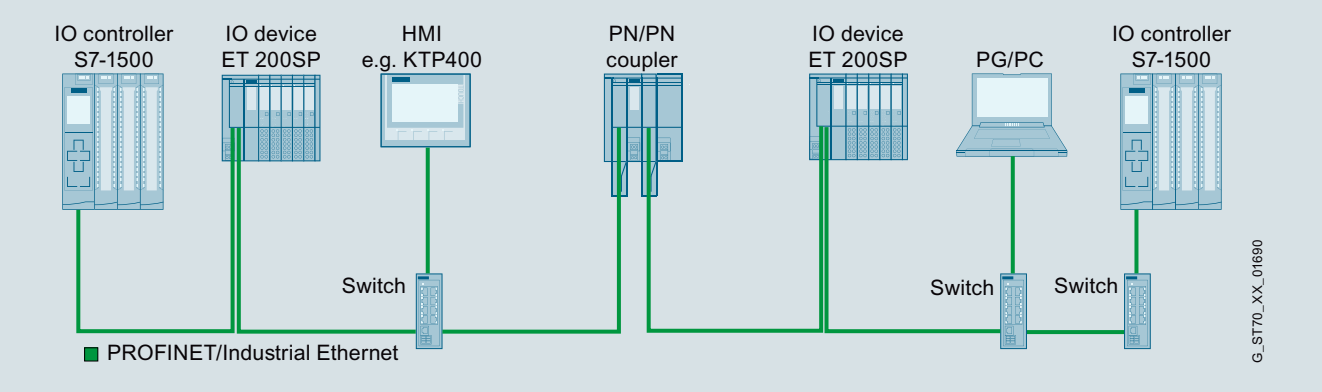
Ordering data

	Article No.
SIPLUS HCS4200 POM4220 Lowend Power Output Module with 16 outputs for connecting resistive loads	**6BK1942-2AA00-0AA0**
SIPLUS HCS4200 POM4220 Midrange Power Output Module with 12 outputs for connecting resistive loads	**6BK1942-2CA00-0AA0**
SIPLUS HCS4200 POM4220 Midrange phase control Power Output Module with 12 outputs for connecting resistive loads	**6BK1942-2CA00-0AA1**
SIPLUS HCS4200 POM4220 Highend Power Output Module with 8 outputs for connecting resistive loads	**6BK1942-2DA00-0AA0**
SIPLUS HCS4200 POM4220 Flexible Power Output Module with 12 outputs for connecting resistive loads	**6BK1942-2FA00-0AA0**

	Article No.
Accessories	
Spare fuse, 6.3 A/250 V, for the POM4220 Lowend	**6BK1942-6AA00-0AA0**
Spare fuse, 16 A/500 V, for the POM4220 Midrange	**6BK1942-6BA00-0AA0**
Spare fuse, 16 A/500 V, for the POM4220 Midrange	**6BK1942-6HA00-0AA0**
SIPLUS HCS4200 connector set as accessory, comprising 10 connectors, 3-pin, for incoming supply, POM4220 Lowend	**6BK1943-6AA00-0AA0**
SIPLUS HCS4200 connector set as accessory, comprising 5 connectors, 8-pin, for power outputs, POM4220 Lowend	**6BK1942-6CA00-0AA0**
SIPLUS HCS4200 connector set as accessory, comprising 6 connectors, 3-pin, for incoming supply, POM4220 Midrange	**6BK1942-6GA00-0AA0**
SIPLUS HCS4200 connector set as accessory, comprising 5 connectors, 6-pin, for power outputs, POM4220 Midrange	**6BK1942-6EA00-0AA0**
SIPLUS HCS4200 connector set as accessory, comprising 5 connectors, 4-pin, for power outputs, POM4220 Highend	**6BK1942-6LA00-0AA0**

Overview

- Fast deterministic data exchange between CPUs with PROFINET controller, even beyond network boundaries
- Configuration with two PROFINET devices completely independent of the communication technology



Data transmission between two S7-1500 IO controllers beyond a PROFINET limit

- Very simple configuration of the data exchange via virtual IO modules or alternatively via data records for larger amounts of data
- Simultaneous data transfer to up to 3 CPUs on own network side and/or up to 4 CPUs on opposite network side
- Easy to integrate into any PROFINET network with 2 ports per network side
- Fieldbus connection via a SIMATIC BusAdapter; this allows free selection of the connection system (RJ45, FC cable direct connection) and connection hardware (copper, POF, PCF, glass fiber). FO-to-copper media conversion can also be realized economically and without external converters.

Additional functions

- Quantity structures
  - Cyclic transmission: Up to 1 440 bytes each for input and output data
  - Data record transfer: Up to 4 096 bytes per slot. Buffering of up to eight data records per slot
  - Maximum 16 input/output areas for data exchange
  - Max. 254 bytes of input and 253 bytes of output data per module
- Exchange of fail-safe data between two F-CPUs via F-SendDP and F_ReceiveDP
- Shared device with up to four IO controllers per network side
- Module-internal shared input / shared output (MSI/MSO)
- Device replacement without programming device
  - With topological configuration via neighborhood detection (LLDP)
  - Without topological configuration via redundant storage of the station name in the BusAdapter. A separate removable memory card is not required.
- Reset button for restoring the factory settings
- Redundant power supply
- Electrical isolation between the two PROFINET IO subnets
- Media redundancy (MRP and MRPD)
- I&M data
- Firmware update
- Support for Ethernet services (ping, arp, SNMP, MIP-2, LLDP)
- Comprehensive diagnostics via LED displays and interrupts
- Extensive compatibility with the PN/PN coupler up to firmware version V3.0

Technical specifications

Article number	**6ES7158-3AD10-0XA0**
	SIMATIC PN/PN Coupler
General information	
Product type designation	PN/PN coupler
Firmware version	V4.0
• FW update possible	Yes
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• PROFINET as of GSD version/GSD revision	V2.3
Installation type/mounting	
Mounting	Mounting rail 7.5 mm and 15 mm
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
• Mains/voltage failure stored energy time	10 ms
Input current	
Current consumption, max.	360 mA; For 19.2 V input voltage at the right-hand supply terminal, including 2 plugged BA 2x LC
from supply voltage 1L+, max.	320 mA; For 19.2 V input voltage at the left-hand supply terminal, including 2 plugged BA 2x LC
Power loss	
Power loss, typ.	4 W; For 24 V input voltage and 2 plugged BA 2x RJ45 If BusAdapters with an optical interface are plugged, there is an additional 750 mW per optical interface (3 W with 2 plugged BA 2x LC)
Address area	
Address space per module	
• Address space per module, max.	254 byte; max. 254 bytes of input data and 253 bytes of output data
Address space per station	
• Address space per station, max.	1 440 byte; per input / output
Hardware configuration	
Submodules	
• Number of submodules per station, max.	116
Interfaces	
Number of PROFINET interfaces	2; One PROFINET interface per line side
With optical interface	Yes; Via SIMATIC BusAdapter
PROFINET IO	
• automatic detection of transmission rate	Yes
• Transmission rate, max.	100 Mbit/s
• RJ45	Yes; Via SIMATIC BusAdapter
1. Interface	
Interface types	
• Number of ports	2; via BusAdapter
• integrated switch	Yes
• BusAdapter (PROFINET)	Yes; Compatible BusAdapter: BA 2x RJ45, BA 2x FC, BA 2x SCRJ, BA SCRJ / RJ45, BA SCRJ / FC, BA 2x LC, BA LC / RJ45, BA LC / FC

Article number	**6ES7158-3AD10-0XA0**
	SIMATIC PN/PN Coupler
Functionality	
• PROFINET IO Device	Yes
• Open IE communication	Yes
• Media redundancy	Yes; As MRP or MRPD client; max. 50 or 30 devices in the ring
2. Interface	
Interface types	
• Number of ports	2; via BusAdapter
• integrated switch	Yes
Functionality	
• PROFINET IO Device	Yes
• Open IE communication	Yes
• Media redundancy	Yes; As MRP or MRPD client; max. 50 or 30 devices in the ring
Interface types	
RJ 45 (Ethernet)	
• Transmission procedure	PROFINET with 100 Mbit/s full duplex (100BASE-TX)
• 10 Mbps	No
• 100 Mbps	Yes; PROFINET with 100 Mbit/s full duplex (100BASE-TX)
• Autonegotiation	Yes
• Autocrossing	Yes
Protocols	
Supports protocol for PROFINET IO	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
• SNMP	Yes
• LLDP	Yes
• ping	Yes
• ARP	Yes
PROFINET IO Device	
Services	
- Isochronous mode	No
- Open IE communication	Yes
- IRT	Yes
- PROFIenergy	No
- Prioritized startup	Yes
- Shared device	Yes
- Number of IO Controllers with shared device, max.	4; per line side
Redundancy mode	
- MRP	Yes
- MRPD	Yes
- PROFINET system redundancy (S2)	No
Open IE communication	
• TCP/IP	Yes
• SNMP	Yes
• LLDP	Yes
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No; For operation on isochronous bus
Interrupts/diagnostics/ status information	
Status indicator	Yes
Alarms	Yes
Diagnostic functions	Yes

Technical specifications (continued)

Article number	**6ES7158-3AD10-0XA0** SIMATIC PN/PN Coupler
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• MAINT LED	Yes; yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Connection to network LINK (green)	Yes; 2x green link LEDs on BusAdapter
Potential separation	
between supply voltage and electronics	Yes; to power input 2
between Ethernet and electronics	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Network loading class	3
Security level	According to Security Level 1 Test Cases V1.1.4

Article number	**6ES7158-3AD10-0XA0** SIMATIC PN/PN Coupler
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C; = Tmax for horizontal installation; for vertical installation Tmax = 50 °C
Altitude during operation relating to sea level	
• Ambient air temperature-barometric pressure-altitude	Up to max. 2 000 m
Dimensions	
Width	100 mm; Minimized with good handling
Height	117 mm
Depth	74 mm; with mounting rail
Weights	
Weight, approx.	200 g; without BusAdapter

Ordering data

	Article No.
PN/PN coupler For deterministic data exchange between max. 4 PN controllers per side, also beyond network boundaries Transfer of PROFIsafe, I/O, MSI, MSO and data record communication, redundant power supply PN connection via SIMATIC BusAdapter (BA) Delivery without BusAdapter	**6ES7158-3AD10-0XA0**
Accessories	
DIN rail 35 mm	
• Length: 483 mm for 19" cabinets	**6ES5710-8MA11**
• Length: 530 mm for 600 mm cabinets	**6ES5710-8MA21**
• Length: 830 mm for 900 mm cabinets	**6ES5710-8MA31**
• Length: 2 m	**6ES5710-8MA41**
BusAdapter BA 2xRJ45 PROFINET BusAdapter with standard Ethernet socket	**6ES7193-6AR00-0AA0**
BusAdapter BA 2xFC PROFINET BusAdapter with FastConnect Ethernet connection; for increased vibration and EMC load capacity	**6ES7193-6AF00-0AA0**
BusAdapter BA 2xSCRJ PROFINET BusAdapter with fiber-optic connection for POF or PCF cables up to 250 m, with monitoring of damping	**6ES7193-6AP00-0AA0**
BusAdapter BA SCRJ/RJ45 PROFINET BusAdapter; with media converter FO-Cu; 1 x SCRJ FO connection, 1 x RJ45 connection	**6ES7193-6AP20-0AA0**
BusAdapter BA SCRJ/FC PROFINET BusAdapter; with media converter FO-Cu; 1 x SCRJ FO connection, 1 x FastConnect connection for direct connection of the bus cable	**6ES7193-6AP40-0AA0**

	Article No.
BA 2XLC BusAdapter PROFINET BusAdapter; 2 glass fiber-optic connections	**6ES7193-6AG00-0AA0**
BA LC/RJ45 BusAdapter PROFINET BusAdapter; with media converter glass FO-CU; 1 x LC connection, 1 x RJ45 connection	**6ES7193-6AG20-0AA0**
BA LC/FC BusAdapter PROFINET BusAdapter; with media converter glass FO-CU; 1 x LC connection, 1 x FastConnect connection for direct connection of the bus cable	**6ES7193-6AG40-0AA0**
Reference identification label 10 sheets of 16 labels each	**6ES7193-6LF30-0AW0**
Labeling strips	
500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AA0**
500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer	**6ES7193-6LR10-0AG0**
1 000 labeling strips DIN A4, light gray, card, for inscription with laser printer	**6ES7193-6LA10-0AA0**
1 000 labeling strips DIN A4, yellow, card, for inscription with laser printer	**6ES7193-6LA10-0AG0**
Spare parts	
Cover for bus adapter interface 5 units	**6ES7591-3AA00-0AA0**
Power supply connector For connecting the 24 V DC supply voltage	
• With push-in terminals	**6ES7193-4JB00-0AA0**
• With screw-type terminals	**6ES7193-4JB50-0AA0**

PN/BACnet LINK

Overview

- Gateway between PROFINET and BACnet/IP networks according to EN ISO16484-5 and Addendum ANSI/ASHRAE Standard 135-2012.
- Integrated in Totally Integrated Automation via HSP, TIA Portal V14 or higher
- Integrated PROFINET switch and RJ45 socket for BACnet
- 1 000 BACnet objects/object references
- 1 000 subscribe services
- BACnet features:
  - Client & Server
  - Device profile: B-GW
  - Change of value / cyclic and acyclic data exchange
  - Scan of BACnet/IP network
- Supported BACnet object types:
  - Device
  - Binary input
  - Binary output
  - Analog input
  - Analog output
- Supported BACnet services:
  - DS-COV-A/B
  - DM-DDB-A/B
  - DM-DOB-B
  - DS-RP-A/B
  - DS-WP-A/P
  - GW-EO-B
- Galvanic isolation between the two networks
- Diagnostic interrupts
- Controllers supported:
  S7-1200, S7-1500, ET 200SP, Open Controller

Technical specifications

Article number	**6BK1621-0AA00-0AA0**
	SIMATIC PN/BACnet LINK
General information	
Product type designation	PN/BACnet Link
Firmware version	
• FW update possible	Yes
Vendor identification (VendorID)	7
Product function	
• I&M data	Yes
Engineering with	
• STEP 7 TIA Portal configurable/ integrated as of version	V14 SP1
Installation type/mounting	
Mounting	DIN rail, wall mounting, portrait mounting
Mounting position	Any
Recommended mounting position	Horizontal
Supply voltage	
Type of supply voltage	24 V DC
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Overvoltage protection	Yes
Short-circuit protection	Yes
Mains buffering	
• Mains/voltage failure stored energy time	10 ms
Input current	
Current consumption (rated value)	0.11 A
Current consumption, max.	0.13 A
Power loss	
Power loss, typ.	2.7 W

Article number	**6BK1621-0AA00-0AA0**
	SIMATIC PN/BACnet LINK
Interfaces	
PROFINET IO	
• automatic detection of transmission rate	No
• Transmission rate, max.	100 Mbit/s
• Number of RJ45 ports	2
• Number of FC (FastConnect) connections	2
PROFINET functions	
• Assignment of the IP address, supported	Yes
• Assignment of the device name, supported	Yes
BACnet	
• BACnet device profile	B-GW
• Supported character sets	ISO 10646 (UTF-8)
• Network Security	No
1. Interface	
Interface type	BACnet/IP
Physics	RJ45
Isolated	Yes; 1 500 V AC or 2 250 V DC
Interface types	
• Number of ports	1
2. Interface	
Interface type	PROFINET
Physics	Ethernet, 2-port switch, 2*RJ45
Isolated	Yes; 1 500 V AC or 2 250 V DC
Interface types	
• Number of ports	2
• integrated switch	Yes
Functionality	
• PROFINET IO Device	Yes

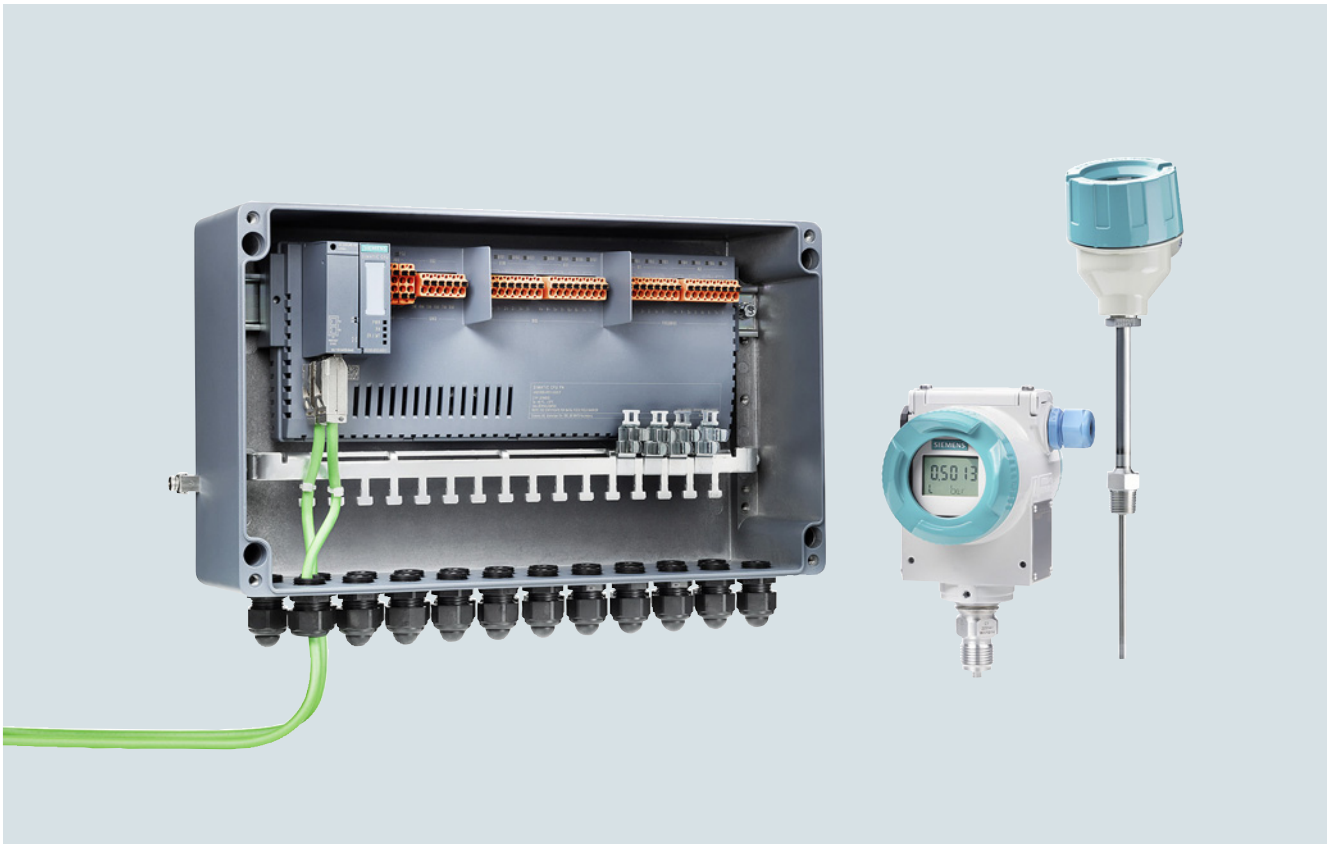
Technical specifications (continued)

Article number	**6BK1621-0AA00-0AA0** SIMATIC PN/BACnet LINK
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/ status information	
Status indicator	Yes
Alarms	Yes
Diagnostic functions	Yes
Diagnostics indication LED	
• RUN LED	Yes
• ERROR LED	Yes
• MAINT LED	Yes
• LINK LED	Yes
• RX/TX LED	Yes
Potential separation	
Potential separation exists	Yes
Degree and class of protection	
Degree of protection acc. to EN 60529	IP20
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
PNO certificate	Yes
BTL certificate	Yes
RoHS conformity	Yes
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-25 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-25 °C
• vertical installation, max.	55 °C
• Vertical installation, min.	-25 °C
• Vertical installation, max.	45 °C
• Horizontal installation, min.	-25 °C
• Horizontal installation, max.	45 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	85 °C
Relative humidity	
• Operation, max.	95 %
Connection method	
Design of electrical connection	Screw connection
Dimensions	
Width	70 mm
Height	112 mm
Depth	75 mm
Weights	
Weight, approx.	210 g

Ordering data

	Article No.
SIMATIC PN/BACnet LINK Network transition of PROFINET to BACnet/IP networks, device profile B-GW, IP20	**6BK1621-0AA00-0AA0**

Overview



The SIMATIC Compact Field Unit (SIMATIC CFU) is a smart field distributor for use as an I/O device on PROFINET of an automation system. SIMATIC CFU has the following interfaces:

- Fieldbus connections for PROFIBUS PA field devices
- Freely configurable channels (digital inputs/outputs for sensors or actuators)

The SIMATIC CFU is a real game changer in field device connection and offers entirely new prospects regarding simplicity and flexibility. This compact field distributor is installed at the process level and is connected via PROFINET directly to the controller to form the foundation for digitalization in the field. Utilization of digital fieldbus communication simplifies device interfacing considerably compared to conventional 4 to 20 mA engineering.

Plug-and-produce simplicity

Digitalization requires a digital infrastructure facilitating integrated digital communication right down to the sensors and actuators. This can be built up using the tried and tested standard PROFIBUS PA, which has been incorporated into the PA Edition of the SIMATIC CFU, thus combining ruggedness and simplified handling with all the advantages of the PROFINET standard based on Industrial Ethernet. Connected devices are addressed automatically, and integration is simple via standardized communication profiles.

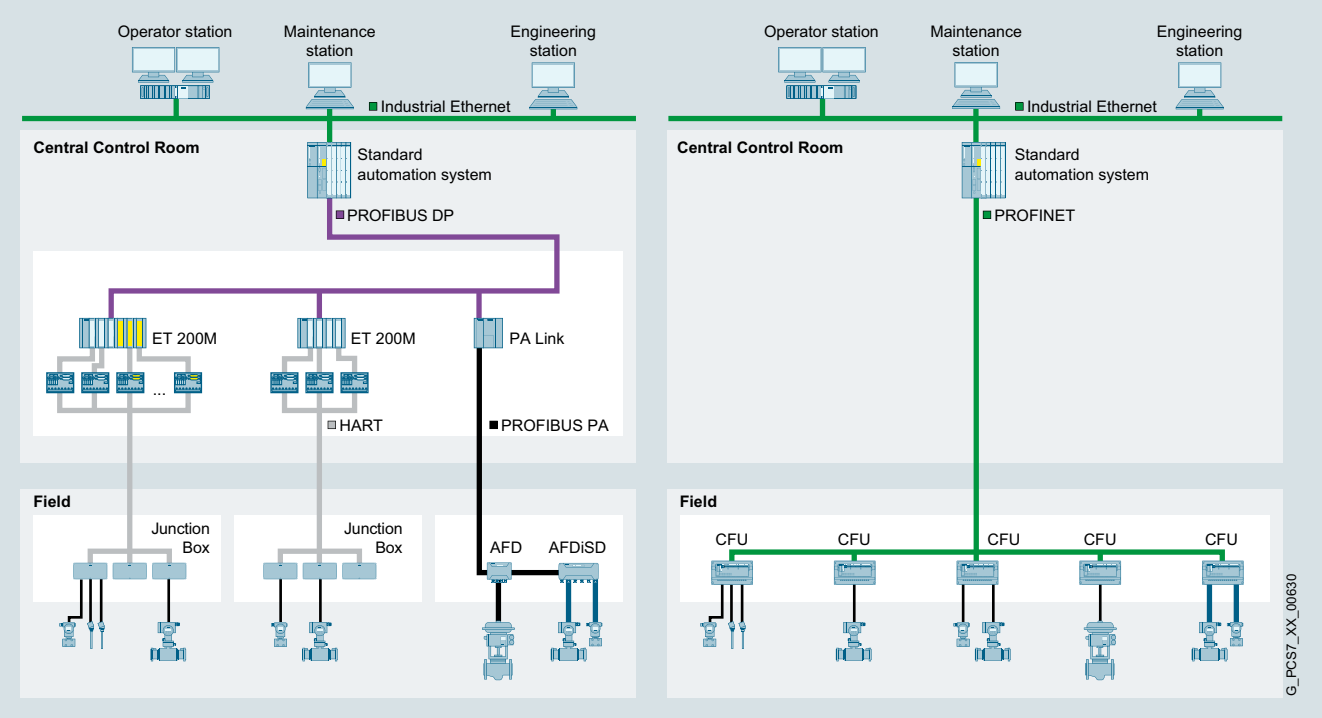
This innovative new implementation of the PROFIBUS PA concept makes it possible to combine the simplicity of a point-to-point wiring system with the scalability of digital PROFIBUS PA fieldbus communication.

As with digital field devices, it is not necessary to know prior to connection whether the discrete field device is a sensor or actuator – this can be easily configured afterwards with software.

Greater flexibility thanks to consistent decentralization

Thanks to the distributed installation of the SIMATIC CFU, classic control cabinets are no longer required and you can make considerable savings in cabling and the number of terminal points as well as reducing planning and documentation overheads. The high granularity (16 I/O per SIMATIC CFU) enables flexible assignment to the higher-level controllers.

Overview (continued)



Field device connection with previous technology (left) and with SIMATIC CFU (right)

Most important functions

System interfacing over the Industrial Ethernet standard

- Redundant PROFINET connection (S2) for maximum availability
- Connection versatility with PROFINET BusAdapter (for example electrical, optical or mixed)

Combination of digital fieldbus and discrete I/Os

- 8 × digital fieldbus (PROFIBUS PA)
- 8 × digital inputs/outputs, freely configurable

Ready for distributed use

- For installation in hazardous areas up to zone 2-22
- Extended temperature range of -40 to +70 °C
- Conformal coating
- Can be used at altitudes of up to 4 000 meters
- Enhanced interference immunity in accordance with NAMUR recommendation NE21

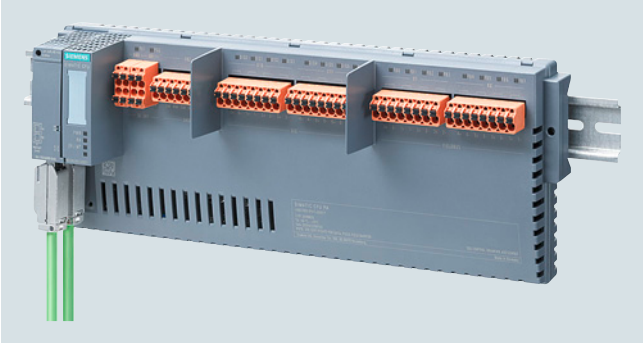
Easy to use

- Automatic addressing of PROFIBUS PA field devices
- System-supported detection and integration of PROFIBUS PA field devices into the process control system with the use of standardized PA profiles and commissioning, device replacement and service wizards
- Implementation of diagnostic messages in accordance with NAMUR recommendation NE107
- 35-mm mounting onto standard rail

Configuring with SIMATIC PCS 7 and third-party systems

See information in the Siemens Industry Online Support

Overview



SIMATIC CFU PA, in this case with BusAdapter and PROFINET bus cable

SIMATIC CFU PA

The SIMATIC CFU PA basic device has 16 digital interfaces:

- 8 fieldbus connections for PROFIBUS PA, each for 1 PROFIBUS PA field device
- 8 freely configurable digital inputs/outputs (DI/DQ), each for 1 sensor or actuator

PROFIBUS PA field devices are automatically addressed. SIMATIC CFU PA implements system-supported detection and integration of the PA field devices into the process control system using standardized PA profiles (issued by the PROFIBUS&PROFINET user association).

SIMATIC CFU PA also provides standardized detailed diagnostics (NE107) for preventive maintenance of PROFIBUS PA field devices.

In the event of physical faults (for example wire breaks or short circuits), defective connections are automatically disabled. The bus terminator is implemented automatically. Repairs and expansions to the individual connections are possible during runtime.

SIMATIC CFU aluminum field enclosure, open

SIMATIC CFU aluminum field enclosure, closed

Aluminum field enclosure

The die-cast aluminum enclosure is suitable for use in zone 2/22 hazardous areas. The following are included in the enclosure's scope of delivery:

- 22 × M20 plastic cable glands (incl. blanking plugs)
- 35 mm DIN rail
- Rail for strain relief and shield support

The enclosure has a window for LED diagnostics.

If FM approval is required, a separate version of the housing can be purchased (SIMATIC CFU FM aluminum field housing).

Note:

The SIMATIC CFU aluminum field housing and SIMATIC CFU FM aluminum field housing are currently not yet available for delivery!

