Micro800™ programmable logic controller (PLC) family

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expanding **human possibility**®

Agenda

1 Micro800™ controller family overview

2 Connected Components Workbench™ software overview

3 Micro800™ control system benefits

4 Applications for Micro800™ control system

5 Resources

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Micro800™ controller family overview

Micro810® controllers
Function as smart relays with a nano-sized footprint

Micro820® controllers
Optimized for smaller standalone machines and remote automation projects

Micro850® controllers
Built for larger standalone machine development, which requires flexible communications and greater I/O capabilities
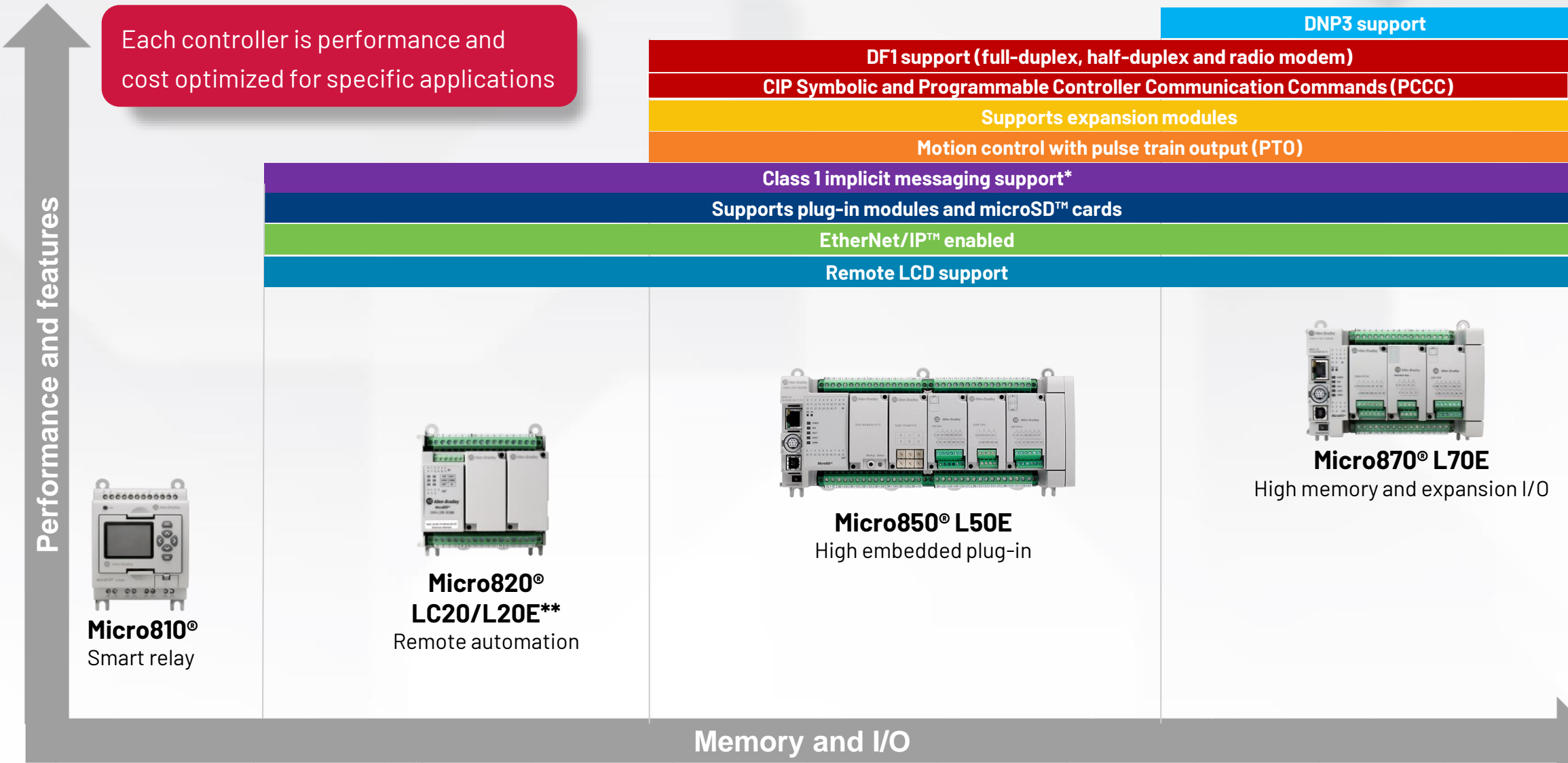
Micro870® controllers
Offer the highest memory and I/O with more communication options for more programming freedom

Micro800™ expansion I/O and plug-in modules
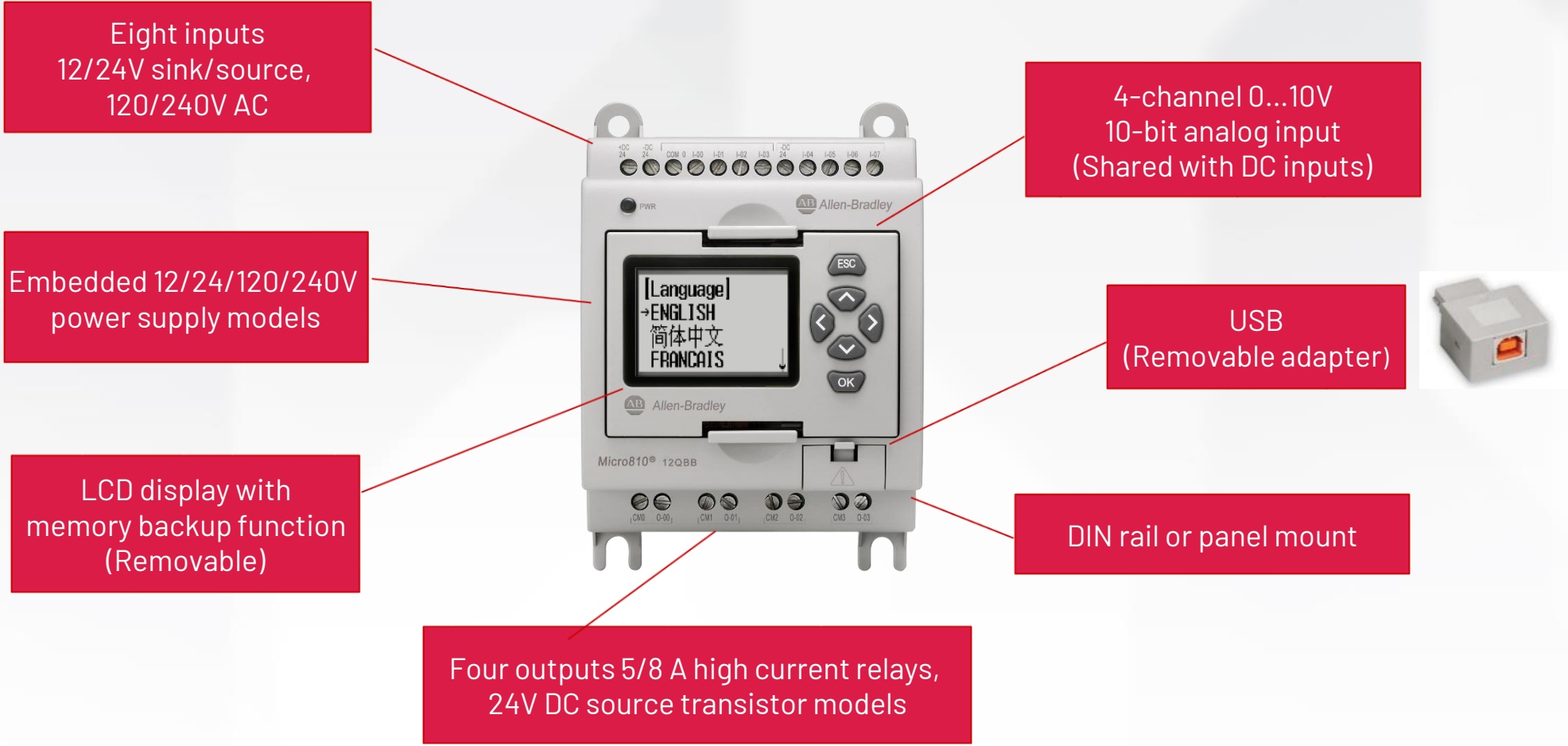Extend functionality without increasing the controller footprint

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Micro800™ controller family

Each controller is performance and cost optimized for specific applications

DNP3 support

DF1 support (full-duplex, half-duplex and radio modem)

CIP Symbolic and Programmable Controller Communication Commands (PCCC)

Supports expansion modules

Motion control with pulse train output (PTO)

Class 1 implicit messaging support*

Supports plug-in modules and microSD™ cards

EtherNet/IP™ enabled

Remote LCD support

Performance and features ↑

Memory and I/O →

Micro810®
Smart relay

**Micro820®
LC20/L20E****
Remote automation

Micro850® L50E
High embedded plug-in

Micro870® L70E
High memory and expansion I/O

Available with Micro800™ Lx0E** controllers only*
*** Micro820 L20**E** are scheduled to release in Q1 calendar year 2025. Release schedule is subject to change.*

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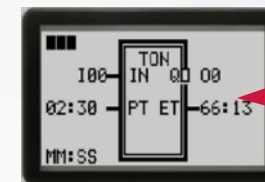# Micro810® controller anatomy

Smart relay micro programmable logic controller (PLC), 12-point

Eight inputs
12/24V sink/source,
120/240V AC

4-channel 0...10V
10-bit analog input
(Shared with DC inputs)

Embedded 12/24/120/240V
power supply models

USB
(Removable adapter)

LCD display with
memory backup function
(Removable)

DIN rail or panel mount

Four outputs 5/8 A high current relays,
24V DC source transistor models

Micro810® controllers

Smart relay micro programmable logic controller (PLC), 12-point

- Offer the price of a smart relay with the programming capabilities of a micro programmable logic controller (PLC). As part of the Micro800™ controller family, Micro810® controllers share a common programming environment as Micro820®, Micro850® and Micro870® controllers.

- Provide embedded smart relay function blocks configured from 1.5 in. LCD and keypad
  - No software or program download required
  - For relay applications requiring a small amount of logic up to four function blocks, such as programmable timer, lighting control and more.
  - Function blocks include Delay OFF/ON Timer, Time of Day, Time of Week, Time of Year and Counter

- Include high current (8 A) relay outputs, which replace the need for external relays

- Support up to four configurable analog input channels

- Allow program download via USB programming port (adapter required)

- Offer an optional 1.5 in. LCD display, which can be inserted onto the front of the controller and removed under power
  - Controller configuration and I/O status monitoring
  - Memory backup function
  - Run/Program mode switching
  - LCD password

- Include the LCD instruction, which allows the LCD display and keypad to be used as simple 4-line text display with six buttons available as inputs
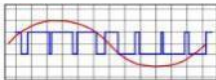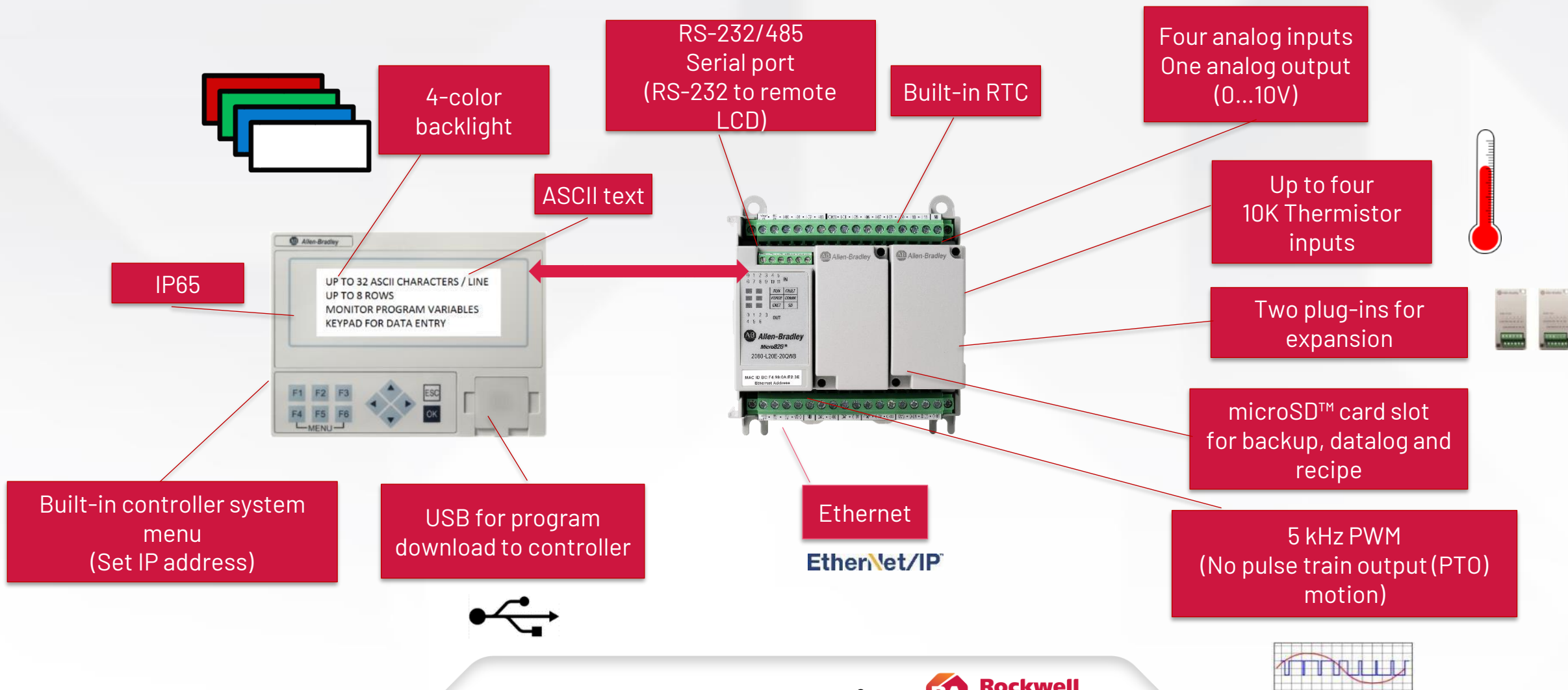
Smart relay function blocks

Monitoring

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Micro820® controller anatomy

Ethernet enabled for remote automation, 20-point

4-color backlight

RS-232/485 Serial port (RS-232 to remote LCD)

Built-in RTC

Four analog inputs One analog output (0...10V)

ASCII text

Up to four 10K Thermistor inputs

IP65

UP TO 32 ASCII CHARACTERS / LINE
UP TO 8 ROWS
MONITOR PROGRAM VARIABLES
KEYPAD FOR DATA ENTRY

Two plug-ins for expansion

microSD™ card slot for backup, datalog and recipe

Built-in controller system menu (Set IP address)

USB for program download to controller

Ethernet

EtherNet/IP™

5 kHz PWM (No pulse train output (PTO) motion)

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Micro820® controllers

Ethernet enabled for remote automation, 20-point

- Designed for small standalone machines and remote automation applications

- Function as a remote terminal unit (RTU) for SCADA applications with support for CIP and Modbus over Serial and Ethernet communications

- Provide embedded support for four thermistor temperature inputs function as a direct digital control (DDC) for building management systems (BMS)

- Offer embedded 4-channel analog inputs and 1-channel analog output for speed or torque control

- Communicate via EtherNet/IP™ for Connected Components Workbench™ programming, RTU applications and human machine interface (HMI) connectivity
  - Faster controller communication over Ethernet with firmware revision 14.011 or later as compared to firmware revision 12.013

- Require 5 kHz PWM output for controlling solenoids and valves

- Provide built-in real-time clock (RTC) with no battery required

- Support microSD™ card slot for program transfer, datalog and recipe management. Supported formats are FAT 32/16 with a maximum card size of 32 GB. The microSD™ card class speeds supported are Class 6, 10 SDSC and SDHC.

- Work with removable terminal blocks for easier wiring and installation

- Support up to two plug-in modules

- Offer an optional remote 3.5 in. LCD display, which connects to the embedded RS-232 port in the controller

Remote LCD display

An essential accessory for Micro820® controllers

- Micro800™ remote LCD display connects to the embedded RS-232 port to provide visualization and control for the Micro820® controller

- Provides a configurable startup screen with four or eight lines of ASCII text and a tactile keypad with six programmable function keys

- View and edit the controller variables directly from the system menu in multiple languages

- Configures the MAC address of the controller from the menu easily

- Includes four backlight colors, which can be programmed for alarm function

- Supports DIN rail mounting next to the controller. Rated IP65 and suitable for front panel mounting.

