Controls Platform Specifications

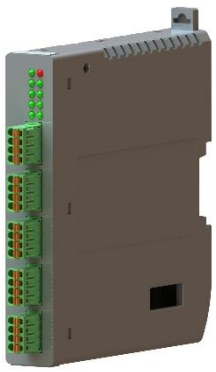
Key Features

- Arm® Cortex®-A7, maximum operating frequency 500MHz
- Arm® Cortex®-M3, maximum operating frequency 125MHz
- Built in eMMC Storage
- Wired and wireless connectivity
- Built in IO modules (AI, AO, DI, DO)
- 4G connectivity capability
- Secure wireless communication
- Remotely configurable
- TPMv2.0 enabled
- Targeted Certifications for controller unit CE, FCC, RoHS 3
- Targeted Certification for Remote IOs CE, ATEX, IECEx, RoHS 3
- Multiple Fieldbus Slave communication support

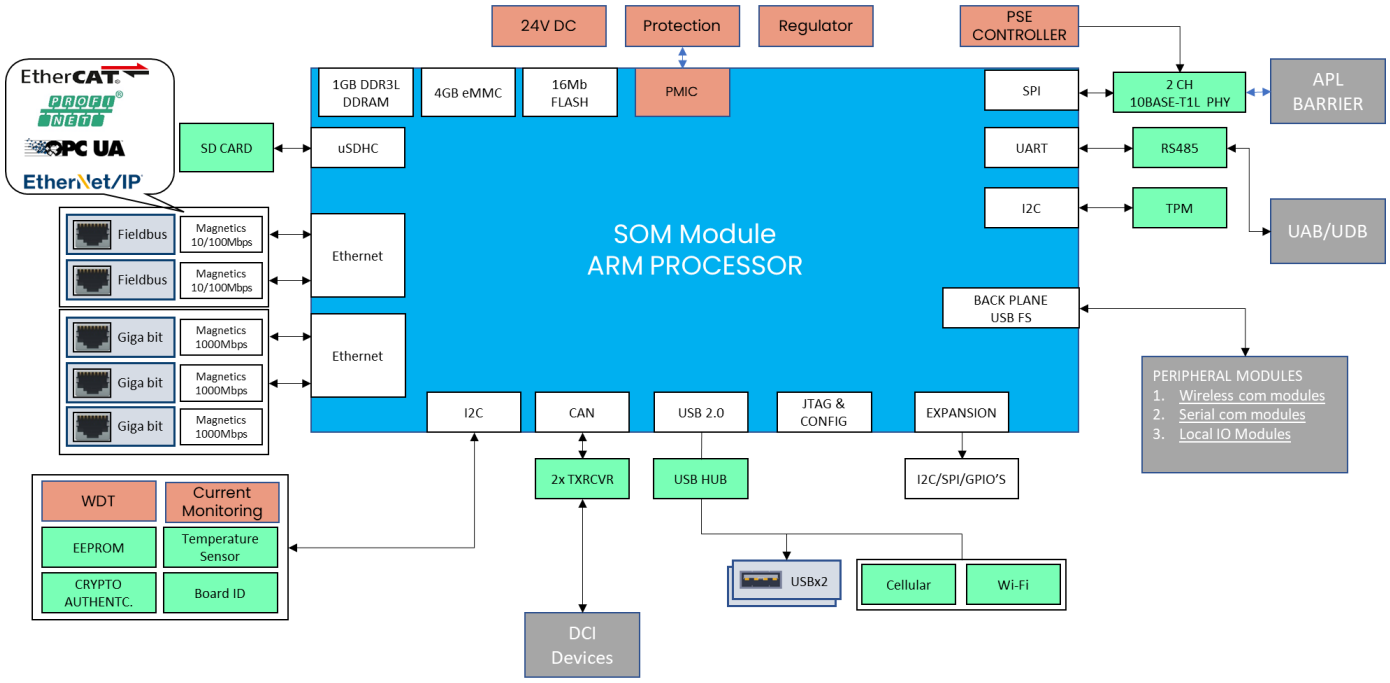
EtherCAT® PROFINET® OPC UA EtherNet/IP

- Multiple Fieldbus Master communication support

PROFINET® EtherCAT®



Architecture



Specifications

Following are the technical specifications of the Product:

Processor	Arm® Cortex®-A7 Dual Core
RAM	1GB DDR3
Storage	4GB eMMC 16Mb Flash
Security	TPMv2.0
Ethernet	2 x 10/100Mbps Industrial Ethernet 3 x 1Gb/s
CAN	2x CAN
Power Consumption	TBD
Ethernet-APL	2x Advanced Physical Layer for the Hazardous location use
PoDL	Power over Data Lines
OS	Linux - YOCTO
Communications/Protocols	ETHERCAT PROFINET ETHERNET I/P OPC-UA *Any one of these at a time will be active

Connectivity	**Wired**	Isolated Serial (2x RS485, 2x RS232) 2 x USB 2.0 Console Port
	Wireless	Wi-Fi BLE 5.0 4G LTE LoRa WAN (Optional)
IO Module		8 x Configurable IOs
Expandable IOs		300 IO Points
IO Scan rate		~ 1mS
Power Source		18-32VDC
Aux output		24VDC
Operating Temperature		-40°C to 70°C
Storage Temperature		-40°C to 85°C
Humidity		90% RH
Certification and Compliance		Controller: CE, RoHS, FCC Remote IOs: ATEX & IECEx (Class 1 Div 1 Group D T4)
LED Indicators		Power ON/OFF Cellular link and status Wi-Fi Status LoRa WAN Status (Optional) 2x RS485 RX/TX 2x RS232 RX/TX Fault Condition
DISPLAY		OLED

Mechanical Specifications

Specification	Description	
General		
Protection degree	IP2X	
External interface	Communication	5xRJ45 connector shielded. 2x M12 Connector 2xUSB Type A 1x USB Type C
	Module power supply	3-point removable spring clamp type terminal block
	I/O	5x4-point terminal blocks
	Serial Com	1x 6point terminal block 2x 5point

Applicable wire size	Communication	Ethernet cable that meets the 100BASE-TX & 1000BASE-TX standard USB cable that meets the USB2.0 standard Single Pair Ethernet Cable
	Module power supply	Stranded wire: 0.3 to 1.5^2 (22 to 16 AWG), terminal slot size: 2.8 x 2.0 mm
	I/O	Core: 0.2 to $1.0mm^2$ (24 to 16 AWG)
Module power supply	Voltage	24VDC (ripple rate: 5% or less) Allowable voltage range: 18 to 30 VDC
	Current	To be mentioned after actual measurement
	Protection	• Reverse polarity • Overcurrent Protection • Thermal run away
Applicable DIN rail	35 / 7.5 top-hat rail as per DIN EN 60715 with locking strip	
Approval	CE	
Dimensions	123 x 1117 x 45 mm (W x H x D) – Controller, Communication module 123 x 117 x 22 mm (W x H x D) – IO and other peripheral modules module	
Weight	To be mentioned after actual measurement	
Material	PC-ABS or ABS - Flammability classification in accordance with UL 94 V0	
Heat Dissipation	With Ventilation slots	
Mounting Orientation	Vertical	

IO Specifications for Hazardous Area

Analog Current IN	**Signal Type**	Current
	Signal type	0 mA to 20 mA, 4 mA to 20 mA, and ±20 mA
	Resolution	18 Bit
	Accuracy FSR	0.2%
	Input resistance (max.)	1 MΩ
	Measurement error (reference temperature)	25°C