Technical specifications

Article number	**6ES7655-5PX11-0XX0**
	SIMATIC CFU PA
General information	
Product type designation	Compact Field Unit
HW functional status	E01
Firmware version	V1.0
• FW update possible	Yes
Vendor identification (VendorID)	002AH
Device identifier (DeviceID)	060DH
Number of channels	16
Product function	
• I&M data	Yes; I&M0 to I&M4
• The user can configure digital channels as input/output as required	Yes
• Digital channels can be parameterized	Yes
Engineering with	
• STEP 7 TIA Portal configurable/ integrated as of version	- / -
• STEP 7 configurable/integrated as of version	From STEP 7 V5.6 HF1 and higher
• PCS 7 configurable/integrated as of version	V9.0
• PROFIBUS as of GSD version/ GSD revision	- / -
Installation type/mounting	
Mounting	on 35 mm DIN rail, 2 spacing units wide
Mounting position	Horizontal, vertical
Supply voltage	
Type of supply voltage	24 V DC
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Short-circuit protection	Yes
Redundant power supply	Yes
Mains buffering	
• Mains/voltage failure stored energy time	5 ms; Bridging for field devices and communication
Input current	
Current consumption (rated value)	2.5 A
Current consumption, max.	2.55 A
Inrush current, max.	8 A
I^2t	0.3 $A^2 \cdot s$
Encoder supply	
Number of outputs	8
Output voltage encoder supply, min.	18.2 V
Short-circuit protection	Yes; Electronic
Output current	
• up to 60 °C, max.	2 A
• up to 70 °C, max.	1 A
Power loss	
Power loss, typ.	8.2 W; Depending on the type of BusAdapter used (typ. RJ45)
Address space per station	
• Address space per station, max.	1 440 byte; Dependent on configuration

Article number	**6ES7655-5PX11-0XX0**
	SIMATIC CFU PA
Digital inputs	
Number of digital inputs	8
Source/sink input	Yes; P-reading
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Input characteristic curve in accordance with IEC 61131, type 2	No
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Pulse extension	No
Number of simultaneously controllable inputs	
horizontal installation	
- up to 60 °C, max.	8; Total current must be observed, see DQ
- up to 70 °C, max.	8; Total current must be observed, see DQ
vertical installation	
- up to 60 °C, max.	8; Total current must be observed, see DQ
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	-30 to +5V
• for signal "1"	+11 to +30V
Input current	
• for signal "1", typ.	2.5 mA; Typical
Input delay (for rated value of input voltage)	
for standard inputs	
- parameterizable	No
- at "0" to "1", max.	3.2 ms
- at "1" to "0", max.	3.2 ms
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	8
Current-sinking	No
Current-sourcing	Yes
Short-circuit protection	Yes
• Response threshold, typ.	0.7 to 1.3 A
Limitation of inductive shutdown voltage to	Typ. L+ (-50 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	12 kΩ
Output voltage	
• Type of output voltage	DC
• for signal "1", min.	Ue minus 1 V
Output current	
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.1 mA

Technical specifications (continued)

Article number	6ES7655-5PX11-0XX0
	SIMATIC CFU PA
Output delay with resistive load	
• "0" to "1", max.	50 µs
• "1" to "0", max.	100 µs
Parallel switching of two outputs	
• for uprating	No
• for redundant control of a load	No
Switching frequency	
• with resistive load, max.	100 Hz
• with inductive load, max.	2 Hz
• on lamp load, max.	10 Hz
Total current of the outputs	
• Current per channel, max.	0.5 A
horizontal installation	
- up to 70 °C, max.	1 A
vertical installation	
- up to 60 °C, max.	2 A
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
- permissible quiescent current (2-wire sensor), max.	1.5 mA
Interfaces	
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	0
PROFIBUS PA	
• Transmission rate, max.	31.25 kbit/s
• Number of connectable PA field devices	8; Electrically isolated from other interfaces, isolation tested at 2 500 V DC
• Current output to PA field devices, max.	320 mA
• permissible current per spur line	40 mA
• Automatic addressing	Yes
• System-supported integration of field devices via PA profiles	Yes
• Extended fieldbus diagnostics	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
Interface types	
• Number of ports	2
• integrated switch	Yes
• BusAdapter (PROFINET)	Yes
Functionality	
• PROFINET IO Device	Yes
• PROFIBUS DP slave	No
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
• Autonegotiation	Yes
• Autocrossing	Yes

Article number	6ES7655-5PX11-0XX0
	SIMATIC CFU PA
Protocols	
Supports protocol for PROFINET IO	Yes
Redundancy mode	
- MRP	Yes
- PROFINET system redundancy (S2)	Yes; Type S2
Open IE communication	
• LLDP	Yes
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/ status information	
Status indicator	Yes
Alarms	Yes
Diagnostic functions	Yes
Diagnostic messages	
• Monitoring of encoder power supply	Yes
• Wire-break	Yes
• Short-circuit	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• MAINT LED	Yes; yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes
• Digital input status indicator	Yes
• Digital output status indicator	Yes
• Spur line status/fault	Yes
Potential separation	
between the channels and PROFINET	Yes
Potential separation digital inputs	
• between the channels	No
• between the channels and the power supply of the electronics	No
Potential separation digital outputs	
• between the channels	No
• between the channels and the power supply of the electronics	No
Isolation	
Isolation tested with	1 500 V AC between PROFINET and electronics
Degree and class of protection	
Degree of protection acc. to EN 60529	IP20
Ambient conditions	
Ambient temperature during operation	
• min.	-40 °C
• max.	70 °C
• horizontal installation, min.	-40 °C
• horizontal installation, max.	70 °C; Observe derating
• vertical installation, min.	-40 °C
• vertical installation, max.	60 °C; Observe derating
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	85 °C
Relative humidity	
• Operation, max.	95 %

Technical specifications (continued)

Article number	**6ES7655-5PX11-0XX0** SIMATIC CFU PA
Connection method	
Design of electrical connection	Connection plug
Spur line	
• Number of spur lines	8
• Type of cable	Type A
• Cable diameter, min.	6 mm
• Cable diameter, max.	12 mm
• Conductor cross-section, min.	0.2 mm^2
• Conductor cross-section, max.	2.5 mm^2
• Cable length, max.	120 m
• total current output to field devices, max.	320 mA
• Number of connectable field devices	8
• Current limitation per field device, max.	40 mA
• No-load voltage, max.	15.3 V
• short-circuit proof	Yes
• Short-circuit current (test current); max.	8 mA
• intrinsically safe according to FISCO model	Yes
• Debounce logic	Yes
Dimensions	
Width	300 mm; 329 mm
Height	115 mm; 123 mm
Depth	40 mm; 74 mm
Weights	
Weight, approx.	580 g

Ordering data

	Article No.
SIMATIC CFU PA SIMATIC Compact Field Unit PA Edition, with 16 I/O channels, PROFINET interface V2.3 (RT), use of PROFINET BusAdapter, media redundancy (MRP), PROFINET system redundancy (S2), configuration in run (CiR) Process interfaces: • 8 × PROFIBUS PA (with plug-and-produce) • 8 × freely configurable DIQ Installation up to Ex zone 2, temperature range -40 … +70 °C, conformal coating, installation on 35 mm DIN rail	**6ES7655-5PX11-0XX0**
SIMATIC CFU aluminum field enclosure Die-cast aluminum enclosure for SIMATIC CFU, enclosure for field installation 22 × M20 plastic cable glands (incl. blanking plugs), 35 mm DIN rail, rail for strain relief and shield support, display window for LED diagnostics, IP65 degree of protection	Not yet available **6ES7655-5PX00-0AX0**
SIMATIC CFU FM aluminum field housing Die-cast aluminum housing for SIMATIC CFU, with FM approval, housing for field installation 22 × M20 plastic cable glands (incl. blanking plugs), 35 mm DIN rail, rail for strain relief and shield support, display window for LED diagnostics, IP65 degree of protection	Not yet available **6ES7655-5PX00-0BX0**

Note:

For use of the SIMATIC CFU PA, accessories are needed (connection technology). See section "Accessories".

Bundles, accessories

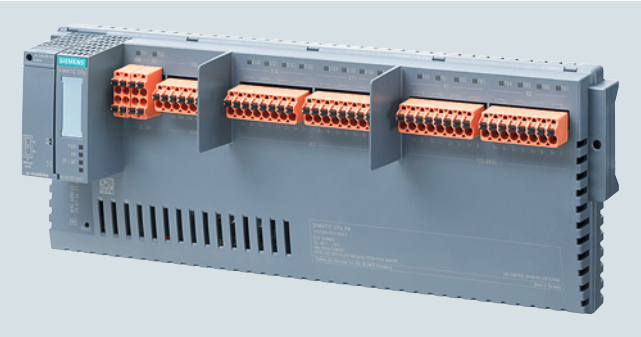
Overview bundles

For SIMATIC CFU PA, a pre-installed bundle is offered, with SIMATIC CFU PA basic device and SIMATIC CFU push-in terminals.

SIMATIC CFU PA bundle

Comprising:

- SIMATIC CFU PA, article no. 6ES7655-5PX11-0XX0
- SIMATIC CFU push-in terminals, article no. 6ES7655-5PX00-1XX0

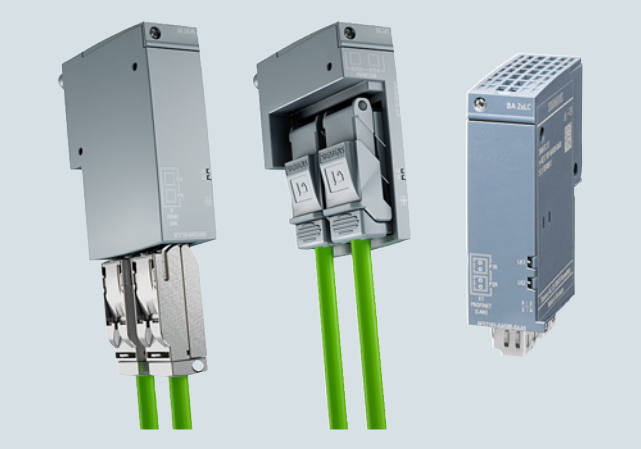


SIMATIC CFU PA bundle

Ordering data

Ordering data	Article No.
SIMATIC CFU PA bundle Comprising: • SIMATIC CFU PA, article no. 6ES7655-5PX11-0XX0 • SIMATIC CFU push-in terminals, article no. 6ES7655-5PX00-1XX0 pre-assembled and tested	**6ES7655-5PX11-1XX0**

Overview accessories



BusAdapter BA 2×RJ45, 2×FC and 2×LC

BusAdapter

A BusAdapter as a separate component allows a free choice of SIMATIC CFU connection to PROFINET:

- BA 2×RJ45:
  2 electrical connections for bus cable with standard RJ45 connector
- BA 2×FC:
  2 electrical connections for direct connection of FastConnect bus cable
- BA 2×LC:
  2 optical ports for fiber-optic cables

Technical specifications

Article number	**6DL1193-6AR00-0AA0** ET 200SP HA, BUSADAPTER BA 2XRJ45	**6DL1193-6AF00-0AA0** ET 200SP HA, BUSADAPTER BA 2XFC	**6DL1193-6AG00-0AA0** ET 200SP HA, BUSADAPTER BA 2XLC
General information			
Product type designation	BA 2xRJ45	BA 2xFC	BA 2xLC
Interfaces			
Number of PROFINET interfaces	1; 2 ports (switch) RJ45	1; 2 ports (switch) FC	1; 2 ports (switch) LC Multimode Glass Fibre
PROFINET IO			
• RJ45	Yes; 2x RJ45		
• FC (FastConnect)		Yes; 2 x	
• Number of LC ports			2

Technical specifications (continued)

Article number	**6DL1193-6AR00-0AA0** ET 200SP HA, BUSADAPTER BA 2XRJ45	**6DL1193-6AF00-0AA0** ET 200SP HA, BUSADAPTER BA 2XFC	**6DL1193-6AG00-0AA0** ET 200SP HA, BUSADAPTER BA 2XLC
Cable length			
- Cu conductors	100 m	100 m	
- Multimode graded-index fiber 50/125 µm			3 km
- Multimode graded-index fiber 62.5/125 µm			3 km
Ambient conditions			
Ambient temperature during operation			
• min.	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	65 °C; Redundant design (2x 6DL1155-6AU00-0PM0): max. 60 °C horizontal, max. 50 °C vertical. When using different I/O devices, the derating specified there must be observed.
Dimensions			
Width	20 mm	20 mm	20 mm
Height	69.5 mm	69.5 mm	75 mm; Without protective caps (approx. 8 mm)
Depth	59 mm	59 mm	59 mm
Weights			
Weight, approx.	46 g	53 g	60 g

Ordering data

	Article No.
BusAdapter	
BusAdapter BA 2×RJ45 2 × RJ45 connections for PROFINET (standard Ethernet socket)	**6DL1193-6AR00-0AA0**
BusAdapter BA 2×FC 2 × FastConnect (FC) connections for PROFINET	**6DL1193-6AF00-0AA0**
BusAdapter BA 2×LC 2 × glass fiber-optic connections	**6DL1193-6AG00-0AA0**
Shield terminals for aluminum field enclosure	
SIMATIC CFU shield terminals 4 shield terminals as an optional accessory for SIMATIC CFU aluminum field housing, for simple and secure shielding of up to 8 PROFIBUS PA field devices	Not yet available **6ES7655-5PX00-0XX1**

	Article No.
Connection technology	
SIMATIC CFU screw-type terminals Complete set of screw-type terminals for SIMATIC CFU: two-tier 2×2 (24 V), single-tier 1×6 (GND) and single-tier 4×8 (IO)	**6ES7655-5PX00-2XX0**
SIMATIC CFU push-in terminals Complete set of push-in terminals for SIMATIC CFU: two-tier 2×2 (24 V), single-tier 1×6 (GND) and single-tier 4×8 (IO)	**6ES7655-5PX00-1XX0**

Notes

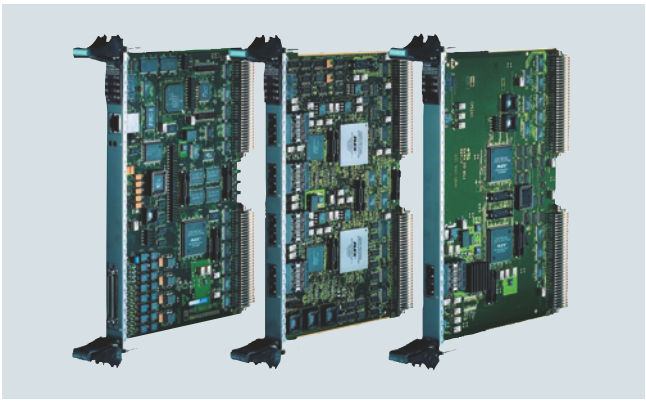
Brochures

For brochures serving as selection guides for SIMATIC products, refer to

www.siemens.com/simatic/printmaterial

GlobalDataMemory

Overview



GlobalDataMemory

Data can be exchanged between all of the CPU modules in the system, over all of the networked subracks, using the memory in the GlobalDataMemory (GDM). Up to 44 subracks can be coupled in synchronism through the central memory.
This means that a maximum of 836 CPU modules can be used.

Technical specifications

CP52M0	
Power supply	
Voltage/current supply (at 25 °C)	+5 V typ. 0.4 A +3.3 V typ. 0.7 A +12 V typ. 0.01 A –12 V typ. 0.01 A
Power loss, typical	4.5 W
Space requirement / width	1 slot
Weight	0.6 kg
Digital outputs	
Number	16
Electrical isolation	No
External power supply voltage • Rated value • Permissible range • Briefly • Max. current drain (without load)	 24 V 20 to 30 35 V, for max. 0.5 s 40 mA
Output voltage range • For a 0-signal, max. • For a 1-signal min • Output current • For a 0-signal, min. • For a 1-signal - Nominal value - Permissible range, max.	 3 V External power supply -2.5 V -20 µA 50 mA 100 mA
Delay time	100 µs

CP52M0	
Max. switching frequency of the outputs for an ohmic load	6 kHz
Short-circuit protection with respect to • Ground • Ext. power supply	 Yes No
Max. short-circuit current	250 mA
Summed current of the outputs (up to 60 °C)	16 x 50 mA
Limiting, of inductive switch-off voltages	External power supply voltage + 1 V

CP52IO	
Power supply	
Voltage/current supply (at 25 °C)	+5 V typ. 3 A +3.3 V typ. 0.8 A
Power loss, typical	18 W
Space requirement / width	1 slot
Weight	0.6 kg

CP52A0	
Power supply	
Voltage/current supply (at 25 °C)	+5 V typ. 1.5 A +3,3 V typ. 0.4 A
Power loss, typical	9 W
Space requirement / width	1 slot
Weight	0.6 kg

Ordering data

	Article No.
CP52M0 memory module	**6DD1660-0BF0**
CP52IO interface module	**6DD1660-0BG0**
CP52A0 access module	**6DD1660-0BH1**

Software for SIMATIC Controllers

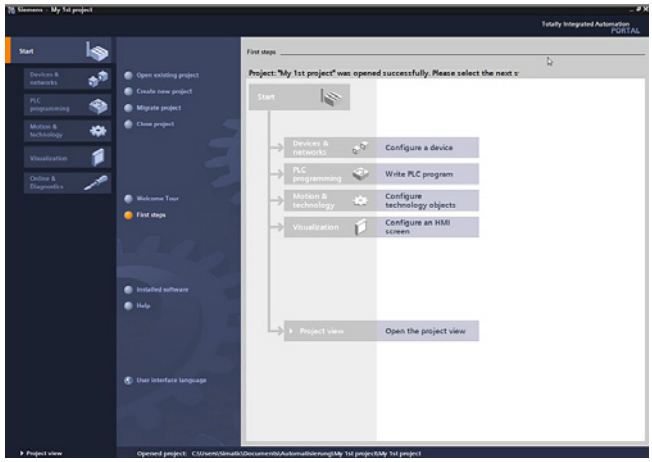
Brochures

For brochures serving as selection guides for SIMATIC products, refer to

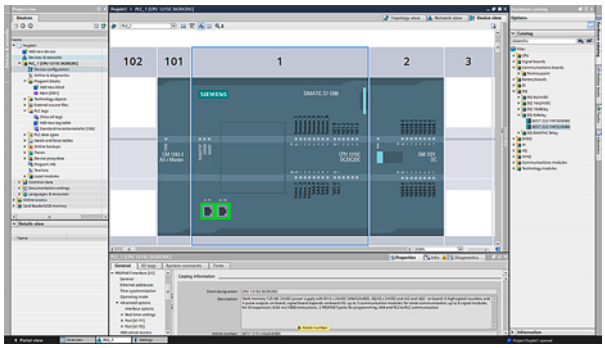
www.siemens.com/simatic/printmaterial

STEP 7 Basic (TIA Portal)

Overview



STEP 7 Basic V15 (TIA Portal), portal view



STEP 7 Basic V15 (TIA Portal), device view: configuring and parameterizing in realistic photo-quality representation

Intuitive, efficient and future-oriented – the engineering software for programming SIMATIC controllers

SIMATIC STEP 7 Basic V15 is the engineering system for the S7-1200.

STEP 7 Basic V15 is based on the Totally Integrated Automation Portal (TIA Portal) central engineering framework which offers users a uniform, efficient and intuitive solution to all automation tasks.

New with V15

- Hardware recognition of actually existing PROFINET IO devices
- Extended message display with new filter functions in the hardware configuration
- Multilingual project texts, e.g. block and network title or comments; can be displayed and edited directly in the program editors for all available languages
- Support for new instructions
- Local user management and authorization management
- Write-protected libraries

Licensing

- STEP 7 Basic V15 is supplied with a floating license. The floating license allows installation of the software on any number of computers. This means one user can use the software independently of the computer used or from a specific workstation per license. The number of licenses acquired determines the number of computers on which the software can be used simultaneously.
- Existing STEP 7 Basic installations can be updated from versions V11-14 to V15, this requires an upgrade.
- STEP 7 Basic V15 can be upgraded to STEP 7 Professional V15 with a powerpack

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

	STEP 7 Basic V15 (TIA Portal)
Type of license	Floating license
Software class	A
Current version	V15
Target system	SIMATIC S7-1200
Operating systems	Windows 7 (64-bit) • Windows 7 Home Premium SP1 • Windows 7 Professional SP1 • Windows 7 Enterprise SP1 • Windows 7 Ultimate SP1 Windows 10 (64-bit) • Windows 10 Home Version 1703 • Windows 10 Professional Version 1703 • Windows 10 Enterprise Version 1703 • Windows 10 Enterprise 2016 LTSB • Windows 10 IoT Enterprise 2015 LTSB • Windows 10 IoT Enterprise 2016 LTSB Windows Server (64-bit) • Windows Server 2012 R2 StdE (full installation) • Windows Server 2016 Standard (full installation)
Recommended PC hardware	
Computer	SIMATIC Field PG M5 Advanced or higher (or comparable PC)
Processor	Intel Core i5-6440EQ (up to 3.4 GHz)
RAM	16 GB or more (min. 8 GB, 32 GB for large projects)
Hard disk	SSD with at least 50 GB storage space available
Network	1 Gbit (for multi-user)
Screen	15.6" full HD display (1920 x 1080 or higher)

Technical specifications (continued)

Compatibility with other SIMATIC products

STEP 7 V15 can be installed on a PC in parallel with other versions of STEP 7 V11 to V14 SP1, STEP 7 V5.4 or higher, STEP 7 Micro/WIN, WinCC flexible (from 2008) and WinCC (V7.0 SP2 or higher).

Projects as from TIA Portal project version V13 SP1 can be directly upgraded to V15. Upgrading of projects from previous project versions (V11 ... V13) is carried out on the basis of the TIA Portal products (e.g. STEP 7) used in the project in version V13 SP1 or V13 SP2 (latest update recommended).

Important note

TIA Portal project versions V13 SP1.. V14 SP1 are upgraded with TIA Portal V15 to the project version V15. If you need to edit a TIA Portal project version V13 SP1.. V14 SP1, we recommend an additional installation of the corresponding software to TIA Portal V15. The license purchased for V15 is also valid for all older TIA Portal versions.

Program code and hardware configuration from STEP 7 V5.4 SP5 can be migrated directly to a TIA Portal V15 project with STEP 7 V15.

Ordering data

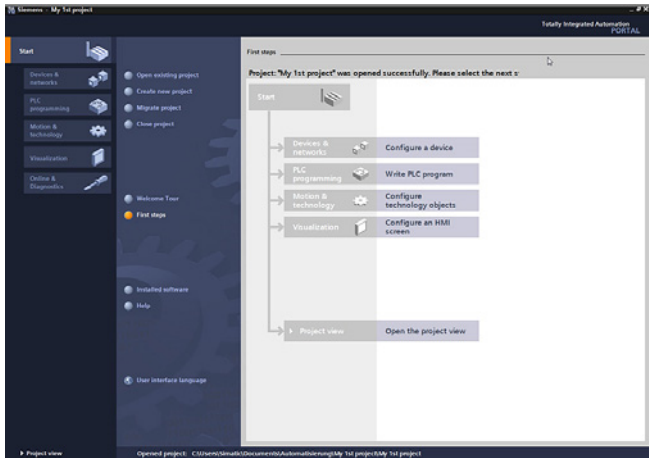
	Article No.
STEP 7 Basic V15 Target system: SIMATIC S7-1200 Requirement: Windows 7 Home Premium SP1 (64-bit), Windows 7 Professional SP1 (64-bit), Windows 7 Enterprise SP1 (64-bit), Windows 7 Ultimate SP1 (64-bit), Windows 10 Home Version 1703, Windows 10 Professional Version 1703, Windows 10 Enterprise Version 1703, Windows 10 Enterprise 2016 LTSB, Windows 10 IoT Enterprise 2015 LTSB, Windows 10 IoT Enterprise 2016 LTSB, Windows Server 2012 R2 StdE (full installation), Windows Server 2016 Standard (full installation) Type of delivery: English, German, Chinese, Italian, French, Spanish	
STEP 7 Basic V15, floating license	**6ES7822-0AA05-0YA5**
STEP 7 Basic V15, floating license, software download incl. license key[1] Email address required for delivery	**6ES7822-0AE05-0YA5**
STEP 7 Basic/Professional V15, trial license	**6ES7822-1AA05-0YA7**
Upgrade STEP 7 Basic V11...V14 to STEP 7 Basic V15, floating license	**6ES7822-0AA05-0YE5**
Upgrade STEP 7 Basic V11...V14 to STEP 7 Basic V15, floating license, software download incl. license key[1] Email address required for delivery	**6ES7822-0AE05-0YE5**
Powerpack STEP 7 Basic V15 to STEP 7 Professional V15, floating license	**6ES7822-1AA05-0YC5**
Powerpack STEP 7 Basic V15 to STEP 7 Professional V15, floating license, software download incl. license key[1] Email address required for delivery	**6ES7822-1AE05-0YC5**
Software Update Service For a period of 12 months and for a fixed price, the customer is automatically provided with all upgrades and service packs for each installed software package. The contract is automatically extended by a further year unless canceled at least 12 weeks prior to expiration. Requires the current software version	
Software Update Service (Standard Edition)[2] The delivery is implemented according to the number of ordered SUS products (e.g. 10 upgrade packages with 10 DVDs, 10 USB flash drives, etc.)	
• STEP 7 Basic	**6ES7822-0AA00-0YL0**
Software Update Service (Compact Edition)[2] The delivery items are combined. For several contracts, only 1 package with 1 data storage medium set, 1 USB flash drive with the corresponding number of licenses and the corresponding number of CoLs will be supplied. Delivery items to be combined must be ordered as one item.	
• STEP 7 Basic	**6ES7822-0AA00-0YM0**
Software Update Service (download)[2] Upgrades and service packs are available for downloading. Email address required for delivery	
• STEP 7 Basic	**6ES7822-0AE00-0YY0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

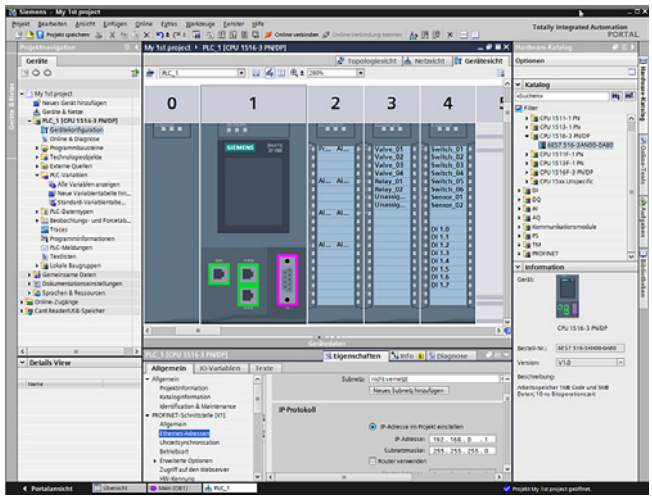
[2] For more information on the Software Update Service, see Catalog ST 70.

STEP 7 Professional (TIA Portal)

Overview



STEP 7 Professional V15 (TIA Portal), portal view



STEP 7 Professional V15 (TIA Portal), device view: configuring and parameterizing in realistic photo-quality representation

Intuitive, efficient and future-oriented – the engineering software for programming the SIMATIC Controllers

SIMATIC STEP 7 Professional V15 is the engineering system for the SIMATIC S7-1200, S7-1500, S7-300, S7-400 Controllers, WinAC and Software Controllers.

STEP 7 V15 is based on the Totally Integrated Automation Portal (TIA Portal) central engineering framework, which offers users a uniform, efficient and intuitive solution for all automation tasks.

New with V15

- Hardware recognition of actually existing PROFINET IO devices
- Extended message display with new filter functions in the hardware configuration
- Breakpoints for S7-1500
- References
- New instructions for S7-1500
- PLC tag tables can be downloaded to the device and uploaded from the device in the specified structure, enabling improved team engineering on the CPU
- Creation of virtual signals based on mathematical functions from the recorded signals
- Multilingual project texts, e.g. block and network title or comments; can be displayed and edited directly in the programming editors for all available languages
- Support for new instructions
- Local user management and authorization management
- Write-protected libraries

Licenses

- STEP 7 Professional V15 is supplied with a floating license. The floating license allows installation of the software on any number of computers. This means one user per license can use the software independently of the computer used or a specific workstation. The number of existing licenses determines the number of computers on which the software can be used simultaneously.
- Installations of STEP 7 Professional V11-14 can be updated to V15 with an upgrade package.
- The user receives a combo license when upgrading from STEP 7 V5.x. The combo license enables engineering to be performed both on the STEP 7 V 5.x and the STEP 7 V15 platform.
- Using a powerpack, you can upgrade licenses from STEP 7 Basic V15 to STEP 7 Professional V15.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

	STEP 7 Professional V15 (TIA Portal)
Type of license	Floating license
Software class	A
Current version	V15
Target system	SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC, software controllers
Operating systems	Windows 7 (64-bit) • Windows 7 Home Premium SP1 • Windows 7 Professional SP1 • Windows 7 Enterprise SP1 • Windows 7 Ultimate SP1 Windows 10 (64-bit) • Windows 10 Home Version 1703 • Windows 10 Professional Version 1703 • Windows 10 Enterprise Version 1703 • Windows 10 Enterprise 2016 LTSB • Windows 10 IoT Enterprise 2015 LTSB • Windows 10 IoT Enterprise 2016 LTSB Windows Server (64-bit) • Windows Server 2012 R2 StdE (full installation) • Windows Server 2016 Standard (full installation)
Recommended PC hardware	
Computer	SIMATIC Field PG M5 Advanced or higher (or comparable PC)
Processor	Intel Core i5-6440EQ (up to 3.4 GHz)
RAM	16 GB or more (min. 8 GB, 32 GB for large projects)
Hard disk	SSD with at least 50 GB storage space available
Network	1 Gbit (for multi-user)
Screen	15.6" full HD display (1920 x 1080 or higher)

Technical specifications (continued)

Compatibility with other SIMATIC products

STEP 7 V15 can be installed on a PC in parallel with other versions of STEP 7 V11 to V14 SP1, STEP 7 V5.4 or higher, STEP 7 Micro/WIN, WinCC flexible (from 2008) and WinCC (V7.0 SP2 or higher).

Projects as from TIA Portal project version V13 SP1 can be directly upgraded to V15. Upgrading of projects from previous project versions (V11 ... V13) is carried out on the basis of the TIA Portal products (e.g. STEP 7) used in the project in version V13 SP1 or V13 SP2 (latest update recommended).

Important note

TIA Portal project versions V13 SP1.. V14 SP1 are upgraded with TIA Portal V15 to the project version V15. If you need to edit a TIA Portal project version V13 SP1.. V14 SP1, we recommend an additional installation of the corresponding software to TIA Portal V15. The license purchased for V15 is also valid for all older TIA Portal versions.

Program code and hardware configuration from STEP 7 V5.4 SP5 can be migrated directly to a TIA Portal V15 project with STEP 7 V15.

Ordering data

	Article No.
STEP 7 Professional V15 Target system: SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC Requirement: Windows 7 Home Premium SP1 (64-bit), Windows 7 Professional SP1 (64-bit), Windows 7 Enterprise SP1 (64-bit), Windows 7 Ultimate SP1 (64-bit), Windows 10 Home Version 1703, Windows 10 Professional Version 1703, Windows 10 Enterprise Version 1703, Windows 10 Enterprise 2016 LTSB, Windows 10 IoT Enterprise 2015 LTSB, Windows 10 IoT Enterprise 2016 LTSB, Windows Server 2012 R2 StdE (full installation), Windows Server 2016 Standard (full installation) Type of delivery: English, German, Chinese, Italian, French, Spanish	
STEP 7 Professional V15, floating license	**6ES7822-1AA05-0YA5**
STEP 7 Professional V15, floating license, software download incl. license key [1] Email address required for delivery	**6ES7822-1AE05-0YA5**
STEP 7 Professional V15/2017 Combo, floating license	**6ES7810-5CC12-0YA5**
STEP 7 Professional V15/2017 Combo, floating license, software download incl. license key [1] Email address required for delivery	**6ES7810-5CE12-0YB5**
STEP 7 Professional V15, trial license	**6ES7822-1AA05-0YA7**

	Article No.
Conversion package STEP 7 Professional V15 Only valid if ordered together with Software Update Service 6ES7810-5CC04-0YE2 (STEP 7 Professional and STEP 7 Professional in TIA Portal).	
• Powerpack & Upgrade STEP 7 V5.6 to STEP 7 Professional V15/2017 Combo, floating license. STEP 7 Software Update Service must be available.	**6ES7822-1AA05-0XC2**
• Powerpack & upgrade from STEP 7 V5.6 to STEP 7 Professional V15/2017 Combo, floating license. STEP 7 Software Update Service must be available. Software download including license key [1] Email address required for delivery	**6ES7822-1AE05-0XC2**
Upgrade STEP 7 Professional V11...14 to STEP 7 Professional V15 or STEP 7 Professional V11...V14/201x Combo to V15/2017 Combo or STEP 7 Professional 2006...2010 to V15/2017 Combo, floating license	**6ES7822-1AA05-0YE5**
Upgrade STEP 7 Professional V11...14 to STEP 7 Professional V15 or STEP 7 Professional V11...V14/201x Combo to V15/2017 Combo or STEP 7 Professional 2006...2010 to V15/2017 Combo, floating license Software download incl. license key[1] Email address required for delivery	**6ES7822-1AE05-0YE5**
Powerpack STEP 7 Professional V15 Trial 365 to STEP 7 Prof. V15, floating license. Only valid if ordered together with Software Update Service 6ES7822-1AE00-0YY0 (STEP 7 Professional V1x) Prerequisite is a STEP 7 V15 Trial 365 license. License key download [1] Email address required for delivery	**6ES7822-1BE05-0YC5**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

11

STEP 7 Professional (TIA Portal)

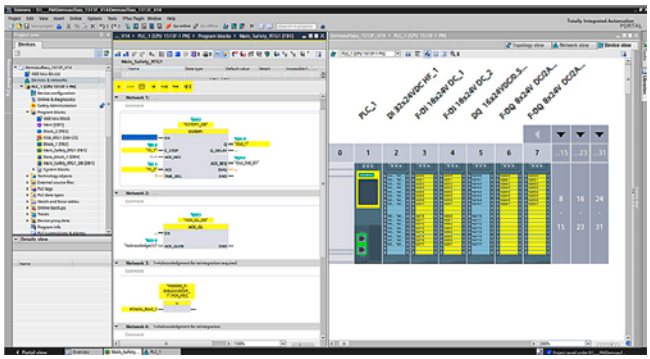
Ordering data	Article No.
50 hours of engineering with STEP 7 Professional Combo, WinCC Professional (incl. WinCC flexible 2008) and STEP 7 Safety Advanced (incl. Distributed Safety), floating license Software download incl. license key [1] Email address required for delivery	**6ES7823-1GE05-0YA5**
Powerpack & upgrade from STEP 7 V5.4...V5.6 to STEP 7 Professional V15/2017 Combo, floating license	**6ES7822-1AA05-0XC5**
Powerpack & upgrade from STEP 7 V5.4...V5.6 to STEP 7 Professional V15/2017 Combo, floating license, software download incl. license key [1] Email address required for delivery	**6ES7822-1AE05-0XC5**

	Article No.
Software Update Service For a period of 12 months and for a fixed price, the customer is automatically provided with all upgrades and service packs for each installed software package. The contract is automatically extended by a further year unless canceled at least 12 weeks prior to expiration. Requires the current software version	
Software Update Service (Standard Edition)[2] The delivery is implemented according to the number of ordered SUS products (e.g. 10 upgrade packages with 10 DVDs, 10 USB flash drives, etc.)	
• STEP 7 Professional in the TIA Portal	**6ES7822-1AA00-0YL5**
• STEP 7 Professional and STEP 7 Professional in the TIA Portal	**6ES7810-5CC04-0YE2**
Software Update Service (Compact Edition)[2] The delivery items are combined. For several contracts, only 1 package with 1 data storage medium set, 1 USB flash drive with the corresponding number of licenses and the corresponding number of CoLs will be supplied. Delivery items to be combined must be ordered as one item.	
• STEP 7 Professional in the TIA Portal	**6ES7822-1AA00-0YM5**
• STEP 7 Professional and STEP 7 Professional in the TIA Portal	**6ES7810-5CC00-0YM2**
Software Update Service (download)[2] Upgrades and service packs are available for downloading. Email address required for delivery	
• STEP 7 Professional V1x	**6ES7822-1AE00-0YY0**
• STEP 7 Professional and STEP 7 Professional in the TIA Portal	**6ES7810-5CC04-0YY2**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

[2] For more information on the Software Update Service, see Catalog ST 70.

