Rockwell Automation

Microcontrol System and Intelligent DIO

JAYAKUMAR R R INTELLIGNET DEVICES LEAD IIOTM 27th FEB 2024

expanding **human possibility**®

Agenda

1 Micro800™ controllers

2 Connected Components Workbench™ software and Micro800™ controller enhancements

3 MQTT version 2 update

4 Modernize your machines with Micro800™ controllers

5 Intelligent DIO

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Micro800™ controllers

Overview of Micro Control System

Ease of use | **Lower cost** | **Information-enabled**

Level 3 Cloud

MQTT clients

MQTT

Data to Cloud

Level 2 Supervisory control

Mobility device

VNC Client for HMI

Operator interface (PanelView™ 800 graphic terminal)

Isolation zone

DesignStation (Connected Components Workbench™ software)

Level 1 Machine control

MQTT UDFBs

Standard control (Micro800™ controllers)

SWS

Safety control (Guardmaster® 440C-CR30 software configurable safety relay)

Panel components

Class 1 implicit messaging

Level 0 Intelligent devices

Distributed I/O

Motion control (Kinetix® 5100 servo drives and TL and TLY servo motor)

Variable-frequency drives (PowerFlex® 523 drives)

Soft starters (STC™/SMC™-3)

Motor protection (IEC/NEMA contactors)

Sensing (Smart sensors)

Safety sensors and relays

One common design environment for the entire system

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Micro800™ controller family

Each controller is performance and cost optimized for specific applications

DNP3 support

Class 1 implicit messaging support

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

CIP™ Symbolic | CIP™ Symbolic and PCCC

Supports expansion modules

Motion control with pulse train output (PTO)

Supports plug-in modules and microSD™ cards

EtherNet/IP™ enabled | EtherNet/IP™ enabled

Micro810®
Smart relay

Micro820®
Remote automation

Micro850®
Three axes of motion support

Micro870®
Highest memory and I/O

Performance and features

Memory and I/O

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Micro800 Controller Comparison

Feature Comparison

Attribute	Micro810	Micro820	Micro850		Micro870
	12-point	20-point	24-point	48-point	24-point
Communication ports, embedded	USB 2.0 (with USB adapter)	10/100 Base-T Ethernet port (RJ45) RS-232/RS-485 non-isolated combo serial	USB 2.0 (non-isolated) RS-232/RS-485 non-isolated combo serial 10/100 Base-T Ethernet port (RJ45)		
Embedded digital I/O points (1)	12	19	24	48	24
Base analog I/O channels	Four 24V DC digital inputs are shared as 0...10V analog inputs (DC input models only)	One 0...10V analog output Four 24V DC digital inputs can be configured as 0...10V analog inputs (DC input models only) and via plug-in modules	Via expansion I/O and plug-in modules (see page 12 and 13)		
Number of plug-in modules	0	2	3	5	3
Maximum digital I/O (2)	12	35	132	192	304
Expansion I/O supported	—	—	All expansion I/O modules (see page 12)		
Ethernet node supported (3)	—	—	8		
Types of accessories or plug-ins supported	LCD display with backup memory module USB adapter	Most plug-in modules (see page 13 for selection and exceptions)			
Power supply	Embedded 120/240V AC and 12/24V DC options	Base unit has embedded 24V DC power supply, optional external 120/240V AC power supply available			
Basic instruction speed	2.5 µs per basic instruction	0.30 µs per basic instruction			
Minimum scan/cycle time (4)	<0.25 ms	<4 ms	<0.25 ms		
Software	Connected Components Workbench™ (5)				

Micro Control System

Reduce design time

- Broad product portfolio to solve various machine application requirements
- Selection tool to aid in selecting the right control system
- Available popular configuration drawings for design reference

Reduce development time

- One software to integrate all devices together
- Simulation tool to aid in development and testing
- Large sample code availability to aid in development
- Direct tag referencing between controller and HMI
- MicroLogix™ Converter Tool for modernization

Reduce deployment/maintenance time

- Common EtherNet/IP network helps to reduce commission time with easy hardware configuration
- Integration with Emulate3D™ software to detect any possible deployment issue
- Ease of configuration to connect to enterprise-level communication

Micro800™ controllers

Scalable Micro controllers for right-sizing application needs

PORTFOLIO EXPANSION

Version 12 or earlier

Creating a scalable micro platform

- Expansion of portfolio up to Micro870® controllers for scalable coverage of applications
- Expanding plug-in and expansion I/O

IMPROVE PRODUCTIVITY AND SUPPORTABILITY

Version 20.01

Refresh of Micro850® and Micro870® controllers

- Improved controller performance
- Increased security
  - Password encryption
  - Access authentication in DNP3
- Expanded protocol support
  - DF1 for legacy communications
  - DNP3 for Water/Wastewater industry