	Signal type (Voltage configurable)	Yes
	No of Channels/Wires	4 x (6 Wire with 5V sourcing) Configurable
	Protection	Over voltage
Analog Voltage V-IN	**Signal Type**	Voltage
	Signal type (voltage)	±10 V, ±5 V, ±2.5 V, 0 V to 10 V
	Signal type (Voltage configurable)	Yes
	Accuracy	0.2%
	Resolution	18 Bit
	Input impedance (max.)	1 MΩ
	Measurement error (reference temperature)	25°C
	No of Channels/Wires	4 x (4 Wire with 5V sourcing) Configurable
	Protection	Over voltage
Analog Current OUT	**Signal Type**	Analog Current
	Output Range	0-20mA, 4-20mA
	No of Channels/Wires	2 x (4 Wire)
	Source for current	Input 15V
	Output load Resistance	500 ohms max
	Resolution	12 Bit
Analog Voltage OUT	**Signal Type**	Analog Voltage
	Output Range	0-10VDC
	Protection	Output short and over current
	No of Channels/Wires	2 x (4 Wire)
	Resolution	12 Bit
Digital IN	**Signal Type**	Digital
	Source type	Internal On board 15VDC Input
	Input type:	Dry and Wet contact
	No of Channels/Wires	3x (2 wire)
	Output Characteristics	High side switch
	Protection	Over voltage
Digital OUT	**Signal Type**	Digital
	Signal Type (Voltage)	15VDC
	No of Channels/Wires	4 x (4 wire)
	Output Characteristics	High Side Switch
	Output Current per Channel	50mA
	Load Type	Resistive, inductive, lamp load
	Switching rate max	1000 Hz
	Protection	Over voltage

IO Specifications for Non-Hazardous Area

Analog Current IN	**Signal Type**	Current
	Signal type	0 … 25mA
	Resolution	16 Bit
	Accuracy FSR	0.1%
	Input resistance (max.)	100 ohms
	Signal type (Current configurable)	Yes
	Sensor connection	8 x (2 Wire)
	Protection	Short-Circuit Protection
	Measurement error (Reference temperature)	25°C
	Indicators	LED green: Status AI 1 … AI 8
	Isolation Type	Digital Isolation
	Isolation Voltage	3750Vrms System/Field
Analog Voltage V-IN	**Signal Type**	Voltage
	Signal type (voltage)	0 … 10 VDC
	Signal type (Voltage configurable)	Yes
	Sensor connection	8 x (2 Wire)
	Accuracy FSR	0.1%
	Resolution	16 Bit
	Internal resistance	195 KΩ
	Measurement error (Reference temperature)	25°C
	Indicators	LED green: Status AI 1 … AI 8
	Isolation Type	Digital Isolation
	Isolation Voltage:	3750Vrms System/Field
	Protection	Over voltage
Analog Current OUT	**Signal Type**	Analog Current
	Output Range	0-25mA, 4-20mA DC
	Connection	8 x (2 Wire)
	Source for current	Input 24V
	Accuracy FSR	0.28%
	Output load Resistance	500 ohms max
	Indicators	LED green Status AO 1 to AO 8
	Isolation Type	Digital Isolation
	Isolation Voltage	3750Vrms System/Field
	Protection	Output short and Open circuit Detection
	Resolution	13 Bit
	Signal Type	Analog Voltage

Analog Voltage OUT	**Output Range**	0-10VDC
	Resolution	13 Bit
	Source for voltage	Input 24V
	Accuracy FSR	0.28%
	Sensor connection	8 x (2 Wire)
	Indicators	LED green: Status AO 1 … AO 8
	Isolation Type	Digital Isolation
	Isolation Voltage	3750Vrms System/Field
	Protection	Short circuit protection
Digital IN	**Signal Type**	Digital/Pulse
	Signal Type (Voltage)	24VDC
	Connection	8 x (2 wire)
	Output Characteristics	High Side Switch
	Input Current per Channel	24mA
	Input Data rate	5KHz
	Isolation Type	Digital Isolation
	Isolation Voltage	3750Vrms System/Field
	Indicators	LED green: Status DI 1 … DI 8
	Protection	Over voltage The digital input thresholds are set by an internal DAC and Program the current sink and the threshold voltages to enable compatibility with Type I and Type III of the IEC 61131-2.
Digital OUT	**Signal Type**	Digital
	Signal Type (Voltage)	24VDC
	Connection	8 x (2 wire)
	Output Characteristics	High Side Switch
	Output Current per Channel	500mA
	Load Type	Resistive, inductive, lamp load
	Isolation Type	Digital Isolation
	Isolation Voltage	3750Vrms System/Field
	Indicators	LED green: Status DO 1 … DO 8
	Protection	Over voltage, Analog undervoltage (UV) and overvoltage (OV) protection, Power-good and fault outputs, Automatic retry or latch-off on current fault
	Switching rate max.	100Hz