Overview



STEP 7 Safety Advanced, Configuration and Programming

- For creating safety-related programs on the STEP 7 user interface
- For seamless and easy to use integration of safety-related functions into the standard automation
- All the required configuration and programming tools are integrated into the STEP 7 user interface and utilize a common project structure
- STEP 7 Safety Basic option package for parameter assignment and programming of the fail-safe S7-1200
- STEP 7 Safety Advanced option package for all fail-safe TIA SIMATIC controller classes (S7-1200, S7-1500, S7-1500 software controller, S7-300, S7-400, WinAC)

Licensing

- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- STEP 7 Safety Basic is a subset of STEP 7 Safety Advanced for programming the fail-safe S7-1200 F Basic Controller.
- Powerpacks can be used to upgrade an existing STEP 7 Safety Basic license.
- Combo licenses allow you to choose between programming with the predecessor product S7 Distributed Safety and STEP 7 Safety Advanced.
- An upgrade to a combo license is offered for the latest version of S7 Distributed Safety.
- Software Update Service (SUS) contracts can be concluded for both STEP 7 Safety Basic and STEP 7 Safety Advanced.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Ordering data

	Article No.
STEP 7 Safety Advanced V15	
Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco I/O Requirement: STEP 7 Professional V15	
Floating license for 1 user, software and documentation on DVD; license key on USB flash drive	**6ES7833-1FA15-0YA5**
Floating license for 1 user, software, documentation and license key for download[2]; email address required for delivery	**6ES7833-1FA15-0YH5**
Software Update Service (Standard Edition)[1] The delivery is implemented according to the number of ordered SUS products (e.g. 10 upgrade packages with 10 DVDs, 10 USB flash drives, etc.). Requires the current software version.	**6ES7833-1FC00-0YX2**
Software Update Service (Compact Edition)[1] The delivery items are combined. For several contracts, only 1 package with 1 data storage medium set, 1 USB flash drive with the corresponding number of licenses and the corresponding number of CoLs will be supplied. The deliveries that are to be grouped together must be ordered as a single item. Requires the current software version. Minimum order quantity: 3 units	**6ES7833-1FC00-0YM2**
Software Update Service (Download)[1] Requires the current software version. Email address required for delivery.	**6ES7833-1FC00-0YY0**

[1] For more information on the software update service, see Catalog ST 70.

[2] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Ordering data	Article No.
STEP 7 Safety Advanced Upgrade	
Upgrade from Distributed Safety V5.4 SP5 or STEP 7 Safety Advanced V11..V14 (Combo) to STEP 7 Safety Advanced V15 (Combo) for parallel use of the versions; upgrade of combo license for 1 user; software and documentation on DVD, license key on USB flash drive	**6ES7833-1FA15-0YF5**
Upgrade from Distributed Safety V5.4 SP5 or STEP 7 Safety Advanced V11..V14 (Combo) to STEP 7 Safety Advanced V15 (Combo) for parallel use of the versions; upgrade of combo license for 1 user; software, license key and documentation for download[2]; email address required for delivery	**6ES7833-1FA15-0YY5**
STEP 7 Safety Advanced Powerpack	
Powerpack STEP 7 Safety Basic V15 to STEP 7 Safety Advanced V15; floating license for 1 user; license key on USB flash drive	**6ES7833-1FA15-0YC5**
Powerpack STEP 7 Safety Basic V15 to STEP 7 Safety Advanced V15; floating license for 1 user; license key for download[2]; email address required for delivery	**6ES7833-1FA15-0YJ5**
STEP 7 Safety Advanced V15 Trial	**6ES7833-1FA15-0YA8**
Trial license, valid for 21 days; software and documentation on DVD; executable with TIA Portal V15 from STEP 7 Professional V15 or higher; for configuring S7-1200 FC, S7-1500F, S7-1500F software controller, S7-300F, S7-400F, WinAC F	
STEP 7 Safety Basic V15	
Task: Engineering tool for configuring fail-safe user programs for SIMATIC S7-1200 FC Requirement: STEP 7 Basic as of V15	
Floating license for 1 user, software and documentation on DVD, license key on USB flash drive	**6ES7833-1FB15-0YA5**
Floating license for 1 user, software, documentation and license key for download[2]; email address required for delivery	**6ES7833-1FB15-0YH5**

	Article No.
STEP 7 Safety Basic Upgrade	
Upgrade from STEP 7 Safety Basic V13 SP1...V14 to STEP 7 Safety Basic V15 for parallel use of the versions; upgrade license for 1 user; software and documentation on DVD, license key on USB flash drive	**6ES7833-1FB15-0YE5**
Upgrade from STEP 7 Safety Basic V13 SP1...V14 to STEP 7 Safety Basic V15 for parallel use of the versions; upgrade license for 1 user; software, license key and documentation for download[2]; email address required for delivery	**6ES7833-1FB15-0YK5**
Software Update Service (Standard Edition)[1] The delivery is implemented according to the number of ordered SUS products (e.g. 10 upgrade packages with 10 DVDs, 10 USB flash drives, etc.). Requires the current software version.	**6ES7833-1FD00-0YX2**
Software Update Service (Compact Edition)[1] The delivery items are combined. For several contracts, only 1 package with 1 data storage medium set, 1 USB flash drive with the corresponding number of licenses and the corresponding number of CoLs will be supplied. The deliveries that are to be grouped together must be ordered as a single item. Requires the current software version. Minimum order quantity: 3 units	**6ES7833-1FD00-0YM2**
Software Update Service (Download)[1] Requires the current software version. Email address required for delivery.	**6ES7833-1FD00-0YN2**

[3] For more information on the software update service, see Catalog ST 70.

[4] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Overview

With SIMATIC S7-PLCSIM Advanced, virtual controllers can be used for simulation of S7-1500 and ET 200SP controllers and for extensive function simulation.

The virtual controllers can also be tested and validated in conjunction with a plant/machine. An extensive API is available for interfacing plant/machine simulations.

New with V2.0

- Synchronization of PLCSIM Advanced with co-simulation tools to process image partitions of cyclic OBs (e.g. cyclic interrupt OBs)
- Support of acyclic services (RDREC/WRREC) and interrupts (e.g. hardware interrupts)
- Hardware interrupts configured in the TIA Portal Reading can be read over the API
- Easy backup and restoration of the software and hardware configuration from PLCSIM Advanced instances
- Parallel installation of PLCSIM from V15 and PLCSIM Advanced from V2.0 on one PC

Licensing

- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- An upgrade to version 2.0 is offered for users of the previous version 1.0.
- It is possible to conclude Software Update Service (SUS) contracts.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

Technical specifications

Minimum requirements for use

Hardware / software	Requirements
Processor	• 2.2 GHz Intel Celeron Dual Core for one instance • One additional free core for each additional instance
RAM	• 4 GB for one instance • 8 GB for 4 instances
Free hard disk space	5 GB
Operating system (64-bit version)	• Windows 7 Home Premium SP1 • Windows 7 Professional SP1 • Windows 7 Enterprise SP1 • Windows 7 Ultimate SP1 • Windows 10 Home Version 1703 • Windows 10 Pro Version 1703 • Windows 10 Enterprise Version 1703 • Windows 10 Enterprise 2016 LTSB • Windows Server 2012 R2 StdE • Windows Server 2016 Standard
Screen resolution	min. 1024 x 768

Compatibility with other products

PLCSIM Advanced V2.0 and PLCSIM from V15 can be installed and operated on the same PC or the same virtual machine. Communication between the two applications cannot be simulated.

Ordering data

	Article No.
SIMATIC S7-PLCSIM Advanced V2.0	
Option for simulation of S7-1500 and ET200 SP	
Floating license, software and documentation on DVD; license key on USB flash drive	**6ES7823-1FA01-0YA5**
Floating license, software, documentation and license key for download [1]	**6ES7823-1FE01-0YA5**
Email address required for delivery	
Upgrade	
Upgrade SIMATIC S7-PLCSIM Advanced V1.0 to V2.0, floating license	**6ES7823-1FA01-0YE5**
Upgrade SIMATIC S7-PLCSIM Advanced V1.0 to V2.0, floating license for download [1];	**6ES7823-1FE01-0YE5**
Email address required for delivery	
Software Update Service[2]	
For a period of 12 months and for a fixed price, the customer is automatically provided with all upgrades and service packs for each installed software package. The contract is automatically extended by a further year unless canceled at least 12 weeks prior to expiration. Requires the current software version.	
Software Update Service: Upgrades and service packs are provided in the form of DVDs, USB flash drives etc.	**6ES7823-1FA00-0YL5**
Software Update Service (download)[1]: Upgrades and service packs are available for downloading.	**6ES7823-1FE00-0YL5**
Email address required for delivery	

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

[2] For more information on the Software Update Service, see Catalog ST 70.

11

Overview

- For developing dynamically loadable function libraries for the S7-1500 Software Controllers and S7-1500 Advanced Controllers CPU 1518 MFP:
  - Implementation of function libraries that are executed under Windows with the high-level languages C/C++, C# and VB
  - Implementation of function libraries that are executed in real-time in the context of the user program of the CPU with the high-level language C++
  - Implementation of applications for the C++ runtime of the CPU 1518 MFP
- "Eclipse" development environment for real-time function libraries in the CPU user program and applications for the C++ runtime in the scope of delivery.
- Development of library functions under Windows with MS Visual Studio (optional)
- Easy introduction to development by using basic projects via templates
- Automatic creation of function blocks for calling the library functions
- Simple integration of the function blocks into STEP 7 by importing.
- Simple use of the library functions in the controller without specific high-level language know-how.

Licensing

- ODK 1500S is supplied with a floating license. The floating license allows installation of the software on any number of computers. The number of licenses acquired determines the number of computers on which the software can be used simultaneously.
- An upgrade to version 2.5 is offered for users of the previous versions 1.0 and 2.0.
- The integrated development environment Eclipse, required for developing real-time libraries, is included in the scope of supply of ODK 1500S as well as templates for Visual Studio.
- SIMATIC ODK 1500S is available as a standalone product or in a bundle with SIMATIC Target 1500S™ for Simulink®.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

System requirements

The SIMATIC ODK 1500S can be used on PC platforms with the following requirements:

- Operating systems Windows 7/8.1/10
- Min. 3 GB hard disk memory
- Min. 4 GB work memory
- Mouse, keyboard, monitor

Ordering data

	Article No.
SIMATIC ODK 1500S	
Open Development Kit for support in developing high-level language applications for SIMATIC S7-1500 Software Controllers V2.0 or V2.1; single license; supplied on DVD	**6ES7806-2CD02-0YA0**
Open Development Kit for support in developing high-level language applications for SIMATIC S7-1500 Software Controllers V2.0 or V2.1; single license; software download [1]	**6ES7806-2CD02-0YG0**
Email address required for delivery	
Open Development Kit for support in developing high-level language applications for SIMATIC S7-1500 Advanced Controllers; supplied on DVD, license key (floating license) on USB flash drive	**6ES7806-2CD03-0YA0**
Open Development Kit for support in developing high-level language applications for SIMATIC S7-1500 Advanced Controllers; software download including license key (floating license) [1]	**6ES7806-2CD03-0YG0**
Email address required for delivery	
Open Development Kit for support in developing high-level language applications for SIMATIC S7-1500 Advanced Controllers; upgrade for existing installations as from V1.0; software download including license key (floating license) [1]	**6ES7806-2CD03-0YK0**
Email address required for delivery	

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Overview

The SIMATIC Target 1500S is an add-on for the Simulink® software from The MathWorks. This makes it possible to also use model-based design with MATLAB® and Simulink for SIMATIC S7-1500 controllers. For this purpose, executable code for all ODK-compatible S7-1500 controllers (S7-1500 Software Controllers, ET 200SP Open Controllers and CPU 1518 ODK) is generated directly from Simulink via the target 1500S.

New with V2.0

- Automatic import of the program blocks to STEP 7 via Openness
- Easy access to all model signals from the S7 program
- Execution of the model and external mode possible in different OBs
- Trial version available from SIOS

Licensing

- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- SIMATIC Target 1500S™ for Simulink® V2.0 is available as a standalone product or in a bundle with the SIMATIC S7-1500 Software Controller Open Development Kit.
- An upgrade to the latest version is available for the previous version.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

www.siemens.com/simatic-licenses

Technical specifications

Requirements at the MATLAB end	
MATLAB 2017b (64-bit) or more recent version	• MATLAB 9.3 • MATLAB Coder 3.4 • Simulink 9.0 • Simulink Coder 8.13
Requirements at the SIMATIC end	
SIMATIC ODK 1500S V2.0	Must be installed together with target 1500S, MATLAB and Simulink on the same PC
STEP 7 Professional from V15	For configuration of the S7-1500 CPUs, not essentially on the same PC as the target 1500S
Supported CPUs	• CPU 1507S(F) with firmware V2.0 or higher • CPU 1515SP PC (F) with firmware V2.0 or higher • CPU 1518 (F) ODK/MFP

Ordering data

	Article No.
SIMATIC Target 1500S for Simulink V2.0 Download incl. license key [1] Email address required for delivery	**6ES7823-1BE01-0YA5**
Upgrade Upgrade SIMATIC Target 1500S for SIMULINK V1.0 to V2.0, download incl. license key [1] Email address required for delivery	**6ES7823-1BE01-0YE5**
SIMATIC Target + ODK 1500S bundle Download incl. license key [1] Email address required for delivery	**6ES7823-1BE11-0YA0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

11

Overview

TIA Portal Multiuser Engineering allows several users to work on the same project simultaneously. This results in a significant reduction in configuration times, and projects can be commissioned faster.

The basic principle:
The project administration is handled by an autonomous server application. This can be installed independent of a TIA Portal.

New with V15

- Automatic selecting of multiuser objects
- Working offline is possible with Multiuser Engineering
- Extended check-in and comment functions
- Project server with extended change history and restoration functions

Licensing

- The software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- The software is part of the STEP 7/WinCC (TIA Portal) DVD and/or of the program download, a license key is required for activation.
- An upgrade to version V15 is offered for users of the previous version V14.
- It is possible to conclude Software Update Service (SUS) contracts.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Ordering data

	Article No.
TIA Portal Multiuser Engineering V15	
Software is component of STEP 7 / WinCC as of V15. Only the Certificates of License (CoL) are delivered with the license.	
Data storage medium package, floating license, license key on USB flash drive	**6ES7823-1AA05-0YA5**
Download incl. license key, floating license; license key for download [1]	**6ES7823-1AE05-0YA5**
Email address required for delivery	
Upgrade	
Software is component of STEP 7 / WinCC as of V15. Only the Certificates of License (CoL) are delivered with the license.	
Upgrade TIA Portal Multiuser Engineering V14 to V15, floating license; license key on USB flash drive	**6ES7823-1AA05-0YE5**
Upgrade TIA Portal Multiuser Engineering V14 to V15, floating license; license key for download [1]	**6ES7823-1AE05-0YE5**
Email address required for delivery	
Software Update Service [2]	
Data storage medium package	**6ES7823-1AA00-0YL5**
Download [1]	**6ES7823-1AE00-0YL5**
Email address required for delivery	

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

[2] For more information on the Software Update Service, see Catalog ST 70.

Overview

The Teamcenter Gateway permits storage and management of TIA Portal projects and global libraries in Teamcenter. Program handling is integrated into the TIA Portal.

Licensing

- Please note the compatibility of the installed program versions for the operation of the Teamcenter Gateway.
- The software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- An upgrade to version V15 is offered for users of the previous version V14.
- It is possible to conclude Software Update Service (SUS) contracts.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

Can be used with:

- TIA Portal with V14 or higher
- Teamcenter V11

Ordering data

	Article No.
TIA Portal Teamcenter Gateway	
Data storage medium package, floating license, license key on USB flash drive	**6ES7823-1EA05-0YA5**
Download incl. license certificate and license key for TIA Portal Teamcenter Gateway V15, floating license [1]	**6ES7823-1EE05-0YA5**
Email address required for delivery	
Upgrade	
Upgrade TIA Portal Teamcenter Gateway V14 to V15, floating license	**6ES7823-1EA05-0YE5**
Upgrade TIA Portal Teamcenter Gateway V14 to V15, floating license; license key for download[1];	**6ES7823-1EE05-0YE5**
Email address required for delivery	
Software Update Service[2]	
For a period of 12 months and for a fixed price, the customer is automatically provided with all upgrades and service packs for each installed software package. The contract is automatically extended by a further year unless canceled at least 12 weeks prior to expiration. Requires the current software version	
Data storage medium package	**6ES7823-1EA00-0YL5**
Download[1]	**6ES7823-1EE00-0YL5**
Email address required for delivery	

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

[2] For more information on the Software Update Service, see Catalog ST 70.

Overview

The TIA Portal option ProDiag makes it possible to monitor a machine or plant and to intervene in the event of a fault. The monitoring messages which can be generated for the various faults provide specific information on the monitoring mode, location and cause of the fault. Information on troubleshooting can be provided in addition. Plant operators can then not only recognize faults, they can also identify any potential danger in advance and take appropriate countermeasures.

Licensing

- The runtime license for controllers includes 250 monitoring operations for multiple CPUs or an unlimited number of monitoring operations for a single CPU. From FW 2.0 onwards, the software can run on S7-1500/ET 200SP CPUs regardless of the TIA Portal version.
- For the visualization of the messages, the controls are licensed according to the HMI runtime platforms.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

Can be used for	
SIMATIC ProDiag S7-1500	For all S7-1500 CPUs and ET200SP CPUs with FW V2.0 and higher

Ordering data

	Article No.
SIMATIC ProDiag S7-1500 for 250 monitoring functions	
For SIMATIC S7-1500 CPUs and ET 200SP CPUs with FW 2.0 and higher. Independent of the TIA Portal version.	
Package with data storage medium	**6ES7823-0AA00-1AA0**
Download incl. license key [1]	**6ES7823-0AE00-1AA0**
Email address required for delivery	
SIMATIC ProDiag S7-1500 for all planned monitoring tasks	
For SIMATIC S7-1500 CPUs and ET 200SP CPUs with FW 2.0 and higher. Independent of the TIA Portal version.	
Package with data storage medium	**6ES7823-0AA00-1DA0**
Download incl. license key [1]	**6ES7823-0AE00-1DA0**
Email address required for delivery	
SIMATIC ProDiag for SIMATIC Comfort Panels / Mobile Panels, Controls for WinCC V14 and higher	
Runtime software in the TIA Portal; single license; without software or documentation; Class A	
• License key on USB flash drive	**6AV2107-0UP00-0BB0**
• License key for download [1]	**6AV2107-0UP00-0BH0**
SIMATIC ProDiag for WinCC Runtime Advanced, Controls for WinCC V14 and higher	
Runtime software in the TIA Portal; single license; without software or documentation; Class A	
• License key on USB flash drive	**6AV2107-0UA00-0BB0**
• License key for download [1]	**6AV2107-0UA00-0BH0**
SIMATIC ProDiag for WinCC Runtime Professional, Controls for WinCC V14 and higher	
Runtime software in the TIA Portal; single license; without software or documentation; Class A	
• License key on USB flash drive	**6AV2107-0UB00-0BB0**
• License key for download [1]	**6AV2107-0UB00-0BH0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

11

Overview

SIMATIC Visualization Architect

Challenge:

- To standardize the user interfaces of the visualizations throughout the plant
- To significantly reduce the engineering costs for the generation of the visualizations

Solution:

- Automatic generation and creation of the visualizations, based on the program code of the controller and corresponding visualization objects as part of the system-wide library concepts.

Licensing

- The software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- An upgrade to version V15 is offered for users of the previous version V14.
- A rental license is available for temporary use.
- A trial license is available for testing purposes.
- It is possible to conclude Software Update Service (SUS) contracts.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

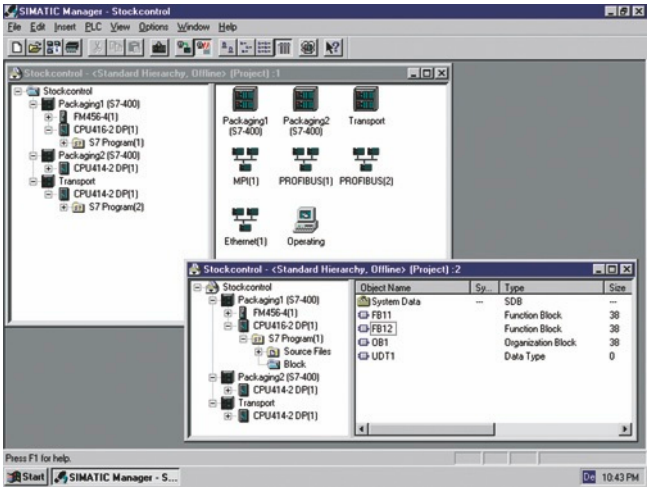
SIMATIC Visualization Architect	
Operating system requirements	In accordance with the requirements of the TIA Portal components: • SIMATIC STEP 7 (TIA Portal) • SIMATIC WinCC Professional, Advanced, Comfort, Basic
Supported STEP 7 version	SIMATIC STEP 7 V14
Supported WinCC versions	SIMATIC WinCC V14 Professional, Advanced, Comfort, Basic

Ordering data

	Article No.
SIMATIC Visualization Architect V15	
As package	
• SIMATIC Visualization Architect V15	**6AV2107-0PX05-0AA5**
• SIMATIC Visualization Architect V15 Rental	**6AV2107-0PX05-0AA6**
• SIMATIC Visualization Architect V15 Trial Download in Customer Support Portal	**6AV2107-0PX05-0AA7**
Download [1]	
• SIMATIC Visualization Architect V15	**6AV2107-0PX05-0AH5**
• SIMATIC Visualization Architect V15 Rental	**6AV2107-0PX05-0AH6**
Upgrade SIMATIC Visualization Architect V14 -> V15	
Engineering software in the TIA Portal; software and documentation on CD, license key on USB flash drive; Class A; 6 languages: en, de, fr, es, it, zh	
• As package	**6AV2107-3PX05-0AA5**
• Download [1] Email address required for delivery	**6AV2107-3PX05-0AH5**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Overview



- Basic software STEP 7:
  The standard tool for the SIMATIC S7, SIMATIC C7 and SIMATIC WinAC automation systems.
- For fully utilizing the performance capability of the systems.
- With user-friendly functions for all phases of an automation project:
  - Configuration and parameter assignment of the hardware
  - Specifying the communication
  - Programming
  - Testing, commissioning and service
  - Documentation, archiving
  - Operating, diagnostic functions

Note

The STEP 7 (TIA Portal) engineering software is required to program the new S7-1200, S7-1500, ET 200SP CPU and S7-1500 Software Controller generation; it can also be used for programming the S7-300, S7-400 and SIMATIC WinAC.

Siemens offers a combo license for both platforms which enables you to work using both STEP 7 (TIA Portal) as well as traditional engineering software. See "STEP 7 Professional" for more information.

Licensing

- STEP 7 V5.6 can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- A 50 h rental license is available for limited use.
- An upgrade to version V5.6 is available for users of the previous V5.3...5.5 versions.
- A trial license is available for testing purposes.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications PC adapter USB A2

Article number	**6GK1571-0BA00-0AA0**
Product type designation	PC adapter USB A2
Transmission rate	
Transfer rate	
• at the 1st interface acc. to PROFIBUS	9.6 kbit/s ... 12 Mbit/s
Interfaces	
Number of electrical connections	
• at the 1st interface acc. to PROFIBUS	1
Number of interfaces acc. to USB	1
Type of electrical connection	
• at the 1st interface acc. to PROFIBUS	9-pin Sub-D socket (RS 485)
• of the USB interface	Standard-B socket
Standard for interfaces USB 2.0	Yes
Supply voltage, current consumption, power loss	
Type of voltage of the supply voltage	DC
Type of voltage supply optional external supply	No
Supply voltage	
• from USB	5 V
• Note	Supply direct from USB
Relative symmetrical tolerance at DC	
• at 5 V	5 %
Consumed current	
• from USB	0.2 A
Power loss [W]	1 W
Permitted ambient conditions	
Ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Relative humidity at 30 °C during operation maximum	95 %
Protection class IP	IP20
Design, dimensions and weight	
Module format	USB V2.0 adapter
Width	58 mm
Height	26 mm
Depth	105 mm
Net weight	365 g
Mounting type 35 mm DIN rail mounting	No
Number of plug-in cards of same design plug-in per PC station	1
Number of units Note	-
Performance data	
Product functions Diagnosis	
Product function	
• Port diagnostics	Yes
Standards, specifications, approvals	
Standard	
• for EMC	2004/108/EC
• for safety from CSA and UL	cULus, UL 60950-1, CSA22.2
• for emitted interference	EN 61000-6-3, EN 61000-6-4
• for interference immunity	EN 61000-6-1, EN 61000-6-2
Certificate of suitability	
• CE marking	Yes
• C-Tick	Yes

Ordering data	Article No.
STEP 7 Version 5.6	
Target system: SIMATIC S7-300/400, SIMATIC C7 Requirement: Windows 7 SP1, Windows 10 Professional/ Enterprise, Windows Server 2008 R2 SP1, Windows Server 2012 R2, Windows Server 2016 Type of delivery: German, English, French, Spanish, Italian; incl. license key on USB flash drive, with electronic documentation	
Floating license on DVD	**6ES7810-4CC11-0YA5**
Floating license, download[1]; Software, license key and documentation as download; email address required for delivery	**6ES7810-4CE11-0YB5**
Rental license for 50 hours; Software and documentation on DVD, license key on USB stick	**6ES7810-4CC11-0YA6**
Rental license for 50 hours, download[1]; Software, license key and documentation as download; email address required for delivery	**6ES7810-4CE11-0YB6**
Floating license upgrade V5.3...5.5 to V5.6; on DVD	**6ES7810-4CC11-0YE5**
STEP 7 V5.6 trial license On DVD, operational for 21 days	**6ES7810-4CC11-0YA7**
STEP 7 Version 5.6 Japanese	
Target system: SIMATIC S7-300/400, SIMATIC C7, SIMATIC WinAC Requirement: Windows 7 SP1, Windows 10 Professional/ Enterprise, Windows Server 2008 R2 SP1, Windows Server 2012 R2, Windows Server 2016 Type of delivery: English, Japanese; incl. license key on USB flash drive, with electronic documentation	
Floating license Japanese on DVD	**6ES7810-4CC11-0JA5**
Upgrade floating license Japanese 3.x/4.x/5.x to V5.5; on DVD	**6ES7810-4CC11-0JE5**
STEP 7 Version 5.6, Chinese	
Target system: SIMATIC S7-300/400, SIMATIC C7 Requirement: Windows 7 SP1, Windows 10 Professional/ Enterprise, Windows Server 2008 R2 SP1, Windows Server 2012 R2, Windows Server 2016 Type of delivery: English, Chinese; incl. license key on USB flash drive, with electronic documentation	
Floating license Chinese on DVD	**6ES7810-4CC11-0KA5**
Floating license upgrade Chinese 5.x to V5.6; on DVD	**6ES7810-4CC11-0KE5**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	
EPROM programming device, USB prommer	**6ES7792-0AA00-0XA0**
For programming SIMATIC Memory Cards and EPROM modules	
MPI cable	**6ES7901-0BF00-0AA0**
For linking SIMATIC S7 and PG through MPI (5 m)	
Components for connecting a PC to MPI and PROFIBUS	
For PCs with a free PCI slot:	
CP 5612	**6GK1561-2AA00**
For PCs without a free PCI slot:	
USB A2 PC adapter	**6GK1571-0BA00-0AA0**
for connecting a PG/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	
Components for connecting the PC to Industrial Ethernet	
For PCs with a free PCI slot:	
Layer 2 Ethernet cards	
For PCs with a free PCMCIA slot:	
SOFTNET-IE RNA V7.1 (Win XP/Vista/Server2003)	**6GK1704-1PW71-3AA0**
SOFTNET-IE RNA V8.2 (Win 7/server2008)	**6GK1704-1PW08-2AA0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

11

STEP 7 Professional

Overview

STEP 7 Professional supports all IEC languages.

In addition to the languages familiar from STEP 7

- LAD,
- FBD and
- STL

the following are also available:

- sequential function chart
- structured text

An offline simulation of user programs created with these languages is included. STEP 7 Professional thus replaces the combination of the individual packages STEP 7, S7-GRAPH, S7-SCL and S7-PLCSIM.

A powerpack (conversion package) is available for customers who use STEP 7 already and wish to change. A valid STEP 7 license is required for purchasing the powerpack.

A separate update service can be purchased for STEP 7 Professional.

Note

The STEP 7 (TIA Portal) engineering software is required to program the new generation of S7-1200, S7-1500 and ET 200SP CPU controllers as well as the S7-1500 Software Controller; it can also be used for programming the S7-300, S7-400 and SIMATIC WinAC.

Siemens offers a combo license for both platforms which enables you to work using both STEP 7 (TIA Portal) as well as traditional engineering software. See "Licensing" for more information.