- Supports program download through USB port

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Micro820® L20E controllers

Higher performance, more capability

- Support USB Type C connectivity for quick configuration and program download

- Support Class 1 implicit messaging for up to four nodes

- Increase performance to program execution, I/O response and communication performance

- Connected Component Workbench™ software version 23 is the required minimum for the new Micro820® L20E controllers
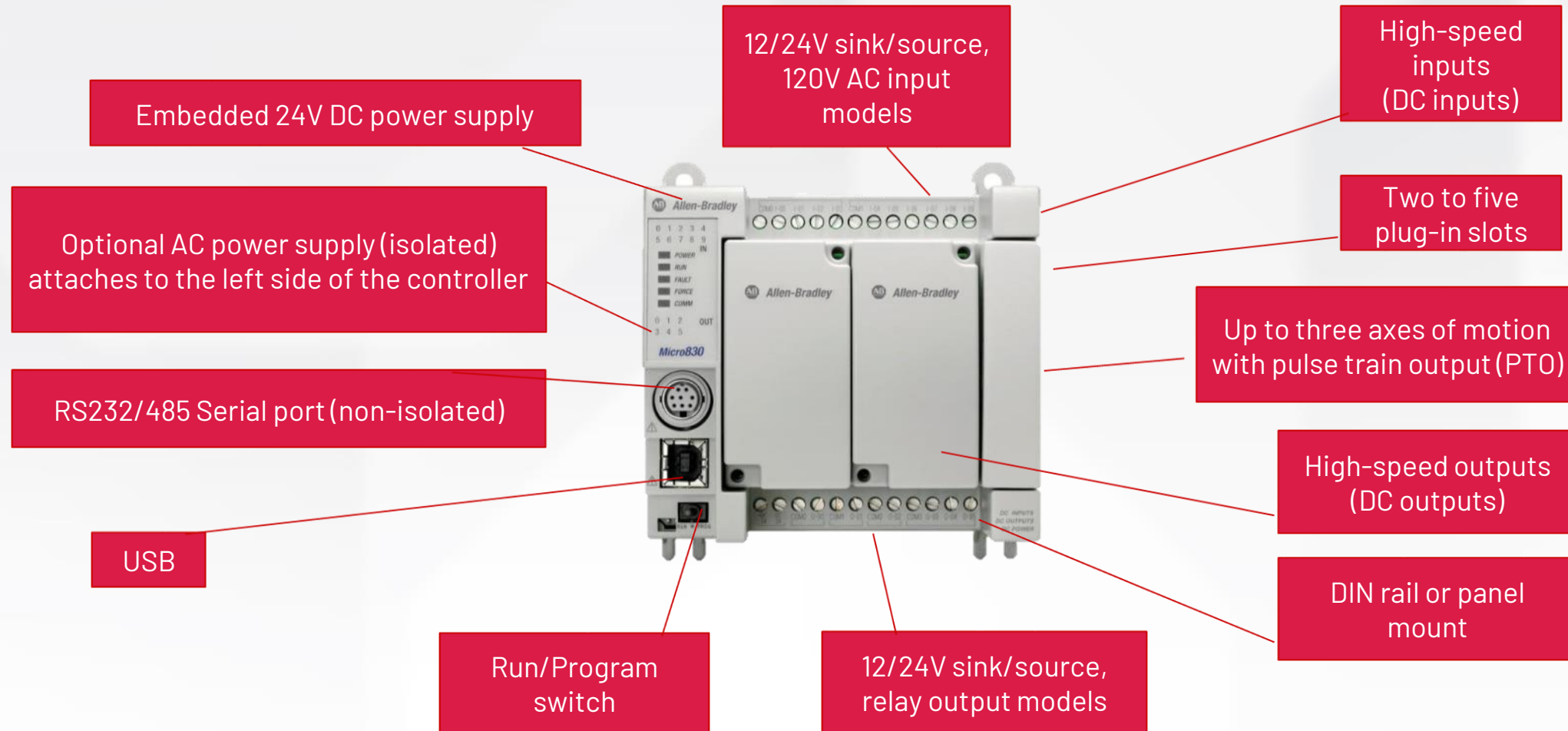
Ethernet port

USB Type C port

Micro820® L20E controller

EtherNet/IP™ (up to four nodes)
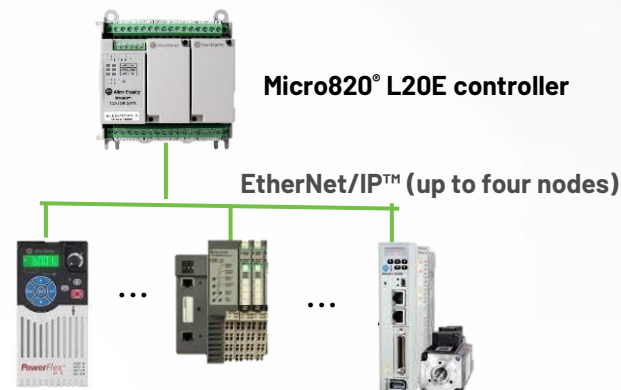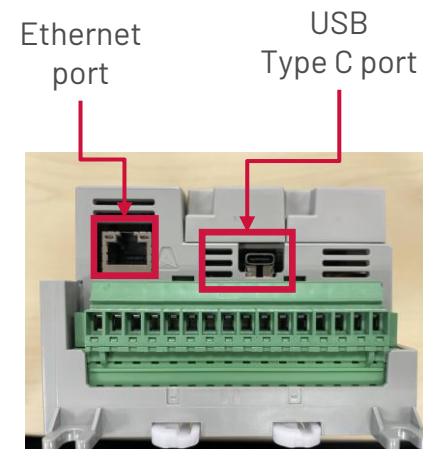
Micro830® controller anatomy

Flexible with simple motion, 10/16/24/48-point

12/24V sink/source, 120V AC input models

High-speed inputs (DC inputs)

Embedded 24V DC power supply

Two to five plug-in slots

Optional AC power supply (isolated) attaches to the left side of the controller

Up to three axes of motion with pulse train output (PTO)

RS232/485 Serial port (non-isolated)

High-speed outputs (DC outputs)

USB

DIN rail or panel mount

Run/Program switch

12/24V sink/source, relay output models

Micro830® controllers

Flexible with simple motion, 10/16/24/48-point

- Designed for standalone machine control applications that require flexible communications and I/O capabilities
- Deliver flexibility with customizable options – "Pay for only what you need"
  - Support up to five plug-in slots and expandable up to 88 digital I/O, 20 analog I/O and six serial ports
  - Plug-ins customize base unit with additional digital and analog I/O, communication modules and application-specific modules
- Offer form factor that is based on the number of I/O points being embedded in the base: 10, 16, 24 or 48 points
  - Entire family shares plug-ins and accessories
  - Removable terminal blocks available on 24-point and 48-point models for easier wiring
- Provide embedded communications via USB programming, non-isolated Serial port (RS-232/RS-485 communications), CIP, Modbus RTU (Master/slave) and ASCII
- Provide embedded motion capabilities with up to three axes of motion on Transistor output models
  - High speed (100usec) interrupts - supported on DC input models and allows up to six 100 kHz high-speed counter (HSC) inputs with PLS support
  - Up to three 100 kHz pulse train outputs (PTO)
  - Single axis moves supported via motion instructions
  - Touch Probe helps to register the exact position of an axis that is based on an asynchronous event. It is embedded in the controller hardware and is more accurate than interrupts alone.

10/16-point

24-point

48-point

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Micro850® controller anatomy

Customizable with plug-in and expansion I/O modules

Embedded 24V DC power supply

Up to three axes of motion with PTO

High-speed inputs and outputs (DC inputs/outputs)

Up to four expansion I/O modules

Ethernet

Bus terminator 2085-ECR

RS232/485 Serial port (non-isolated)

12/24V sink/source, relay output models

Support a maximum of 192 I/O points

USB

Up to five plug-in slots

Optional AC power supply (isolated) attaches to the left side of the controller

Run/Program switch

DIN rail or panel mount

Removable terminal blocks on both controller and expansion I/O

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Micro850® controllers

Customizable with plug-in and expansion I/O modules

- Designed for larger standalone machine applications that require Ethernet connectivity, higher density, higher precision analog and digital I/O

- Built upon the Micro830® controller* with additional capabilities:

  - Offer the same form factor, plug-in support, instruction/data size and motion capabilities as Micro830® 24-point and 48-point controllers*

  - Support EtherNet/IP™ and Modbus TCP/IP via embedded Ethernet port

  - Support up to four Micro800™ expansion I/O modules (Bulletin 2085) and expandable up to 192 digital I/O

- Micro800™ expansion I/O module can be snapped firmly to the right side of the Micro850® controller to form a solid block. This feature helps ease the installation of Micro850® controller and expansion I/O modules onto the panel.

Micro830® controllers are discontinued as of December 31, 2023

Micro850® controller catalogs 2080-L50E-xxxxx

Enhanced protocol communication

Expanded DF1 communications support

- Additional modes, including full-duplex master, half-duplex slave and radio modem

- Supported via Serial port (embedded and plug in)

Application layer protocols are supported in the DF1 capability

- Includes CIP™ Serial, which is the same as the existing Micro800™ controllers

- Programmable Controller Communication Commands (PCCC) are supported in Micro850® L50**E** controllers firmware revision 23.011 and later

Broadcast function is not supported

Class 1 implicit messaging capability

- Requires firmware revision 21.011 or later

- Up to eight nodes

- Pre-defined tags supported for PowerFlex® 520 series and Kinetix® 5100 drives

Enhanced HMI and SCADA communication

- Requires firmware revision 22.011 or later

- Faster controller communication over Ethernet as compared to firmware revision 21.011
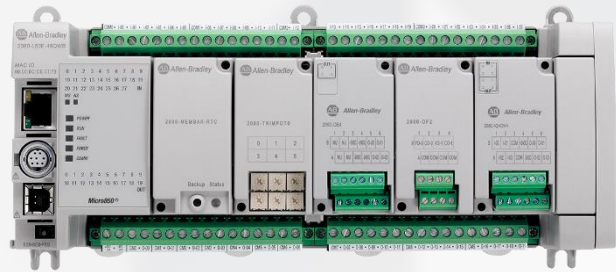
Micro850® L50E catalogs	LC50 catalogs (Discontinued as of July 31, 2023)
2080-**L50E**-24QBB	2080-LC50-24QBB
2080-**L50E**-24QWB	2080-LC50-24QWB
2080-**L50E**-24AWB	2080-LC50-24AWB
2080-**L50E**-48AWB	2080-LC50-48AWB
2080-**L50E**-24QVB	2080-LC50-24QVB
2080-**L50E**-48QBB	2080-LC50-48QBB
2080-**L50E**-48QWB(K)	2080-LC50-48QWB(K)
2080-**L50E**-48AWB	2080-LC50-48AWB
2080-**L50E**-48QVB	2080-LC50-48QVB

See <u>Micro850® and Micro870® controller catalog 2080-Lx0E Customer Presentation</u> for more technical information.

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Micro850® L50E controller firmware revision 23

Enhancements and new capabilities

- New Micro800™ remote LCD connectivity to Micro850® L50**E** controllers firmware revision 23

  - Supports the remote LCD instructions that can programmatically control the LCD

    - KEY_READ_REM, LCD_BKLT_REM, LCD_REM

  - Performs the same functions that are used in MicroLogix™ 1400 LCD

    - Monitors variables, mode changes, program backup and restore, and so on

  - Connects to the embedded serial din connector only

Micro800™ remote LCD

RS-232

Micro850® L50E or
Micro870® L70E controller

- New Programmable Controller Communication Commands (PCCC) functionality supported with Micro850® L50**E** controller firmware revision 23

  - Enables a more cost-effective modernization path from MicroLogix™ controller

  - Allows users to retain communication method with their HMI/SCADA solution

Legacy address mapping
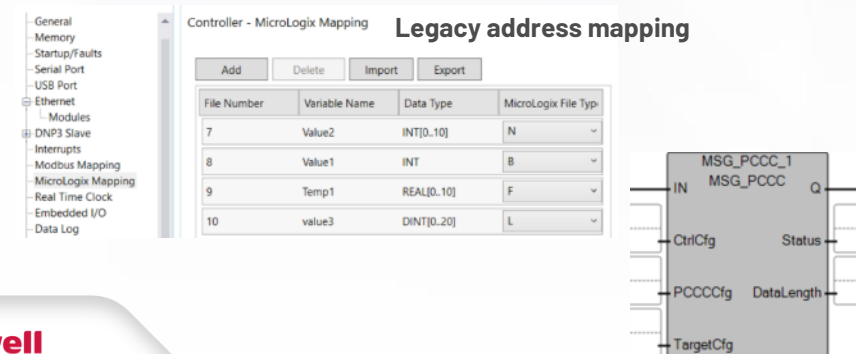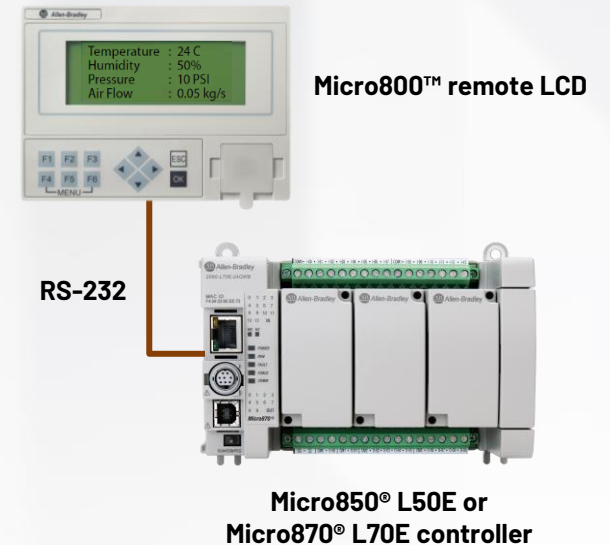
Micro870® controller anatomy

Highest memory and I/O with more communication options

- Up to eight expansion I/O modules
- Up to 304 local I/O

- 2x the program and data memory capacity of the Micro850® controller
- Up to 20,000 steps

Expansion power supply module, catalog 2085-EP24VDC, is required when configuring more than four expansion I/O modules

EtherNet/IP

- Ethernet, Serial and USB ports
- Native EtherNet/IP™, Modbus-TCP/IP, Modbus RTU, ASCII, DF1 with PCCC* support and DNP3**
- Open socket programming
- Class 1 implicit messaging

Catalog 2080-MEMBAK-RTC2
- Memory backup module with larger memory capacity to support Micro870® projects
- Compatible with both Micro850® and Micro870® controllers

Plug-in modules to customize base controller with more I/O and communication ports

- PID with autotune
- Four 100 kHz high-speed counter (HSC)
- Two 100 kHz pulse train output (PTO)
- PLCopen® motion instructions

*Available in Micro870® L70**E** controllers supported with Connected Components Workbench™ software version 22 or later.
Available in Micro870® L70E** controllers supported with Connected Components Workbench™ software version 20.01 or later.

Micro870® controller scales the Micro800™ family up to CompactLogix® 5370 L1 controller

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Micro870® controllers

Do more with Micro870® controllers

Support a wider range of OEM applications with a higher I/O capacity

- Applications include multi-track intermittent VFFS machines, large standalone curing machine, gas cabinet in semiconductor, pipe heating systems, mono-layer blown film extrusion, large heat exchange systems, large welding machine, and more.

Gain programming freedom and reduce development time with additional memory

- Enable more modular programming with user-defined function blocks (UDFB) and user-defined functions (UDF)

- Require lesser need to optimize memory consumption

- Allow machine builders to maintain just one large program for all machine models and configurations

Up to 20,000 instructions

Micro870®

Up to 304 I/O points eight expansion modules

Up to 10,000 instructions

Micro850®

Up to 132 I/O points four expansion modules

MicroLogix™ 1400

Up to 256 I/O points seven expansion modules

Memory capacity

I/O capacity

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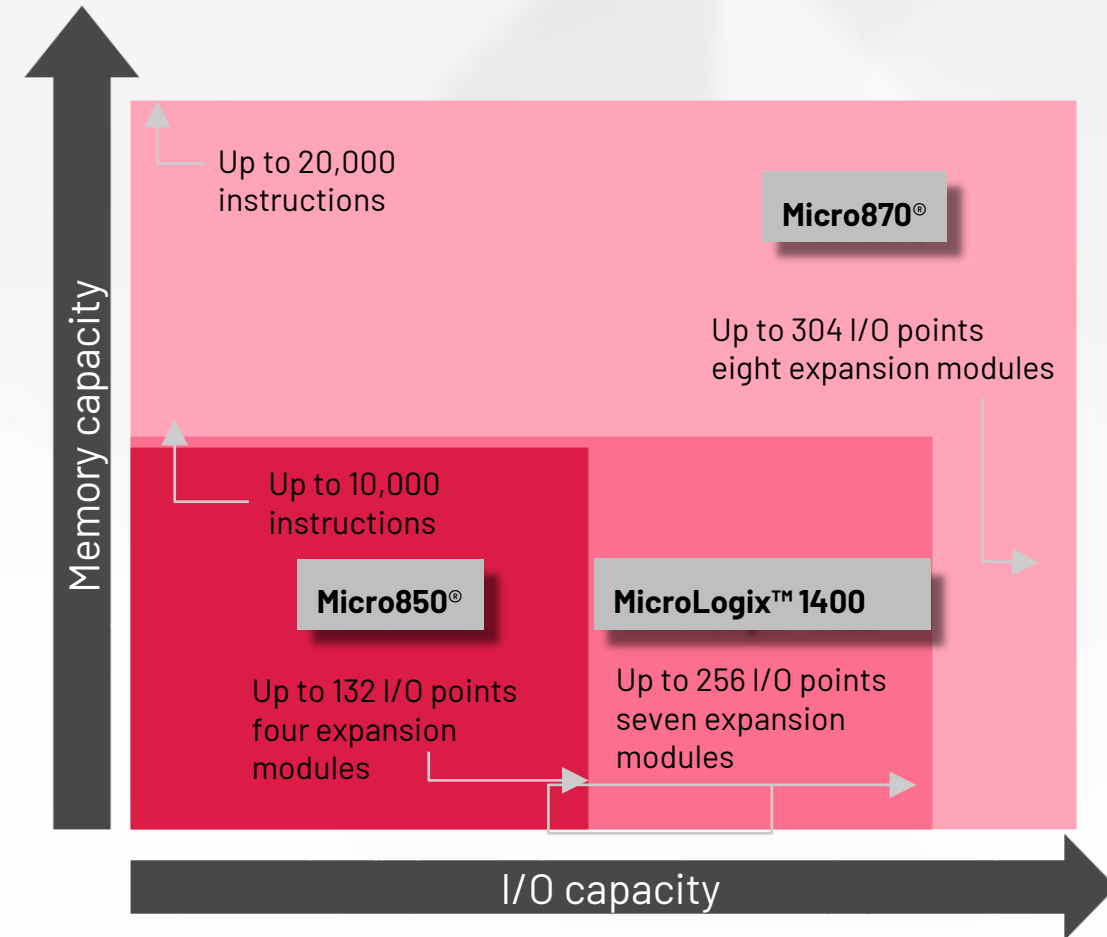
Micro870® controller catalogs 2080-L70E-xxxxx

Increase legacy protocol connectivity on Serial and/or Ethernet ports

Expanded DF1 protocol support

- Supports all DF1 modes: Full-duplex, half-duplex and radio modem

- Supported via Serial port (embedded and plug in)