RTD IN (SEPARATE MODULE)	**Signal Type**	Resistance Measurement
	Connection	4 x (3 wire)
	Sensor Type	Pt100/Pt1000
	Error Measurement Temperature	25°C
	Isolation Type	Digital Isolation
	Isolation Voltage	3750Vrms System/Field
	Indicators	LED green Status AI 1 … AI 4
	Protection	Over voltage
	Resolution (over entire range)	0.5 °C
RELAY (SEPARATE MODULE)	**No of contacts**	4
	Maximum continues current	6A
	Inrush current (resistive) max.	(AC) 20 A
	Switching voltage (max.)	250V AC
	Switching power (resistive) max.	AC 1500 VA

EMI/EMC Specifications

Specification	Description
Operation/Storage temperature	Operating ambient temperature : -40 to 70°C
	Storage ambient temperature : -40 to 85°C*
Relative humidity	Operating ambient humidity : 10 to 95%RH, non-condensation
	Storage ambient humidity : 10 to 95%RH, non-condensation
Operating atmosphere	Corrosive gases must not be present
Operating altitude	1000m or less
Installation position	Inside control panel
Emission requirements (IEC 61131-2/ Zone B)	
EN IEC 61000-6-4, CISPR16-2-3 Radiated emission	30MHz-230MHz: 50dB (µV/m) quasi peak value 230MHz-1GHz: 57dB (µV/m) quasi peak value
Emission requirements (EN 61131-2/ Zone B)	
EN IEC 61000-6-4, CISPR16-2-3 Conducted emission (Emissions related to lines)	For Mains 24VDC, 150KHz-5MHz: QP – 89 to 83 dB, Avg. value: 76 to 70 dB 5MHz-30MHz: QP – 83 dB, Avg. value: 70 dB Communication lines, 150KHz-500KHz: QP – 97 to 87 dB, Avg. value: 84 to 74 dB 500KHz-30MHz: QP – 87 dB, Avg. value: 74 Db
Immunity requirements (EN 61131-2/ Zone B, EN IEC 61000-6-2)	

EN61000-4-2 Electrostatic discharge immunity	Air discharge: ±8KV, Criteria B Contact discharge: ±4KV, Criteria B
EN61000-4-3 Radiated RF electromagnetic field immunity	80 MHz to 1000 MHz, 10V/m, Criteria A. 1.4 GHz to 2 GHz, 3 V/m, Criteria A. 2 GHz to 2.7 GHz: 1 V/m, Criteria A.
EN61000-4-4 Electric fast transient/ Burst immunity	For Mains 24 VDC: ±2 KV/ 5 KHz, Criteria B. For Digital IOs, analog IOs and communication lines: ±1 KV/ 5 KHz, Criteria A
EN61000-4-5 Surge immunity	For Mains 24 VDC: DM: ±0.5 KV, CM: ±1 KV, Criteria B. Shielded lines of communication ports: ±1 KV, Criteria B.
EN61000-4-6 Conducted RF immunity	For Mains 24 VDC: 10Vrms, 150 KHz to 80 MHz, 80% AM (1 kHz), Criteria A. For Digital IOs, analog IOs and communication lines: 10Vrms, 150 KHz to 80 MHz, 80% AM (1 kHz), Criteria A.
EN61000-4-8 Power-frequency magnetic field immunity	30 A/m, 3 axes (x, y, z), 50/60Hz, Criteria A
EN61000-4-11 Voltage dips and short interruptions immunity*1	0% residual voltage, ≥ 10 ms (PS2), Criteria C. 40% residual voltage, Criteria B. 70% residual voltage, Criteria B.
Mechanical conditionsc for enclosure (EN 61131-2)	
Solvent Wipe	UL/CSA 61010-1:2012 Clause 5.3
Drop Tests	ASTM D5276
Impact Test	CSA Standard C22.2 No. 68-1981, Paragraph 6.13.2
Vibration	35 g rms