Licensing

- New installations of STEP 7 Professional 2017 are only available as combo licenses together with STEP 7 Professional V15 (TIA Portal). The software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- A 50 h rental license is available for limited use.
- An upgrade to V15/2017 Combo is available for users of the previous STEP 7 Professional 2006...2010 versions.
- Powerpack and upgrade enable migration from STEP 7 V5.6 to STEP 7 Professional V15/2017 Combo.
- A trial license is available for testing purposes.
- It is possible to conclude Software Update Service (SUS) contracts.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications PC adapter USB A2

Article number	**6GK1571-0BA00-0AA0**
Product type designation	PC adapter USB A2
Transmission rate	
Transfer rate	
• at the 1st interface acc. to PROFIBUS	9.6 kbit/s ... 12 Mbit/s
Interfaces	
Number of electrical connections	
• at the 1st interface acc. to PROFIBUS	1
Number of interfaces acc. to USB	1
Type of electrical connection	
• at the 1st interface acc. to PROFIBUS	9-pin Sub-D socket (RS 485)
• of the USB interface	Standard-B socket
Standard for interfaces USB 2.0	Yes
Supply voltage, current consumption, power loss	
Type of voltage of the supply voltage	DC
Type of voltage supply optional external supply	No

Article number	**6GK1571-0BA00-0AA0**
Product type designation	PC adapter USB A2
Supply voltage	
• from USB	5 V
• Note	Supply direct from USB
Relative symmetrical tolerance at DC	
• at 5 V	5 %
Consumed current	
• from USB	0.2 A
Power loss [W]	1 W
Permitted ambient conditions	
Ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
Relative humidity at 30 °C during operation maximum	95 %
Protection class IP	IP20

Technical specifications (continued)

Article number	6GK1571-0BA00-0AA0
Product type designation	PC adapter USB A2
Design, dimensions and weight	
Module format	USB V2.0 adapter
Width	58 mm
Height	26 mm
Depth	105 mm
Net weight	365 g
Mounting type 35 mm DIN rail mounting	No
Number of plug-in cards of same design plug-in per PC station	1
Number of units Note	-

Article number	6GK1571-0BA00-0AA0
Product type designation	PC adapter USB A2
Performance data	
Product functions Diagnosis	
Product function	
• Port diagnostics	Yes
Standards, specifications, approvals	
Standard	
• for EMC	2004/108/EC
• for safety from CSA and UL	cULus, UL 60950-1, CSA22.2
• for emitted interference	EN 61000-6-3, EN 61000-6-4
• for interference immunity	EN 61000-6-1, EN 61000-6-2
Certificate of suitability	
• CE marking	Yes
• C-Tick	Yes

Ordering data

	Article No.
STEP 7 Professional 2017/V15 Target system: SIMATIC S7-300/400, SIMATIC C7, SIMATIC WinAC Requirement: Windows Server 2008 R2 SP1 Windows Server 2012 R2 Windows Server 2016 Windows 7 SP1 Windows 10 Professional Windows 10 Enterprise Type of delivery: English, German, French, Spanish, Italian; license key on USB flash drive, with electronic documentation	
Floating combo license on DVD	**6ES7810-5CC12-0YA5**
Floating license, license key download[2)] without software and documentation; email address required for delivery	**6ES7810-5CE12-0YB5**
Rental license for 50 hours, license key download[2)] without software and documentation; email address required for delivery	**6ES7823-1GE05-0YA5**

	Article No.
Conversion package STEP 7 Professional V15 Only valid if ordered together with Software Update Service 6ES7 810-5CC04-0YE2 (STEP 7 Professional and STEP 7 Professional in TIA Portal).	
• Powerpack & upgrade from STEP 7 V5.6 to STEP 7 Professional V15/2017 Combo, floating license. STEP 7 Software Update Service must be available.	**6ES7822-1AA05-0XC2**
• Powerpack & upgrade from STEP 7 V5.6 to STEP 7 Professional V15/2017 Combo, floating license. STEP 7 Software Update Service must be available. Software download including license key [2)] Email address required for delivery	**6ES7822-1AE05-0XC2**
Upgrade STEP 7 Professional V11...14 to STEP 7 Professional V15 or STEP 7 Professional V11...V14/201x Combo to V15/2017 Combo or STEP 7 Professional 2006...2010 to V15/2017 Combo, floating license	**6ES7822-1AA05-0YE5**
Upgrade STEP 7 Professional V11...14 to STEP 7 Professional V15 or STEP 7 Professional V11...V14/201x Combo to V15/2017 Combo or STEP 7 Professional 2006...2010 to V15/2017 Combo, floating license Software download incl. license key[2)] Email address required for delivery	**6ES7822-1AE05-0YE5**

[2)] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

STEP 7 Professional

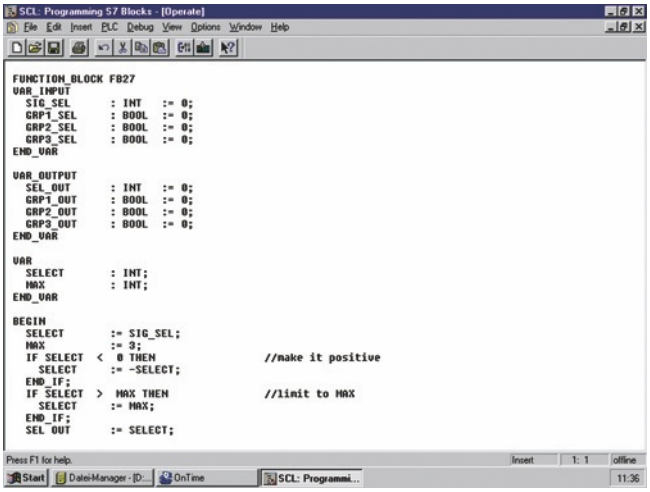
Ordering data	Article No.
Powerpack & upgrade from STEP 7 V5.4...V5.6 to STEP 7 Professional V15/2017 Combo, floating license	**6ES7822-1AA05-0XC5**
STEP 7 Professional 2017 trial license; on DVD, runs for 21 days	**6ES7810-5CC12-0YA7**
Software Update Service	
For a period of 12 months and for a fixed price, the customer is automatically provided with all upgrades and service packs for each installed software package. The contract is automatically extended by a further year unless canceled at least 12 weeks prior to expiration. Requires the current software version	
Software Update Service (Standard Edition)[1)]	
The delivery is implemented according to the number of ordered SUS products (e.g. 10 upgrade packages with 10 DVDs, 10 USB flash drives, etc.)	
• STEP 7 Professional and STEP 7 Professional in the TIA Portal	**6ES7810-5CC04-0YE2**
Software Update Service (Compact Edition)[1)]	
The delivery items are combined. For multiple contracts, only 1 package with 1 data medium set, 1 USB flash drive with the corresponding number of licenses and the corresponding number of CoLs will be supplied.	
Delivery items to be combined must be ordered as one item.	
• STEP 7 Professional and STEP 7 Professional in the TIA Portal	**6ES7810-5CC00-0YM2**
Software Update Service (download)[1)2)]	
The upgrades and service packs are available for downloading.	
Email address required for delivery	
• STEP 7 Professional and STEP 7 Professional in the TIA Portal	**6ES7810-5CC04-0YY2**

	Article No.
EPROM programming device, USB prommer	**6ES7792-0AA00-0XA0**
For programming SIMATIC Memory Cards and EPROM modules	
MPI cable	**6ES7901-0BF00-0AA0**
For linking SIMATIC S7 and PG through MPI (5 m)	
Components for connecting a PC to MPI and PROFIBUS	
For PCs with a free PCI slot:	
CP 5612	**6GK1561-2AA00**
For PCs without a free PCI slot:	
USB A2 PC adapter	**6GK1571-0BA00-0AA0**
for connecting a PG/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	
Components for connecting the PC to Industrial Ethernet	
For PCs with a free PCI slot:	
Layer 2 Ethernet cards	
For PCs with a free PCMCIA slot:	
SOFTNET-IE RNA V7.1 (Win XP/Vista/Server2003)	**6GK1704-1PW71-3AA0**
SOFTNET-IE RNA V8.2 (Win 7/server2008)	**6GK1704-1PW08-2AA0**

1) For more information on the software update service, see Catalog ST 70.

2) For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Overview



- PASCAL-type high-level language
- Optimized for programming programmable controllers
- With PLCopen Base Level certificate
- For use in SIMATIC S7-300 (recommended for CPU 314 and CPU 312C), S7-400, C7 and WinAC

Licensing

- S7-SCL is an integral part of the STEP 7 Professional software package or is available as a stand-alone software product.
- S7-SCL V5.6 is delivered with a floating license. The floating license allows installation of the software on any number of computers. This means one user per license can use the software independently of the computer used or from a specific workstation. The number of existing licenses determines the number of computers on which the software can be used simultaneously.
- An upgrade to version 5.6 is offered for users of the previous version 5.3.
- A separate update service can be purchased for S7-SCL.
- A trial license valid for 21 days is available for download from Industry Online Support:
  https://support.industry.siemens.com/cs/document/109748118

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

Engineering Tool	**S7-SCL**
Current version	V5.3
Software class	A
Application areas	
Can be used for	Text-based high-level language programming of simple and complex calculations, CASE, loop, jump, and comparison functions
Marketing message	Programming of algorithms and calculations made easy!
Advantages	• Clear and easy-to-read programs • Functional, module-based programming • CASE instruction replaces a large number of jump and comparison functions • Easily understood by PLC programmers, as the programming philosophy of LAD/FBD/STL is retained • Easy switchover to PLC programming for PC programmers • Exchangeability (porting) of subroutines in accordance with IEC 61131-3 • Less time required for engineering compared to LAD/FBD/STL: Up to 20% for simple programs; at least 50% for demanding program structures
Sectors	• Labeling machines • Chemical plants (e.g. oxygen extraction, evaluation of measured values) • Rubber and plastics machines • Woodworking machines • Storage and logistics systems • Paper and printing machinery • Punching and cutting machines • Water industry • Coilers
Target systems	
Can be used in	S7-300 (CPU 313 or higher and CPU 312C or higher recommended) S7-400 C7 (C7-626 or higher recommended) WinAC
System prerequisites	
Operating system	Windows XP Professional Windows 7 Ultimate/Professional (S7-SCL V5.3 SP5 and higher)
Required hard drive memory in the PG/PC	50 MB
Required software	STEP 7 V5.4 or higher
Properties	
Monitoring tags	Yes
Controlling tags	Yes
Single-step processing	Yes
Integration in CFC	Yes
Program runtimes	
with S7-300 (typical)	Similar to LAD/FBD/STL
with S7-400 (typical)	Similar to LAD/FBD/STL

Technical specifications (continued)

Diagnostics	
Integration of diagnostic data in ProAgent	-
Integration of diagnostic data in ProTool/Pro	-
Integration of diagnostic data in WinCC	-
Supported standards	
IEC 61131-3	PLCopen certification • Base level ST available • Reusability Level ST available
Available versions/licenses	
Floating license	CD-ROM with • Tool • Electronic manual • Getting Started guide • Examples License on USB stick Certificate of License Product information
Upgrade (floating license)	CD-ROM with • Tool • Electronic manual • Getting Started guide • Examples License on USB stick Certificate of License Product information
Software Update Service (SUS)	
Also a component part of	
STEP 7 Professional	Yes
S7 Trainer Package	Yes
PCS 7	Yes
D7-SYS	-

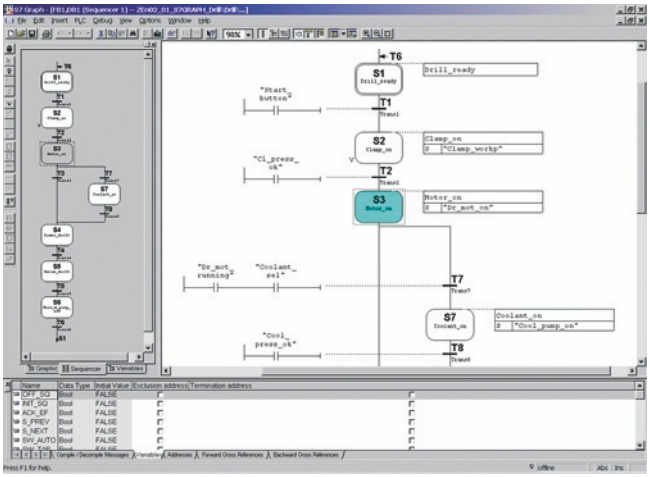
Ordering data

	Article No.
SIMATIC S7-SCL, Version 5.6 Task: High-level language programming Target system: SIMATIC S7-300 (CPU 314 or higher), SIMATIC S7-400, SIMATIC C7 Requirement: STEP 7 V5.6 or higher; Windows 7 SP1, Windows 10 Professional/ Enterprise, Windows Server 2008 R2 SP1, Windows Server 2012 R2, Windows Server 2016 Type of delivery: on CD; German, English, French, Spanish, Italian; incl. authorization diskette, with electronic documentation	
Floating license	**6ES7811-1CC06-0YA5**
Software Update Service (requires current software version)[1]	**6ES7811-1CA01-0YX2**
Upgrade floating to V5.6	**6ES7811-1CC06-0YE5**
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

[1] For more information on the software update service, see Catalog ST 70.

11

Overview



- For configuring and programming sequential processes using sequencers
- Standardized representation to EN 1131-3
- Clearly comprehensible program thanks to structuring of the process into separate steps
- With extensive diagnostic functions, integrated in the SIMATIC diagnostic concept
- With PLCopen Base Level certificate
- For use in SIMATIC S7-300 (recommended for CPU 315 and CPU 312C or higher), S7-400 C7 and WinAC

Licensing

- S7 GRAPH is an integral part of the STEP 7 Professional software package or is available as a stand-alone software product.
- S7-Graph V5.6 is delivered with a floating license. The floating license allows installation of the software on any number of computers. This means one user per license can use the software independently of the computer used or from a specific workstation. The number of existing licenses determines the number of computers on which the software can be used simultaneously.
- An upgrade to version 5.6 is offered for users of the previous version 5.3.
- A separate update service can be purchased for S7-GRAPH.
- A trial license valid for 21 days is available for download from Industry Online Support:
  https://support.industry.siemens.com/cs/document/109748125

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

Engineering Tool	**S7-GRAPH**
Current version	V5.3
Software class	A
Application areas	**Application areas**
Can be used for	Graphical programming of sequential controllers and sequencers
Marketing message	Fast, elegant way to program sequential processes easily and transparently!
Advantages	• Can be used to optimum effect even during the design phase • Less configuration effort thanks to graphical structuring and programming • Quick and easy familiarization • Precise fault localization thanks to integrated diagnostics in combination with ProAgent for ProTool/Pro and WinCC • Less time required for engineering compared to LAD/FBD/STL: approx. 40 to 70%
Sectors	• Automotive industry (e.g. body-in-white, final assembly) • Electrical equipment manufacture • Rubber and plastics machines • Pick-and-place machines • Woodworking machines • Metalworking machines • Paper and printing machinery • Testing machines • Rolling mills • Coilers • Leisure and entertainment facilities
Target systems	**Target systems**
Can be used in	S7-300 (CPU 314 or higher and CPU 312C or higher recommended) S7-400 C7 (C7-626 or higher recommended) WinAC
System prerequisites	**System prerequisites**
Operating system	Windows XP Professional Windows 7 Professional Windows 7 Ultimate
Required hard drive memory in the PG/PC	50 MB
Required software	STEP 7 V5.4 with SP4 or SP5 or STEP 7 V5.5 with or without SP1
Properties	**Properties**
Monitoring tags	Yes
Controlling tags	Yes
Single-step processing	Yes
Integration in CFC	-
Program runtimes	**Program runtimes**
with S7-300 (typical)	3 ms per block + 1 ms per active step
with S7-400 (typical)	0.4 ms per block + 0.06 ms per active step

11

Technical specifications (continued)

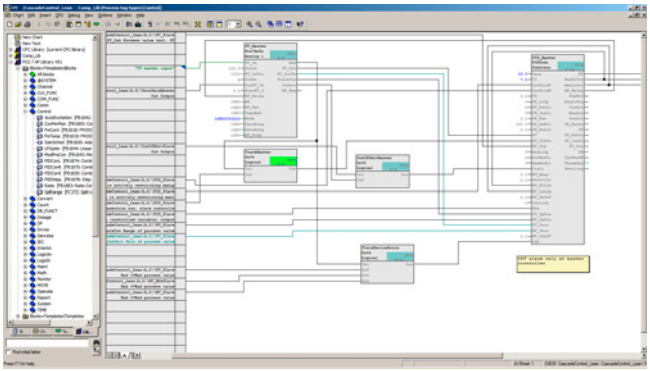
Diagnostics	Diagnostics
Integration of diagnostic data in ProAgent	Yes
Integration of diagnostic data in ProTool/Pro	Via ProAgent
Integration of diagnostic data in WinCC	Via ProAgent
Supported standards	**Supported standards**
IEC 61131-3	PLCopen certification • Base Level SFC available
Status of PLCopen activities	-
Available versions/licenses	**Available versions/licenses**
Floating license	CD-ROM with • Tool • Electronic manual • Getting Started guide • Examples License key on USB stick Certificate of License Product information
Upgrade (floating license)	CD-ROM with • Tool • Electronic manual • Getting Started guide • Examples License key on USB stick Certificate of License Product information
Software Update Service (SUS)	
Also a component part of	**Also a component part of**
STEP 7 Professional	Yes
S7 Trainer Package	Yes
PCS 7	-
D7-SYS	-

Ordering data

	Article No.
SIMATIC S7-GRAPH, Version 5.6 Task: Configuring and programming of sequences Target system: SIMATIC S7-300, SIMATIC S7-400, SIMATIC C7 Requirement: STEP 7 V5.6; Windows 7 SP1, Windows 10 Professional/ Enterprise, Windows Server 2008 R2 SP1, Windows Server 2012 R2, Windows Server 2016 Type of delivery: on CD; German, English, French, Spanish, Italian; including license key on USB flash drive, with electronic documentation	
Floating license	**6ES7811-0CC07-0YA5**
Software Update Service (requires current software version)[1]	**6ES7811-0CA01-0YX2**
Floating license upgrade to V5.6	**6ES7811-0CC07-0YE5**
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

[1] For more information on the software update service, see Catalog ST 70.

Overview



- For the generation of automation programs by drawing a technology chart
- With extensive libraries of ready-made software blocks to which user-created blocks can be added
- Minimized outlay and reduced error susceptibility due to the interconnection of ready-made blocks
- Optimized integration in the world of automation, for example, through guaranteed compatibility with all STEP 7 tools
- Can be used for SIMATIC S7-300 (recommended for CPU 316 or CPU 314C or higher), SIMATIC S7-400, SIMATIC WinAC and D7-SYS

Licensing

- SIMATIC CFC V9.0 is supplied with a floating license. The floating license allows installation of the software on any number of computers. This means one user per license can use the software independently of the computer used or from a specific workstation. The number of existing licenses determines the number of computers on which the software can be used simultaneously.
- An upgrade to version 9.0 is available for users of the previous 8.x versions.
- For SIMATIC CFC, the Software Update Service is available with the Standard, Compact and Download types of delivery.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

EngineringTool	**CFC**
Current version	V9.0
Software class	A
Application areas	
Can be used for	Graphical creation, interconnection and parameterization of (preconfigured) blocks and functions
Marketing message	Simply interconnect and configure instead of programming!
Advantages	• Can be used to optimum effect even during the design phase • Reduced configuration effort thanks to graphical interconnection • High degree of reusability of diagrams that have already been created • Quick and easy familiarization • Quick and transparent interconnection of ready-made functions • Technological creation of the program as a whole • Clear representation of control loop structures • Short commissioning time • High plant availability • Less time required for engineering compared to LAD/FBD/STL: up to 50%
Sectors	• Automotive industry (e.g. thermostats, tire production processes) • Chemicals • Power engineering and supply • Rubber and plastics machines • Metalworking machines • Food and beverage machines • Petrochemicals • Rolling mills • Water industry • Coilers
Target systems	
Can be used in	S7-300 S7-400 F/H systems WinAC
System prerequisites	
Operating system	MS Windows 7 Professional with SP1 (64-bit) MS Windows 7 Ultimate with SP1 (64-bit) MS Windows 7 Enterprise with SP1 (64-bit) MS Windows 10 Pro (64-bit) MS Windows 10 Enterprise 2015 LTSB (64-bit) MS Windows Server 2008 R2 Standard Edition with SP1 (64-bit) MS Windows Server 2012 R2 Update Standard Edition (64-bit)
Required hard drive memory in the PG/PC	approx. 80 MB
Required software	STEP 7 V5.6 or higher

Technical specifications (continued)

Properties	
Monitoring tags	Yes
Controlling tags	Yes
Single-step processing	-
Integration in CFC	Yes
Program runtimes	
with S7-300 (typical)	Depending on the interconnected blocks
with S7-400 (typical)	Depending on the interconnected blocks
Diagnostics	
Integration of diagnostic data in ProAgent	-
Integration of diagnostic data in ProTool/Pro	-
Integration of diagnostic data in WinCC	-
Supported standards	
IEC 61131-3	based on the IEC standard
Status of PLCopen activities	-
Available versions/licenses	
Floating license	• 1 CD • 1 license key memory stick • 1 Certificate of License
Upgrade (floating license)	• 1 CD • 1 license key memory stick • 1 Certificate of License
Software Update Service (SUS)	
Also a component part of	
STEP 7 Professional	-
S7 Trainer Package	-
PCS 7	Yes
D7-SYS	Yes

Ordering data

	Article No.
SIMATIC CFC, Version 9.0 Task: Graphic configuring and programming of automation applications in the form of technology-oriented diagrams Target system: SIMATIC S7-300/400, SIMATIC WinAC, D7-SYS Requirements: STEP 7 V5.6 or higher Type of delivery: Engineering software and electronic documentation on CD-ROM, license key on USB flash drive, Certificate of License	
Floating license	**6ES7658-1EX58-0YA5**
Floating license upgrade from V8.x to V9.0	**6ES7658-1EX58-0YE5**
Software Update Service (requires current software version)[1]	**6ES7658-1EX00-2YL8**
Software Update Service for multiple orders (requires current software version); the delivery items are combined. For multiple contracts, only 1 package (1 data medium set and the corresponding number of licenses) will be supplied. Can be ordered with 5 or more contracts[1] The delivery items to be combined must be ordered as one item.	**6ES7658-1EX00-2YM8**
Software Update Service (requires current software version)[1] Email address required for delivery	**6ES7658-1EX00-2YV8**
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

[1] For more information on the software update service, see Catalog ST 70.

11

Overview

- For creating safety-related automation applications with SIMATIC S7 in LAD or FBD (STEP 7 required)
- Implementation of safety functions by simply connecting function blocks
- With prefabricated block library
- Custom block creation possible
- Optimal embedding in the automation world thanks to total integration in the STEP 7 tools
- Scope of delivery:
  - Distributed Safety Editor
  - Code generator
  - Debugger
  - Standard block libraries

Licensing

- SIMATIC S7 Distributed Safety is delivered with a floating license. The floating license allows installation of the software on any number of computers. This means one user per license can use the software independently of the computer used or from a specific workstation. The number of existing licenses determines the number of computers on which the software can be used simultaneously.
- An upgrade to version 5.4 is offered for users of the previous versions 5.x.
- A trial license valid for 14 days is available for download from Industry Online Support:
  https://support.industry.siemens.com/cs/document/109749360

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

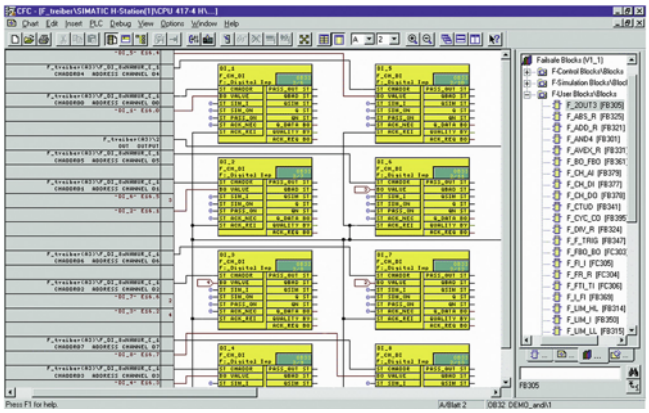
http://www.siemens.com/simatic-licenses

Ordering data

	Article No.
S7 Distributed Safety V5.4 SP5 update 2 programming tool Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit) Windows 10 Professional/Enterprise (64-bit) Windows Server 2008 R2 SP1 (64-bit) Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit) STEP 7 from V5.5 SP1 Please also consider the operating systems that have been released for the STEP 7 version used	
Floating license for 1 user, software and documentation on DVD, license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user, software, documentation and license key for download[1] Email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade	
From V5.x to V5.4; floating license for 1 user, software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**

[1] For up-to-date information and download availability, see:
http://www.siemens.com/tia-online-software-delivery

Overview



The S7 F Systems engineering tool integrated in the SIMATIC Manager can be used to configure an S7 F/FH System.

With this tool you can:

- Parameterize CPU and F-signal modules
- Create safety-related applications in the CFC.

Predefined, TÜV-approved blocks are available for this purpose. The safety-related blocks save the user having to perform redundant programming for detecting and reacting to errors.

Licensing

- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- During runtime, each CPU requires its own runtime license.
- An upgrade to version 6.2 is available for users of the previous 6.0/6.1 versions.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

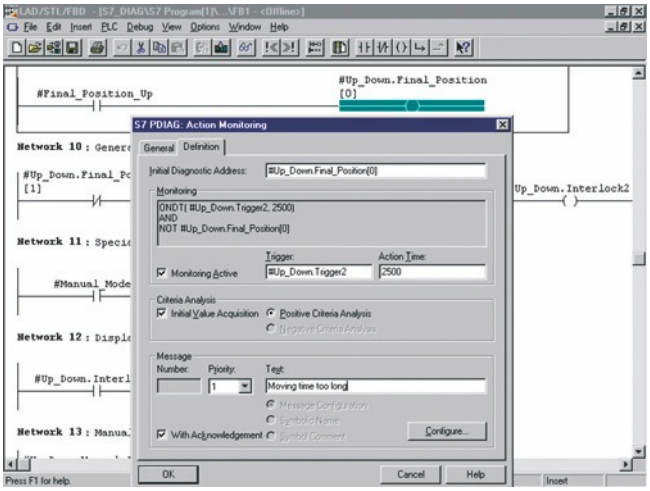
http://www.siemens.com/simatic-licenses

Ordering data

	Article No.
S7 F Systems RT license For processing safety-related application programs, for one AS 412F/FH, AS 414F/FH or AS 417F/FH	**6ES7833-1CC00-6YX0**
S7 F Systems V6.2 Programming and configuration environment for creating and using safety-related STEP 7 programs. 2 languages (English, German), software class A, runs on the engineering station under Windows 7 SP1 64-bit (Professional, Enterprise, Ultimate) or Windows Server 2008 R2 SP1 Standard 64-bit; on operator station additionally under Windows 7 SP1 32-bit (Enterprise, Ultimate), Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit, Floating license for 1 user No SIMATIC PCS 7 Software Media Package	
Type of delivery: Goods delivery License key on USB flash drive and Certificate of License, bundled with 1 × SIMATIC S7 F Systems Software Media Package per order item	**6ES7833-1CC26-0YA5**
Type of delivery: Online delivery License key download and online Certificate of License, combined with SIMATIC S7 F Systems Software Media Package (software download and online Certificate of License) Note: email address required	**6ES7833-1CC26-0YH5**

	Article No.
SIMATIC S7 F Systems V6.2 Upgrade Package For S7 F Systems upgrade from V6.0/V6.1 to V6.2 2 languages (English, German), software class A, runs on the engineering station under Windows 7 SP1 64-bit (Professional, Enterprise, Ultimate) or Windows Server 2008 R2 SP1 Standard 64-bit; on operator station additionally under Windows 7 SP1 32-bit (Enterprise, Ultimate), Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit, Floating license for 1 user No SIMATIC PCS 7 Software Media Package	
Type of delivery: Goods delivery License key on USB flash drive and Certificate of License, bundled with 1 × SIMATIC S7 F Systems Software Media Package per order item	**6ES7833-1CC26-0YE5**
Type of delivery: Online delivery License key download and online Certificate of License, combined with SIMATIC S7 F Systems Software Media Package (software download and online Certificate of License) Note: email address required	**6ES7833-1CC26-0YK5**

Overview



- For configuration of process diagnostics with SIMATIC S7
- Increases the availability of machines and production plants and supports with fault analysis and elimination on site
- For use on the SIMATIC S7-300, S7-400

Licensing

- S7-PDIAG V5.6 is delivered with a floating license. The floating license allows installation of the software on any number of computers. This means one user per license can use the software independently of the computer used or from a specific workstation. The number of existing licenses determines the number of computers on which the software can be used simultaneously.
- An upgrade to version 5.6 is offered for users of the previous version 5.3.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

Engineering Tool	S7-PDIAG
Type of license	Floating license
Software class	A
Current version	V5.6
Target system (recommended)	SIMATIC S7-300 (CPU 314 or higher) SIMATIC S7-400
Operating system	Windows Server R2 SP1, Windows Server 2012 R2, Windows Server 2016, Windows 7 SP1, Windows 10 Professional, Windows 10 Enterprise
Required software packages	STEP 7 V5.6 or higher
Disk space required in PG/PC	26 MB

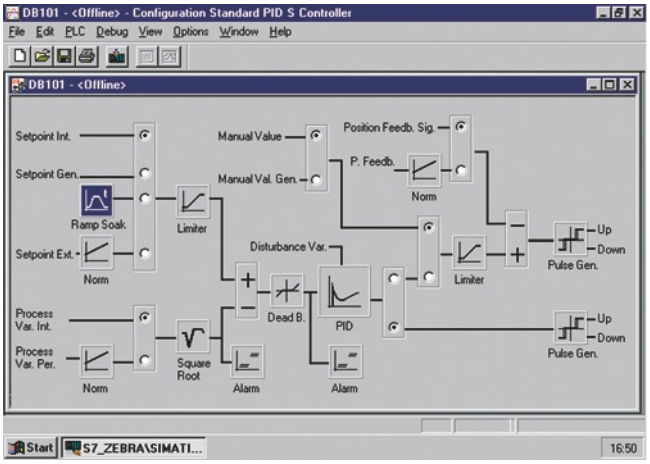
Ordering data

	Article No.
S7-PDIAG, Version 5.6 Task: Configuring of process diagnostics for LAD/FBD/STL Target system: SIMATIC S7-300 (CPU 314 and higher); SIMATIC S7-400 Requirement: STEP 7 V5.6 or higher, Windows Server R2 SP1, Windows Server 2012 R2, Windows Server 2016, Windows 7 SP1, Windows 10 Professional, Windows 10 Enterprise Type of delivery: on CD; German, English, French, Spanish, Italian; incl. authorization diskette, with electronic documentation	
Floating license	**6ES7840-0CC05-0YA5**
Software Update Service (requires current software version)[1]	**6ES7840-0CA01-0YX2**
Upgrade to V5.6	**6ES7840-0CC05-0YE5**
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

[1] For more information on the software update service, see Catalog ST 70.