- Includes CIP™ Serial, which is the same as the existing Micro800™ controllers

- Supports Programmable Controller Communication Commands (PCCC) functionality with firmware revision 22.011 or later

Additional DNP3 protocol support

- Micro870® controllers with DNP3 support Secure Authentication version 2 (SAv2) and version 5 (SAv5)

- Supported via Serial (embedded and plug in) and Ethernet ports

- Connected Components Workbench™ software version 20.01 is the required minimum to configure and program the DNP3 enabled Micro870® controller catalogs 2080-L70**E**-24QxxN

Class 1 implicit messaging capability

- Requires firmware revision 21.011 or later

- Up to eight nodes

- Pre-defined tags supported for PowerFlex® 520 series and Kinetix® 5100 drives

Enhanced HMI and SCADA communication

- Requires firmware revision 22.011 or later

- Faster controller communication over Ethernet as compared to firmware revision 21.011

Micro870® L70E catalogs	LC70 catalogs (Discontinued as of July 31, 2023)
2080-**L70E**-24AWB	2080-LC70-24AWB
2080-**L70E**-24QBB(K)	2080-LC70-24QBB(K)
2080-**L70E**-24QWB(K)	2080-LC70-24QWB(K)
2080-**L70E**-24QBBN	
2080-**L70E**-24QWBN(K)	

Programmable Controller Communication Commands (PCCC) support in Micro850®* and Micro870® 2080-Lx0E controllers

Commands supported

SCADA

PCCC commands		PCCC instructions	Automatic response if query
SLC Typed Read	Command 0F, Function A2 – protected typed logical read with three address fields (file, element, sub-element)	Yes	Yes
SLC Typed Write	Command 0F, Function AA – protected typed logical write with three address fields (file, element, sub-element)	Yes	Yes
Protected Typed Logical Read	With 2 address fields: Command 0F, Function A1 – protected typed logical read with two address fields (file, element)	No	Yes
Protected Typed Logical Write	With 2 address fields: Command 0F, Function A9 – protected typed logical write with two address fields (file, element)	No	Yes
	With 4 address fields: Command 0F, Function AB – protected typed logical write with four address fields ((file, element, sub-element, bit mask: for writing individual bits within an integer)	No	Yes

Using PCCC

MicroLogix™ 1400 controller

Micro850® L50E* or Micro870® L70E controller
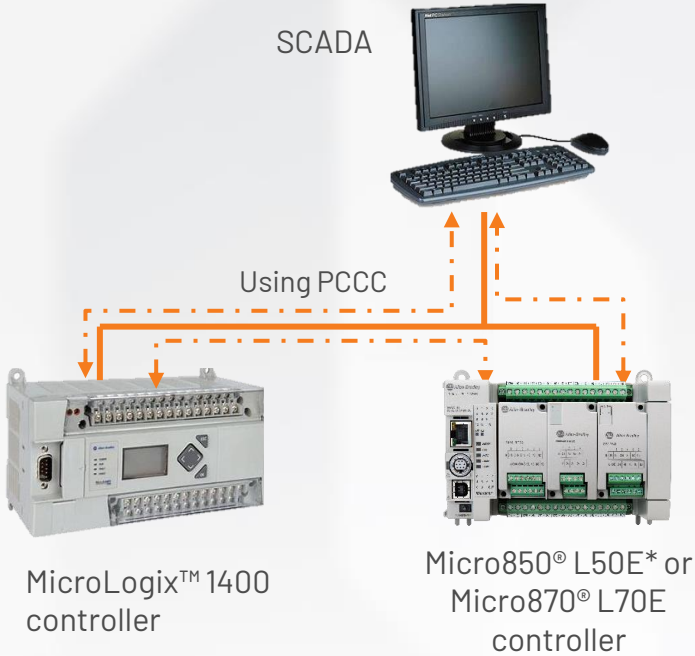
Mapping of legacy address in Connected Components Workbench™ software version 22

Controller - MicroLogix Mapping

| Add | Delete | Import | Export |

File Number	Variable Name	Data Type	MicroLogix File Type
7	N	INT[0..10]	N
8	F	REAL[0..10]	F
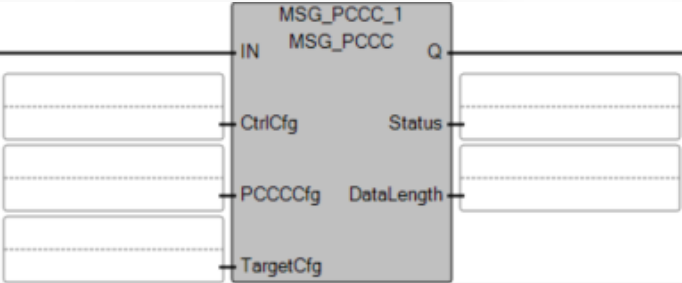
MSG_PCCC_1
MSG_PCCC

IN   Q

CtrlCfg   Status

PCCCCfg   DataLength

TargetCfg

*Available in Micro850® L50**E** controllers supported with Connected Components Workbench™ software version 23 or later.*

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Programmable Controller Communications Commands (PCCC) support on Micro850®* and Micro870® 2080-Lx0E controllers

PCCC example communicating to a MicroLogix™ 1400 controller

Using PCCC

MicroLogix™ 1400 controller

Micro850® L50E* or Micro870® L70E controller

- Perform a Float data Read from MicroLogix™ 1400 controller to Micro850®* or Micro870® 2080-Lx0**E** controller
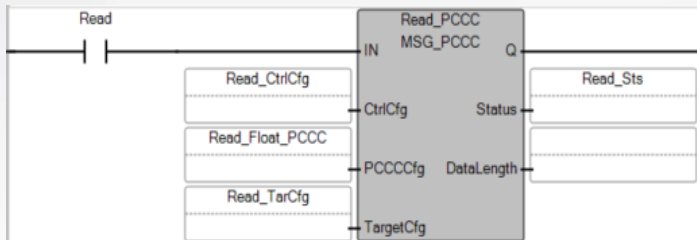
Name	Alias	Data Type	Dimension	Project Value	Initial Value
Read_CtrlCfg		CIPCONTR... ∨		...	...
Read_CtrlCfg.Cancel		BOOL			
> Read_CtrlCfg.TriggerType		UDINT			50
> Read_CtrlCfg.StrMode		USINT			
Read_Float_PCCC		PCCC_CFG ∨		...	...
> Read_Float_PCCC.FncCode		USINT			1
Read_Float_PCCC.SrcAdr		STRING			'F8:0'
> Read_Float_PCCC.NumOfElements		USINT			1
Read_Float_PCCC.DstAdr		STRING			'Read_Float_Data'
Read_TarCfg		CIPTARGE... ∨		...	...
Read_TarCfg.Path		STRING			'4,192.168.3.33'
> Read_TarCfg.CipConnMode		USINT			1
> Read_TarCfg.UcmmTimeout		UDINT			0
> Read_TarCfg.ConnMsgTimeout		UDINT			0
Read_TarCfg.ConnClose		BOOL			FALSE

- Perform a Float data Write to MicroLogix™ 1400 from Micro850®* or Micro870® 2080-Lx0**E** controller
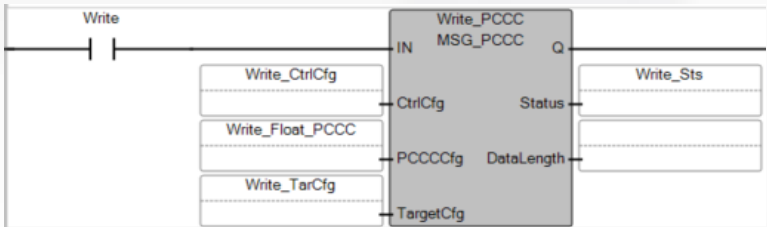
Name	Alias	Data Type	Dimension	Project Value	Initial Value
∨ Write_CtrlCfg		CIPCONTR... ∨		...	...
Write_CtrlCfg.Cancel		BOOL			
> Write_CtrlCfg.TriggerType		UDINT			50
> Write_CtrlCfg.StrMode		USINT			
∨ Write_Float_PCCC		PCCC_CFG ∨		...	...
> Write_Float_PCCC.FncCode		USINT			2
Write_Float_PCCC.SrcAdr		STRING			'Write_Float_Data'
> Write_Float_PCCC.NumOfElements		USINT			1
Write_Float_PCCC.DstAdr		STRING			'F8:0'
∨ Write_TarCfg		CIPTARGE... ∨		...	...
Write_TarCfg.Path		STRING			'4,192.168.3.33'
> Write_TarCfg.CipConnMode		USINT			1
> Write_TarCfg.UcmmTimeout		UDINT			0
> Write_TarCfg.ConnMsgTimeout		UDINT			0
Write_TarCfg.ConnClose		BOOL			FALSE

*Available in Micro850® L50**E** controllers supported with Connected Components Workbench™ software version 23 or later.*

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Micro870® L70E controllers

Enhancements and new capabilities

- New Micro800™ remote LCD connectivity to Micro870® L70**E** controllers firmware revision 23
  - Supports the remote LCD instructions that can programmatically control the LCD
    - KEY_READ_REM, LCD_BKLT_REM, LCD_REM
  - Performs the same functions that are used in MicroLogix™ 1400 LCD
    - Monitors variables, mode changes, program backup and restore, and so on
  - Connects to the embedded serial din connector only

Micro800™ remote LCD

RS-232

Micro850® L50E or
Micro870® L70E controller
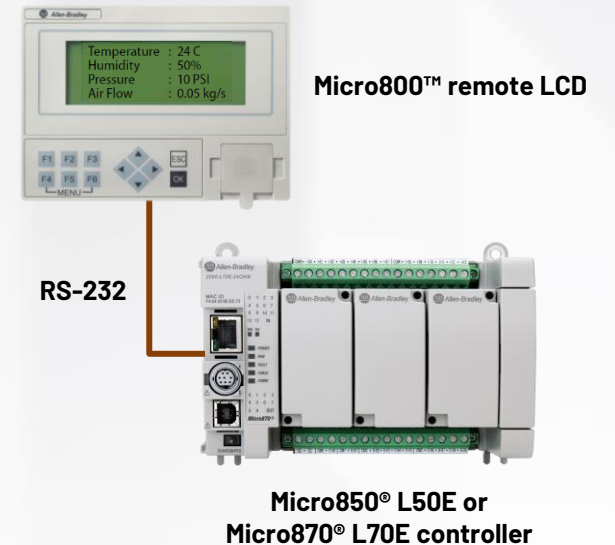
Micro800™ expansion I/O for Micro870® and Micro850® controllers

Maximize flexibility and functionality with minimal panel space

20% narrower than MicroLogix™ expansion I/O modules, Bulletin 1762

- Micro800™ expansion I/O comes as a single-width 28 mm (1.1 inches) and double-width 44.5 mm (1.75 inches) form factor

Digital I/O, analog I/O and Thermocouple/RTD modules

- Power supply expansion I/O, catalog 2085-EP24VDC
- Only used on Micro870® control systems with five or more expansion I/O modules

Robust and easy to mount
Attach to the right side of the controller and lock into place securely

Panel and DIN rail mounting
No extra parts required

Easy wiring with removable terminal blocks
Secure to the module firmly with screws
14 AWG wire support

Easy to view
Light-emitting diodes (LEDs)

Channel to route wiring to top and/or bottom
Secure wires with wrap hooks tie

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Micro800™ plug-in modules and accessories

Customize your applications with space-saving plug-in modules

- Change the "personality" of the base unit controller with plug-in modules

- Extend the functionality of the controller without increasing the panel space

- Allow highly customizable hardware configurations

- Provide a wide range of plug-in modules for Micro820®, Micro850® and Micro870® controllers

- The plug-in types include:

Analog I/O (2-channel/4-channel, non-isolated)	Digital I/O	Resistance temperature detector/Thermocouple (2-channel, non-isolated)	Trim potentiometer (6-channel, analog input)	Serial port RS232/485 (isolated)
• Up to 20 analog inputs	• Double the amount of digital I/O without increasing the controller footprint	• Makes temperature control possible when used with PID with autotuning	• Low-cost method of adding six analog presets for speed, position and temperature control • Allows simple tuning or adjustment of system without personal computer (PC)	• Address even the most intensive serial communications tasks with CIP, Modbus RTU and ASCII protocol support • Up to five additional serial ports

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Micro800™ plug-in modules and accessories

Customize your applications with space-saving plug-in modules

More plug-in types

- Back up memory with high accuracy real-time clock*

  - Catalog 2080-MEMBAK-RTC is not supported in Micro800™ 2080-Lx0**E** controllers

  - Clone/update Micro800™ application code

  - Gain precision real-time clock function without needing to calibrate or update

- DeviceNet® scanner

  - Enhance Micro800™ communication capabilities up to 20 nodes of PowerFlex® AC drives or CompactBlock™ LDX I/O modules

  - Reduce wiring and installation costs for larger standalone machines that have distributed drives and I/O

- Motion high-speed counter

  - Supports Touch Probe input in hardware for exact registration of axis

  - Provides position verification for servo feedback and encoder feedback modes

Backup memory with high accuracy real-time clock plug-in is not supported on Micro820® controller

Micro800™ plug-in modules and accessories

Customize your applications with space-saving plug-in modules

- Application-specific plug-ins from PartnerNetwork™ Technology Partners

  - Spectrum Controls microSD™ card plug-in* module for Micro850® and Micro870® controllers

  - Features support application code backup/restore, datalog and recipe

- Accessory – microSD™ card

  - Catalog number: 2080-SD-2GB

  - Description: The 2080-SD-2GB microSD™ card provides 2 GB of storage capacity for project backup and restore, data logging, and recipes.

*Not supported on Micro810® and Micro820® controllers

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Comparison between Micro800™ plug-ins versus expansion I/O

Features	Micro800™ plug-in modules	Micro800™ expansion I/O
Terminal block	Nonremovable terminal block	Removable terminal block
Input isolation	Non-isolated analog input	Isolated analog input
Analog resolution and accuracy	• 12-bit resolution for analog I/O • 1% accuracy for analog I/O • 1 °C (1.8 °F) accuracy for TC/RTD	• 14-bit resolution for input • 12-bit resolution for output • 0.1% accuracy for analog I/O • 0.5 °C (0.9 °F) accuracy for TC/RTD
Filter times	Fixed 50/60Hz filter	Configurable filter times
I/O density	2...8 points	4...32 points
Footprint	No increase in controller footprint	Width of controller increases with expansion I/O
Different variety of modules	• Isolated Serial port, Trimpot, Memory back-up, RTC, DeviceNet®, HSC, digital I/O, analog I/O, PartnerNetwork™ Technology Partners product	Digital and analog I/O modules only

Customer gets better I/O performance with expansion I/O

Rockwell Automation

Micro800™ optional power supply

- Catalog 2080-PS120-240VAC

  - Output is regulated 1.6 A at 24V DC for Micro800™ controllers

  - Typically used with smaller systems when the customer does not have their own existing 24V DC power supply

  - Used to provide isolated 24V DC power for noisy environments

  - Typically used with Micro820®, Micro850® and Micro870® controllers as these controllers do not have an integrated AC to DC power supply

- Catalog 2080-PSAC-12W

  - Output is regulated 0.5 A at 24V DC for Micro800™ controllers

  - Typically used with Micro820® 10/16-point controllers

- For more information, see the individual installation instructions

  - Micro800™ Programmable Controller External AC power Supply, Catalog 2080-PS120-240VAC, Installation Instructions (publication 2080-IN001)

  - Micro800™ Programmable Controller External AC Power Supply, Catalog 2080-PSAC-12W, Installation Instructions (publication 2080-IN011)

Note: Depending on application power requirements, a larger external power supply may be required.

Catalog 2080-PS120-240VAC
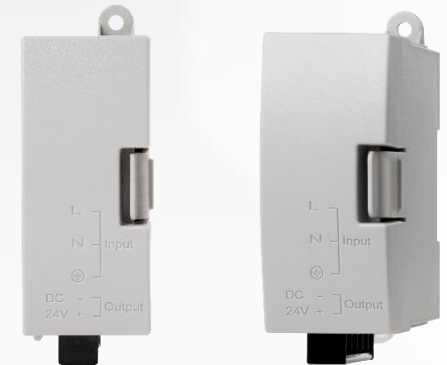
Catalog 2080-PSAC-12W

Optional power supply can be attached to the left side of the controller base unit – all wiring is external

Rockwell Automation

Connected Components Workbench™ software

One software for controller programming and simulation, device configuration and human machine interface (HMI) design

- Reduce development time with one software to configure multiple devices for standalone machines

- Ease connectivity to devices through various serial and network options, including Ethernet, Modbus, DNP3, and DF1

- Simplify programming with sample code, user-defined functions (UDF) and user-defined function blocks (UDFB)

- Increase security with the password set/verify and user project encryption/decryption

- Shorten design time by scaling controllers and applications with converter tool and copy/paste feature
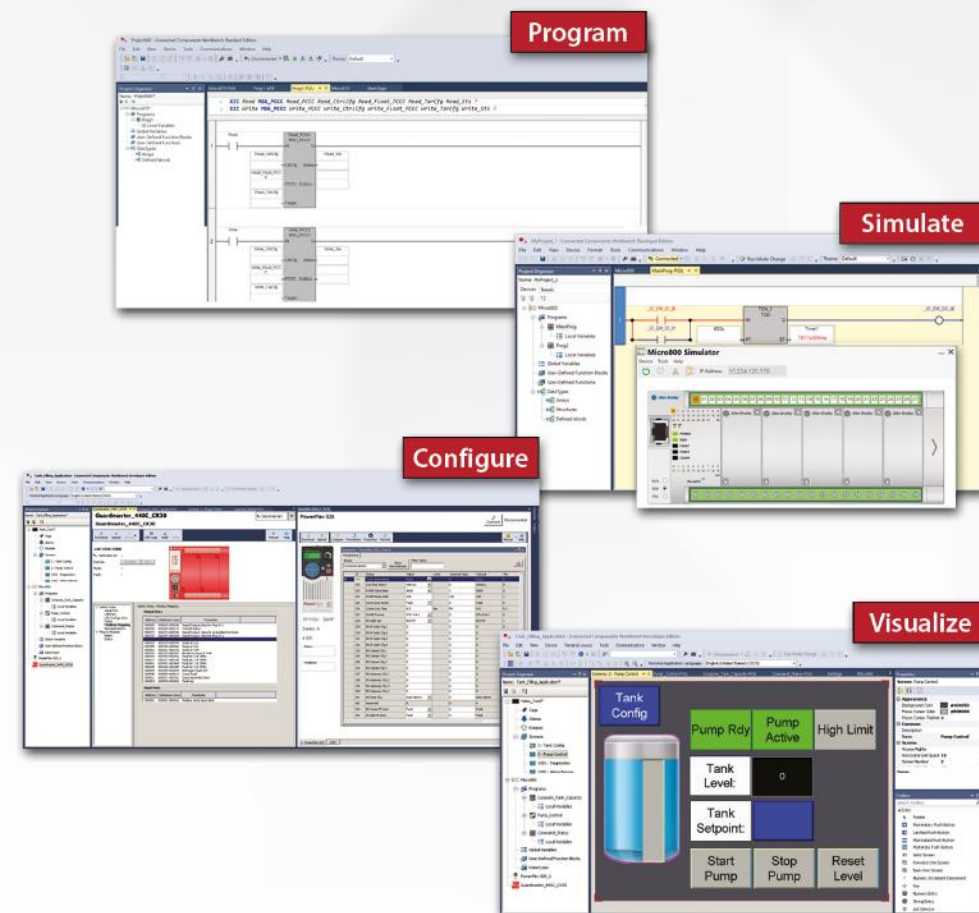
Software comparison of Standard and Developer Editions

- Developer Edition provides advance features to improve user's design time, development and delivery

- Standard Edition offers basic and essential features with high availability for simple project creation, debugging and device configuration

- Micro800™ Simulator is available in both editions

Requires Developer Edition to create data types, which can be used in Standard Edition.
**Requires Developer Edition to create passwords, which can be used in Standard Edition.*

	Standard Edition	Developer Edition
Price	Free for download	Contact your local distributor or Rockwell Automation sales
Common environment to configure all your common devices	Yes	Yes
Project Import/Export	Yes	Yes
Archive Manager	No	Yes
Micro800™ controller programming		
IEC 61131-3 Ladder Diagram (LD), Function Block Diagram (FBD) and Structured Text (ST)	Yes	Yes
User-defined function block (UDFB)	Yes	Yes
Run Mode Change	No	Yes
User-defined data types	No*	Yes
Spy list used	No	New lists can be created
Intellectual property protection	No**	Yes
Micro800™ Simulator	Demo mode – Run Mode for 10 minutes	Full mode – Run Mode for 24 hours

Rockwell Automation

Easy to acquire

Connected Components Workbench™ software

- **Standard Edition** – <u>Free for download</u>

- **Developer Edition** – contact your <u>local distributor</u> or <u>Rockwell Automation salesperson</u> for pricing
  - Individual lifetime license using FactoryTalk® Activation. Requires TechConnect℠ contract or toolkit to upgrade to future versions.
  - OEM and Enterprise Toolkits with yearly activations are also supported
  - Order through our <u>software subscription portal</u>

Connected Components Workbench™ software

Program

Simplify the programming process with sample code and user-defined function blocks (UDFB), copy and paste functions from Logix
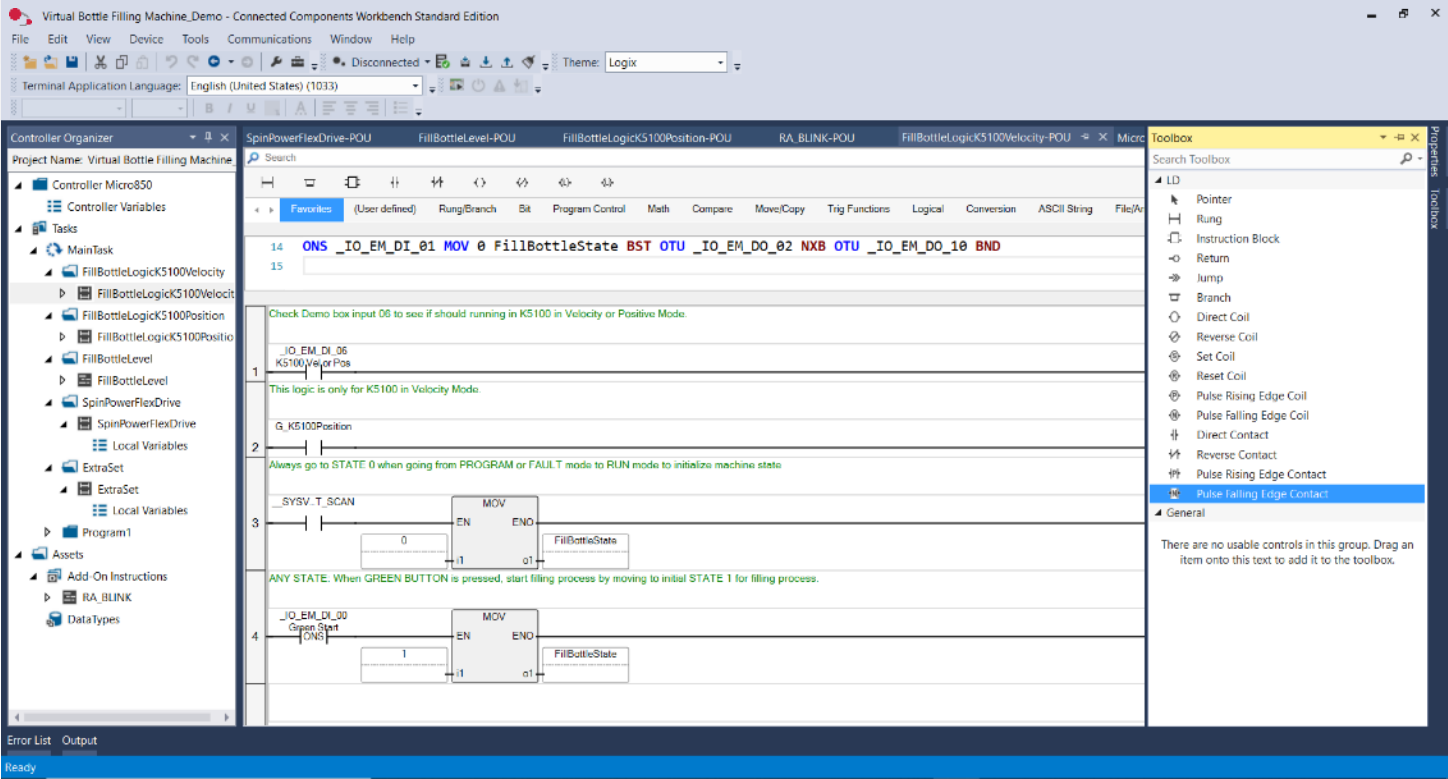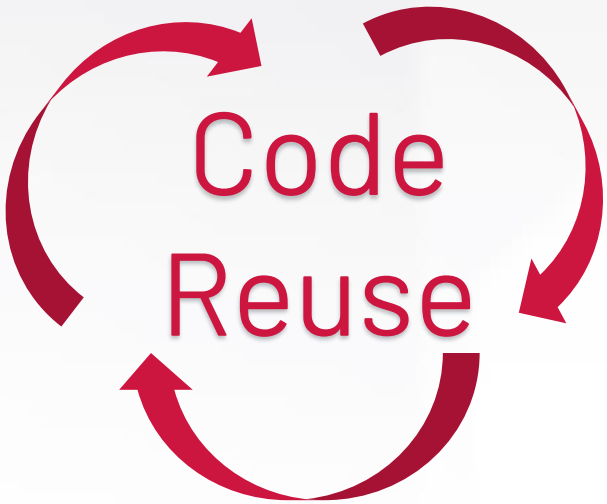
Code Reuse

Logix Theme, copy and paste enable code reusability

Share code between Micro800™ and Logix controllers

- Reuse ladder logic between Connected Components Workbench™ logic, Studio 5000 Logix Designer® and RSLogix 500® program

- Share ladder logic between Connected Components Workbench™ and Studio 5000 Logix Designer® or RSLogix 500® project by doing a copy-and-paste operation in either direction
  - Enable easy logic transfer from the existing Studio 5000 Logix Designer® or RSLogix 500® project to a Connected Components Workbench™ project, and vice versa

- The supported workflows are:
  - Copy ladder logic ASCII text from or to Studio 5000 Logix Designer® or RSLogix 500® program
  - Copy ladder logic graphically from Studio 5000 Logix Designer® or RSLogix 500® program and paste to Connected Components Workbench™ ladder logic ASCII text
  - Copy ladder logic graphically from Studio 5000 Logix Designer® or RSLogix 500® and paste graphically to the Connected Components Workbench™ program

Rockwell Automation

Connected Components Workbench™ software

Simulate

Micro800™ Simulator for code development, training and demos

The three methods to simulate the machine logic and I/O are:

- **Controllers graphical view** – For simple demos and logic testing
- **Virtual I/O wiring** – Simulate machine in Micro800™ controller program
- **I/O interface** – Simulate machine as a separate Windows® program
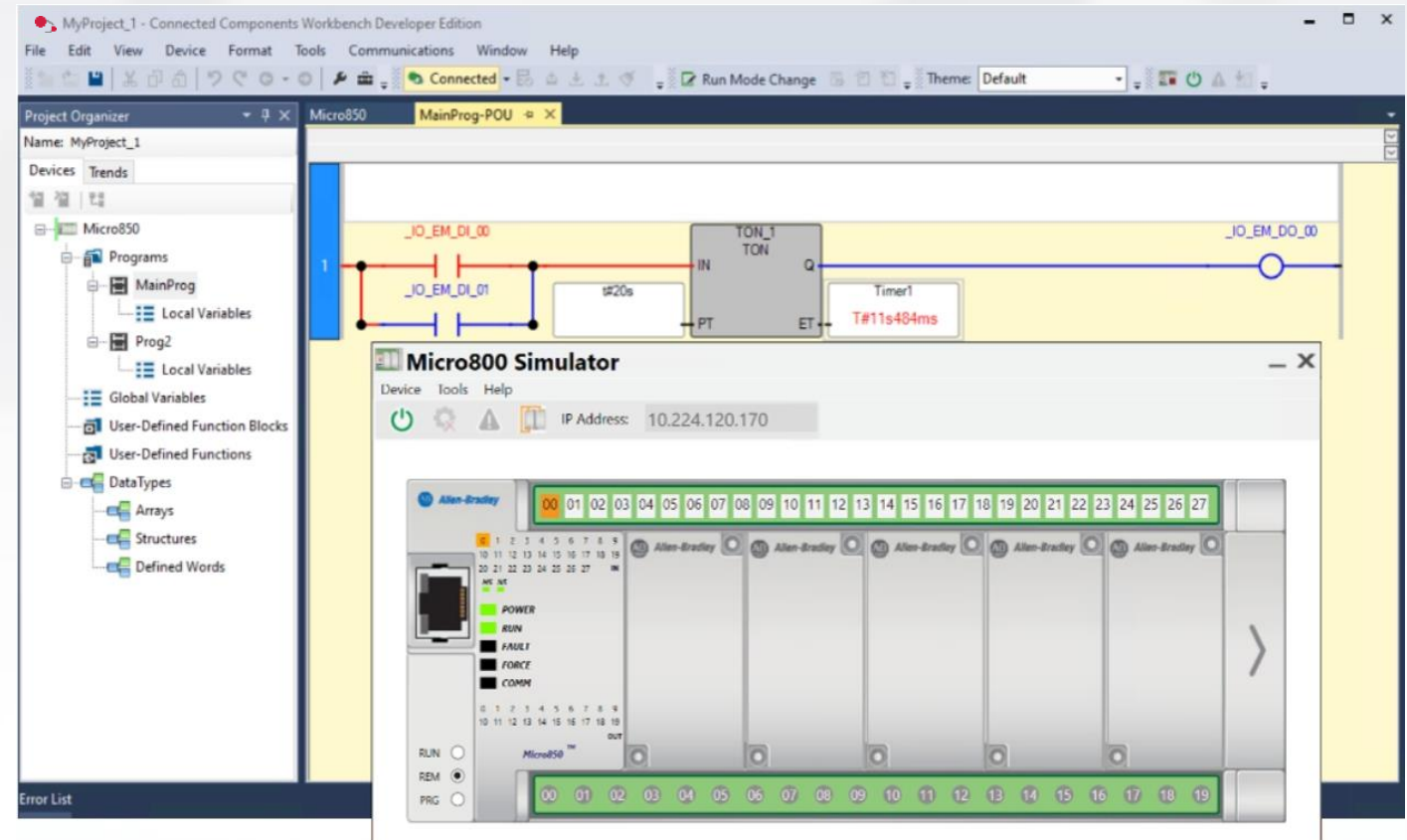
Micro800™ Simulator

Basic simulator environment for details

- Micro850® 48-point controller program and instruction execution are similar to a real controller
  - Use the same firmware as the real Micro850® 2080-LC30-48QWB controller running on a PC
- Most plug-ins and expansion I/O can be configured
- Ethernet port supports EtherNet/IP™ program download and communications to external devices such as PanelView™ 800 graphic terminals and PowerFlex® drives
- No support for USB, Modbus TCP and Serial communications
  - See the Simulator Help menu for more simulation limitations
- Requires a high-performance PC with two processor cores especially if Trend is also used
  - See Release Note for PC minimum requirements
- Controller performance is slower and less deterministic than a real Micro800™ controller
  - Cannot be used as a soft programmable logic controller (PLC)
  - Running as a Windows® application with no real-time support

Micro800™ Simulator

Basic simulator environment with machine I/O modeling

- Ability to 'simulate' machine application logic and I/O
  - User can model the real machine to some extent
- Three methods to simulate machine logic and I/O
  - Controllers graphical view – For simple demos and logic testing
    - Click the terminal block to toggle digital inputs and use the keyboard to enter analog inputs
    - Visually see digital and analog values
  - Virtual I/O wiring – Simulate machine in Micro800™ controller program
    - Configure mapping table of outputs to inputs
    - Controller project contains both application code and machine simulation logic
  - I/O interface – Simulate the machine as a separate Windows® program
    - Inputs.xml file can be written to any Windows® program
    - Outputs.xml file can be read by any Windows® program
    - Requires the user to be able to program in another language such as Java, C# and HTML5
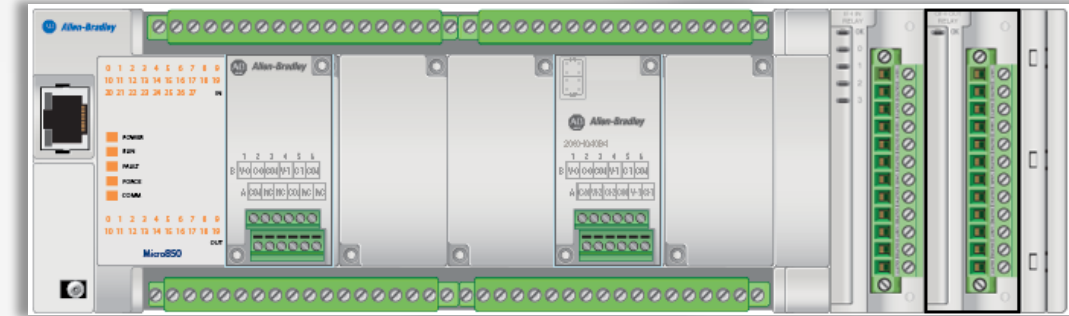

```xml
<?xml version="1.0" encoding="UTF-8"?>
<Micro800Simulator>
 <EmbeddedInputs>
  <EmbeddedInput Index="0"
VariableName="_IO_EM_DI_00">False</Emb
eddedInput>
```

Micro870® expansion I/O optimization

Micro870® controller supports control over expansion I/O Scan Interval for better program cycle times

- Micro870® controllers support optimizing scan interval for slower modules
  - Select either Balanced Processor Loading or Synchronized Scanning of All Modules
- By optimizing the scan interval, the program cycle time will be faster by minimizing over scanning of slower (analog) modules, which allows faster scanning of faster (digital) modules
- Scan Cycle Chart is available to view the scanning sequence graphically
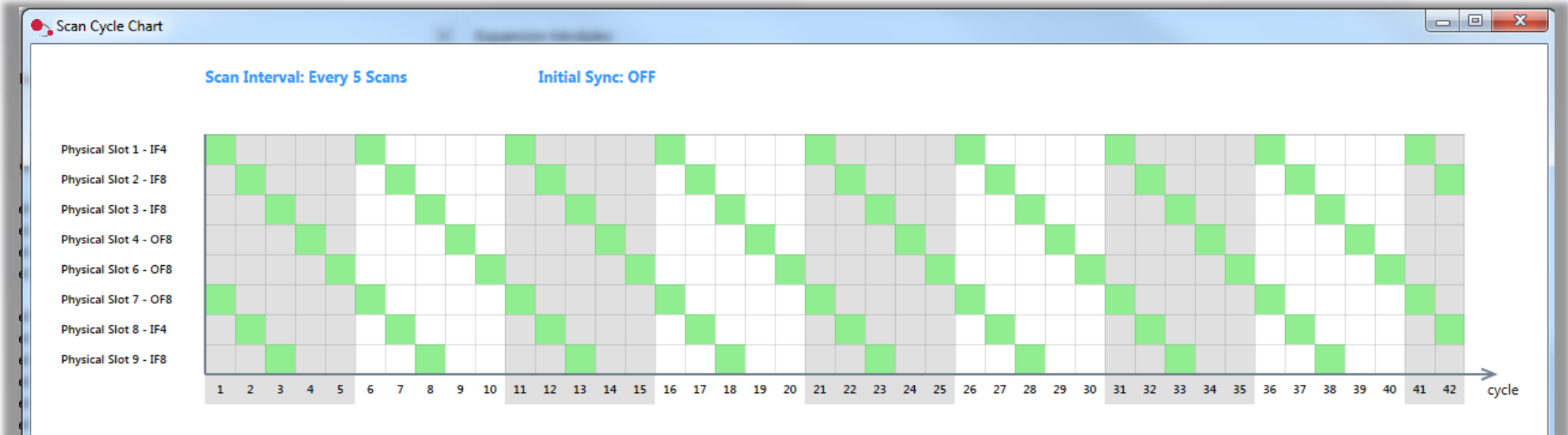
Connected Components Workbench™ software