11

Overview



- For integrating continuous PID controllers, pulse controllers and step controllers in the application program
- Reduces engineering costs thanks to time-saving parameterization and optimization of the controller
- For use in SIMATIC S7-300 (CPU 313 or higher), S7-400 and WinAC

Licensing

- The Standard PID Control consists of a parameterization tool (engineering software) and function blocks (runtime software).
- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- Function blocks may be copied as often as required onto any programming devices/PCs. However, one license is always required per CPU on which they are used.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

Parameterization software	**Standard PID Control**					
Type of license	Single license					
Software class	A					
Current version	V5.2 SP4					
Target system	SIMATIC S7-300 (CPU 313 or higher) SIMATIC S7-400 SIMATIC C7					
Required software packages	STEP 7 V5.6 or higher					
Main memory configuration in PG/PC	16 MB					
Disk space required in PG/PC	1.85 MB					
Standard function blocks	**PID_CP (FB 1)**		**PID_ES (FB 2)**		**LP_SCHED (FC 1)**	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	8956 bytes	7796 bytes	9104 bytes	7982 bytes	1064 bytes	976 bytes
• DB length in the memory	1168 bytes	510 bytes	1124 bytes	484 bytes	184 bytes[2]	100 bytes[2]
Runtimes						
• In S7-300[1]	0.18 - 4.4 ms		0.2 - 5.1 ms		0.03 - 0.3 ms	
• In S7-400[1]	0.13 - 0.35 ms		0.16 - 0.35 ms		0.03 - 0.08 ms	
Required libraries	Standard PID Control FBs					
Licensing forms	Simple license and 1 runtime license; 1 runtime license					
Software class	A					
Current version	V5.2 SP3					
Target system	SIMATIC S7-300 (CPU 313 or higher) SIMATIC S7-400 SIMATIC C7					
Required software packages	STEP 7 V5.6 or higher					
Main memory configuration in PG/PC	16 MB					
Disk space required in PG/PC	1.85 MB					

[1] Depending on the CPU

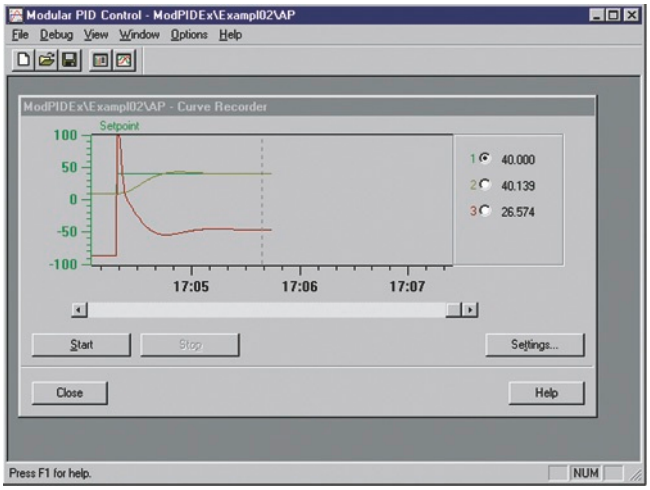
[2] With 5 control loops

Ordering data

	Article No.
Standard PID Control parameterization tool, V5.2 Task: Parameter assignment tool for standard controllers Requirement: STEP 7 V5.6 or higher Type of delivery: With electronic manual/ Getting Started English, German; incl. authorization diskette	
Floating license	**6ES7830-2AA22-0YX0**
Standard function blocks for Standard PID Control, V5.2 Task: Standard FBs for standard controllers Target system: SIMATIC S7-300 (CPU 313 or higher), S7-400 Type of delivery: With electronic manual/ Getting Started English, German	
Single license	**6ES7860-2AA21-0YX0**
Single license without software and documentation	**6ES7860-2AA21-0YX1**

	Article No.
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Overview



- For creating complex closed-loop control structures
- Preferred for implementation in closed-loop control equipment in mid-range and high-end applications and in process engineering
- For use in SIMATIC S7-300 (CPU 313 or higher), S7-400 and WinAC

Licensing

- The Modular PID Control consists of a parameterization tool (engineering software) and function blocks (runtime software).
- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).
- Function blocks may be copied as often as required onto any programming devices/PCs. However, one license is always required per CPU on which they are used.

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

Parameterization software	**Modular PID Control**
Type of license	Single license
Software class	A
Current version	V5.1 SP4
Target system	SIMATIC S7-300 (CPU 313 or higher) SIMATIC S7-400 SIMATIC C7

Required software packages	STEP 7 V5.6 or higher
Main memory configuration in PG/PC	16 MB
Disk space required in PG/PC	1.85 MB
Processor, at least	486
Windows swap area, approx.	20 MB (max. possible)

Standard function blocks	**A_DEAD_B**		**CRP_IN**		**CPR_OUT**	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	898 bytes	692 bytes	182 bytes	70 bytes	206 bytes	96 bytes
• DB length in the memory	186 bytes	44 bytes	122 bytes	20 bytes	114 bytes	14 bytes
Runtimes in S7-300	0.13 to 0.17 ms		0.06 ms		0.18 to 0.22 ms	
Runtimes in S7-400	0.01 to 0.03 ms		0.01 to 0.02 m		0.01 to 0.04 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

Standard function blocks	**DEAD_T**		**DEAD_BAND**		**DIF**	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	532 bytes	394 bytes	232 bytes	120 bytes	410 bytes	268 bytes
• DB length in the memory	142 bytes	22 bytes	114 bytes	16 bytes	158 bytes	30 bytes
Runtimes in S7-300	0.26 to 0.33 ms		0.16 to 0.21 ms		0.55 to 0.71 ms	
Runtimes in S7-400	0.02 to 0.06 m		0.01 to 0.03 ms		0.03 to 0.09 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

Technical specifications (continued)

Standard function blocks	**ERR_MON**		**INTEG**		**LAG1ST**	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	558 bytes	360 bytes	488 bytes	314 bytes	534 bytes	368 bytes
• DB length in the memory	206 bytes	52 bytes	168 bytes	36 bytes	156 bytes	30 bytes
Runtimes in S7-300	0.27 to 0.35 ms		0.40 to 0.51 ms		0.52 to 0.67 ms	
Runtimes in S7-400	0.01 to 0.05 ms		0.02 to 0.07 ms		0.03 to 0.09 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

Standard function blocks	**LAG2ND**		**LIMALARM**		**LIMITER**	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	690 bytes	516 bytes	390 bytes	240 bytes	262 bytes	140 bytes
• DB length in the memory	190 bytes	46 bytes	152 bytes	28 bytes	124 bytes	20 bytes
Runtimes in S7-300	0.88 to 1.14 ms		0.47 to 0.61 ms		0.14 to 0.17 ms	
Runtimes in S7-400	0.04 to 0.16 ms		0.02 to 0.07 ms		0.03 to 0.01 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

Standard function blocks	**LMNGEN_C**		**LMNGEN_S**		**NONLIN**	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	1576 bytes	1280 bytes	2578 bytes	2152 bytes	826 bytes	672 bytes
• DB length in the memory	276 bytes	80 bytes	360 bytes	110 bytes	138 bytes	18 bytes
Runtimes in S7-300	0.32 to 0.41 ms		1.16 to 1.47 ms		0.32 to 0.41 ms	
Runtimes in S7-400	0.02 to 0.06 ms		0.06 to 0.18 ms		0.02 to 0.07 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

Standard function blocks	**NORM**		**OVERRIDE**		**PARA_CTL**	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	234 bytes	122 bytes	362 bytes	214 bytes	406 bytes	232 bytes
• DB length in the memory	130 bytes	24 bytes	146 bytes	28 bytes	234 bytes	82 bytes
Runtimes in S7-300	0.33 to 0.43 ms		0.15 to 0.18 ms		0.12 to 0.15 ms	
Runtimes in S7-400	0.02 to 0.07 ms		0.01 to 0.04 ms		0.01 to 0.03 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

Standard function blocks	**PID**		**PULSEGEN**		**RMP_SOAK**	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	1560 bytes	1242 bytes	1110 bytes	872 bytes	1706 bytes	1500 bytes
• DB length in the memory	340 bytes	98 bytes	190 bytes	34 bytes	212 bytes	62 bytes
Runtimes in S7-300	1.15 to 1.46 ms		0.17 to 0.20 ms		0.16 to 0.20 ms	
Runtimes in S7-400	0.06 to 0.18 ms		0.01 to 0.05 ms		0.01 to 0.04 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

Technical specifications (continued)

Standard function blocks	ROC_LIM		SCALE		SP_GEN	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	1242 bytes	980 bytes	136 bytes	32 bytes	658 bytes	484 bytes
• DB length in the memory	222 bytes	50 bytes	114 bytes	16 bytes	164 bytes	40 bytes
Runtimes in S7-300	0.53 to 0.68 ms		0.10 to 0.13 ms		0.27 to 0.35 ms	
Runtimes in S7-400	0.02 to 0.09 ms		0.01 to 0.02 ms		0.02 to 0.06 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

Standard function blocks	SPLT_RAN		SWITCH		LP_SCHED	
Storage space requirements	Load memory	Work memory	Load memory	Work memory	Load memory	Work memory
• FB length in the memory	304 bytes	180 bytes	238 bytes	116 bytes	1104 bytes	972 bytes[1)]
• DB length in the memory	138 bytes	28 bytes	118 bytes	18 bytes	234 bytes	64 bytes[1)]
Runtimes in S7-300	0.09 to 0.11 ms		0.07 to 0.09 ms		0.28 to 0.34 ms	
Runtimes in S7-400	0.01 to 0.02 ms		0.01 to 0.03 ms		0.03 to 0.08 ms	
Target system	SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC		SIMATIC S7-300 (CPU 313 and higher), S7-400, WinAC	

[1)] With 5 control loops

Standard FBs in general	
Required libraries	Modular PID Control FBs
Licensing forms	Simple license and 1 runtime license; 1 runtime license
Software class	A
Current version	V5.1 SP3
Required software packages	STEP 7 V5.6 or higher
Main memory configuration in PG/PC	16 MB
Disk space required in PG/PC	1.85 MB

Ordering data

	Article No.
Modular PID Control commissioning tool, V5.1 for SIMATIC S7 and WinAC Task: Commissioning tool for modular PID controllers Requirement: STEP 7 V5.6 or higher Type of delivery: With electronic manual, English, German; incl. authorization diskette	
Floating license	**6ES7830-1AA11-0YX0**
Standard function blocks for Modular PID Control, V5.1 Task: Standard FBs for modular PID controllers Target system: SIMATIC S7-300 (CPU 313 or higher), S7-400, WinAC Type of delivery: English, German; with electronic manual	
Single license	**6ES7860-1AA10-0YX0**
Single license, without software and documentation	**6ES7860-1AA10-0YX1**

	Article No.
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Overview

- Option package for creating motion control applications for CPU 31xT and CPU 317TF
- Optimal embedding in the automation world thanks to total integration in the STEP 7 tools
- Programming in the standard SIMATIC programming languages LAD, FBD and STL
- Additional Engineering Tools such as S7-SCL or S7-GRAPH can be used

Licensing

- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Ordering data

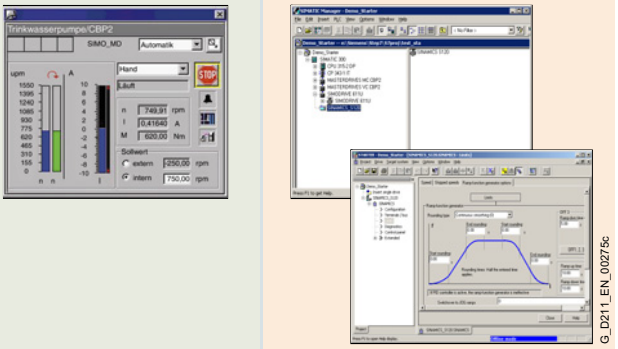
	Article No.
S7 Technology V4.2	
Task: Option package for configuring and programming technology tasks with SIMATIC S7 CPU 31xT and SIMATIC S7 CPU 317TF Requirement: STEP 7 V5.6 and higher Type of delivery: on DVD Incl. documentation for CPU 31xT, CPU 317TF (included on DVD)	
Floating license	**6ES7864-1CC42-0YA5**
Floating license for 1 user, license key download without software or documentation[1]; email address required for delivery	**6ES7864-1CC42-0XH5**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Drive ES engineering software

Overview

SIMATIC Programs	Configuration / Commissioning
Drive ES PCS 7	Drive ES Basic Maintenance



Drive ES is the engineering system used to integrate the communication, configuration and data management functions of Siemens drive technology into the SIMATIC automation world easily, efficiently and cost-effectively.

The following software packages are available for selection:

- Drive ES Basic Maintenance
- Drive ES PCS 7

Drive ES (**D**rive **E**ngineering **S**oftware) fully integrates drives from Siemens into the world of Totally Integrated Automation.

Ordering data

	Article No.
Drive ES Basic Maintenance V5.6	
Configuration software for the integration of drives into TIA (Totally Integrated Automation)	
Requirement: STEP 7 V5.4 SP4 or higher	
Type of delivery: on DVD-ROM	
Languages: de, en, fr, it, es	
with electronic documentation	
• Floating license, 1 user	**6SW1700-5JA00-6AA0**
Drive ES PCS 7 V8.0 SPx *)	
Block library for PCS 7 for the integration of drives in Classic Style (as predecessor)	
Requirement: PCS 7 V8.0 and higher	
Type of delivery: CD-ROM Languages: de, en, fr, it, es with electronic documentation	
• Single-user license incl. 1 runtime license	**6SW1700-8JD00-0AA0**
• Runtime license (without data carrier)	**6SW1700-5JD00-1AC0**
• Update service for single-user license	**6SW1700-0JD00-0AB2**
• Upgrade from V6.x to V8.0 SPx *)	**6SW1700-8JD00-0AA4**
Drive ES PCS 7 APL V8.0 SPx *)	
Block library for PCS 7 for the integration of drives in APL Style (Advanced Process Library)	
Requirement: PCS 7 V8.0 and higher	
Type of delivery: CD-ROM Languages: de, en, fr, it, es with electronic documentation	
• Single-user license incl. 1 runtime license	**6SW1700-8JD01-0AA0**
• Runtime license (without data carrier)	**6SW1700-5JD00-1AC0**
• Update service for single-user license	**6SW1700-0JD01-0AB2**
• Upgrade of APL V8.0 to V8.0 SP1 or Drive ES PCS 7 V6.x, V7.x, V8.x classic to Drive ES PCS 7 APL V8.0 SPx *)	**6SW1700-8JD01-0AA4**

	Article No.
Drive ES PCS 7 V8.1 SPx *)	
Block library for PCS 7 for the integration of drives in Classic Style (as predecessor)	
Requirement: PCS 7 V8.1 and higher	
Type of delivery: CD-ROM Languages: de, en, fr, it, es with electronic documentation	
• Single-user license incl. 1 runtime license	**6SW1700-8JD00-1AA0**
• Runtime license (without data carrier)	**6SW1700-5JD00-1AC0**
• Update service for single-user license	**6SW1700-0JD00-0AB2**
• Upgrade from V6.x/V7.x/V8.x to V8.1 SPx *)	**6SW1700-8JD00-1AA4**
Drive ES PCS 7 APL V8.1 SPx *)	
Block library for PCS 7 for the integration of drives in APL Style (Advanced Process Library)	
Requirement: PCS 7 V8.1 and higher	
Type of delivery: CD-ROM Languages: de, en, fr, it, es with electronic documentation	
• Single-user license incl. 1 runtime license	**6SW1700-8JD01-1AA0**
• Runtime license (without data carrier)	**6SW1700-5JD00-1AC0**
• Update service for single-user license	**6SW1700-0JD01-0AB2**
• Upgrade of APL V8.x to V8.1 SPx *) or Drive ES PCS 7 V6.x, V7.x, V8.x classic to Drive ES PCS 7 APL V8.1 SPx *)	**6SW1700-8JD01-1AA4**
Drive ES PCS 7 V8.2 SPx *)	
Block library for PCS 7 for the integration of drives in Classic Style (as predecessor)	
Requirement: PCS 7 V8.2 and higher	
Type of delivery: CD-ROM Languages: de, en, fr, it, es with electronic documentation	
• Single-user license incl. 1 runtime license	**6SW1700-8JD00-2AA0**
• Runtime license (without data carrier)	**6SW1700-5JD00-1AC0**
• Update service for single-user license	**6SW1700-0JD00-0AB2**
• Upgrade from V6.x/V7.x/V8.x to V8.2 SPx *)	**6SW1700-8JD00-2AA4**

*) Orders are automatically supplied with the latest Service Pack (SP).

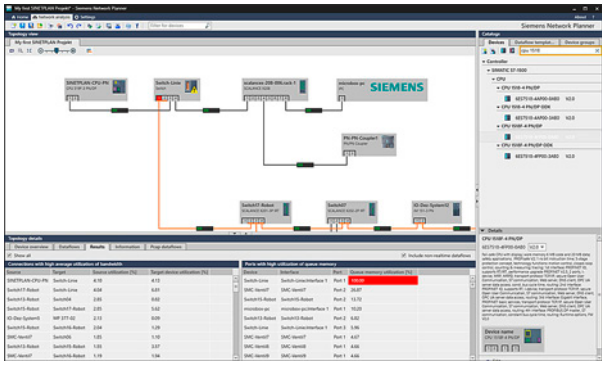
Ordering data

	Article No.
Drive ES PCS 7 APL V8.2 SPx *)	
Block library for PCS 7 for the integration of drives in APL Style (Advanced Process Library)	
Requirement: PCS 7 V8.2 and higher	
Type of delivery: CD-ROM Languages: de, en, fr, it, es with electronic documentation	
• Single-user license incl. 1 runtime license	**6SW1700-8JD01-2AA0**
• Runtime license (without data carrier)	**6SW1700-5JD00-1AC0**
• Update service for single-user license	**6SW1700-0JD01-0AB2**
• Upgrade of APL V8.x to V8.2 SPx *) or Drive ES PCS 7 V6.x, V7.x, V8.x classic to Drive ES PCS 7 APL V8.2 SPx *)	**6SW1700-8JD01-2AA4**
Drive ES PCS 7 V9.0 SPx *)	
Block library for PCS 7 for the integration of drives in Classic Style (as predecessor)	
Requirement: PCS 7 V9.0 or higher	
Type of delivery: CD-ROM Languages: de, en, fr, it, es with electronic documentation	
• Single-user license incl. 1 runtime license	**6SW1700-1JD00-0AA0**
• Runtime license (without data carrier)	**6SW1700-5JD00-1AC0**
• Update service for single-user license	**6SW1700-0JD00-0AB2**
• Upgrade from V6.x/V7.x/V8.x to V9.0 SPx *)	**6SW1700-1JD00-0AA4**

	Article No.
Drive ES PCS 7 APL V9.0 SPx *)	
Block library for PCS 7 for the integration of drives in APL Style (Advanced Process Library)	
Requirement: PCS 7 V9.0 or higher	
Type of delivery: CD-ROM Languages: de, en, fr, it, es with electronic documentation	
• Single-user license incl. 1 runtime license	**6SW1700-1JD01-0AA0**
• Runtime license (without data carrier)	**6SW1700-5JD00-1AC0**
• Update service for single-user license	**6SW1700-0JD01-0AB2**
• Upgrade of APL V8.x to V9.0 SPx *) or Drive ES PCS 7 V6.x, V7.x, V8.x classic to Drive ES PCS 7 APL V9.0 SPx *)	**6SW1700-1JD01-0AA4**

*) Orders are automatically supplied with the latest Service Pack (SP).

Overview



SINETPLAN topology view

The SINETPLAN Siemens Network Planner

- supports planners of automation systems based on PROFINET and
- facilitates the professional and proactive simulation of a plant / system network.

Licenses

- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

SINETPLAN V1.0 SP1 can be used on the following operating systems (64-bit each):

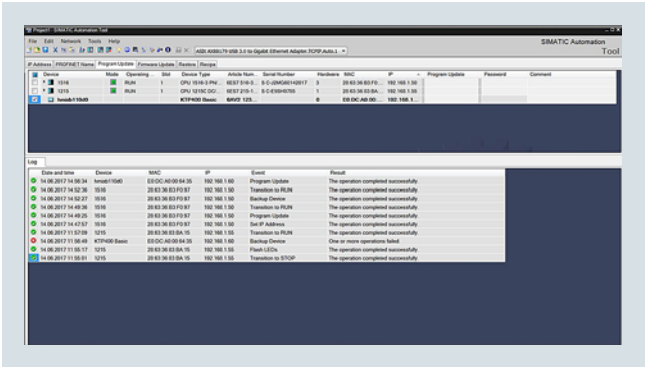
- Microsoft Windows 7 Professional SP1
- Microsoft Windows 7 Enterprise SP1
- Microsoft Windows 7 Ultimate SP1
- Microsoft Windows 10 Home Version 1607 (OS Build 14393)
- Microsoft Windows 10 Pro Version 1607 (OS Build 14393)
- Microsoft Windows 10 Enterprise Version 1607 (OS Build 14393)
- Microsoft Windows 10 IoT Enterprise 2015 LTSB (OS Build 10240)

Ordering data

	Article No.
SINETPLAN Siemens Network Planner V1.0 SP1	
Software for simulating PROFINET networks; 2 languages de/en, executable under Windows 7 and Windows 10 (64-bit)	
• Floating license; software and documentation on DVD, license key on USB flash drive	**6ES7853-0AA00-0YA5**
• Floating license; software download incl. license key[1]; Email address required for the delivery	**6ES7853-0AE00-0YA5**

[1] For up-to-date information and download availability, see: https://support.industry.siemens.com/cs/ww/en/view/109748671

Overview



- To support commissioning and service activities independent of the engineering framework
- For configuration, operation, maintenance and documentation of automation networks
- Rapid overview of the status of the SIMATIC automation system
- Time savings thanks to parallel operations
- Optimum upgrade support for the devices used and their versions through the display of article numbers, firmware versions and HW versions
- Simple traceability of performed operations and resulting changes in the system through the optional, automatic storage of event log entries in a file
- Automated processes for ideal API-based workflows

Supported products:

- SIMATIC ET 200
  - ET 200AL IM
  - ET 200AL SM and IO-Link
  - ET 200ecoo
  - ET 200M IM
  - ET 200MP IM
  - ET 200S IM
  - ET 200pro IM
  - ET 200pro IO-Link and RFID
  - ET 200SP CPU
  - ET 200SP IM and server modules
  - ET 200SP SM, ASi, CM, CP, TM, IO-Link, motor starters
- SIMATIC S7-1200
  - S7-1200 CPU
  - S7-1200 SM and CM
- SIMATIC S7-1500
  - S7-1500 CPU
  - S7-1500 SM and other modules
- SIMATIC HMI
  - HMI Basic 2nd Generation
  - HMI Comfort
  - HMI Mobile
- SITOP power supplies
- RFID and MOBY

Licenses

- The engineering software can be installed on multiple computers. The number of existing licenses determines the number of computers on which the software can be used simultaneously (floating license).

You can find more information on the Software Update Service, license types, online software delivery and handling your SW licenses with the Automation License Manager here:

http://www.siemens.com/simatic-licenses

Technical specifications

SIMATIC Automation Tool V3.0 can be used on the following operating systems (64-bit only):

- Windows 7 Home Premium SP1
- Windows 7 Professional SP1
- Windows 7 Enterprise SP1
- Windows 7 Ultimate SP1
- Windows 10 Home
- Windows 10 Pro
- Windows 10 Enterprise
- Windows 10 IoT Enterprise

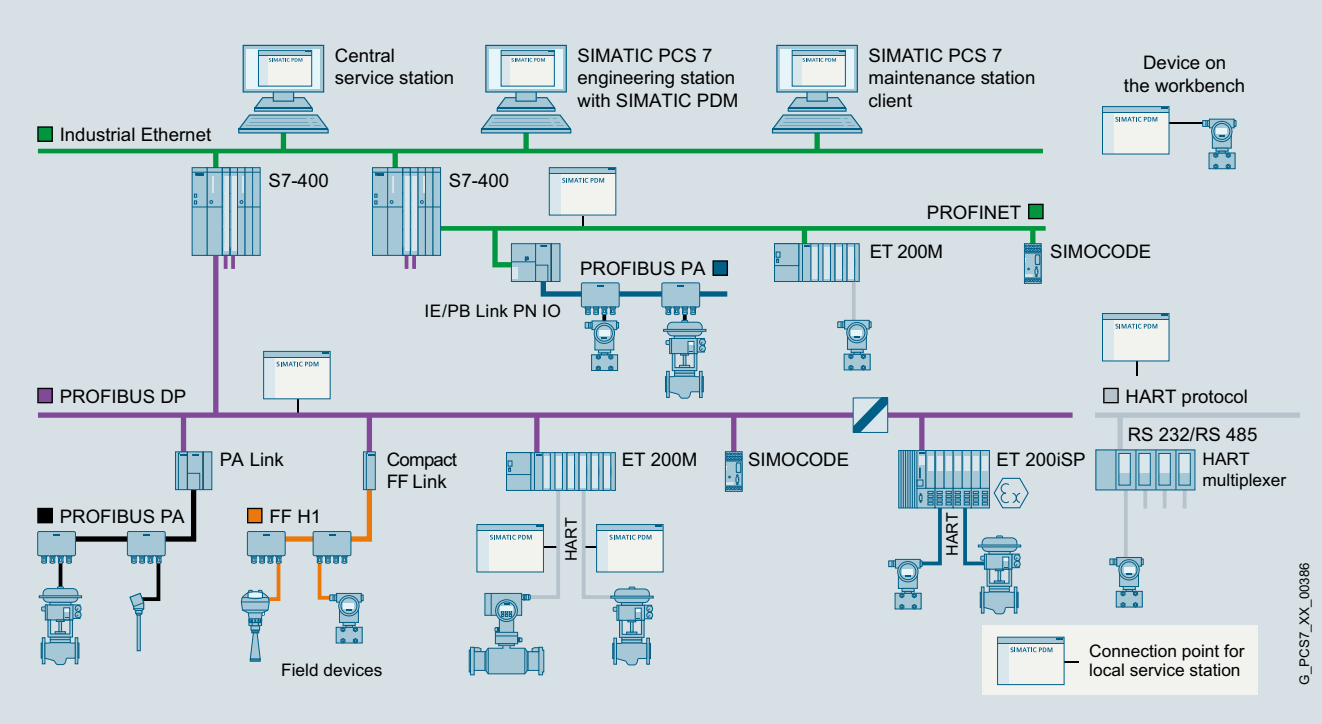
Ordering data

	Article No.
SIMATIC Automation Tool V3.0 Commissioning and service software for machines and plants; 5 languages: en, de, fr, es, it; runs under Windows 7 and Windows 10 (64-bit) Floating license; software download incl. license key[1]; Email address required for delivery	**6ES7853-1AE03-0YA5**

[1] For up-to-date information and download availability, see: https://support.industry.siemens.com/cs/ww/en/view/98161300

SIMATIC PDM

Overview



Configuration options with SIMATIC PDM

SIMATIC PDM (Process Device Manager) is a universal, vendor-independent tool for the configuration, parameter assignment, commissioning, diagnostics and servicing of intelligent field devices (sensors and actuators) and field components (remote I/Os, multiplexers, control-room devices, compact controllers), which in the following sections will be referred to simply as devices.

With *one* software product, SIMATIC PDM enables users to work with over 3 500 devices and device variants of Siemens and over 200 other manufacturers worldwide on a *single* homogeneous user interface.

The user interface satisfies the requirements of the VDI/VDE GMA 2187 and IEC 65/349/CD directives. Parameters and functions for all supported devices are displayed in a consistent and uniform fashion independent of their communications interface. Even complex devices with several hundred parameters can be represented clearly and processed quickly. Using SIMATIC PDM it is very easy to navigate in highly complex stations such as remote I/Os and even connected field devices.

From the viewpoint of device integration, SIMATIC PDM is the most powerful open process device manager on the global market. Devices not previously supported can be integrated in SIMATIC PDM by importing their device description packages (either EDD or FDI). This provides security for your investment and saves you investment costs, training expenses and follow-up costs.

SIMATIC PDM supports the operative system management in particular through:

- Uniform presentation and operation of devices
- Uniform representation of diagnostics information
- Indicators for preventive maintenance and servicing
- Detection of changes in the project and device
- Increasing the operational reliability
- Reducing the investment, operating and maintenance costs
- Quantity options for
  - Transfer of parameters between devices
  - Transfer of parameter sets to the devices
  - Export and import functions
  - Diagnostics update

SIMATIC PDM can be used extremely flexibly and tailored to a specific task for field device service:

- Single-point station for point-to-point connection to field devices
- Local service and parameter assignment station with connection to fieldbus segments
- Central service and parameter assignment station with connection to plant bus
- Central HART service and parameter assignment station for HART multiplexers and WirelessHART field devices
- Integrated into the stand-alone SIMATIC PDM Maintenance Station
- Integrated into the SIMATIC PCS 7 process control system

Maintenance personnel can assign field device parameters at mobile and stationary workstations with SIMATIC PDM. Practically every workstation integrated in the production plant can be used for configuration. Service personnel are thus able to work directly at the location of the field device, while data is stored centrally in the engineering station or maintenance station. This leads to a significant shortening of maintenance and travel times. Additional device-independent system functions support higher-level maintenance stations for creating progress lists for work and servicing.

Overview (continued)

When a maintenance station is configured in the SIMATIC PCS 7 process control system, SIMATIC PDM is integrated into it and transmits parameter data, diagnostic information and processing information. You can switch directly to the SIMATIC PDM views from the diagnostics faceplates in the maintenance station to perform diagnostics and work on the device in more detail.

A SIMATIC PDM user administration system based on SIMATIC Logon is used to assign various roles with defined function privileges to users. These function privileges refer to SIMATIC PDM system functions, e.g. writing to the device.