Reduce initial machine development time and cost with one integrated design software

Supports
- Micro800™ controllers
- PanelView™ 800 graphic terminals
- PowerFlex® 520 series drives
- Kinetix® 5100 servo drives
- SMC™ soft starters
- Guardmaster® 440C-CR30 software configurable safety relay
- Guardmaster® speed monitoring safety relays
- GuardShield™ 450L light curtain
- E200™ electronic overload relay
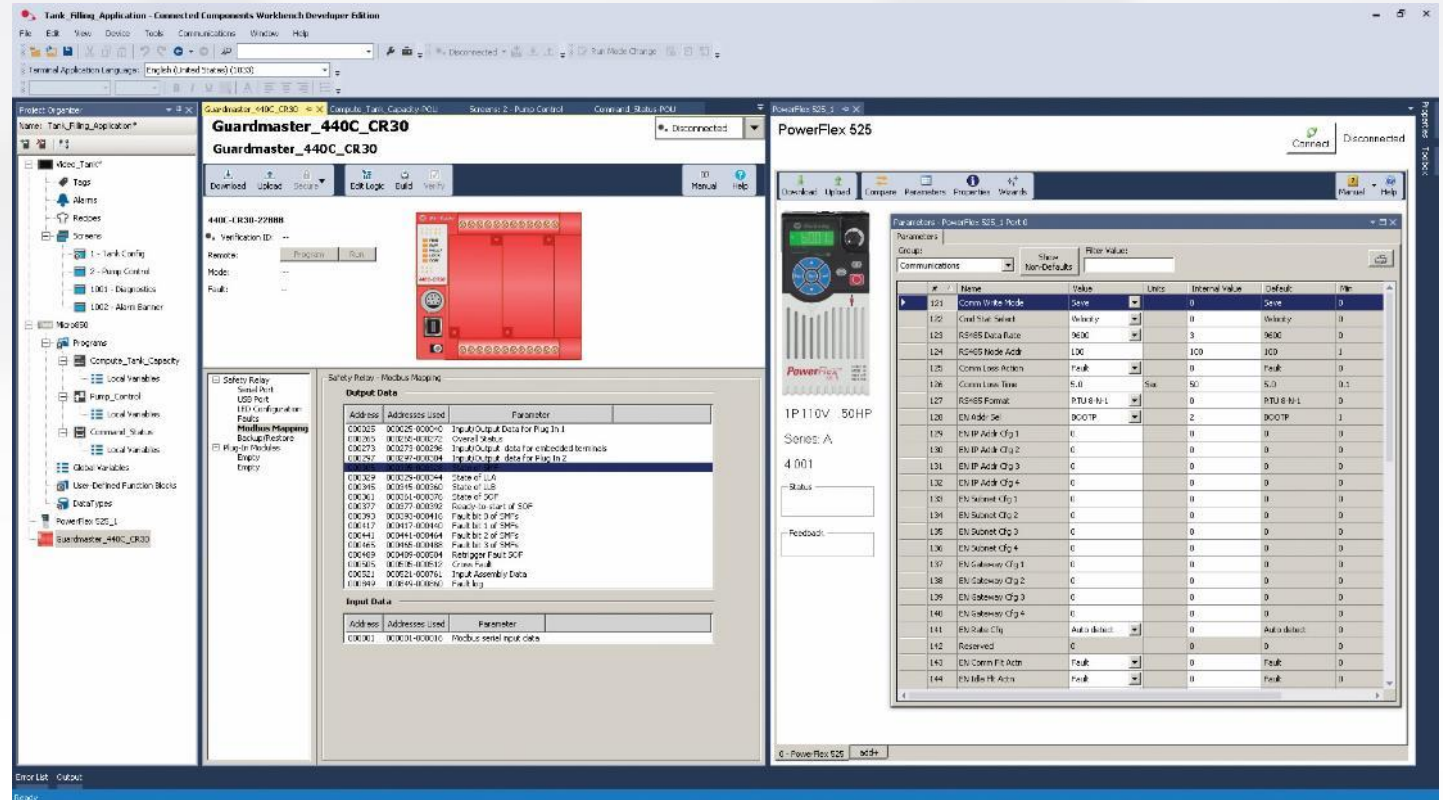
Connected Components Workbench™ software

Visualize

Reference Micro800™ controller variables directly when creating HMI tags
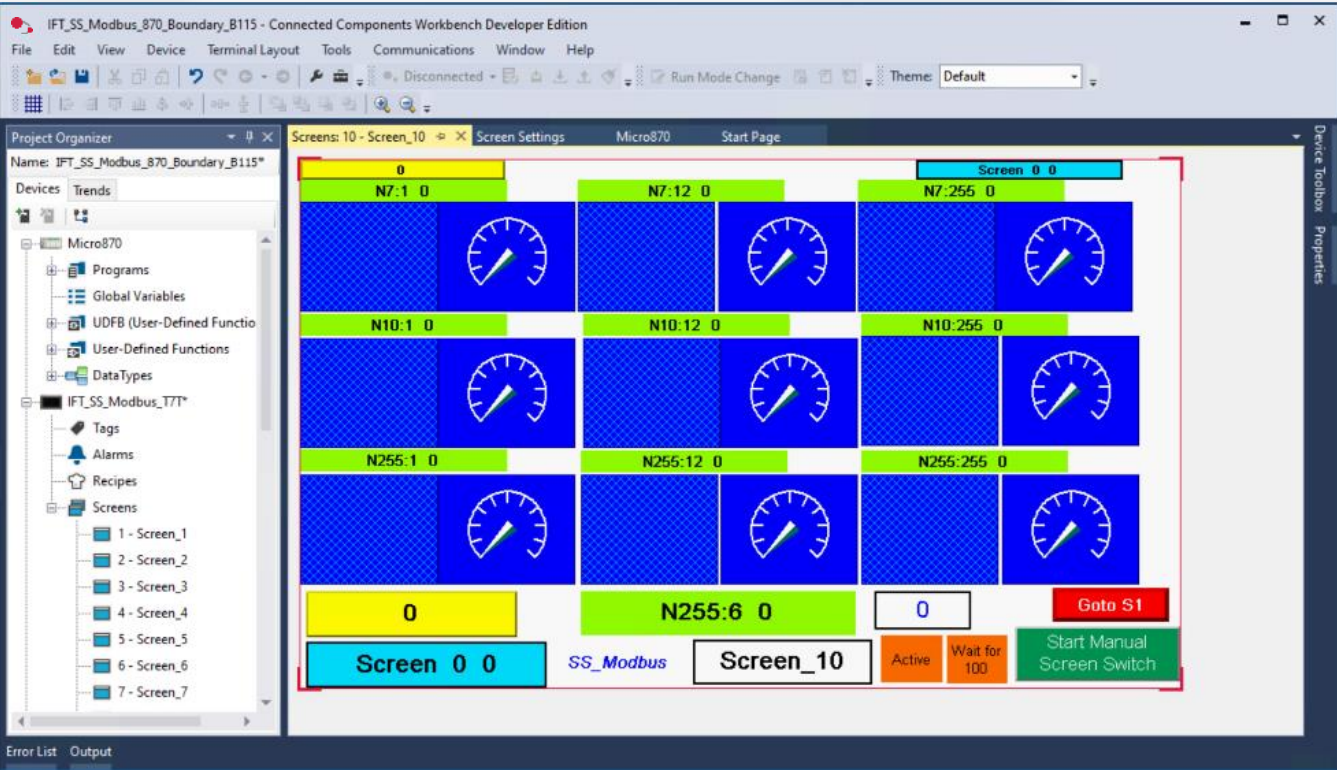
PanelView™ 800 device configuration in Connected Components Workbench™ software

Reference Micro800™ controller variables directly when creating HMI tags
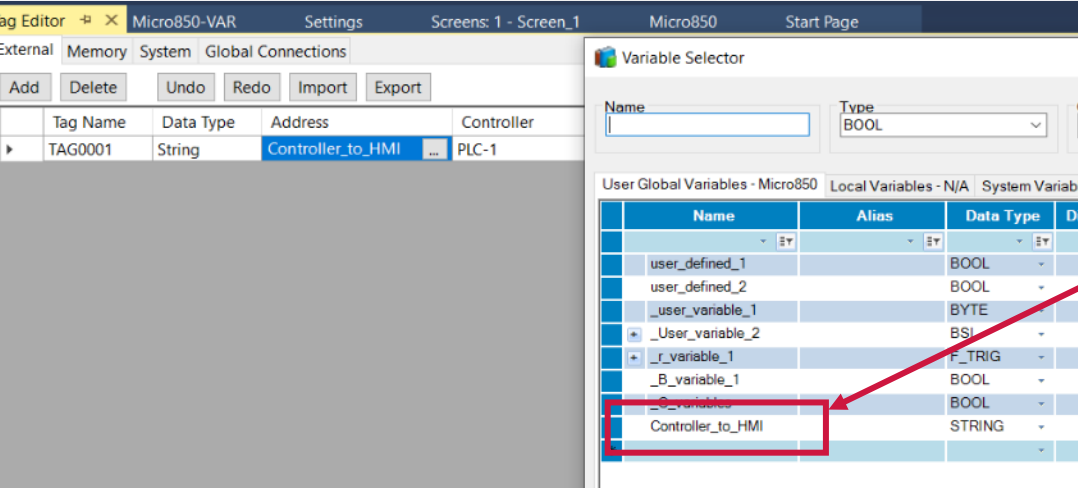
Choose from the Controller Global Variables in the HMI Tag Editor
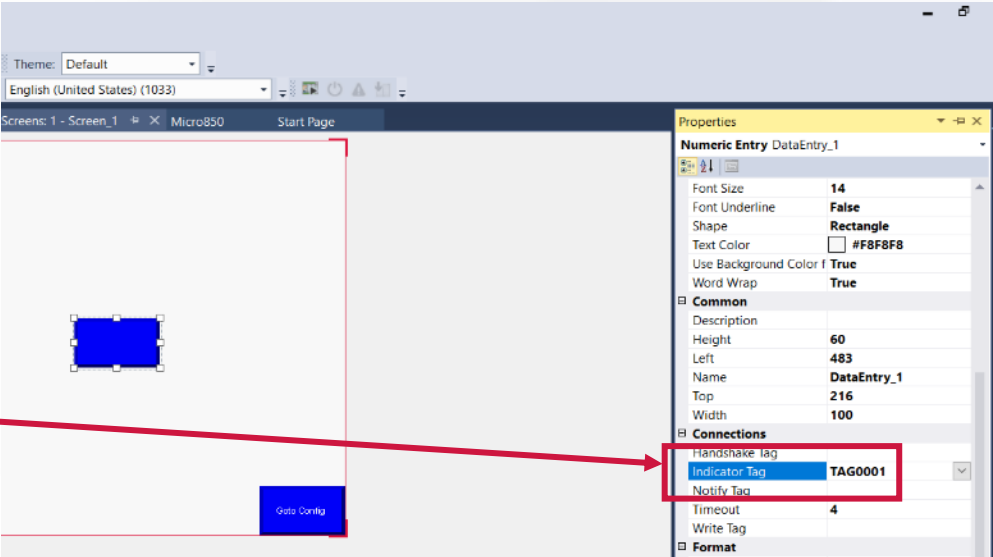
Link to screen object

Connected Components Workbench™ software version 20.01

Connected Components Workbench™ software enhancements

- Device support for Micro850® and Micro870® Lx0**E** controller

- Additional DNP3 protocol connectivity

- Expanded DF1 communication options to support full-duplex, half-duplex and radio modes

- Windows® 11 support

- Enhanced Variable Selector through scope of variable and applying filters

- Simplified programming with improved user-defined data types (UDT) in project trees

- Faster data transfer rate through improved upload and download performance

- New password set/verify process and encryption/decryption of user project in the memory module

PanelView™ 800 graphic terminals enhancements

- Ability to trace and locate tags in the application using Cross Reference Browser

- Communication support to Micro850® and Micro870® Lx0**E** controllers

- Increased stored Alarm History Size from 100 to 500 records

Rockwell Automation

Connected Components Workbench™ software version 20.01

Faster data transfer rate for Micro800™ Lx0**E** processors

- **Download performance improved by 40%**
- **Upload performance improved by 23%**

Project upload time

Project download time
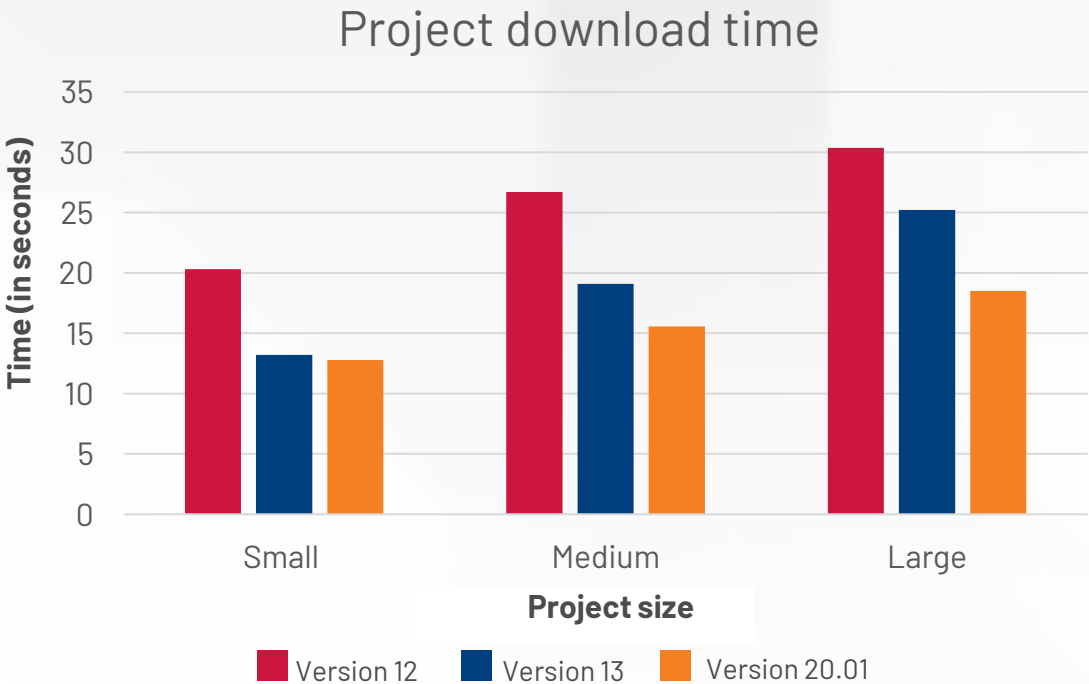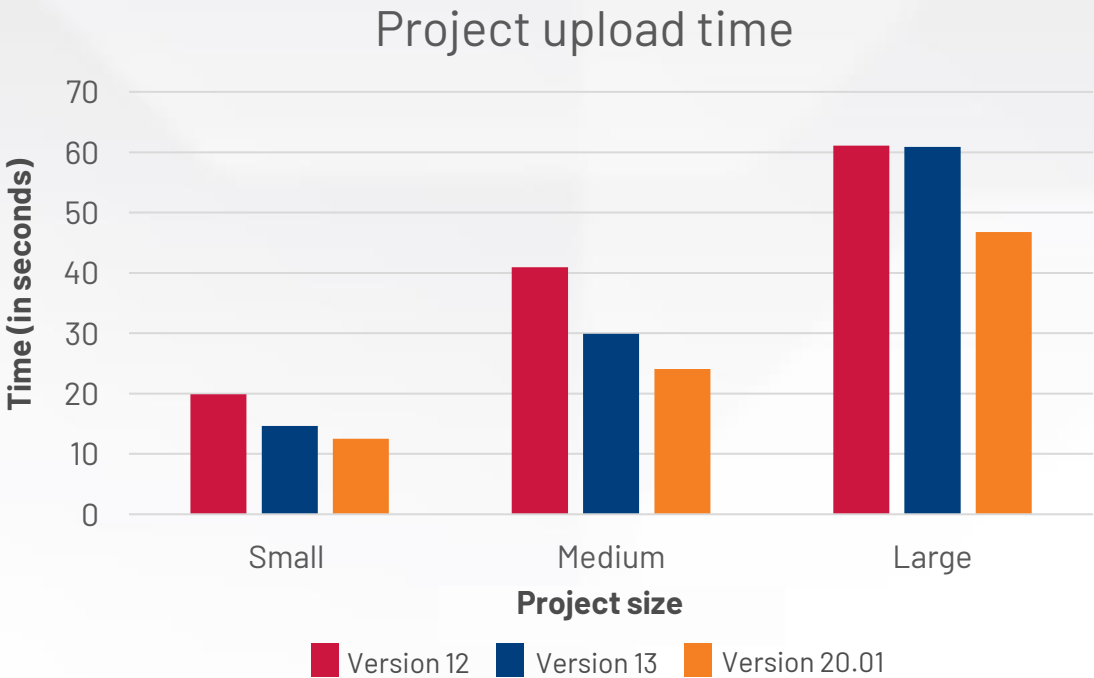
Connected Components Workbench™ software version 21

Connected Components Workbench™ software enhancements

- Class 1 implicit messaging support to PowerFlex® 520 series and Kinetix® 5100 drives over EtherNet/IP™ for ease of integration and programming

- Class 1 implicit messaging capability is supported for all other EtherNet/IP™ devices via generic profile

- Simplified programming with familiar user interface experience for the Class 1 device creation as in Studio 5000 Logix Designer® application

- Total of eight devices can be added

- Pre-developed user-defined function blocks (UDFB) for controlling PowerFlex® 520 series and Kinetix® 5100 drives in Class 1 feature

  - Available in the [Micro800™ Sample Code Library](#)

Rockwell Automation

Connected Components Workbench™ software version 21

One software for controller programming and simulation, device configuration and human machine interface (HMI) design

EXPAND COMMUNICATION CAPABILITY

Eases integration to Kinetix® 5100 and PowerFlex® 520 series drives
Class 1 Ethernet implicit I/O messaging with pre-defined tags to Kinetix® 5100 and PowerFlex® 520 series drives

IMPROVE PRODUCTIVITY

Provides pre-developed UDFBs
Pre-developed and tested user-defined function blocks (UDFBs) ready to be deployed when controlling PowerFlex® 520 series and Kinetix® 5100 drives under Class 1

ENHANCE WORKFLOW

Improves programming workflow
Improved programming workflow in Connected Components Workbench™ software to help users reduce clicks while creating and searching for tags in the program

Rockwell Automation

Connected Components Workbench™ software version 21

Class 1 implicit messaging support for Micro850® and Micro870® Lx0**E** controllers only

- Simple table format to allow users to create the devices

Simple module profile just like in Studio 5000 Logix Designer® application

Connected Components Workbench™ software version 21

Class 1 implicit messaging support for Micro850® and Micro870® Lx0**E** controllers only

- Easy identification of device status and pre-defined tags

Ethernet - Modules

Add | Config | Delete | Refresh

Connection	Name	Type	IP	RPI (ms)	Inhibit Module	Connection Fault
	Motion1	Kinetix 5100	192.168.1.10	20.0	☐	
	Drive1	PowerFlex 525...	192.168.1.11	20.0	☐	
	Generic1	Generic Device	192.168.1.12	20.0	☐	

Generic device

> Generic_I
> Generic_O
> Generic_C

Name	Alias	Comment	Data Type
˅ PF_I			PowerFlex525V_I
> PF_I.DriveStatus		Ready,Active,CommandDir,A...	INT
> PF_I.OutputFreq			INT
˅ PF_O			PowerFlex525V_O
> PF_O.LogicCommand		Stop,Start,Jog,ClearFaults,F...	INT
> PF_O.FreqCommand			INT

PowerFlex® 520 series drives

Name	Alias	Comment	Data Type
> Motion1_I			Kinetix5100_Camming_I
˅ Motion1_O			Kinetix5100_Camming_O
> Motion1_O.OperatingMode			SINT
> Motion1_O.ServoControl		ServoOn,ServoOff,StopMotio...	SINT
> Motion1_O.HomingMethod			SINT
> Motion1_O.SpeedReference			DINT
> Motion1_O.AccelReference			DINT
> Motion1_O.DecelReference			DINT
> Motion1_O.PositionReference			DINT
> Motion1_O.HomeReturnSpeed			DINT

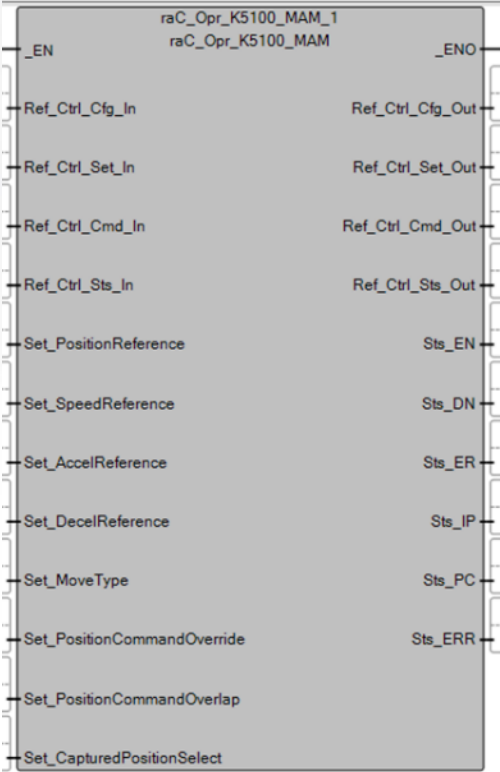**Kinetix® 5100 servo drives**

Rockwell Automation

Connected Components Workbench™ software version 21

Pre-developed user-defined function blocks (UDFBs) for ease of programming

- 11 user-defined function blocks (UDFBs) for Kinetix® 5100 servo drives similar to the Logix user interface using Add-On Instruction

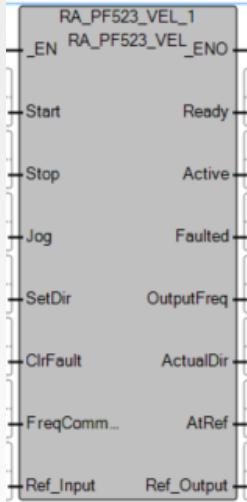- Three user-defined function blocks (UDFBs) for PowerFlex® 520 series drives

Kinetix® 5100 drives UDFB	
raC_Opr_K5100_MSO	raC_Opr_K5100_MAM
raC_Opr_K5100_MSF	raC_Opr_K5100_MAI
raC_Opr_K5100_MAFR	raC_Opr_K5100_MAG
raC_Opr_K5100_MAS	raC_Opr_K5100_MAH
raC_Opr_K5100_MAJ	raC_Opr_K5100_MAT
raC_Drv_K5100	

PowerFlex® 520 series UDFB
RA_PF523_VEL
RA_PF525_VEL
RA_PF525_POS


```
        raC_Opr_K5100_MAM_1
         raC_Opr_K5100_MAM
_EN                          _ENO
Ref_Ctrl_Cfg_In       Ref_Ctrl_Cfg_Out
Ref_Ctrl_Set_In       Ref_Ctrl_Set_Out
Ref_Ctrl_Cmd_In       Ref_Ctrl_Cmd_Out
Ref_Ctrl_Sts_In       Ref_Ctrl_Sts_Out
Set_PositionReference          Sts_EN
Set_SpeedReference             Sts_DN
Set_AccelReference             Sts_ER
Set_DecelReference             Sts_IP
Set_MoveType                   Sts_PC
Set_PositionCommandOverride    Sts_ERR
Set_PositionCommandOverlap
Set_CapturedPositionSelect
```

```
      RA_PF523_VEL_1
_EN   RA_PF523_VEL   ENO
Start               Ready
Stop                Active
Jog                 Faulted
SetDir           OutputFreq
ClrFault          ActualDir
FreqComm...          AtRef
Ref_Input        Ref_Output
```

Connected Components Workbench™ software version 21

User interface improvements

- Removal of the automatic Variable Selector pop-up when adding contact

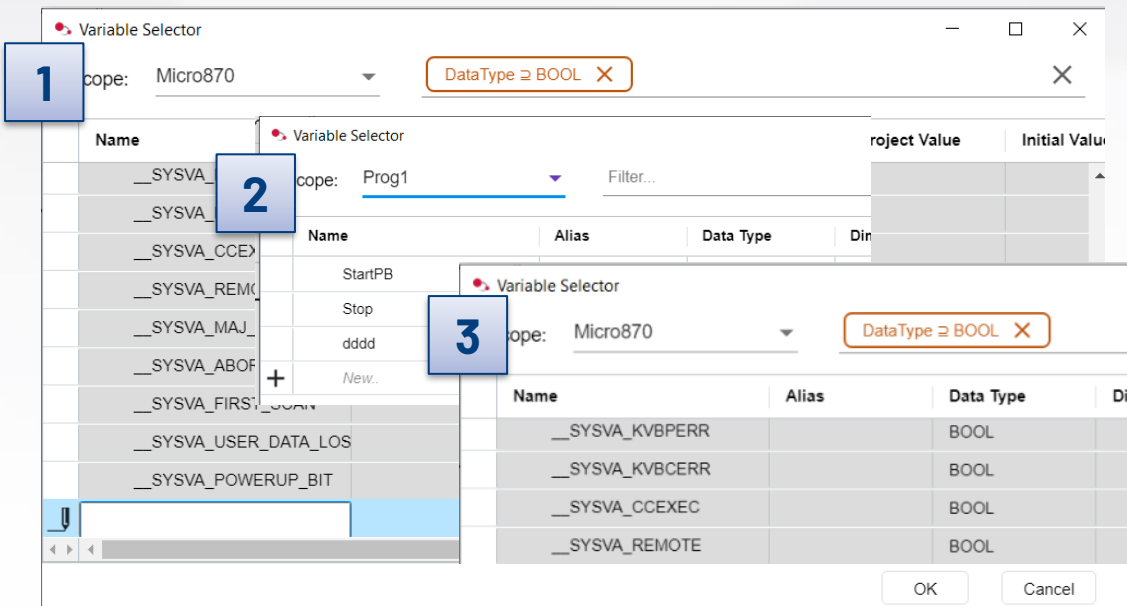| Before	After
Variable Selector pops up automatically when a contact or output is inserted into the ladder code.	Variable Selector does not pop up automatically. User can enter the required tag directly or right-click to create a tag, like the user interface in Studio 5000 Logix Designer® application.
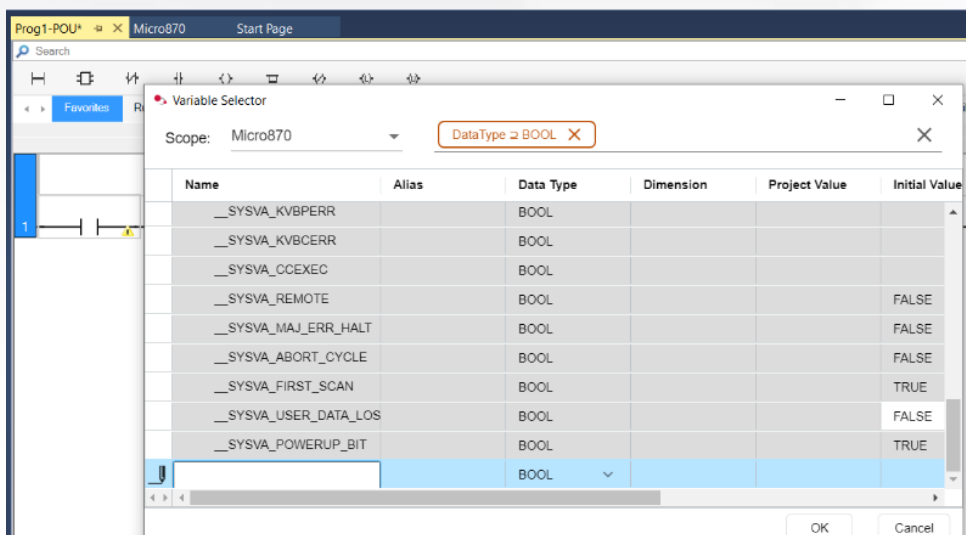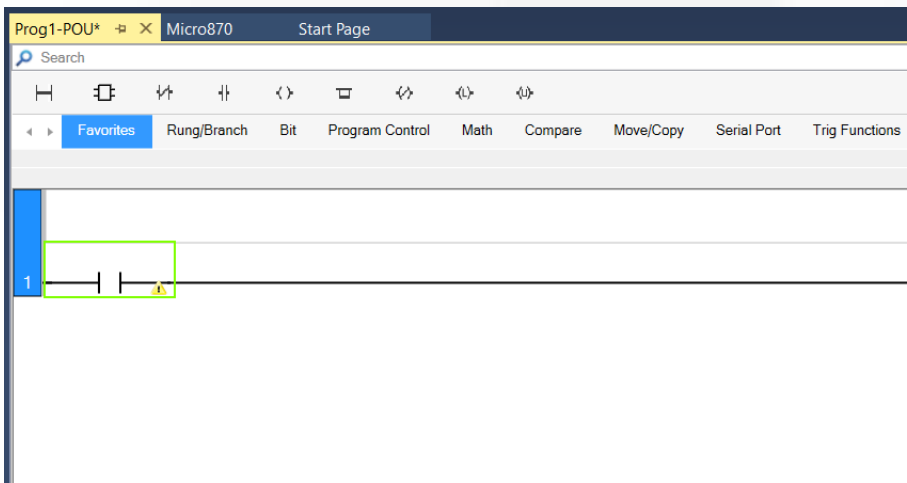
Connected Components Workbench™ software version 21

User interface improvements

- Variable Selector remembers and opens the last selection by the user

Before	After
Variable Selector opens to the original listing by default.	Variable Selector remembers and opens the Scope that was last changed by the user.
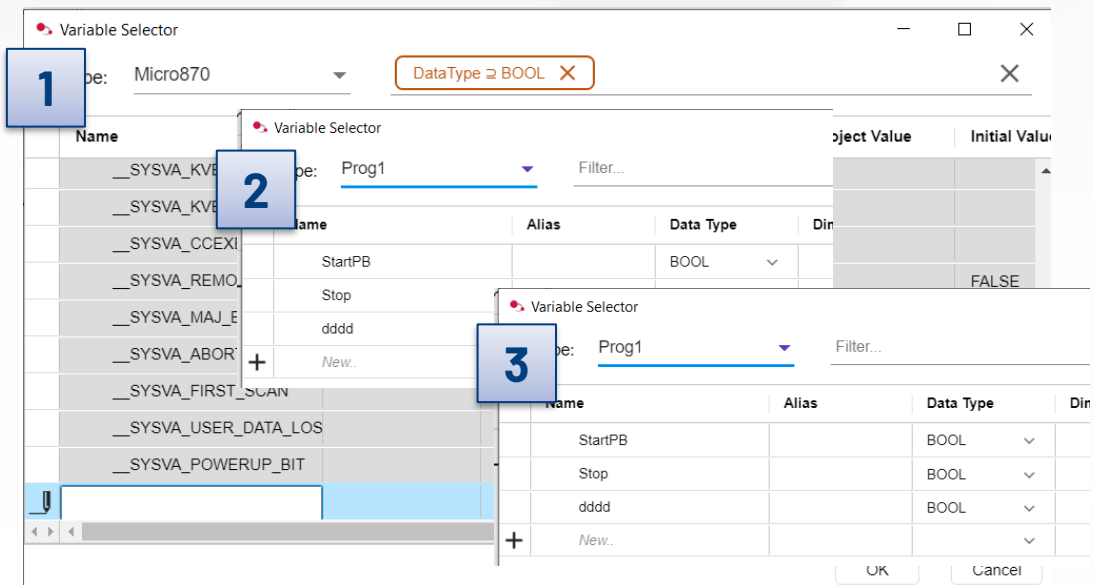
Connected Components Workbench™ software version 21

User interface improvements

- Enhanced tag creation process

Before	After
User can only press 'Enter' to accept the new tag creation while the focus is on the new tag input field.	User can click the 'OK' button or press 'Enter' to accept the new tag creation.

Press "Enter" while the focus is on the new tag input field to accept the new tag creation

Click the "OK" button or press "Enter" while the focus is on the new tag input field to accept the new tag creation

Connected Components Workbench™ software version 22

One software for controller programming and simulation, device configuration and human machine interface (HMI) design

IMPROVE MICROLOGIX™ CONTROLLER COMMUNICATION

Offers new Programmable Controller Communication Commands (PCCC) functionality to MicroLogix™ controllers and SCADA software
Micro870® L70E controllers support new PCCC instructions to allow faster communication to peer MicroLogix™ controllers in the same network

INCREASE PRODUCTIVITY

Allows bit level commenting
Offers backward compatibility support with the ability to comment down to the bit level of the variable allowing customers to retain previous comments in MicroLogix™ projects and simplify modernization to Micro800™ controllers

ENHANCE WORKFLOW

Eases mapping to legacy MicroLogix™ file system
A simple mapping table allows customers to map the legacy address in Micro800™ projects and to allow faster communication to MicroLogix™ controllers or SCADA software

Rockwell Automation

Connected Components Workbench™ software

Version 20

Mar 2022

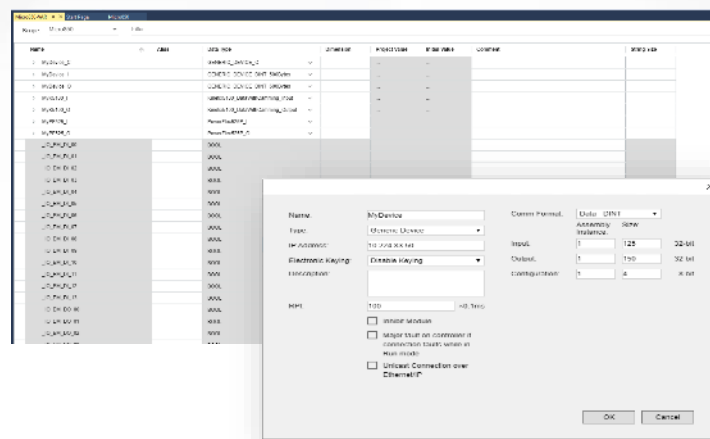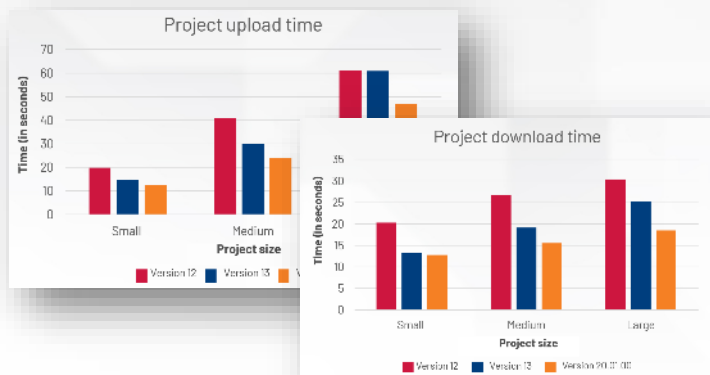**Programs new hardware, communication options, enhances security and performance**