For all devices integrated with device description packages, SIMATIC PDM provides a range of information for display and further processing on the maintenance station, for example:

- Device type information (electronic rating plate)
- Detailed diagnostics information (manufacturer information, information on error diagnostics and troubleshooting, further documentation)
- Results of internal condition monitoring functions
- Status information (for example local configuration changes), device test completed
- Information on changes (audit trail report)
- Parameter information

Technical specifications

SIMATIC PDM V9.1	
Hardware	• PG/PC/notebook with processor corresponding to operating system requirements
Operating system (alternatives)	• Windows 7 Professional/Ultimate/ Enterprise SP1, 32-bit/64-bit • Windows 10 Enterprise 2015 LTSB 64-bit • Windows Server 2012 R2 SP1 Standard Edition, 64-bit

SIMATIC PDM V9.1	
Integration in STEP 7/PCS 7	• SIMATIC PCS 7 V8.0+SP2/V8.1/V8.2 (without Communication FOUNDATION Fieldbus) • SIMATIC PCS 7 V9.0 • STEP 7 V5.5+SP4/V5.6
SIMATIC PDM Client	• Microsoft Internet Explorer 10 or 11 • Google Chrome

Ordering data

	Article No.
SIMATIC PDM **Stand alone product packages**	
Minimum configuration	
SIMATIC PDM Single Point V9.1 including 1 TAG; product package for operation and configuration of one field device; communication via PROFIBUS DP/PA, HART (modem, RS 232, PROFIBUS/PROFINET), Modbus, Ethernet or PROFINET	
Additional functions or SIMATIC PDM TAGs are not possible	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user	
Without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license, bundled with 1 × SIMATIC PDM Software Media Package per order item	**6ES7658-3HA68-0YA5**
• Online delivery License key download and online certificate of license combined with SIMATIC PDM Software Media Package (SIMATIC PDM and device library software download) Note: Email address required!	**6ES7658-3HA68-0YH5**

	Article No.
Basic configuration **for individual product package as well as local service and parameter assignment stations**	
SIMATIC PDM Basic V9.1 including 4 TAGs; product package for operation and configuration of field devices and components; communication via PROFIBUS DP/PA, HART (modem, RS 232, PROFIBUS/PROFINET), Modbus, Ethernet or PROFINET	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user	
Without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license, bundled with 1 × SIMATIC PDM Software Media Package per order item	**6ES7658-3AB68-0YA5**
• Online delivery License key download and online certificate of license combined with SIMATIC PDM Software Media Package (SIMATIC PDM and device library software download) Note: Email address required!	**6ES7658-3AB68-0YH5**

SIMATIC PDM

Ordering data	Article No.
Configuration for local service and parameter assignment station	
SIMATIC PDM Service V9.1 Product package for service and measuring circuit tests on a local service station, with • SIMATIC PDM Basic incl. 4 TAGs • 50 TAGs 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user Without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license, bundled with 1 × SIMATIC PDM Software Media Package per order item	**6ES7658-3JD68-0YA5**
• Online delivery License key download and online certificate of license combined with SIMATIC PDM Software Media Package (SIMATIC PDM and device library software download) Note: Email address required!	**6ES7658-3JD68-0YH5**
Configuration for central service and parameter assignment station	
SIMATIC PDM stand-alone server V9.1 Product package for service and device management in plant units, with - SIMATIC PDM Basic incl. 4 TAGs - SIMATIC PDM Extended - SIMATIC PDM Server - 2 × SIMATIC PDM 1 Client - 100 TAGs 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), single license for 1 installation Without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license, bundled with 1 × SIMATIC PDM Software Media Package per order item	**6ES7658-3TX68-0YA5**
• Online delivery License key download and online certificate of license combined with SIMATIC PDM Software Media Package (SIMATIC PDM and device library software download) Note: Email address required!	**6ES7658-3TX68-0YH5**

	Article No.
SIMATIC PDM system-integrated product packages	
Configuration for local SIMATIC S7 engineering and service station	
SIMATIC PDM S7 V9.1 Product package for use in a SIMATIC S7 configuration environment, with - SIMATIC PDM Basic incl. 4 TAGs - SIMATIC PDM Extended - SIMATIC PDM Integration in STEP 7/PCS 7 - 100 TAGs 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user Without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license, bundled with 1 × SIMATIC PDM Software Media Package per order item	**6ES7658-3KD68-0YA5**
• Online delivery License key download and online certificate of license combined with SIMATIC PDM Software Media Package (SIMATIC PDM and device library software download) Note: Email address required!	**6ES7658-3KD68-0YH5**
Configuration for central SIMATIC PCS 7 engineering and service stations	
SIMATIC PDM PCS 7 V9.1 Product package for use in a SIMATIC PCS 7 configuration environment 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information) Floating license for 1 user, with - SIMATIC PDM Basic incl. 4 TAGs - SIMATIC PDM Extended - SIMATIC PDM Integration in STEP 7/PCS 7 - SIMATIC PDM Routing - 100 TAGs Without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license, bundled with 1 × SIMATIC PDM Software Media Package per order item	**6ES7658-3LD68-0YA5**
• Online delivery License key download and online certificate of license combined with SIMATIC PDM Software Media Package (SIMATIC PDM and device library software download) Note: Email address required!	**6ES7658-3LD68-0YH5**

Ordering data	Article No.
SIMATIC PDM PCS 7-FF V9.1 Product package for use in a SIMATIC PCS 7 configuration environment, including FOUNDATION Fieldbus H1 communication	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information)	
Floating license for 1 user, with - SIMATIC PDM Basic incl. 4 TAGs - SIMATIC PDM Extended - SIMATIC PDM Integration in STEP 7/PCS 7 - SIMATIC PDM Routing - SIMATIC PDM Communication FOUNDATION Fieldbus - 100 TAGs	
Without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license, bundled with 1 × SIMATIC PDM Software Media Package per order item	**6ES7658-3MD68-0YA5**
• Online delivery License key download and online certificate of license combined with SIMATIC PDM Software Media Package (SIMATIC PDM and device library software download) Note: Email address required!	**6ES7658-3MD68-0YH5**
SIMATIC PDM PCS 7 Server V9.1 Product package for use in a SIMATIC PCS 7 configuration environment, including server functionality	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information)	
Single license for 1 installation, with - SIMATIC PDM Basic incl. 4 TAGs - SIMATIC PDM Extended - SIMATIC PDM Integration in STEP 7/PCS 7 - SIMATIC PDM Routing - SIMATIC PDM Server - 100 TAGs	
Without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license, bundled with 1 × SIMATIC PDM Software Media Package per order item	**6ES7658-3TD68-0YA5**
• Online delivery License key download and online certificate of license combined with SIMATIC PDM Software Media Package (SIMATIC PDM and device library software download) Note: Email address required!	**6ES7658-3TD68-0YH5**

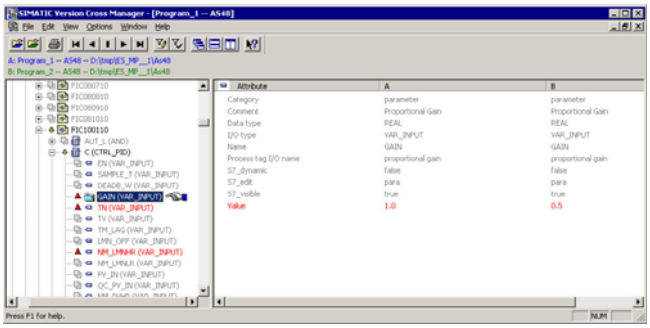
Optional product components for SIMATIC PDM	Article No.
SIMATIC PDM Extended V9.1 For enabling additional system functions	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user	
Without SIMATIC PCS 7/SIMATIC PDM Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license	**6ES7658-3NX68-2YB5**
• Online delivery (without SIMATIC PCS 7/SIMATIC PDM Software Media Package) License key download and online certificate of license Note: Email address required!	**6ES7658-3NX68-2YH5**
SIMATIC PDM Integration in STEP 7/SIMATIC PCS 7 V9.1 For integration in a SIMATIC S7/SIMATIC PCS 7 configuration environment	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user	
Without SIMATIC PCS 7/SIMATIC PDM Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license	**6ES7658-3BX68-2YB5**
• Online delivery License key download and online certificate of license Note: Email address required!	**6ES7658-3BX68-2YH5**
SIMATIC PDM Routing V9.1 For plant-wide navigation to field devices	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user	
Without SIMATIC PCS 7/SIMATIC PDM Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license	**6ES7658-3CX68-2YB5**
• Online delivery License key download, online certificate of license Note: Email address required!	**6ES7658-3CX68-2YH5**

SIMATIC PDM

Ordering data	Article No.
SIMATIC PDM Server V9.1 For activating the server functionality	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), single license for 1 installation	
Without SIMATIC PCS 7/SIMATIC PDM Software Media Package	
• Goods delivery License key on USB flash drive, certificate of license	**6ES7658-3TX68-2YB5**
• Online delivery License key download and online certificate of license Note: Email address required!	**6ES7658-3TX68-2YH5**
SIMATIC PDM Communication FOUNDATION Fieldbus V9.1 For communication with field devices on FOUNDATION Fieldbus H1	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user	
Without SIMATIC PCS 7/SIMATIC PDM Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license	**6ES7658-3QX68-2YB5**
• Online delivery License key download and online certificate of license Note: Email address required!	**6ES7658-3QX68-2YH5**
SIMATIC PDM HART Server V9.1 For using HART multiplexers as well as for configuration of wireless HART field devices	
6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information), floating license for 1 user	
Without SIMATIC PCS 7/SIMATIC PDM Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license	**6ES7658-3EX68-2YB5**
• Online delivery License key download and online certificate of license Note: Email address required!	**6ES7658-3EX68-2YH5**

	Article No.
SIMATIC PDM 1 Client Cumulative client license for SIMATIC PDM configurations with SIMATIC PDM Server, software class A, single license for 1 installation	
• Goods delivery License key on USB flash drive and certificate of license	**6ES7658-3UA00-2YB5**
• Online delivery License key download and online certificate of license Note: Email address required!	**6ES7658-3UA00-2YH5**
SIMATIC PDM TAGs TAG licenses for expanding the available TAG volume, cumulative, software class A, floating license for 1 user	
• Goods delivery License key on USB flash drive and certificate of license	
- 10 TAGs	**6ES7658-3XC00-2YB5**
- 100 TAGs	**6ES7658-3XD00-2YB5**
- 1 000 TAGs	**6ES7658-3XE00-2YB5**
• Online delivery License key download and online certificate of license Note: Email address required!	
- 10 TAGs	**6ES7658-3XC00-2YH5**
- 100 TAGs	**6ES7658-3XD00-2YH5**
- 1 000 TAGs	**6ES7658-3XE00-2YH5**
SIMATIC PDM Software Media Package	
SIMATIC PDM Software Media Package V9.1 Installation software without license, 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, runs with Windows 7 Ultimate 64-bit, Windows 10 Enterprise 2015 LTSB 64-bit or Windows Server 2012 R2 Standard 64-bit (see SIMATIC PDM V9.1 Readme for latest information)	
Without SIMATIC PCS 7 Software Media Package	
Note: Can only be used in conjunction with a valid license or in demo mode!	
• Goods delivery SIMATIC PDM and device library software on DVD	**6ES7658-3GX68-0YT8**
• Online delivery SIMATIC PDM and device library software download Note: Email address required!	**6ES7658-3GX68-0YG8**

Overview



The SIMATIC Version Cross Manager is a user-friendly tool for determining the differences between various versions of individual projects or multi-projects by:

- Tracing missing, additional or differing objects by comparing hardware configuration, communication, plant hierarchy, CFC/SFC plans, SFC details, block types, messages, global tags, signals and run sequences
- Graphic display of comparison results in a combination of tree and tabular formats
- Clear hierarchical structuring according to the technological hierarchy of the plant
- Color-coded identification of the differences

Note:

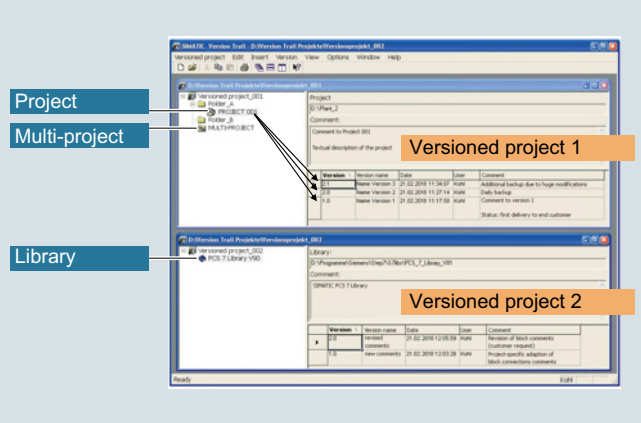
As the function "Control module adjustment" is based on a basic functionality of the Version Cross Manager (VXM), you need a VXM license to use this function. In the absence of a license, a message appears telling you to install Version Cross Manager. This is not actually necessary, all you need to install is a valid VXM license that will enable the relevant functionality on the engineering station.

Ordering data

	Article No.
SIMATIC Version Cross Manager V9.0 6 languages (English, German, French, Italian, Spanish, Chinese), software class A Runs with the following operating systems (see VXM Readme in the Siemens Industry Online Support for latest information) • Windows 7 Ultimate 64-bit • Windows 10 Enterprise 2015 LTSB 64-bit • Windows Server 2012 R2 Standard Edition 64-bit • Windows Server 2016 Standard Edition 64-bit Floating license for 1 user, without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive and certificate of license and TIA Engineering Toolset CD	**6ES7658-1CX58-2YA5**
• Online delivery License key download, online certificate of license and TIA Engineering Toolset (software download) Note: Email address required!	**6ES7658-1CX58-2YH5**
Upgrade package (only for TIA applications)	
SIMATIC Version Cross Manager upgrade from V7.1/V8.2 to V9.0 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, for operating systems see above Floating license for 1 user, without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive, certificate of license and TIA Engineering Toolset CD	**6ES7658-1CX58-2YE5**
• Online delivery License key download, online certificate of license and TIA Engineering Toolset (software download) Note: Email address required!	**6ES7658-1CX58-2YK5**

Version Trail

Overview



SIMATIC Version Trail is a software option for engineering which, together with the SIMATIC Logon central user administration, can assign a version history to libraries, projects and multi-projects.

Ordering data

	Article No.
SIMATIC Version Trail V9.0 6 languages (English, German, French, Italian, Spanish, Chinese), software class A Runs with the following operating systems (see VT Readme in the Siemens Industry Online Support for latest information) • Windows 7 Ultimate 64-bit • Windows 10 Enterprise 2015 LTSB 64-bit • Windows Server 2012 R2 Standard Edition 64-bit • Windows Server 2016 Standard Edition 64-bit Floating license for 1 user, without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive, certificate of license and TIA Engineering Toolset CD	**6ES7658-1FX58-2YA5**
• Online delivery License key download, online certificate of license and TIA Engineering Toolset (software download) Note: Email address required!	**6ES7658-1FX58-2YH5**
Upgrade package (only for TIA applications)	
SIMATIC Version Trail upgrade from V8.x to V9.0 6 languages (English, German, French, Italian, Spanish, Chinese), software class A, for operating systems see above Floating license for 1 user, without SIMATIC PCS 7 Software Media Package	
• Goods delivery License key on USB flash drive, certificate of license	**6ES7658-1FX58-2YE5**
• Online delivery License key download, online certificate of license and TIA Engineering Toolset (software download) Note: Email address required!	**6ES7658-1FX58-2YK5**

11

Brochures

For brochures serving as selection guides for SIMATIC products, refer to

www.siemens.com/simatic/printmaterial

Field PG M5

Overview

- The mobile, industry-standard programming device for automation engineers with a powerful, sixth-generation Intel® Core™ i processor (Skylake) and high-speed RAM (DDR4 RAM)
- Elegant, robust enclosure made of light-weight stable injection-molded magnesium with rubber-protected corners and retractable carry-handle
- Can optimally be used both for engineering in the office and for the commissioning, service or maintenance of automation systems
- Industrial notebook with all commonly used interfaces for industrial applications
- Can be used immediately thanks to pre-installed SIMATIC engineering software

Technical specifications

Article number	**6ES7717-.....-0...** SIMATIC FIELD PG M5
General information	
Design of the programming device	Notebook
Display	
Design of display	15.6" full HD display in 16:9 format
Resolution (pixels)	
• Horizontal image resolution	1 920 Pixel
• Vertical image resolution	1 080 Pixel
General features	
• Non-reflecting	Yes
• Luminance	300 cd/m²
Backlighting	
• Type of backlighting	LED
Control elements	
Keyboard fonts	
• Design	QWERTZ/QWERTY or AZERTY (French); 87 keys
Touch operation	
• Integrated touch pad	Yes; Clickpad
Supply voltage	
Design of the power supply	External wide-range power supply; 3-pole
permissible range, lower limit (AC)	100 V; ±10 %, sinusoidal
permissible range, upper limit (AC)	240 V; ±10 %, sinusoidal
Line frequency	
• permissible range, lower limit	47 Hz
• permissible range, upper limit	63 Hz
Processor	
Processor type	Intel Core i5-6440EQ (2.7 GHz to 3.4 GHz, 4 cores, 6 MB Smart Cache) or i7-6820EQ (2.8 GHz to 3.5 GHz, 4 cores, 8 MB Smart Cache)
Chipset	Mobile Intel QM170
Hyper-threading	Yes; for Intel Core i7 processor
Turbo Boost Technology 2.0	Yes

Article number	**6ES7717-.....-0...** SIMATIC FIELD PG M5
Graphic	
Graphics controller	Intel® HD graphics 530
Drives	
DVD-RW	Yes
Hard disk	Yes; Easy to replace
• Memory capacity	1 Tbyte; HDD
SSD	Yes; Easy to replace
• Memory capacity	512 Gbyte; up to 1 TB SSD
TPM Security Chip	Yes; 2.0 (version for China without TPM)
Memory	
Type of memory	DDR4-SDRAM SO-DIMM
Work memory	
• Number of slots	2; Can be equipped with 1x 8 GB, 1x 16 GB or 2x 16 GB
Accumulator	
Replaceable	Yes; Lithium-ion battery
Capacity	8.8 A·h
Hardware configuration	
Slots	
• Number of ExpressCard slots	1; Type 34
Interfaces	
PROFIBUS/MPI	1x PROFIBUS DP / MPI; 9-pin Sub-D socket; 9.6 kBaud to 12 MBaud
Number of RS 232 interfaces	1; 25-pin socket
Number of USB interfaces	4; USB 3.0
• Type A	3; 1x USB port incl. integrated charging function for USB devices (e.g. smartphone) – also with device switched off
• Type C	1
Number of chip-card readers	1; Smart Card Reader (ISO/IEC 7816)
Bluetooth radio standard	Yes; V4.0
Multimedia card/SD card slot	2 in 1 (SDHC UHS-II, MMC)
Card reader for SIMATIC memory cards	SIMATIC memory cards (for S7-300/400), SMC (for S7-1x00), SIMATIC micro memory card (for S7-300/C7/ET 200) - including programming interfaces
Universal Audio Jack	Yes; Audio socket for 3.5 mm jack

Technical specifications (continued)

Article number	**6ES7717-.....-0...**
	SIMATIC FIELD PG M5
Video interfaces	
• analog video signal (VGA)	Yes; via adapter from DVI to VGA
• DVI-I	Yes; 1x
• DisplayPort	Yes; 1x
Industrial Ethernet	
• Industrial Ethernet interface	2 x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes; Gigabit Ethernet; 2x RJ45 with 2 independent MAC/IP addresses
• Wake on LAN	Yes; Via Port 1
• IAMT (Intel Active Management Technology)	Yes
WLAN	
• Type	802.11ac
Integrated Functions	
Monitoring functions	
• Status LEDs	Battery status, device status, access to HDD/DVD, access to SD/MMC, MPI/DP, S5 and S7 modules / Card Reader (except Smart Card Reader), Num Lock, Caps Lock, WLAN active
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity acc. to IEC 61000-4-2	Yes; ±4 kV contact discharge (to IEC 801-2/IEC 1000-4-2; ESD), ±8 kV air discharge (to IEC 801-2/IEC 1000-4-2; ESD)
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)
• Interference immunity on signal cables	±1 kV (according to IEC 61000-4-4, burst, length < 30 m); ±2 kV (according to IEC 61000-4-4, burst, length > 30 m); ±2 kV (according to IEC 61000-4-5, surge sym./line to ground, length > 30 m)
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
DIN/ISO 9001	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	5 °C; Max. 10 °C/h (no condensation)
• max.	40 °C; Max. 10 °C/h (no condensation)
Ambient temperature during storage/transportation	
• min.	-20 °C; Max. 20 °C/h (no condensation)
• max.	60 °C; Max. 20 °C/h (no condensation)

Article number	**6ES7717-.....-0...**
	SIMATIC FIELD PG M5
Relative humidity	
• Operation, min.	5 %; At 30 °C/h (no condensation); Tested according to IEC 60068-2-78, IEC 60068-2-30, IEC 60068-2-14
• Operation, max.	85 %; At 30 °C/h (no condensation); Tested according to IEC 60068-2-78, IEC 60068-2-30, IEC 60068-2-14
Vibrations	
• Operation, tested according to IEC 60068-2-6	Yes
Shock testing	
• tested according to IEC 60068-2-27	Yes
Operating systems	
Additional info on operating system	Multi-Language User Interface (MUI): 6 languages (English, German, French, Spanish, Italian, Chinese)
pre-installed operating system	
• Windows 7	Yes; Ultimate 64 bit, SP1
Software	
Preinstalled	
• STEP 7 Professional 2010	Yes; Software version: SR4
• STEP 7 Professional (TIA Portal)	Yes; Software version: V14
• WinCC flexible Advanced 2008	Yes; Software version: SP3
• WinCC Advanced (TIA Portal)	Yes; Software version: V14
Mechanics/material	
Material of housing	metal
Handle	Yes; retractable
Socket for Kensington lock	Yes
rubber corner guards	Yes
Dimensions	
Width	385 mm
Height	53 mm
Depth	275 mm
Weights	
Weight, approx.	3.4 kg; incl. rechargeable battery
Scope of supply	
Accumulator	Yes
Power supply	Yes
Backpack	Yes
SIMATIC Software	Yes
Recovery media	Yes; Restore & Recovery
Other	
free hotline	Yes
Warranty period	24 mo; except for: rechargeable battery (6 months)
Note:	Made in Germany: development and production in Germany

Field PG M5

Ordering data

	Article No.
Field PG M5 Comfort programming device	**6ES7717- 0 ■ ■ 0 ■ -0 ■ ■ 4**
Intel i5-6440EQ processor, 6 MB cache, 2.7 to 3.4 GHz, 15.6" display, full HD (1920x1080), multistandard DVD+-R/+-RW drive, Intel HD graphics, WLAN 802.11ac, Bluetooth v4.0; without SIMATIC S5 interface, without SIMATIC S5-EPROMMER	
RAM	
• 1 x 8 GB DDR4 SDRAM SO-DIMM	A
• 1 x 16 GB DDR4 SDRAM SO-DIMM	B
• 2 x 16 GB DDR4 SDRAM SO-DIMM	C
Hard disk	
• 1 TB HDD SATA	A
• 512 GB SSD SATA	B
• 1 TB SSD SATA	C
Keyboard and power cable (essential)	
• Keyboard: QWERTY (& German); power supply cable: Germany, France, the Netherlands, Spain, Belgium, Austria, Sweden, Finland	0
• Keyboard: AZERTY (France); power supply cable: Germany, France, the Netherlands, Spain, Belgium, Austria, Sweden, Finland	1
• Keyboard: QWERTY (& German); power supply cable: Italy	2
• Keyboard: QWERTY (& German); power supply cable: Switzerland	3
• Keyboard: QWERTY (& German); power supply cable: USA	4
• Keyboard: QWERTY (& German); power supply cable: United Kingdom	5
• Keyboard: QWERTY (& German); power supply cable: China; approval for China (CCC)	6
• Keyboard: QWERTY (& German); without power supply cable	7
Operating system	
• Windows 7 Ultimate SP1, 64-bit	A
• Windows 10 Enterprise, 64-bit	B
SIMATIC Software licenses	
• Trial license: STEP 7 Prof. Combo (STEP 7 Prof. V15 and STEP 7 Prof. 2017), WinCC Adv. Combo (WinCC V15 and WinCC flexible 2008)	A
• License: STEP 7 Prof. V15, WinCC Adv. V15	B
• License: STEP 7 Prof. Combo (STEP 7 Prof. V15 and STEP 7 Prof. 2017), WinCC Adv. Combo (WinCC V15 and WinCC flexible 2008)	C

	Article No.
Field PG M5 Advanced programming device	**6ES7717- 1 ■ ■ ■ ■ -0 ■ ■ 4**
Intel i7-6820EQ processor, 8 MB cache, 2.8 to 3.5 GHz, 15.6" display, full HD (1920x1080), multistandard DVD+-R/+-RW drive, Intel HD graphics, WLAN 802.11ac, Bluetooth v4.0	
RAM	
• 1 x 8 GB DDR4 SDRAM SO-DIMM	A
• 1 x 16 GB DDR4 SDRAM SO-DIMM	B
• 2 x 16 GB DDR4 SDRAM SO-DIMM	C
Hard disk	
• 1 TB HDD SATA	A
• 512 GB SSD SATA	B
• 1 TB SSD SATA	C
SIMATIC S5 interface	
• Without S5 interface, without S5 EPROMMER	0
• With S5 interface, with S5 EPROMMER; incl. STEP 5 license, S5 PLC cable and EPROM adapter	1
Keyboard and power cable (essential)	
• Keyboard: QWERTY (& German); power supply cable: Germany, France, the Netherlands, Spain, Belgium, Austria, Sweden, Finland	0
• Keyboard: AZERTY (France); power supply cable: Germany, France, the Netherlands, Spain, Belgium, Austria, Sweden, Finland	1
• Keyboard: QWERTY (& German); power supply cable: Italy	2
• Keyboard: QWERTY (& German); power supply cable: Switzerland	3
• Keyboard: QWERTY (& German); power supply cable: USA	4
• Keyboard: QWERTY (& German); power supply cable: United Kingdom	5
• Keyboard: QWERTY (& German); power supply cable: China; approval for China (CCC)	6
• Keyboard: QWERTY (& German); without power supply cable	7
Operating system	
• Windows 7 Ultimate SP1, 64-bit	A
• Windows 10 Enterprise, 64-bit	B
SIMATIC Software licenses	
• Trial license: STEP 7 Prof. Combo (STEP 7 Prof. V15 and STEP 7 Prof. 2017), WinCC Adv. Combo (WinCC V15 and WinCC flexible 2008)	A
• License: STEP 7 Prof. V15, WinCC Adv. V15	B
• License: STEP 7 Prof. Combo (STEP 7 Prof. V15 and STEP 7 Prof. 2017), WinCC Adv. Combo (WinCC V15 and WinCC flexible 2008)	C

Ordering data

	Article No.
Accessories	
Memory expansion	
8 GB RAM	**6ES7648-2AK70-0PA0**
16 GB RAM	**6ES7648-2AK80-0PA0**
AC/DC external power supply unit For Field PG M5 only; spare part, included in the scope of supply of the Field PG M5	**6ES7798-0GA04-0XA0**
Power cord (length 3 m) For Field PG M2/M4/M5 only	
For Germany, France, the Netherlands, Spain, Belgium, Austria, Sweden, Finland	**6ES7900-5AA00-0XA0**
For Great Britain	**6ES7900-5BA00-0XA0**
For Switzerland	**6ES7900-5CA00-0XA0**
For the USA	**6ES7900-5DA00-0XA0**
For Italy	**6ES7900-5EA00-0XA0**
For China	**6ES7900-5FA00-0XA0**
Spare battery (lithium ion, 8.8 Ah)[1] For Field PG M5 only; spare part, included in the scope of supply of the Field PG M5	**6ES7798-0AA08-0XA0**
MPI cable For connecting a PG and SIMATIC S7 via MPI; 5 m	**6ES7901-0BF00-0AA0**
S5 EPROM programming adapter For SIMATIC S5 EPROM programming using the Field PG	**6ES7798-0CA00-0XA0**
S5 connection cable For connecting programming devices to SIMATIC S5 PLCs, 5 m	**6ES5734-2BF00**
Replaceable hard disk kit Replaceable hard disk 1 TB serial ATA; with protective pocket and torx screwdriver; for Field PG M4/M5	**6ES7791-2BA02-0AA0**

	Article No.
Replaceable SSD kit	
Replaceable SSD 512 GB serial ATA; with protective pocket and torx screwdriver; for Field PG M5	**6ES7791-2BA22-0AA0**
Replaceable SSD 1 TB serial ATA; with protective pocket and torx screwdriver; for Field PG M5	**6ES7791-2BA23-0AA0**
Adapter serial ATA to USB 3.0 For using the removable hard disk in the hard disk kit as an external hard disk (only for Field PG M4/M5)	**6ES7790-1AA01-0AA0**
Rucksack for Field PG M4/M5	**6ES7798-0DA02-0XA0**
SIMATIC IPC Image & Partition Creator V3.5 Software tool for very easy preventive data backup and efficient partition management on SIMATIC IPCs	**6ES7648-6AA03-5YA0**
Software Update Service (Standard Edition)[2] The delivery is implemented according to the number of ordered SUS products (e.g. 10 upgrade packages with 10 DVDs, 10 USB flash drives, etc.)	
• STEP 7 Professional V1x	**6ES7822-1AA00-0YL5**
• STEP 7 Professional Combo (STEP 7 Prof. V1x (TIA Portal) and STEP 7 Prof.)	**6ES7810-5CC04-0YE2**
• SIMATIC WinCC Advanced	**6AV6613-0AA00-0AL0**
Software Update Service (Download)[2] The upgrades and service packs are available for downloading. Email address required for delivery	
• STEP 7 Professional V1x	**6ES7822-1AE00-0YY0**
• STEP 7 Professional Combo (STEP 7 Prof. V1x (TIA Portal) and STEP 7 Prof.)	**6ES7810-5CC04-0YY2**
• SIMATIC WinCC Advanced	**6AV6613-0AA00-0AY0**

[1] The capacity of the battery decreases for technological reasons with each charging/discharging cycle and also as the result of being stored at excessively high or low temperatures. The running time per charge decreases therefore over the course of time. With normal use, the battery can be charged and discharged over a period of six months from when the Field PG is purchased. Loss of capacity is not covered by the warranty. For the battery's operation we grant a warranty of six months. We recommend replacing the battery with an original Siemens battery at the end of these six months if there is a significant drop in performance.

[2] For more information on the Software Update Service, see Catalog ST 70.

Notes

Brochures

For brochures serving as selection guides for SIMATIC products, refer to

www.siemens.com/simatic/printmaterial

Overview

A range of accessories is available for SIDOOR elevator door drive systems with geared motors:

This is necessary to ensure low-noise operation of the door by the controller. The geared motors can be optimally integrated into the respective door drive system.

Rubber-metal anti-vibration mounts for geared motors

To ensure low-noise door operation, SIDOOR geared motors are integrated in the door system using rubber-metal anti-vibration mounts.

- Rubber-metal anti-vibration mount 6FB1104-0AT02-0AD0 for geared motors with a door weight of less than 300 kg
- Rubber-metal anti-vibration mount 6FB1104-0AT01-0AD0 for geared motors with a door weight of 300 kg or more

Rubber-metal anti-vibration mount 6FB1104-0AT02-0AD0

Rubber-metal anti-vibration mount 6FB1104-0AT01-0AD0

Mounting brackets

Two different mounting brackets are available with elongated holes:

- Mounting bracket 6FB1104-0AT01-0AS0 for the geared motors for flexible accommodation of the rubber-bonded metal
- Mounting bracket 6FB1104-0AT02-0AS0 for the deflector unit for setting the toothed belt to the required belt tension

Mounting bracket 6FB1104-0AT01-0AS0 for mounting the geared motor

Mounting bracket 6FB1104-0AT02-0AS0 for the deflector unit

Door clutch holder

The door clutch holder serves to connect the respective door leaf by means of a toothed belt while also functioning as a toothed-belt lock. One door clutch holder per door leaf is required. The toothed-belt lock can accommodate both open ends of the toothed belt.

A door clutch holder is available for each toothed belt width:

- Width 12 mm: 6FB1104-0AT01-0CP0
- Width 14 mm: 6FB1104-0AT02-0CP0

Door clutch holder 6FB1104-0AT01-0CP0 (packaging size = 1 unit)

Deflector unit

The deflector unit 6FB1104-0AT03-0AS0 contains an embedded belt pulley which can be mounted on the door system.

The STS toothed belt is redirected via this deflector unit.

Deflector unit 6FB1104-0AT03-0AS0

Overview (continued)

STS toothed belt

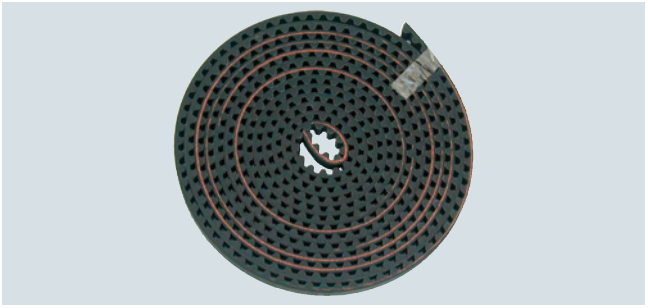
The door system is moved between the end positions of the door using the STS toothed belts. Two different toothed belt lengths can be ordered for each toothed belt width.

Toothed belt width 12 mm:

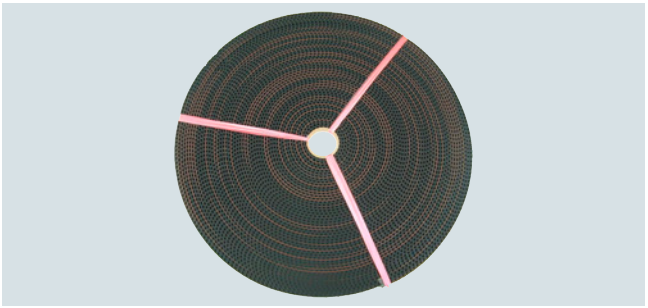
- Length 4 m: 6FB1104-0AT01-0AB0
- Length 45 m: 6FB1104-0AT02-0AB0

Toothed belt width 14 mm:

- Length 4 m: 6FB1104-0AT03-0AB0
- Length 55 m: 6FB1104-0AT04-0AB0



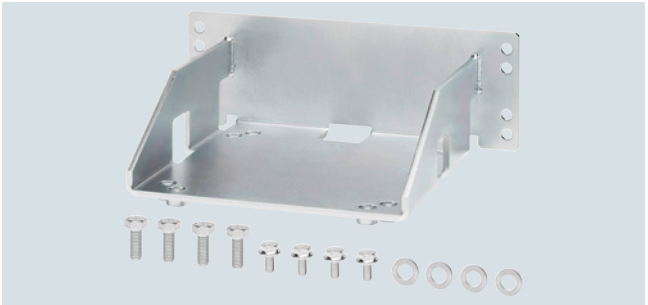
Toothed belt 6FB1104-0AT01-0AB0, length 4 m



Toothed belt 6FB1104-0AT02-0AB0, length 45 m

A range of accessories is available for SIDOOR elevator door systems with EC technology:

Motor holder 6FB1104-0AT03-0AD0 for accommodation of the SIDOOR MED280 direct drive.



Mounting bracket:

- For mounting the SIDOOR motor holder 6FB1104-0AT01-0AS0

- With tensioning device for mounting the deflector unit and setting the toothed belt to the required tension (large) 6FB1104-0AT05-0AS4

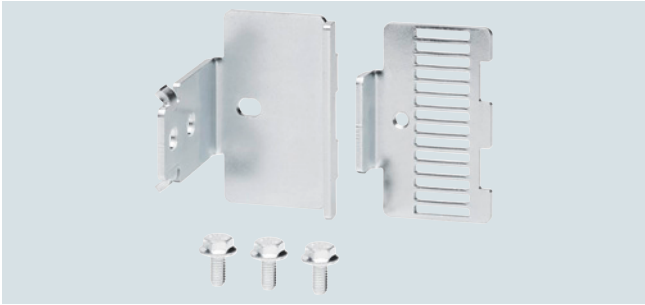
SIDOOR mounting bracket, large

- With tensioning device for mounting the deflector unit and setting the toothed belt to the required tension (small) 6FB1104-0AT05-0AS5

SIDOOR mounting bracket, small

Door clutch holder

- For attaching both ends of the toothed belt and connecting the respective door panel to the toothed belt, width 20 mm 6FB1104-0AT05-0AS1



SIDOOR door clutch holder

Overview (continued)

Deflector unit:

For attaching the SIDOOR toothed belt and fixing to the door
6FB1104-0AT07-0AS0

SIDOOR deflector unit

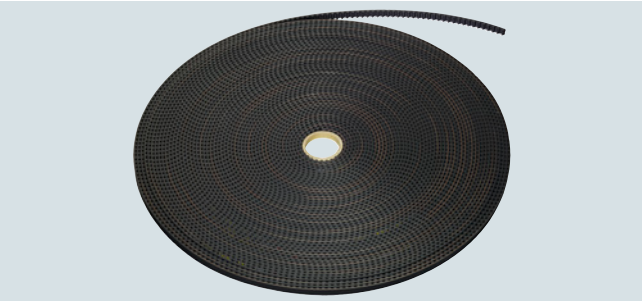
STD toothed belt

As a connection between the door system and the end positions of the door

Toothed belt width 20 mm. Length 4 m 6FB1104-0AT05-0AB0

SIDOOR toothed belt, small

Toothed belt width 20 mm. Length 45 m 6FB1104-0AT06-0AB1



SIDOOR toothed belt, large

Ordering data

	Article No.
Elevator door systems with EC technology	
Motor holder for SIDOOR MED280 direct drive	**6FB1104-0AT03-0AD0**
Mounting bracket for mounting the motor holder	**6FB1104-0AT01-0AS0**
Mounting bracket with tensioning device for mounting the deflector unit	
• Large	**6FB1104-0AT05-0AS4**
• Small	**6FB1104-0AT05-0AS5**
SIDOOR door clutch holder	**6FB1104-0AT05-0AS1**
For toothed belt, width 20 mm	
SIDOOR deflector unit	**6FB1104-0AT07-0AS0**
SIDOOR toothed belt STD	
Width 20 mm	
• 4 m	**6FB1104-0AT05-0AB0**
• 55 m	**6FB1104-0AT06-0AB1**
Elevator door systems with geared motors	
Rubber-metal anti-vibration mounts for geared motors	
• SIDOOR rubber-metal anti-vibration mount for geared motors for door weights up to 300 kg	**6FB1104-0AT02-0AD0**
• SIDOOR rubber-metal anti-vibration mount for geared motors for door weights from 300 kg	**6FB1104-0AT01-0AD0**

	Article No.
Mounting bracket	
• SIDOOR mounting bracket for geared motor	**6FB1104-0AT01-0AS0**
• SIDOOR mounting bracket with tensioning device for deflector pulley	**6FB1104-0AT02-0AS0**
SIDOOR door clutch holder	
• For toothed belt, width 12 mm	**6FB1104-0AT01-0CP0**
• For toothed belt, width 14 mm	**6FB1104-0AT02-0CP0**
SIDOOR deflector unit	**6FB1104-0AT03-0AS0**
SIDOOR deflector roller for the toothed belt STS	**6FB1104-0AT04-0AS2**
SIDOOR toothed belt STS	
Width 12 mm	
• 4 m	**6FB1104-0AT01-0AB0**
• 45 m	**6FB1104-0AT02-0AB0**
SIDOOR toothed belt STS	
Width 14 mm	
• 4 m	**6FB1104-0AT03-0AB0**
• 55 m	**6FB1104-0AT04-0AB0**

Overview

The SIDOOR geared motor is a combination of a gear unit, motor and incremental encoder matched to the complete system. It is easy to connect to the controller via the interface provided, and is automatically detected during commissioning.

The maintenance-free, variable speed drive unit comprises a DC motor with non-self-locking gearing. All geared motors are available with the output shaft on the left or right. The view is toward the front of the gear unit.

The "moved mass" has to be taken into account when selecting the geared motor:

The weight to be moved is calculated from the sum of the mass equivalent of the moment of inertia of the motor rotor, the moved door weight and the moved door mechanism weight.

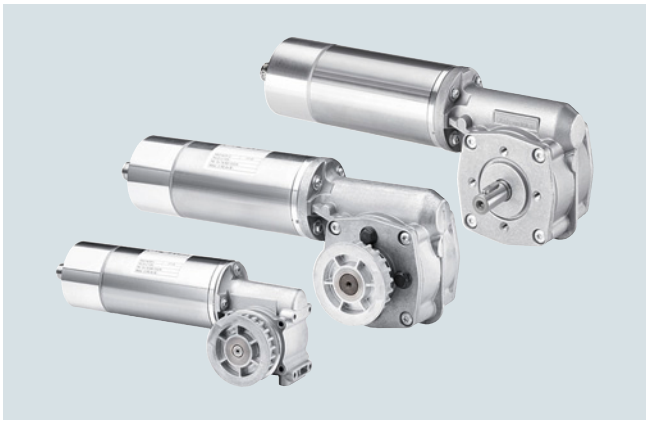
The weight of the door to be moved and the moved weight of the door mechanism depend on the application. You can find additional information in the System Manual.

The **output shaft** is appropriately prepared for the mechanical coupling of the door.

- Fixed, pressed-on output gear with 56 mm effective diameter for the use of a S8M toothed belt (See accessories).
- Output shaft with groove and feather key A 5x5 according to DIN 6885, the output gear design and effective diameter can be freely configured between 28 mm and 122 mm. This version of the geared motors is recommended, among other things, with a mechanical coupling via gear rack or chain.

Version	**Extended area of application**				**Standard applications**		
SIDOOR designation	MDG180	MDG400	MDG400 NMS	MDG700 NMS	M3	M4	M5
Maximum weight to be moved	180 kg	400 kg	400 kg	700 kg	180 kg	400 kg	600 kg
Connection to door controller	via SIDOOR CABLE MDG (see accessories)			Via SIDOOR CABLE MDG**2** (see accessories)	Connecting cable permanently integrated with the geared motor, cable length 1.5 m		
Degree of protection	IP56				IP40		IP54
Design of output shaft	Fixed, pressed-on output gear		Output shaft with groove and feather key		Fixed, pressed-on output gear		

SIDOOR M3, M4, M5 and MDG700 NMS geared motors (pinion on the left)



SIDOOR MDG180, MDG400 and MDG400 NMS (pinion on the left)

Technical specifications

Article number	6FB1103-0AT14-4MB0	6FB1103-0AT13-4MB0	6FB1103-0AT14-3MC0	6FB1103-0AT13-3MC0	6FB1103-0AT14-3MC1	6FB1103-0AT13-3MC1
General information						
Product brand name	SIDOOR					
Product designation	Motor for door control					
Product version	MDG180 L	MDG180 R	MDG400 L	MDG400 R	MDG400 NMS L	MDG400 NMS R
Supply voltage						
Rated value (DC)	30 V					
Input current						
Operational current (rated value)	4 A					
Power						
Active power input	120 W					
Mechanical data						
Torque of the rotary operating mechanism (rated value)	3 N·m					
Speed, max.	0.65 m/s		0.75 m/s			
Gear ratio	15					
Number of pulses per revolution, max.	100					
Weight of door, max.	180 kg		400 kg			
Degree and class of protection						
IP degree of protection						
• of the motor	IP56					
• of the gear unit	IP56					
Ambient conditions						
Ambient temperature during operation						
• min.	-20 °C					
• max.	50 °C					
Ambient temperature during storage/transportation						
• Storage, min.	-40 °C					
• Storage, max.	85 °C					
Dimensions						
Height of motor	98 mm		115 mm			
Length of motor	236 mm		275 mm			
Diameter of motor	63 mm					
Width of gear unit, including drive pinion	85 mm		105 mm		106 mm	

Article number	6FB1103-0AT10-4MB0	6FB1103-0AT11-4MB0	6FB1103-0AT10-3MC0	6FB1103-0AT11-3MC0	6FB1103-0AT10-3MD0	6FB1103-0AT11-3MD0	6FB1103-0AT14-3MG1	6FB1103-0AT13-3MG1
General information								
Product brand name	SIDOOR							
Product designation	Motor for door control							
Product version	M3 L	M3 R	M4 L	M4 R	M5 L	M5 R	MDG700 NMS L	MDG700 NMS R
Supply voltage								
Rated value (DC)	30 V							
Input current								
Operational current (rated value)	4 A				7.5 A			
Power								
Active power input	120 W				225 W			
Mechanical data								
Torque of the rotary operating mechanism (rated value)	3 N·m				6.8 N·m		6 N·m	
Speed, max.	0.65 m/s		0.75 m/s		0.5 m/s		1.1 m/s	
Gear ratio	15							
Number of pulses per revolution, max.	100							
Weight of door, max.	180 kg		400 kg		600 kg		700 kg	

Technical specifications (continued)

Article number	6FB1103-0AT10-4MB0	6FB1103-0AT11-4MB0	6FB1103-0AT10-3MC0	6FB1103-0AT11-3MC0	6FB1103-0AT10-3MD0	6FB1103-0AT11-3MD0	6FB1103-0AT14-3MG1	6FB1103-0AT13-3MG1
Degree and class of protection								
IP degree of protection								
• of the motor	IP54						IP56	
• of the gear unit	IP40				IP54		IP56	
Ambient conditions								
Ambient temperature during operation								
• min.	-20 °C							
• max.	50 °C							
Ambient temperature during storage/transportation								
• Storage, min.	-40 °C							
• Storage, max.	85 °C							
Dimensions								
Width of motor							80 mm	
Height of motor	98 mm		115 mm		124 mm			
Length of motor	236 mm		275 mm		344 mm		345 mm	
Diameter of motor	63 mm				80 mm			
Width of gear unit, including drive pinion	85 mm		105 mm		111 mm		109 mm	

Ordering data

	Article No.
SIDOOR MDG180 geared motors	
MDG180 L	**6FB1103-0AT14-4MB0**
MDG180 R	**6FB1103-0AT13-4MB0**
SIDOOR MDG400 geared motors	
MDG400 L	**6FB1103-0AT14-3MC0**
MDG400 R	**6FB1103-0AT13-3MC0**
SIDOOR MDG400 NMS	
MDG400 NMS L, without pinion	**6FB1103-0AT14-3MC1**
MDG400 NMS R, without pinion	**6FB1103-0AT13-3MC1**

	Article No.
SIDOOR M3 geared motors	
M3 L	**6FB1103-0AT10-4MB0**
M3 R	**6FB1103-0AT11-4MB0**
SIDOOR M4 geared motors	
M4 L	**6FB1103-0AT10-3MC0**
M4 R	**6FB1103-0AT11-3MC0**
SIDOOR M5 geared motors	
M5 L	**6FB1103-0AT10-3MD0**
M5 R	**6FB1103-0AT11-3MD0**
SIDOOR MDG700 NMS	
MDG700 NMS L, without pinion	**6FB1103-0AT14-3MG1**
MDG700 NMS R, without pinion	**6FB1103-0AT13-3MG1**

Overview

An extensive range of accessories is available for the door control drives.

This is necessary to ensure low-noise operation of the door by the motor. The geared motors can be optimally integrated into the respective door drive system.

Accessories for all controllers for industrial applications

Rubber-metal anti-vibration mounts for geared motors

To ensure low-noise door operation, SIDOOR geared motors are integrated in the door system using rubber-metal anti-vibration mounts.

- Rubber-metal anti-vibration mount 6FB1104-0AT02-0AD0 for SIDOOR MDG180, M3 geared motors
- Rubber-metal anti-vibration mount 6FB1104-0AT01-0AD0 for SIDOOR MDG400, MDG400 NMS, MDG700 NMS, M4 and M5 geared motors

Rubber-metal anti-vibration mount 6FB1104-0AT02-0AD0 for geared motors with door weights up to 180 kg

Rubber-metal anti-vibration mount 6FB1104-0AT01-0AD0 for geared motors with door weights greater than 180 kg

Mounting bracket

Two different mounting brackets are available with elongated holes:

- Mounting bracket 6FB1104-0AT01-0AS0 for mounting SIDOOR geared motors, for flexible accommodation of the rubber-bonded metal
- Mounting bracket 6FB1104-0AT02-0AS0 for the deflector unit, this enables the toothed belt to be set to the required belt tension.

Mounting bracket 6FB1104-0AT01-0AS0 for mounting the geared motor

Mounting bracket 6FB1104-0AT02-0AS0 for the deflector unit

DIN rail holder

The standard DIN rail holder 6FB1144-0AT00-3SA0 is available for mounting controllers on the TH 35 standard DIN rail according to IEC 60715.

Door clutch holder

The door clutch holder serves to connect the respective door leaf by means of a toothed belt while also functioning as a toothed-belt lock. One door clutch holder per door leaf is required. The toothed-belt lock can accommodate both open ends of the toothed belt.

A door clutch holder is available for each toothed belt width:

- Width 12 mm: 6FB1104-0AT01-0CP0
- Width 14 mm: 6FB1104-0AT02-0CP0

Door clutch holder 6FB1104-0AT01-0CP0 (packaging size = 1 unit)

Deflector unit

The deflector unit 6FB1104-0AT03-0AS0 contains an embedded belt pulley which can be mounted on the door system.
The STS toothed belt is redirected via this deflector unit.

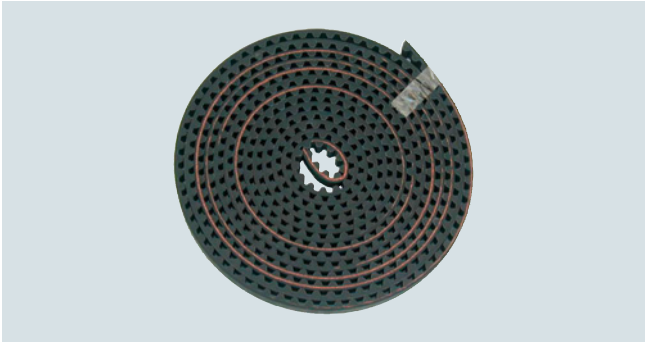
Deflector unit 6FB1104-0AT03-0AS0

Overview (continued)

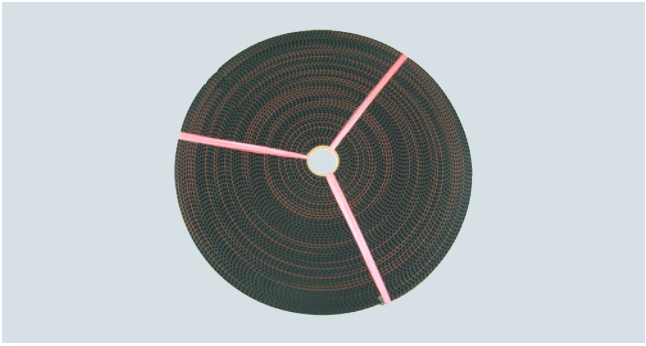
STS toothed belt

The door system is moved between the end positions of the door using the STS toothed belts. Two different toothed belt lengths can be ordered for each toothed belt width.

- Toothed belt width 12 mm:
  - Length 4 m: 6FB1104-0AT01-0AB0
  - Length 45 m: 6FB1104-0AT02-0AB0
- Toothed belt width 14 mm:
  - Length 4 m: 6FB1104-0AT03-0AB0
  - Length 55 m: 6FB1104-0AT04-0AB0



Toothed belt 6FB1104-0AT01-0AB0 (width 12 mm, length 4 m)



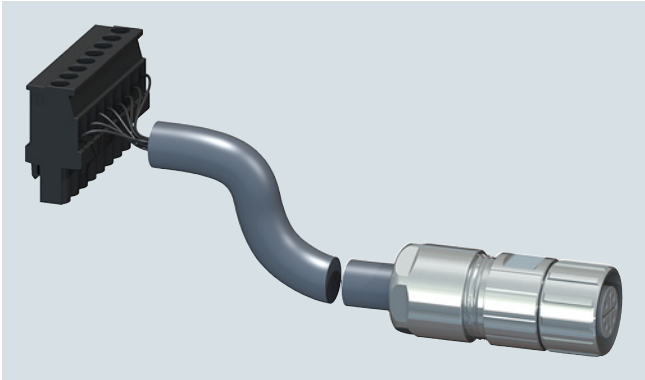
Toothed belt 6FB1104-0AT02-0AB0 (width 12 mm, length 45 m)

For machine tool door drives only

CABLE-MDG hybrid connecting cables

These connecting cables connect the machine tool door drives to the SIDOOR MDG180, MDG400 and MDG400 NMS geared motors. Various lengths are available.

- Length 0.5 m: 6FB1104-0AT00-0CB5
- Length 1.5 m: 6FB1104-0AT01-0CB5
- Length 5 m: 6FB1104-0AT05-0CB0
- Length 7 m: 6FB1104-0AT07-0CB0
- Length 10 m: 6FB1104-0AT10-0CB0
- Length 15 m: 6FB1104-0AT15-0CB0
- Length 20 m: 6FB1104-0AT20-0CB0



SIDOOR CABLE-MDG

SIDOOR CABLE-MDG2 cable set

This cable set connects the ATD4xxW door controller to the SIDOOR MDG700 NMS geared motor. Various lengths are available.

- Length 5 m: 6FB1104-0AT05-0CB2
- Length 10 m: 6FB1104-0AT10-0CB2
- Length 15 m: 6FB1104-0AT15-0CB2
- Length 20 m: 6FB1104-0AT20-0CB2

Machine tool door drives are connected to a higher-level SIMATIC controller via the PB FC RS 485 PLUG 180 connector (6GK1500-0FC10) and the PB FC Standard Cable GP (6XV1830-0EH10), a standard bus cable with a special design for quick mounting. A SIMATIC RS 485/USS communication module is required on the controller side, such as the ET 200S electronic module (6ES7138-4DF11-0AB0) for the SIMATIC ET 200.

Accessories

Ordering data	Article No.
Rubber-metal anti-vibration mounts for geared motors	
• SIDOOR rubber-metal anti-vibration mount for geared motors for door weights up to 300 kg	**6FB1104-0AT02-0AD0**
• SIDOOR rubber-metal anti-vibration mount for geared motors for door weights from 300 kg	**6FB1104-0AT01-0AD0**
Mounting bracket	
• SIDOOR mounting bracket for geared motor	**6FB1104-0AT01-0AS0**
• SIDOOR mounting bracket with tensioning device for deflector pulley	**6FB1104-0AT02-0AS0**
DIN rail holder	
For mounting controllers on the standard DIN rail TH 35	**6FB1144-0AT00-3AS0**
SIDOOR door clutch holder	
For toothed belt, width 12 mm	**6FB1104-0AT01-0CP0**
SIDOOR deflector unit	**6FB1104-0AT03-0AS0**
SIDOOR toothed belt STS	
Width 12 mm	
• 4 m	**6FB1104-0AT01-0AB0**
• 45 m	**6FB1104-0AT02-0AB0**
SIDOOR toothed belt STS	
Width 14 mm	
• 4 m	**6FB1104-0AT03-0AB0**
• 55 m	**6FB1104-0AT04-0AB0**

	Article No.
For machine tool drives only	
CABLE MDG hybrid connecting cables	
• 0.5 m	**6FB1104-0AT00-0CB5**
• 1.5 m	**6FB1104-0AT01-0CB5**
• 5 m	**6FB1104-0AT05-0CB0**
• 7 m	**6FB1104-0AT07-0CB0**
• 10 m	**6FB1104-0AT10-0CB0**
• 15 m	**6FB1104-0AT15-0CB0**
• 20 m	**6FB1104-0AT20-0CB0**
SIDOOR CABLE MDG2 cable set	
• 5 m	**6FB1104-0AT05-0CB2**
• 10 m	**6FB1104-0AT10-0CB2**
• 15 m	**6FB1104-0AT15-0CB2**
• 20 m	**6FB1104-0AT20-0CB2**
PROFIBUS FC RS 485 plug 180	**6GK1500-0FC10**
PB FC Standard Cable GP	**6XV1830-0EH10**
Electronic module for ET 200S	**6ES7138-4DF11-0AB0**
CM PtP RS422/485 BA communication module	**6ES7540-1AB00-0AA0**
CM 1241 communication module	**6ES7241-1CH32-0XB0**
SIDOOR door clutch holder	
For toothed belt, width 14 mm	**6FB1104-0AT02-0CP0**

Appendix

Introduction

Your benefit from practical training directly from the manufacturer

SITRAIN – Training for Industry – provides you with comprehensive support in solving your tasks.

Training directly from the manufacturer enables you to make correct decisions with confidence.

Increased profits and lower costs:

- Shorter times for commissioning, maintenance and servicing
- Optimized production operations
- Reliable configuration and commissioning
- Shortened startup times, reduced downtimes, and faster troubleshooting
- Exclude expensive faulty planning right from the start.
- Flexible plant adaptation to market requirements
- Compliance with quality standards in production
- Increased employee satisfaction and motivation
- Shorter familiarization times following changes in technology and staff

Contact

Visit our site on the Internet at:
www.siemens.com/sitrain

or let us advise you personally:

SITRAIN – Training for Industry
SITRAIN Customer Support Germany

Tel.: +49 911 895-7575
Fax: +49 911 895-7576

Email: info@sitrain.com

Your benefits with SITRAIN – Training for Industry

Certified top trainers

Our trainers are skilled specialists with practical experience. Course developers have close contact with product development, and pass on their knowledge to the trainers and then to you.

Practical application with practice

Practice, practice, practice! We have designed the trainings with an emphasis on practical exercises. They take up to half of the course time in our trainings. You can therefore implement your new knowledge in practice even faster.

300 courses in more than 60 countries

We offer a total of about 300 classroom-based courses. You can find us at more than 50 locations in Germany, and in 62 countries worldwide. You can find which course is offered at which location at:
www.siemens.com/sitrain

Skills development

Do you want to develop skills and fill in gaps in your knowledge? Our solution: We will provide a program tailored exactly to your personal requirements. After an individual requirements analysis, we will train you in our training centers near you or directly at your offices. You will practice on the most modern training equipment with special exercise units. The individual training courses are optimally matched to each other and help with the continuous development of knowledge and skills. After finishing a training module, the follow-up measures make success certain, as well as the refreshment and deepening of the knowledge gained.

Overview

The SIMATIC manual collection brings together the manuals of Totally Integrated Automation in the smallest possible package. It is eminently suitable for startup and service, replaces the space-consuming paper version in the office and provides fast access to the information.

The manual collection contains manuals in 5 languages for

- LOGO!
- SIMADYN
- SIMATIC bus components
- SIMATIC C7
- SIMATIC Distributed I/O
- SIMATIC HMI
- SIMATIC Sensors
- SIMATIC NET
- SIMATIC PC Based Automation
- SIMATIC PCS 7
- SIMATIC PG/PC
- SIMATIC S7
- SIMATIC Software
- SIMATIC TDC

Manuals that are not yet available in all 5 languages will at least be included in English and German.

There is an update contract for the SIMATIC Manual Collection that encompasses supply of the up-to-date collection and three subsequent updates which is valid for one year. If the update contract is not cancelled, it is automatically extended and the list price will be charged to the customer.

Ordering data	Article No.
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Overview

The electronic products described in this catalog comply with the requirements and protection objectives of the following EU directives insofar as they relate to the product concerned. They also comply with the corresponding harmonized European standards (EN) published for these products in the Official Journals of the European Community.

- 2014/30/EU "Electromagnetic Compatibility" (EMC Directive)
- 2014/35/EU "Electrical equipment designed for use within certain voltage limits" (Low Voltage Directive)
- 2014/34/EU "Equipment and protective systems intended for use in potentially explosive atmospheres" (Explosion Protection Directive)
- For ET 200SP fail-safe modules, the following also applies: 2006/42/EC "Machinery Directive"

The originals of the declarations of conformity are kept available by us for the responsible supervisory authorities.

Note on the EMC Directive:

In terms of their interference emissions, SIMATIC products are designed for industrial applications.

If individual products deviate from this specification, it is noted in the catalog with the products.

The installation instructions in the manuals must be adhered to when installing and operating the products described in this catalog. These contain, for example, important information on installation in cabinets and on the use of shielded cables.

Notes for machine manufacturers

The SIMATIC automation system is not a machine within the context of the EU machine guidelines. Therefore a declaration of conformity with regard to the EU machine directive 89/392/EEC or 2006/42/EU (new edition, applicable from end of 2009) may not be provided for SIMATIC.

The EU machine directive regulates the requirements placed on a machine or a part thereof. A machine is understood for the purposes of this guideline to be a combination of interconnected parts or mechanisms (see also EN 292-1, Paragraph 3.1).

SIMATIC is part of the electrical equipment of a machine, and must therefore be integrated into the evaluation of the complete machine by the machine manufacturer.

As electrical equipment, SIMATIC is subject to the low-voltage directive which, as a "total safety directive", covers all dangers just like the machine directive.

The EN 60204-1 standard (safety of machines, general requirements for the electrical equipment of machines) is applicable to the electrical equipment of machines.

The following table will help you in the provision of your declaration of conformity, and shows which criteria according to EN 60204-1 (2006-06) apply to SIMATIC. You can obtain further information from the enclosed declaration of conformity according to the low-voltage and EMC directives (with list of included standards).

EN 60204-1	Topic/criterion	Notes
Paragraph 4	General requirements	The requirements are met when the equipment is assembled/ installed in accordance with the installation guidelines. Please note the relevant information in the manuals.
Paragraph 11.2	Digital input/ output interfaces	The requirements are met
Paragraph 12.3	Programmable equipment	The requirements are met when the equipment is installed in lockable cabinets to protect against alteration of the memory contents by unauthorized persons
Paragraph 20.4	Voltage tests	The requirements are met

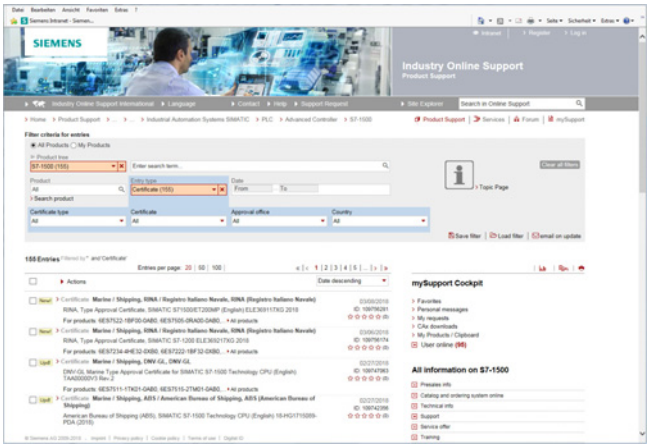
Certificates, authorizations, approbations, declarations of conformity

An overview of the certificates available for SIMATIC products (CE, UL, CSA, FM, shipping authorizations) can be found in the internet at

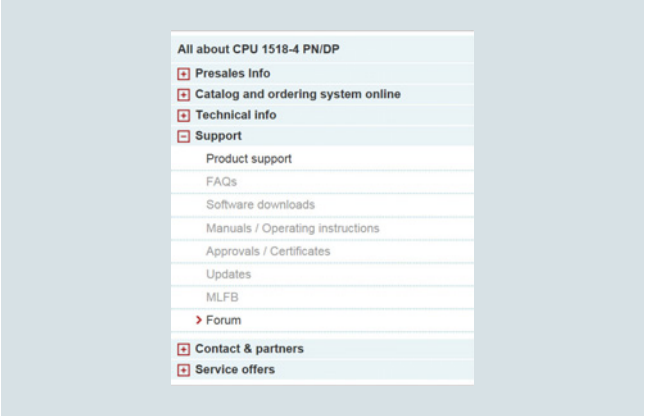
http://www.siemens.com/simatic/certificates

The lists are continously updated. The data for products which have not yet been included in the overview is continously collected and prepared for the subsequent edition.

You can also find certificates, approbations, verification certificates or characteristic curves under Product support "Entry list"



or by going directly to the Link Box:



Quality management

The quality management system of the Industry Sector, Industry Automation Division, complies with the international standard ISO 9001.

The products and systems described in this catalog are sold under application of a quality management system certified by DQS in accordance with DIN EN ISO 9001.

The DQS certificate is recognized in all IQ Net countries.

DQS Registered Certificate No.:

Siemens AG

- DF FA
  Reg. No.: 001323 QM08

Simplify your education in automation

Unique support for educators and students in educational institutions

Cooperates with Education

Automation

SIEMENS

Siemens Automation Cooperates with Education (SCE) offers a global system for sustained support of technical skills. SCE supports educational institutions in their teaching assignment in the industrial automation sector and offers added value in the form of partnerships, technical expertise, and know-how. As the technological leader, our comprehensive range of services can support you in the knowledge transfer for Industry 4.0.

Our services at a glance

- Training curriculums for your lessons
- Trainer packages for hands-on learning
- Courses convey up-to-date specialist knowledge
- Support for your projects / textbooks
- Complete didactic solutions from our partners
- Personal contact for individual support

Training curriculums for your lessons

Use our profound industrial know-how for practiceoriented and individual design of your course. We offer you more than 100 didactically prepared training curriculums on the topics of automation and drives technology free of charge. These materials are perfectly matched to your curricula and syllabuses, and optimally suited for use with our trainer packages. This takes into account all aspects of a modern industrial solution: installation, configuration, programming, and commissioning. All documents, including projects, can be individually matched to your specific requirements.