Version 21

Nov 2022

Supports networked device communication

Version 22

Nov 2023

Simplifies modernization to Micro800™ controllers

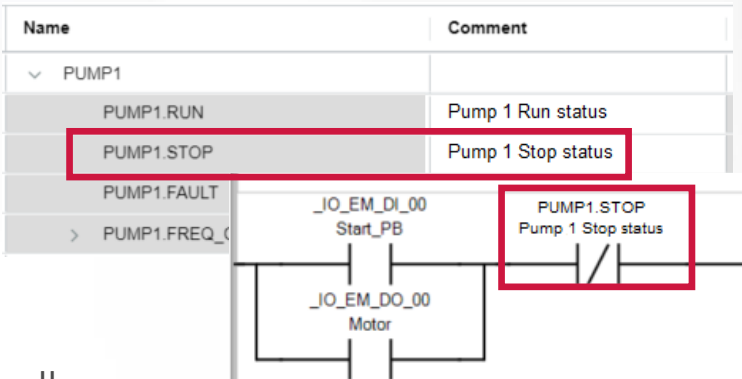Legacy address mapping

Bit level commenting

Rockwell Automation
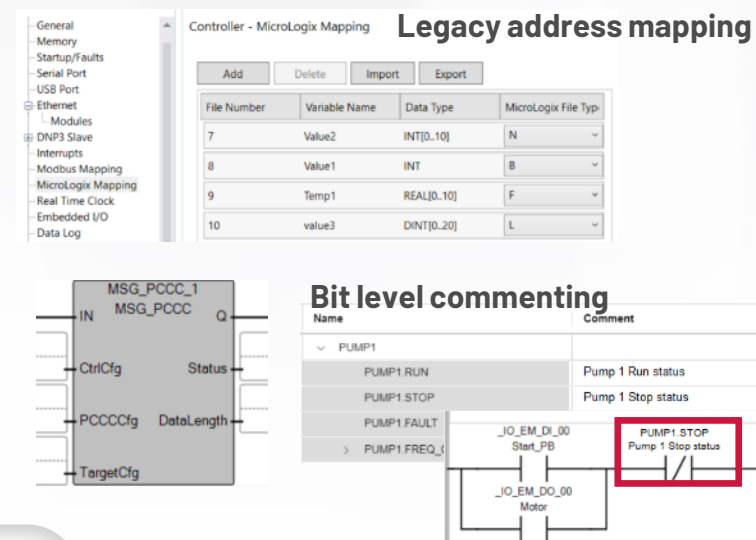
Connected Components Workbench™ software version 22

- MicroLogix™ legacy address mapping (INT, DINT, REAL, STRING Data Type)

- Native instruction to perform SLC Typed Read and Write command communication to the legacy MicroLogix™ controller via Serial or Ethernet
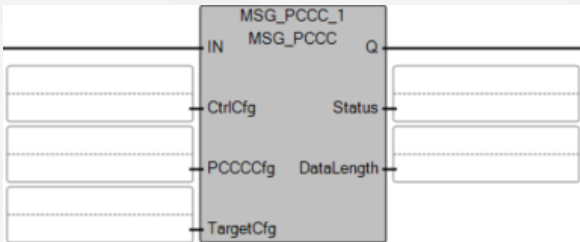
- Enhancements
  - Backward compatibility to MicroLogix™ projects:
    - **Project download over DF1** via RSLinx® software
    - **Bit level commenting** support
  - Daylight Saving function support in Micro800™ controllers
  - Increase diagnostics over Class 1: Major fault on controller if Class 1 connection is lost while in Run mode

Legacy address mapping

Bit level commenting

Name	Comment
∨ PUMP1	
PUMP1.RUN	Pump 1 Run status
PUMP1.STOP	Pump 1 Stop status
PUMP1.FAULT	
> PUMP1.FREQ_	

Daylight Saving function

Controller - Real Time Clock

ⓘ Date and time are only available when connected to controller.

Battery:	Not Available
Date:	Not Available
Time:	Not Available

Set Date/Time...

☐ Allow real time clock to be changed in run mode

☐ Enable firmware real time clock

☐ Adjust for Daylight Saving (+01:00)

Diagnostics over Class 1

| Requested Packet Interval (RPI): | 20.0 | ms |

☑ Unicast Connection over EtherNet/IP

☐ Inhibit Module

☐ Major fault on controller if connection faults while in Run mode

Instructions and security

Additional Micro800™ instructions are supported

- COM_IO_WDOG – useful in applications with multiple controllers that require sharing of data
  - Act as a watchdog for external communications writing or reading the controller digital I/O variables and declares an error if communication times out
- SCL – similar to Logix function block diagram
  - Use SCL instruction for scaling inputs with alarm indicators if out of range
- AFI – similar to Logix Always False ladder diagram instruction
  - Can be used while debugging to disable a branch or rung of logic without having to delete the branch or rung permanently
- NOP – similar to Logix No Operation ladder diagram instruction
 - Can be used as a placeholder for future edits or to help document the program

Modbus TCP server enable/disable for enhanced security

- The server state is disabled by default for newly created projects
  - Go to Controller tree > Ethernet > Modbus TCP to enable the server if needed

Rockwell Automation

Datalog and recipe

Micro820®, Micro850® and Micro870® controllers offer microSD™ card support

- Datalog and recipe are now available for Micro850® and Micro870® controllers
  - Requires Spectrum Controls 2080-SDMEMRTC-SC plug-in and a microSD™ card
- Datalog and recipe configurations can be exported or imported
  - XML format for easy editing (.ccwdlg)
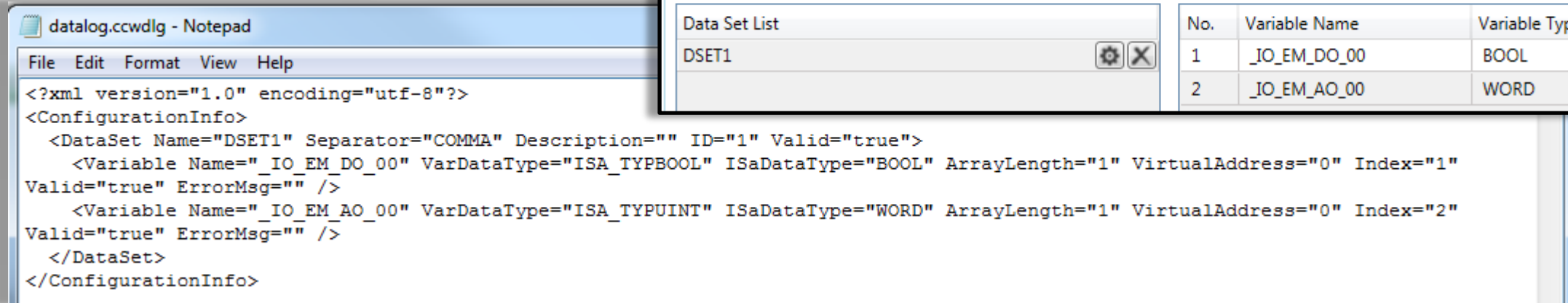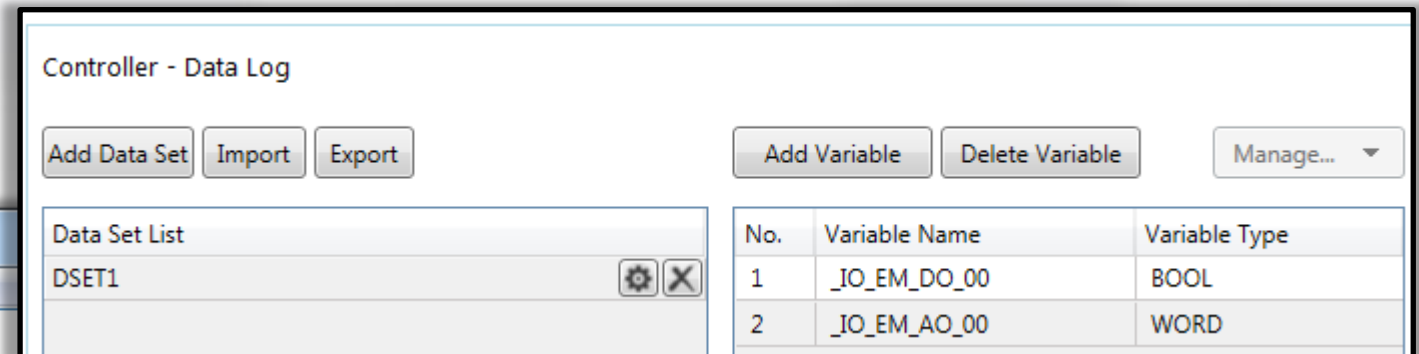
Controller fault handling

Ability to auto-restart without operator intervention

- Option to specify the controller behavior when a nonrecoverable hard fault occurs (for example, noise)

- Allows the user to stop the controller or restart the controller automatically

  - Restart can be done without the need to switch power OFF and ON to the controller

Controller - Startup/Faults

⟨⟩ Diagnose

Mode Behavior

◉ Retain previous power-down mode

○ Remote run mode

Fault Override
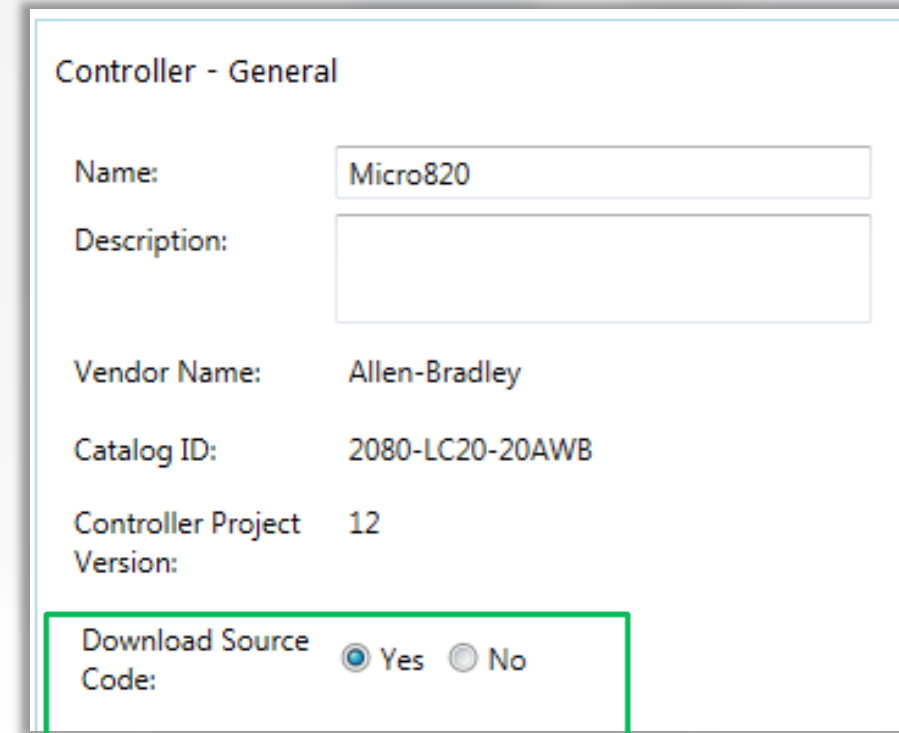
◉ Do not clear fault

○ Clear fault

Memory Card

To configure memory settings, go to Memory Card

Hard Fault

◉ Stop controller

○ Restart controller automatically

Rockwell Automation

Performance and source code protection

- Avoid downloading the source code for faster build and download
  - During program development, there is usually no need to download the source code since it exists on the developer's PC
- Helps prevent unwanted upload of the source code
  - Even if the password to the controller is known, the project source code cannot be uploaded
- **Note**: If the Download Source Code is set to NO, the software cannot go online with the controller unless the originally downloaded project is already open. Upload and Discover will not be possible.
  - Newly created projects will default to Yes

**Go to Controller Tree > General > Download Source Code to change**

Flexibility, scalability and reusability with Micro800™ controllers

- Plug-in concept offers high **flexibility** to customize your controller to your application needs
  - Up to five slots – multiple serial ports made possible
  - Unmatched variety of plug-in modules offered in the Micro800™ control system
  - Special application plug-ins from Rockwell Automation® PartnerNetwork™ Technology Partners
  - Save space
- Highly **scalable**. For more I/O, there are Micro800™ expansion I/O modules and CompactBlock™ LDX I/O on DeviceNet®
  - Micro850® controller supports up to 192 digital I/O with expansion I/O
  - Micro870® controller supports up to 304 digital I/O with expansion I/O
  - Additional 320 I/O with CompactBlock™ LDX I/O on DeviceNet®
- Controller change supports **reuse** of project that is developed on one controller to the other

Rockwell Automation

Micro800™ controllers offer a wide variety of connectivity options

- Improve efficiency during machine development and commissioning phase

- Offer plug-and-play USB port, which makes it easy to connect
  Connected Components Workbench™ software to Micro800™ controllers

- Ease configuration and data collection with CIP pass-through

- Support CIP™ Symbolic and EtherNet/IP™, ideal for communication to Logix products

- Provide DeviceNet® scanner for distributed I/O

- Support Modbus and ASCII protocols for connectivity to third-party devices

- Enable MQTT connectivity via user-defined function blocks (UDFB) in the program code
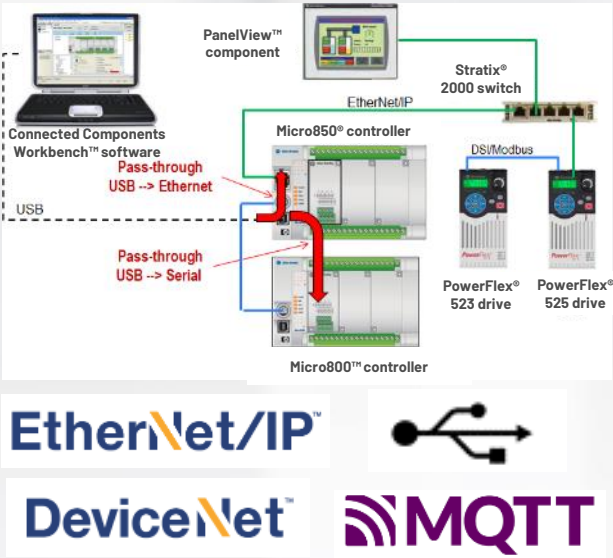
Micro800™ controller	USB programming port	Serial port				Ethernet				DeviceNet® (via plug-in)
		CIP™ serial (client/server)	Modbus RTU (master/slave)	ASCII/Binary	DNP3[3]	EtherNet/IP™ (client/server)	Modbus TCP (client/server)	DNP3[3]	MQTT[4]	DeviceNet® scanner
Micro810®	Yes[1]	No	No	No	No	No	No	No	No	No
Micro820®	Yes[2]	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Micro850®	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Micro870®	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note:
(1) Via USB adapter (catalog 2080-USBADAPTER)
(2) Via Remote LCD (catalog 2080-REMLCD)
*(3) Supported only in catalogs 2080-L70**E**-xxxxN*
(4) Via UDFB in the controller code

Micro800™ cloud connectivity

Easy-to-program and cost-effective solution

- Three user-defined function blocks (UDFBs) to provide connectivity to the Cloud broker
- [View the tutorial video](#) to learn how to configure the MQTT connection
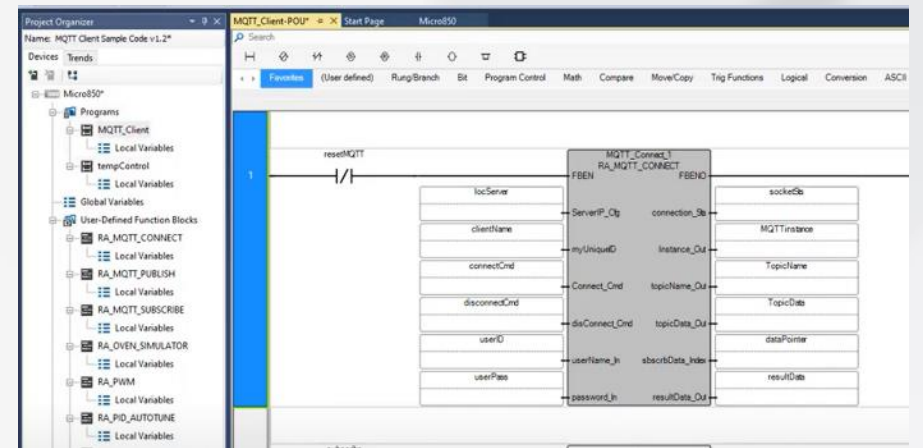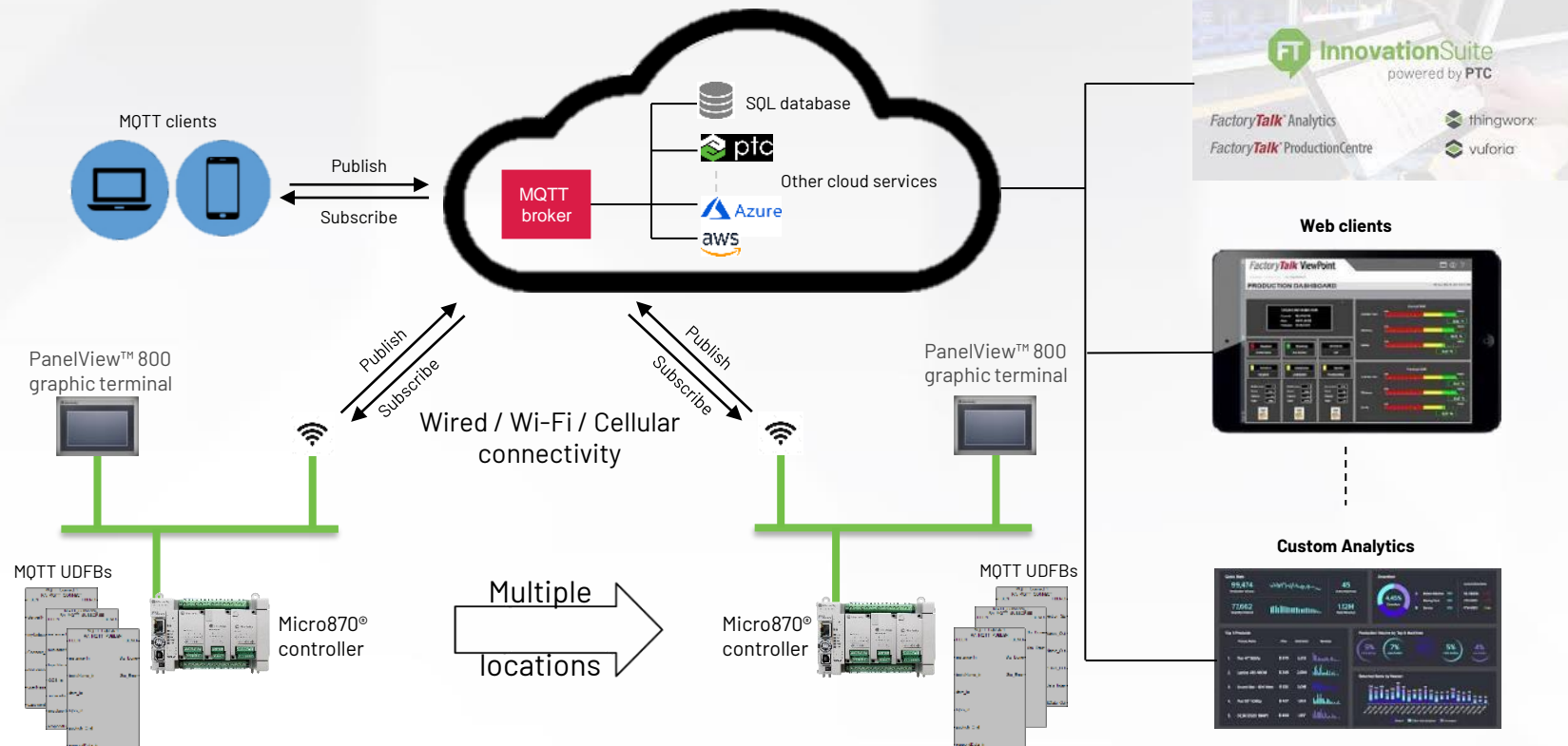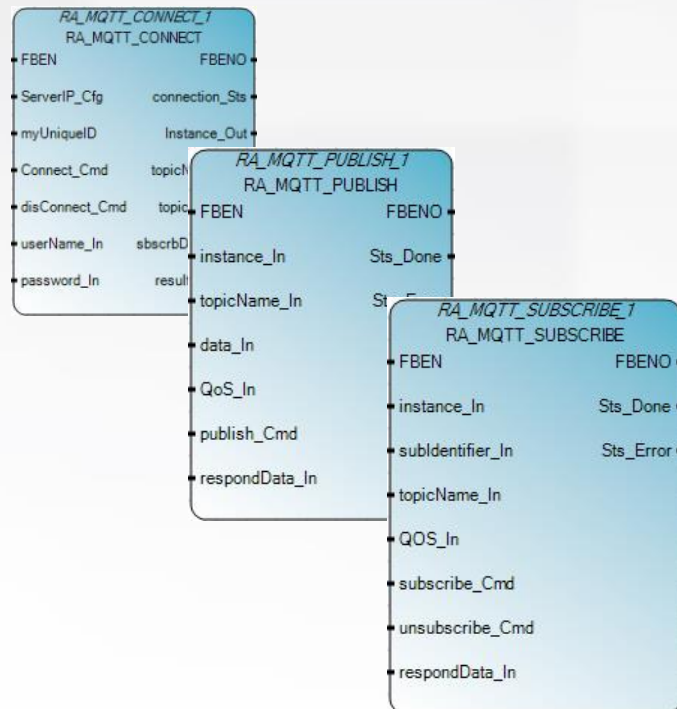
Micro800™ component motion