Particular highlights:

- The new SIMATIC PCS 7 curriculums and trainer packages. Using plant simulation, you can pass on basic, practice-oriented PCS 7 knowledge at universities within about 60 hours (= 1 semester).
- The new TIA Portal training materials for SIMATIC S7-1500 / S7-1200 / S7-300 are available in English, German, French, Italian, Spanish, Portuguese and Chinese for download.

www.siemens.com/sce/curriculums

Trainer packages for hands-on learning

Our SCE trainer packages offer a specific combination of original industrial automation and drives components which are perfectly matched to your requirements and can be conveniently used in your course. These price-reduced bundles available exclusively to schools include innovative and flexible hardware and software packages.
We currently offer more than 80 SCE trainer packages including the complete accessories. These cover both the factory and process automation sectors. You can use them to impart the complete course contents on industrial automation at a very low cost.

Trainer packages are available for:

- Introduction to automation technology with LOGO! logic module
- PLC engineering with SIMATIC S7 hardware and STEP 7 software (S7-1500, S7-1200, S7-300 and TIA Portal)
- Operator control and monitoring with SIMATIC HMI
- Industrial networking over bus systems with SIMATIC NET (PROFINET, PROFIBUS, IO-Link)
- Sensor systems with VISION, RFID and SIWAREX
- Process automation with SIMATIC PCS 7
- Networked drive and motion technologies with SINAMICS/SIMOTION
- Power Monitoring Devices SENTRON PAC 4200
- Motor Management SIMOCODE
- CNC programming with SinuTrain

Important ordering notes:

Only the following institutions are authorized to obtain trainer packages: vocational colleges, vocational training institutes, schools for technicians, technical schools, universities and universities of applied sciences, non-profit research institutions and in-house initial vocational training centers.

To purchase a trainer package, you require a specific end-use certificate, which you can obtain from your regional sales office.

www.siemens.com/sce/tp

Unique support for educators and students in educational institutions (continued)

Courses convey up-to-date specialist knowledge

Profit from our excellent know-how as the leader in industrial technologies. We offer you specific courses for automation and drive technology worldwide. These support you in the practice-oriented transferring of product and system know-how, are in conformance with curriculums, and derived from the training fields. Compact technical courses especially for use at universities are also available.

Our range of courses comprises a wide variety of training modules based on the principle of Totally Integrated Automation (TIA). The focus is on the same subject areas as with the SCE trainer packages.

Every PLC and drive course is oriented on state-of-the-art technology. Your graduates can thus be prepared optimally for their future professional life.

In some countries we are offering classes based on our training curriculums. Please inquire with your SCE contact partner.

www.siemens.com/sce/courses

Support for your projects/textbooks

Automation and drive technology is characterized by continuous and rapid developments. Service and Support therefore play an important role.

We can provide you with consulting for selected projects and support from your personal SCE contact as well as our regional Customer Support.

As a particular service, SCE supports technical authors with our know-how as well as with intensive technical consulting. Siemens library of special textbooks covering the industrial automation sector provides an additional resource for you and your students. These can be found at the SCE web site.

www.siemens.com/sce/contact
www.siemens.com/sce/books

Complete didactic solutions from our partners

Our partners for learning systems offer a wide range of training systems and solutions for use in your courses or laboratory.

These models have been designed based on our trainer packages and thus save you the time and cost of selfconstruction of individual components. The Partner systems provide you with simple and effective help in the fulfillment of your teaching assignment.

www.siemens.com/sce/partner

Contact for individual support

You can find your personal SCE contact on our Internet site. Your local SCE Promoter will answer all your questions concerning the complete SCE offering, and provide you with timely and competent information about innovations. When you encounter challenges, you can profit from our global team of excellence.

If a direct SCE contact is not listed for your country, please contact your local Siemens office.

www.siemens.com/sce/contact

SCE Support Finder for your Internet request

You are an educator and need support on the topic of industry automation? Send us your request:

www.siemens.com/sce/supportfinder

Discover SCE

Siemens Partner Program

Overview

Siemens Solution und Approved Partners

Highest competence in automation and drive technology as well as power distribution

Siemens works closely together with selected partner companies around the world in order to ensure that customer requirements for all aspects of automation and drives, as well as power distribution, are fulfilled as best as possible – wherever you are, and whatever the time.

We place great value on our customers acting in accordance with the same ideals which characterize Siemens as a whole: Competence, professionalism and quality. That is why continuous development through qualification and certification measures in line with global standards is a central aspect of our Partner Program. This means that with our partners, you benefit from the same high quality standards all over the world.
The partner emblem is the symbol for tried and tested quality.

Solution Partners and Approved Partners

Our global network of partners includes both Solution Partners and Approved Partners. The latter can be further differentiated into "Value Added Reseller" and "Industry Services".

At present we are working with more than 1,500 Solution Partners worldwide. They are characterized by extensive application, system and sector knowledge, as well as proven project experience, and are able to implement future-proof tailored solutions of the highest quality, based on our product and system portfolio.

With their detailed technical knowledge, Siemens Approved Partners – Value Added Resellers offer a combination of products and services that range from specialist technologies and customized modifications to the provision of high-quality system and product packages. They also provide qualified technical support and assistance.

Approved Partners – Industry Services put their unique expertise entirely at the service of enhancing your productivity and can be instrumental in ensuring the availability of your plants.

Partner Finder

In the Siemens global Solution Partner program, customers are certain to find the optimum partner for their specific requirements - with no great effort. The Partner Finder is basically a comprehensive database that showcases the profiles of all our solution partners.

Easy selection:
Set filters in the search screen form according to the criteria that are relevant to you. You can also directly enter the name of an existing partner.

Skills at a glance:
Gain a quick insight into the specific competencies of any particular partner with the reference reports.

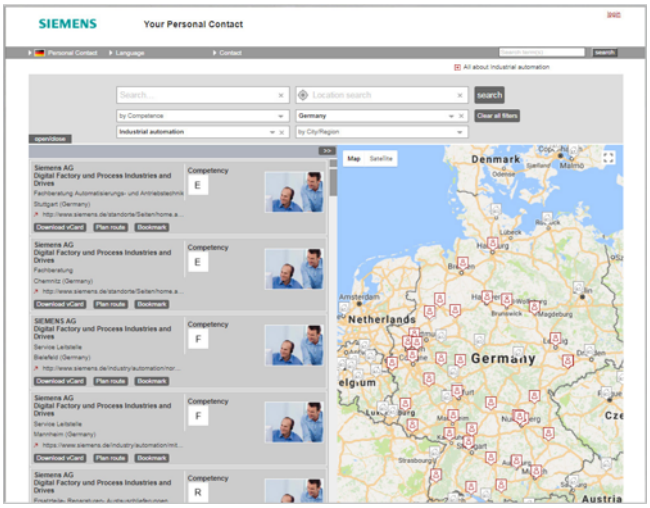
Direct contact option:
Use our electronic query form:

www.siemens.com/partnerfinder

Additional information on the Siemens Solution Partner Program is available online at:

www.siemens.com/partner-program

Partner at Siemens



At your service locally, around the globe for consulting, sales, training, service, support, spare parts on the entire portfolio of Digital Factory and Process Industries and Drives.

Your partner can be found in our Personal Contacts Database at:
www.siemens.com/automation-contact

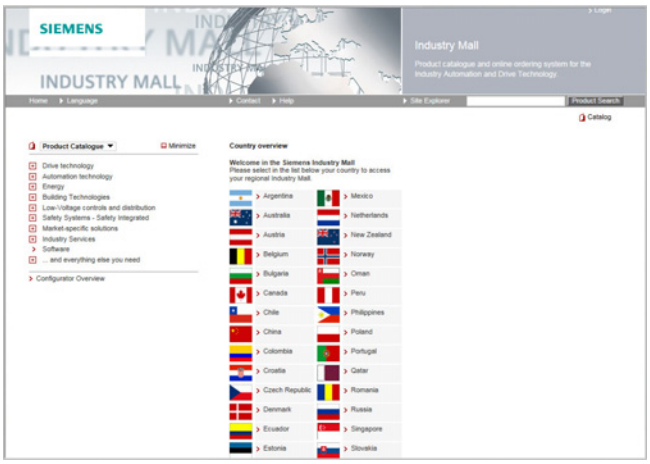
You start by selecting

- the required competence,
- products and branches,
- a country and a city

or by a

- location search or free text search.

Easy product selection and ordering in the Industry Mall and with the Interactive Catalog CA 01



Industry Mall

The Industry Mall is a Siemens Internet ordering platform. Here you have a clear and informative online access to a huge range of products.

Powerful search functions make it easy to select the required products. Configurators enable you to configure complex product and system components quickly and easily. CAx data types are also provided here.

Data transfer allows the whole procedure, from selection through ordering to tracking and tracing, to be carried out online. Availability checks, customer-specific discounts and bid creation are also possible.

www.siemens.com/industrymall

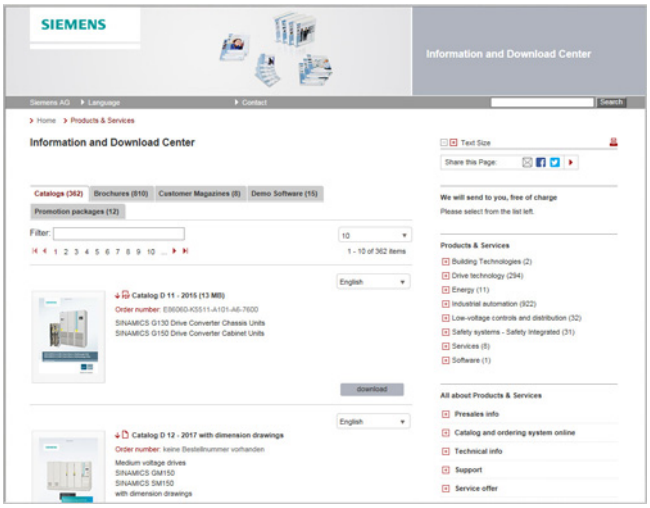
Interactive Catalog CA 01 - Products for Automation and Drives

The Interactive Catalog CA 01 combined with the Siemens Industry Mall unites the benefits of offline and online media in one application – the performance of an offline catalog with the availability of manifold and up-to-date information on the Internet.

Select products and assemble orders with the CA 01, determine the availability of the selected products and track & trace via the Industry Mall.

More information and download:
www.siemens.com/automation/ca01

Downloading catalogs

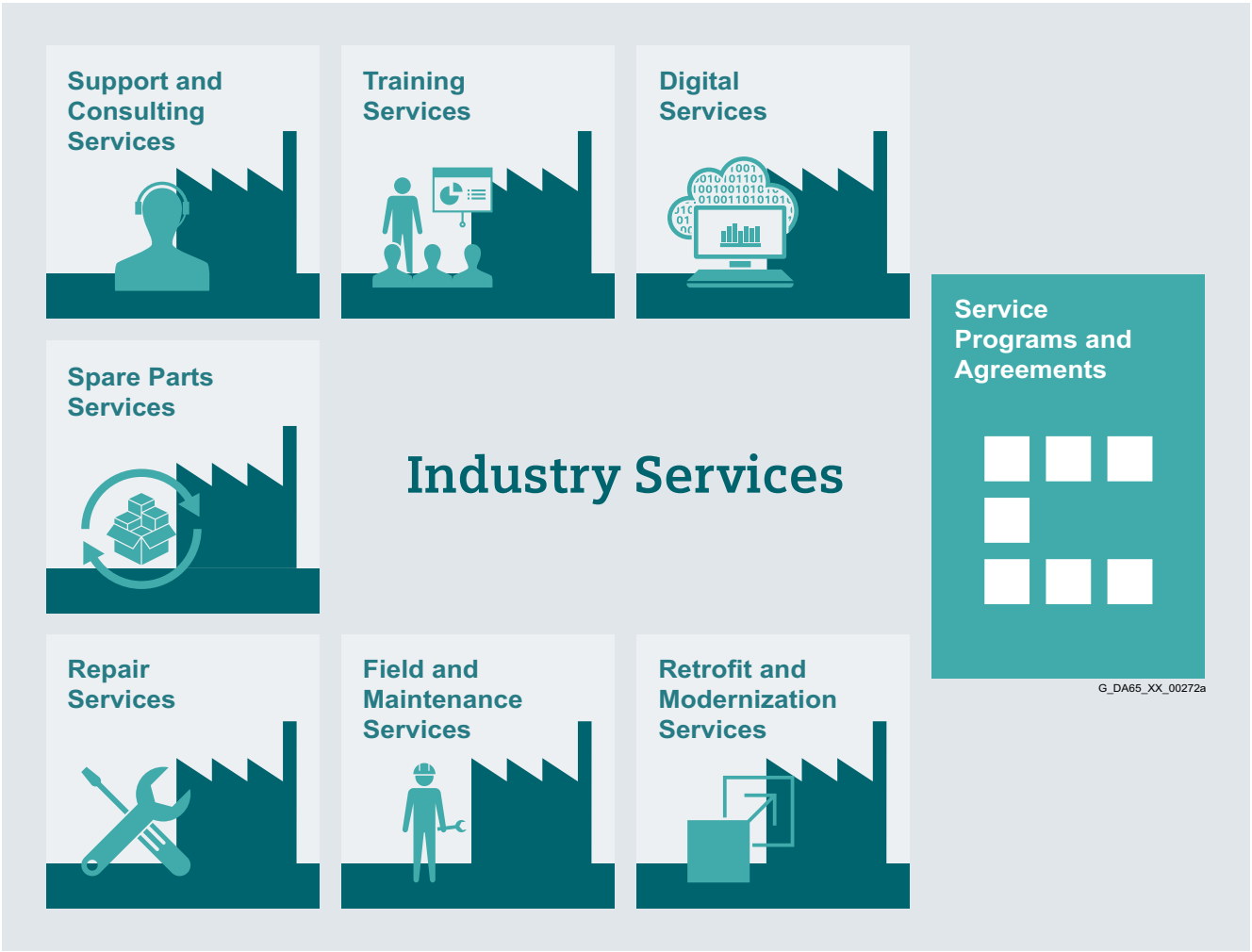


In the Information and Download Center you can download catalogs and brochures in PDF format without having to register.

The filter dialog makes it possible to carry out targeted searches.

www.siemens.com/industry/infocenter

Overview



Keep your business running and shaping your digital future – with Industry Services

Optimizing the productivity of your equipment and operations can be a challenge, especially with constantly changing market conditions. Working with our service experts makes it easier. We understand your industry's unique processes and provide the services needed so that you can better achieve your business goals.

You can count on us to maximize your uptime and minimize your downtime, increasing your operations' productivity and reliability. When your operations have to be changed quickly to meet a new demand or business opportunity, our services give you the flexibility to adapt. Of course, we take care that your production is protected against cyber threats. We assist in keeping your operations as energy and resource efficient as possible and reducing your total cost of ownership. As a trendsetter, we ensure that you can capitalize on the opportunities of digitalization and by applying data analytics to enhance decision making: You can be sure that your plant reaches its full potential and retains this over the longer lifespan.

You can rely on our highly dedicated team of engineers, technicians and specialists to deliver the services you need – safely, professionally and in compliance with all regulations. We are there for you, where you need us, when you need us.

https://www.siemens.com/global/en/home/products/services/industry.html

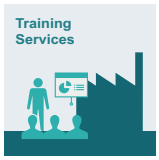
Overview

Digital Services

Digital Services make your industrial processes transparent to gain improvements in productivity, asset availability, and energy efficiency.

Production data is generated, filtered and translated with intelligent analytics to enhance decision-making.

This is done whilst taking data security into consideration and with continuous protection against cyber-attack threats.
https://www.siemens.com/global/en/home/products/services/industry/digital-services.html



Training Services

From the basics and advanced to specialist skills, SITRAIN courses provide expertise right from the manufacturer – and encompass the entire spectrum of Siemens products and systems for the industry.

Worldwide, SITRAIN courses are available wherever you need a training course in more than 170 locations in over 60 countries.
https://support.industry.siemens.com/cs/ww/en/sc/2226

Support and Consulting Services

Industry Online Support site for comprehensive information, application examples, FAQs and support requests.

Technical and Engineering Support for advice and answers for all inquiries about functionality, handling, and fault clearance. The Service Card as prepaid support for value added services such as Priority Call Back or Extended Support offers the clear advantage of quick and easy purchasing.

Information & Consulting Services, e.g. SIMATIC System Audit; clarity about the state and service capability of your automation system or Lifecycle Information Services; transparency on the lifecycle of the products in your plants.
https://support.industry.siemens.com/cs/ww/en/sc/2235

Spare Parts

Spare Parts Services are available worldwide for smooth and fast supply of spare parts – and thus optimal plant availability. Genuine spare parts are available for up to ten years. Logistic experts take care of procurement, transport, custom clearance, storage and order management. Reliable logistics processes ensure that components reach their destination as needed.

Since not all spare parts can be kept in stock at all times, Siemens offers a preventive measure for spare parts provisioning on the customer's premises with optimized **Spare Parts Packages** for individual products, custom-assembled drive components and entire integrated drive trains – including risk consulting.

Asset Optimization Services help you design a strategy for parts supply where your investment and carrying costs are reduced and the risk of obsolescence is avoided.
https://support.industry.siemens.com/cs/ww/en/sc/2110

Repair Services

Repair Services are offered on-site and in regional repair centers for fast restoration of faulty devices' functionality.

Also available are extended repair services, which include additional diagnostic and repair measures, as well as emergency services.
https://support.industry.siemens.com/cs/ww/en/sc/2154

Field and Maintenance Services

Siemens specialists are available globally to provide expert field and maintenance services, including commissioning, functional testing, preventive maintenance and fault clearance.

All services can be included in customized service agreements with defined reaction times or fixed maintenance intervals.
https://support.industry.siemens.com/cs/ww/en/sc/2265

Retrofit and Modernization Services

Provide a cost-effective solution for the expansion of entire plants, optimization of systems or upgrading existing products to the latest technology and software, e.g. migration services for automation systems.

Service experts support projects from planning through commissioning and, if desired over the entire extended lifespan, e.g. Retrofit for Integrated Drive Systems for an extended lifetime of your machines and plants.
https://support.industry.siemens.com/cs/ww/en/sc/2286

Service Programs and Agreements

A technical Service Program or Agreement enables you to easily bundle a wide range of services into a single annual or multi-year agreement.

You pick the services you need to match your unique requirements or fill gaps in your organization's maintenance capabilities.

Programs and agreements can be customized as KPI-based and/or performance-based contracts.
https://support.industry.siemens.com/cs/ww/en/sc/2275

Overview

Siemens Industry and Online Support with some 1.7 million visitors per month is one of the most popular web services provided by Siemens. It is the central access point for comprehensive technical know-how about products, systems and services for automation and drives applications as well as for process industries.

In connection with the challenges and opportunities related to digitalization you can look forward to continued support with innovative offerings.

Overview

Software types

Software requiring a license is categorized into types.
The following software types have been defined:

- Engineering software
- Runtime software

Engineering software

This includes all software products for creating (engineering) user software, e.g. for configuring, programming, parameterizing, testing, commissioning or servicing.

Data generated with engineering software and executable programs can be duplicated for your own use or for use by third-parties free-of-charge.

Runtime software

This includes all software products required for plant/machine operation, e.g. operating system, basic system, system expansions, drivers, etc.

The duplication of the runtime software and executable programs created with the runtime software for your own use or for use by third-parties is subject to a charge.

You can find information about license fees according to use in the ordering data (e.g. in the catalog). Examples of categories of use include per CPU, per installation, per channel, per instance, per axis, per control loop, per variable, etc.

Information about extended rights of use for parameterization/configuration tools supplied as integral components of the scope of delivery can be found in the readme file supplied with the relevant product(s).

License types

Siemens Industry Automation & Drive Technologies offers various types of software license:

- Floating license
- Single license
- Rental license
- Rental floating license
- Trial license
- Demo license
- Demo floating license

Floating license

The software may be installed for internal use on any number of devices by the licensee. Only the concurrent user is licensed. The concurrent user is the person using the program. Use begins when the software is started.
A license is required for each concurrent user.

Single license

Unlike the floating license, a single license permits only one installation of the software per license.

The type of use licensed is specified in the ordering data and in the Certificate of License (CoL). Types of use include for example per instance, per axis, per channel, etc.

One single license is required for each type of use defined.

Rental license

A rental license supports the "sporadic use" of engineering software. Once the license key has been installed, the software can be used for a specific period of time (the operating hours do not have to be consecutive).
One license is required for each installation of the software.

Rental floating license

The rental floating license corresponds to the rental license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Trial license

A trial license supports "short-term use" of the software in a non-productive context, e.g. for testing and evaluation purposes. It can be transferred to another license.

Demo license

The demo license support the "sporadic use" of engineering software in a non-productive context, for example, use for testing and evaluation purposes. It can be transferred to another license. After the installation of the license key, the software can be operated for a specific period of time, whereby usage can be interrupted as often as required.

One license is required per installation of the software.

Demo floating license

The demo floating license corresponds to the demo license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Certificate of License (CoL)

The CoL is the licensee's proof that the use of the software has been licensed by Siemens. A CoL is required for every type of use and must be kept in a safe place.

Downgrading

The licensee is permitted to use the software or an earlier version/release of the software, provided that the licensee owns such a version/release and its use is technically feasible.

Delivery versions

Software is constantly being updated.
The following delivery versions

- PowerPack
- Upgrade

can be used to access updates.

Existing bug fixes are supplied with the ServicePack version.

PowerPack

PowerPacks can be used to upgrade to more powerful software. The licensee receives a new license agreement and CoL (Certificate of License) with the PowerPack. This CoL, together with the CoL for the original product, proves that the new software is licensed.
A separate PowerPack must be purchased for each original license of the software to be replaced.

Upgrade

An upgrade permits the use of a new version of the software on the condition that a license for a previous version of the product is already held.
The licensee receives a new license agreement and CoL with the upgrade. This CoL, together with the CoL for the previous product, proves that the new version is licensed.
A separate upgrade must be purchased for each original license of the software to be upgraded.

Overview

ServicePack

ServicePacks are used to debug existing products. ServicePacks may be duplicated for use as prescribed according to the number of existing original licenses.

License key

Siemens Industry Automation & Drive Technologies supplies software products with and without license keys.

The license key serves as an electronic license stamp and is also the "switch" for activating the software (floating license, rental license, etc.).

The complete installation of software products requiring license keys includes the program to be licensed (the software) and the license key (which represents the license).

Software Update Service (SUS)

As part of the SUS contract, all software updates for the respective product are made available to you free of charge for a period of one year from the invoice date. The contract will automatically be extended for one year if it is not canceled three months before it expires.

The possession of the current version of the respective software is a basic condition for entering into an SUS contract.

You can download explanations concerning license conditions from www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

Notes

1. General Provisions

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

1.1 For customers with a seat or registered office in Germany

For customers with a seat or registered office in Germany, the following applies subordinate to the T&C:

- for installation work the "General Conditions for Erection Works – Germany"[1] ("Allgemeine Montagebedingungen – Deutschland" (only available in German at the moment)) and/or
- for Plant Analytics Services the "Standard Terms and Conditions for Plant Analytics Services – for Customer in Germany"[1] ("Allgemeine Geschäftsbedingungen für das Plant Analytics Services – für Kunden in Deutschland" (only available in German at the moment)) and/or
- for stand-alone software products and software products forming a part of a product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany"[1] and/or
- for other supplies and/or services the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1].
  In case such supplies and/or services should contain Open Source Software, the conditions of which shall prevail over the " General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry "[1]. A notice will be contained in the scope of delivery in which the applicable conditions for Open Source Software are specified. This shall apply mutatis mutandis for notices referring to other third party software components.

1.2 For customers with a seat or registered office outside Germany

For customers with a seat or registered office outside Germany, the following applies subordinate to the T&C:

- for Plant Analytics Services the "Standard Terms and Conditions for Plant Analytics Services"[1] and/or
- for services the "International Terms & Conditions for Services"[1] supplemented by "Software Licensing Conditions"[1] and/or
- for other supplies of hard- and/or software the "International Terms & Conditions for Products"[1] supplemented by "Software Licensing Conditions" [1]

1.3 For customers with master or framework agreement

To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charget the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:

www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

[1] The text of the Terms and Conditions of Siemens AG can be downloaded at
www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

4. Export regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export may be subject to license. We shall indicate in the delivery details whether licenses are required under German, European and US export lists.

Our products are controlled by the U.S. Government (when labeled with "ECCN" unequal "N") and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations.

The export indications can be viewed in advance in the description of the respective goods on the Industry Mall, our online catalog system. Only the export labels "AL" and "ECCN" indicated on order confirmations, delivery notes and invoices are authoritative.

Products labeled with "AL" unequal "N" are subject to European / national export authorization. Products without label, with label "AL:N" / "ECCN:N", or label "AL:9X9999" / "ECCN: 9X9999" may require authorization from responsible authorities depending on the final end-use, or the destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you must comply with all applicable national and international (re-)export control regulations.

If required for the purpose of conducting export control checks, you (upon request by us) shall promptly provide us with all information pertaining to the particular end customer, final disposition and intended use of goods delivered by us respectively works and services provided by us, as well as to any export control restrictions existing in this relation.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

Errors excepted and subject to change without prior notice.

Catalogs

Digital Factory, Process Industries and Drives and Energy Management

Further information can be obtained from our branch offices listed at www.siemens.com/automation-contact

Interactive Catalog on DVD	*Catalog*
Products for Automation and Drives	**CA 01**

Building Control	
GAMMA Building Control	ET G1

Drive Systems	
SINAMICS G130 Drive Converter Chassis Units SINAMICS G150 Drive Converter Cabinet Units	D 11
SINAMICS GM150, SINAMICS SM150 Medium-Voltage Converters	D 12
Digital: SINAMICS PERFECT HARMONY GH180 Medium-Voltage Air-Cooled Drives (Germany Edition)	*D 15.1*
SINAMICS G180 Converters – Compact Units, Cabinet Systems, Cabinet Units Air-Cooled and Liquid-Cooled	D 18.1
SINAMICS S120 Chassis Format Converter Units SINAMICS S120 Cabinet Modules SINAMICS S150 Converter Cabinet Units	D 21.3
SINAMICS S120 and SIMOTICS	D 21.4
SINAMICS DCM DC Converter, Control Module	D 23.1
SINAMICS Inverters for Single-Axis Drives · Built-In Units	D 31.1
SINAMICS Inverters for Single-Axis Drives · Distributed Inverters	D 31.2
Digital: SINAMICS S210 Servo Drive System	*D 32*
SINAMICS G120P and SINAMICS G120P Cabinet pump, fan, compressor converters	D 35
LOHER VARIO High Voltage Motors Flameproof, Type Series 1PS4, 1PS5, 1MV4 and 1MV5 Frame Size 355 to 1000, Power Range 80 to 7100 kW	D 83.2
Three-Phase Induction Motors SIMOTICS HV, SIMOTICS TN	D 84.1
High Voltage Three-phase Induction Motors SIMOTICS HV Series A-compact PLUS	D 84.9
Digital: Modular Industrial Generators SIGENTICS M	*D 85.1*
Three-Phase Induction Motors SIMOTICS HV, Series H-compact	D 86.1
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2
DC Motors	DA 12
SIMOVERT PM Modular Converter Systems	DA 45
MICROMASTER 420/430/440 Inverters	DA 51.2
MICROMASTER 411/COMBIMASTER 411	DA 51.3
Low-Voltage Three-Phase-Motors	
SIMOTOCS S-1FG1 Servo geared motors	D 41
SIMOTICS Low-Voltage Motors	D 81.1
SIMOTICS FD Low-Voltage Motors	D 81.8
LOHER Low-Voltage Motors	D 83.1
Digital: MOTOX Geared Motors	*D 87.1*
SIMOGEAR Geared Motors	MD 50.1
SIMOGEAR Electric-monorail geared motors Light-load and heavy-load applications	MD 50.8
SIMOGEAR Gearboxes with adapter	MD 50.11
Mechanical Driving Machines	
FLENDER Standard Couplings	MD 10.1
FLENDER High Performance Couplings	MD 10.2
FLENDER Backlash-free Couplings	MD 10.3
FLENDER SIP Standard industrial planetary gear units	MD 31.1

Digital: These catalogs are only available as a PDF.

Process Instrumentation and Analytics	*Catalog*
Digital: Field Instruments for Process Automation	*FI 01*
Digital: Display Recorders SIREC D	*MP 20*
Digital: SIPART Controllers and Software	*MP 31*
Products for Weighing Technology	WT 10
Digital: Process Analytical Instruments	*AP 01*
Digital: Process Analytics, Components for Continuous Emission Monitoring	*AP 11*

Low-Voltage Power Distribution and Electrical Installation Technology	
SENTRON · SIVACON · ALPHA Protection, Switching, Measuring and Monitoring Devices, Switchboards and Distribution Systems	LV 10
Standards-Compliant Components for Photovoltaic Plants	LV 11
Electrical Components for the Railway Industry	LV 12
Power Monitoring Made Simple	LV 14
Components for Industrial Control Panels according to UL Standards	LV 16
3WT Air Circuit Breakers up to 4000 A	LV 35
3VT Molded Case Circuit Breakers up to 1600 A	LV 36
Digital: SIVACON System Cubicles, System Lighting and System Air-Conditioning	*LV 50*
Digital: ALPHA Distribution Systems	*LV 51*
ALPHA FIX Terminal Blocks	LV 52
SIVACON S4 Power Distribution Boards	LV 56
SIVACON 8PS Busbar Trunking Systems	LV 70
Digital: DELTA Switches and Socket Outlets	*ET D1*
Vacuum Switching Technology and Components for Medium Voltage	HG 11.01

Motion Control	
SINUMERIK 840 Equipment for Machine Tools	NC 62
SINUMERIK 808 Equipment for Machine Tools	NC 81.1
SINUMERIK 828 Equipment for Machine Tools	NC 82
SIMOTION Equipment for Production Machines	PM 21
Digital: Drive and Control Components for Cranes	*CR 1*

Power Supply	
SITOP Power supply	KT 10.1

Safety Integrated	
Safety Technology for Factory Automation	SI 10

SIMATIC HMI / PC-based Automation	
Human Machine Interface Systems/ PC-based Automation	ST 80/ ST PC

SIMATIC Ident	
Industrial Identification Systems	ID 10

SIMATIC Industrial Automation Systems	
Products for Totally Integrated Automation	ST 70
SIMATIC PCS 7 Process Control System System components	ST PCS 7
SIMATIC PCS 7 Process Control System Technology components	ST PCS 7 T
Add-ons for the SIMATIC PCS 7 Process Control System	ST PCS 7 AO
SIMATIC S7-400 advanced controller	ST 400

SIMATIC NET	
Industrial Communication	IK PI

SIRIUS Industrial Controls	
Digital: SIRIUS Industrial Controls	*IC 10*

Information and Download Center

Digital versions of the catalogs are available on the Internet at:
www.siemens.com/industry/infocenter
There you'll find additional catalogs in other languages.

Please note the section "Downloading catalogs" on page "Online services" in the appendix of this catalog.

Siemens AG
Digital Factory Division
Factory Automation
Postfach 48 48
90026 Nürnberg
Germany

Article No. E86060-K4670-A151-A9-7600
18-0734 / Dispo 07900
KG 0518 1.5 DPG 258 En
Printed in Germany

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit

http://www.siemens.com/industrialsecurity.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under

http://www.siemens.com/industrialsecurity.