Easy-to-program and cost-effective solution

- Touch probe is a low-cost method to achieve **accurate position registration**

- High-speed counter (HSC) motion plug-in supports pulse frequencies up to 250 kHz for **accurate position feedback** from encoders and servo drives

- **Easy motion programming.** Simple-to-use axis configurations screens; Axis Monitor shows important information about the status of axes; commonly used PLCopen® instruction reduces the learning curve

Rockwell Automation

One software for all essential devices

- Optimize productivity with one integrated design software

- Connected Components Workbench™ software offers controller programming and simulation, device configuration and human machine interface (HMI) design.

- Easy to acquire and free download for standard edition

Micro800™ controllers

PanelView™ 800
graphic terminals

Guardmaster® 440C-CR30
software configurable
safety relay

GuardShield™ 450L
safety light curtain

Kinetix® 5100
servo drives

PowerFlex® 4-series, 520 series and 7 series
drives

SMC™-50
soft starters

SMC™ Flex
soft starters

E200™ electronic
overload relay

Rockwell Automation

Password for security and IP protection

Improves security and intellectual property protection for Micro800™ controllers

- Support creation of strong passwords

- Enforce whether access is granted to the controller

- Support display of protection status and username to determine current user

- Password is encrypted in all communications with Connected Components Workbench™ software

- No backdoor password (If the password is lost, the controller must be updated!)

Password protection for user-defined function block (UDFB) in Connected Components Workbench™ software Developer Edition
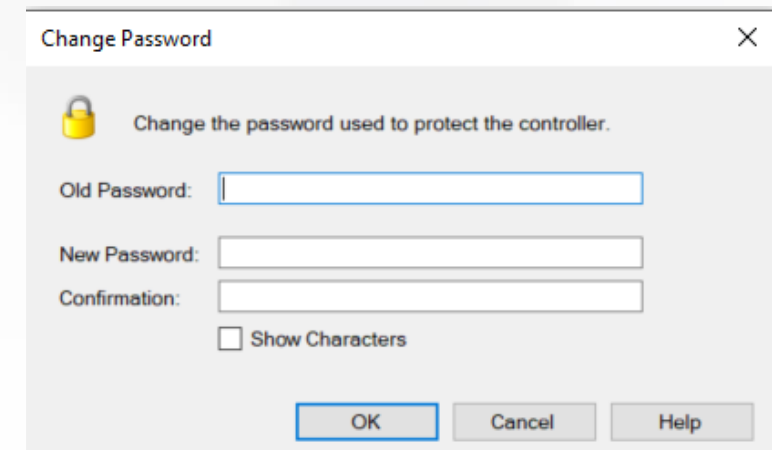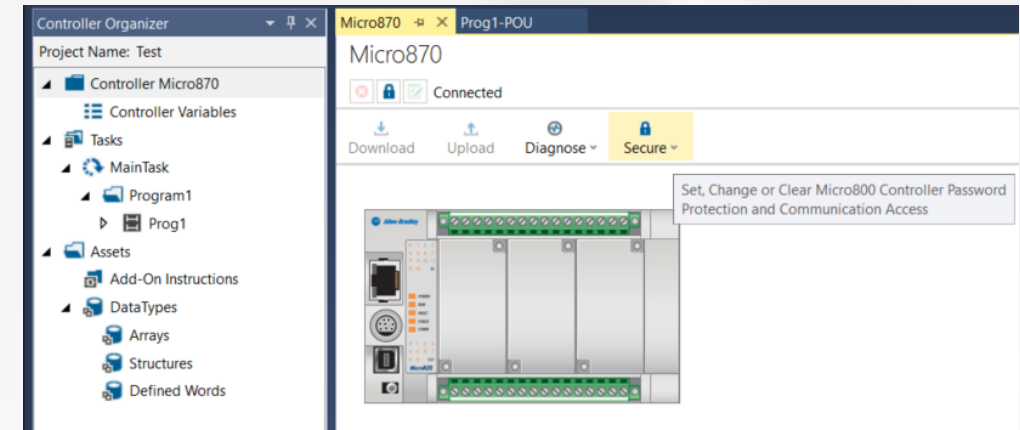
Password for security and IP protection

Supported with Connected Components Workbench™ software version 20.01 or later

Enhanced password encryption with Micro800™ 2080-Lx0E processors

- Longer password length with improved algorithm to heighten security

- The code is encrypted whenever the user creates the password in Connected Components Workbench™ software.

- The encrypted code is always different even if the password is the same. This capability helps to prevent unauthorized access of the code and a malicious decryption through a fixed pattern.

- The backup program **MUST** always be updated in the Micro800™ memory module, catalog 2080-MEMBAK-RTC2. This step helps to confirm that the restore function will not fail even if the password is deleted and recreated.
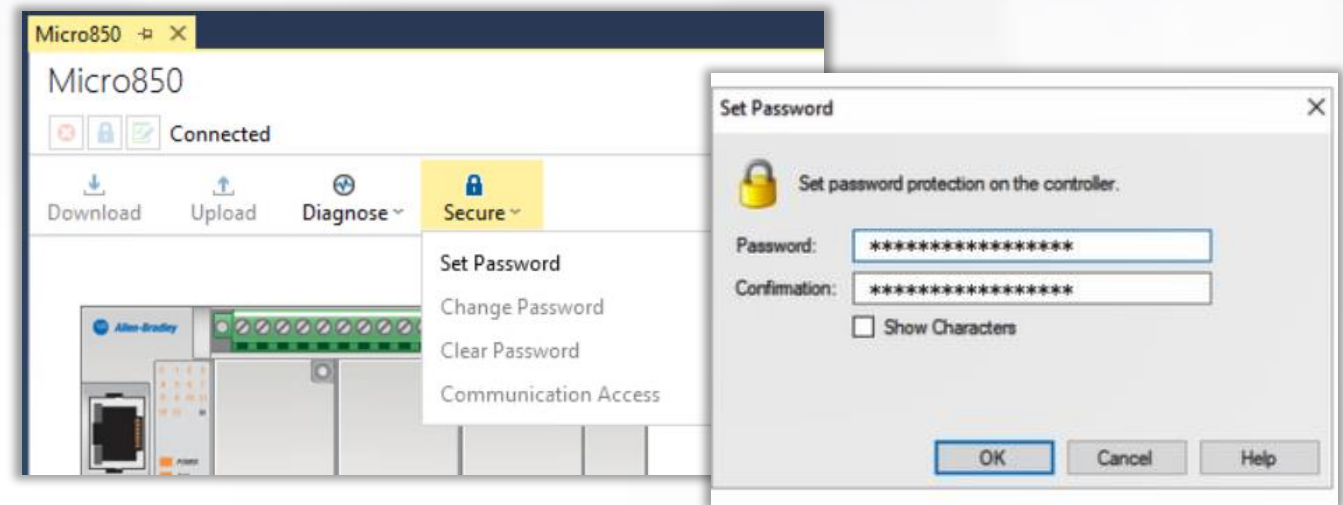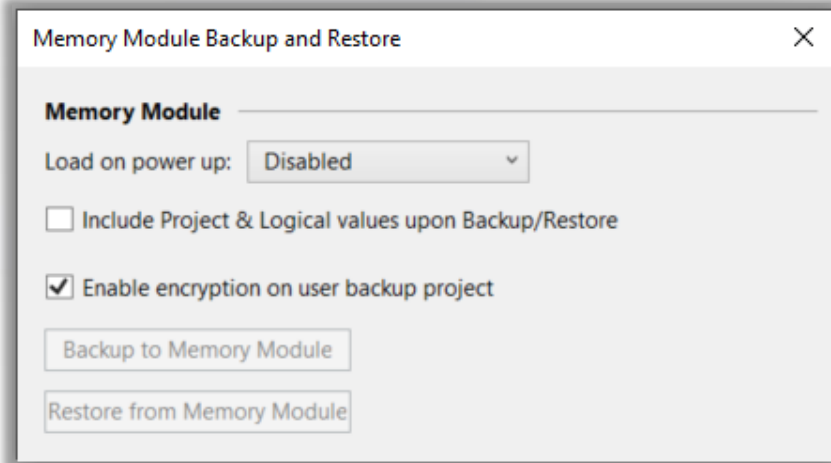
Benefits of Micro800™ controllers and Connected Components Workbench™ software

- Greater flexibility and scalability with Micro800™ plug-in and expansion I/O modules

- Micro800™ controllers support a wide variety of network communication options

- USB port for ease of use

- Micro800™ controllers component motion provide an easy-to-program and cost-effective solution

- One integrated design software for all essential devices

- Easy to program, simulate, configure, and visualize

- Sample application code reduces machine development time and improves time to market

- Password for security and IP protection

- Basic simulator environment for code development, training and demo

- Cloud connectivity
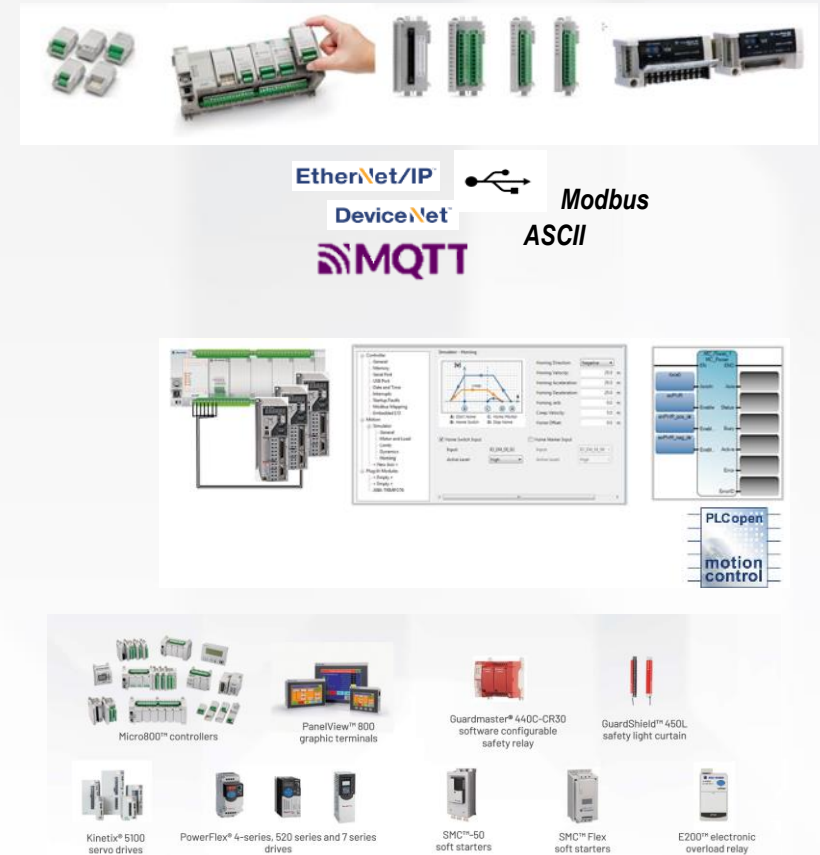
Cost-effective and easy to implement solution to help machine builders stay competitive.

Rockwell Automation

Micro800™ controller applications

Suitable for a wide range of applications

- Pumping and compressor applications
- Amusement attraction
- Ventilation systems
- Adhesive labelers
- Material handling
- Wrapper machines
- Air handling units
- Chillers
- Flying cut
- Food processing
- And more…

Micro800™ controllers have successes in various OEM focused applications and projects worldwide. Most of the wins include attachment of component-class devices.

Micro850® wins in Stretch Wrapping application

Micro850® L50**E** controller, together with PowerFlex® 520 series drive, PanelView™ 800 graphic terminal and Stratix® Ethernet switch helps customers to enable savings over manual labels.

- **Ease setup and maintenance** with cost-effective control solution for both operators and maintenance staff
- **Reduce the inconsistency** of pre-stretch seen in manual labor wrapping
  - Manual wrapping varies 40% in the morning and 20% ending up in the afternoon
  - Micro850® controller maintains a fixed pre-stretch requirement
- **Save costs** with both the reduction of rework and reduced film usage with consistency delivered

See case study – Orion Delivers Premium Stretch Wrapping Technology

Rockwell Automation

Select a Micro800™ controller based on your requirements

	No communication to other devices	Distributed over a wide area/over long distance		
		No motion/position control required		Motion/position control and more I/O
Feature	**Micro810® controller**	**Micro820® LC20 or L20E controller**	**Micro850® L50E controller**	**Micro870® L70E controller**
Typical application	• Lighting control • Heating and cooling • Compressor control • Elevator control	• Air handling unit • Remote water pump management • Stretch wrapper • Car wash system • DDC in building management system	• Adhesive labeler (up to 200 labels/min) • Cartoner • Solar panel positioning • Sleeving machine (up to 400 sleeves/min) • Intermittent vertical and horizontal form, fill, and seal (up to 80packs/min) • Material handling • Stretch wrapper	
LCD	Yes (embedded LCD)	Yes (remote LCD)	Yes (remote LCD)*	Yes (remote LCD)*
Embedded analog	Yes (Four analog inputs)	Yes (Four analog inputs and one analog output)	–	–
Maximum local digital I/O points	12	35	192	304
Plug-ins	–	Yes	Yes	Yes
Serial port	–	Yes	Yes	Yes
Ethernet	–	Yes	Yes	Yes
Class 1 Implicit messaging**	–	Up to four nodes***	Up to eight nodes	Up to eight nodes
Motion and high-speed I/O	–	–	Yes	Yes
Expansion I/O	–	–	Yes	Yes
PCCC support	No	No	Yes**	Yes
DNP3	No	No	No	Yes

*Available with Micro800™ Lx0**E** controller firmware revision 23 or later*

***Supported with Micro850® and Micro870® Lx0**E** controller firmware revision 21.011 or later**

****Available with Micro820® L20**E** controller only***

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Resources

Resources

Literature

- [Micro800™ controllers eBook](#)
- [Micro800™ controllers starter pack profile](#)
- [Micro Control System eBook](#)
- [MicroLogix™ 1000, MicroLogix™ 1100, MicroLogix™ 1200, Pico™, and PicoGFX™ controllers to Micro800™ controllers modernization eBook](#)
- [Connected Components Workbench™ software eBook](#)
- [Connected Components Workbench™ software quick tips](#)
- More on [Literature Library](#)

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- [Micro800™ controllers](#)
- [Micro800™ controllers tutorials playlist](#)
- [Micro800™ Sample Code Library](#)
- [Micro Control Systems](#)
- [Connected Components Workbench™ software](#)
- [Connected Components Workbench™ software tutorials playlist](#)

Videos on YouTube

- [Micro800™ Control System](#)
- [Connected Components Workbench™ software tutorials for Micro800™ controllers](#)
- [Micro Control Applications](#)
- [Micro Control System](#)

Discover more at **rok.auto/micro800**

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RA Rockwell Automation

expanding **human possibility**™

Inclusive terminology

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this presentation are not in alignment with the movement toward inclusive language in technology.

We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.