ENHANCED CAPABILITIES

Version 21

Expand capabilities

- Integration of Kinetix® 5100 and PowerFlex® 520 series drives over EtherNet/IP

ENHANCED CAPABILITIES

Version 22

Support Water/Wastewater industry

- Conformal coating for Micro870® DNP3 catalog, 2080-24QWBNK

Build resiliency

- Improve security robustness
- Reduce product lead time

Support MicroLogix™ migration

- Retain legacy communications with PCCC support to communicate to MicroLogix™ and HMI
- Enhanced HMI and SCADA communications over CIP

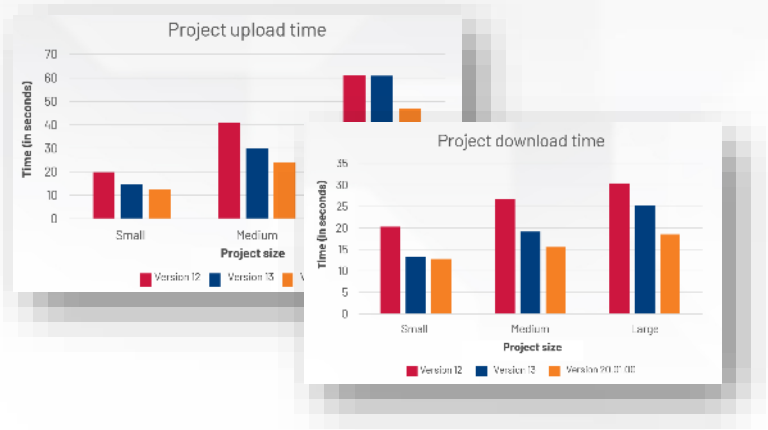
Continue to focus on **capabilities** and **performance** improvements to meet digital transformation requirements

Connected Components Workbench™ software changes

Version 20.01

Mar 2022

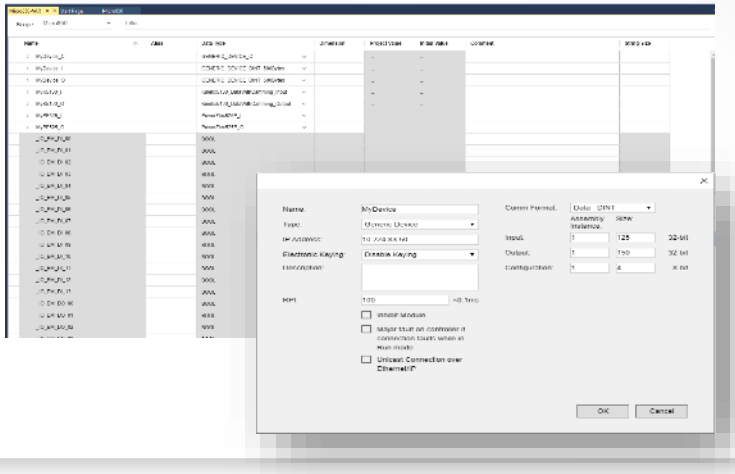
Programs new hardware, increase communication options, enhances security and improves performance



Version 21

Nov 2022

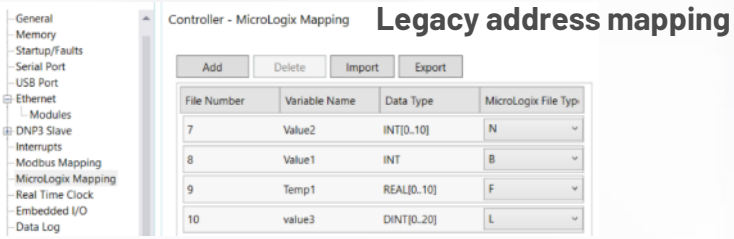
Supports networked device communication

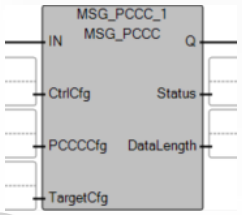


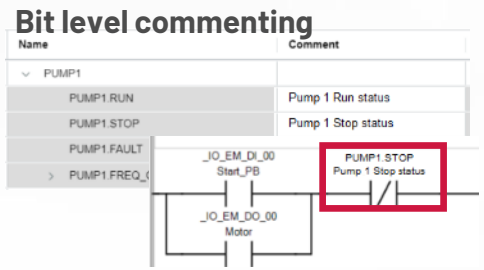
Version 22

Dec 2023

Improves migration







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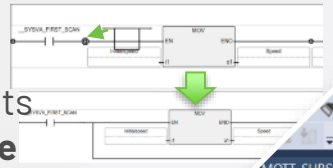
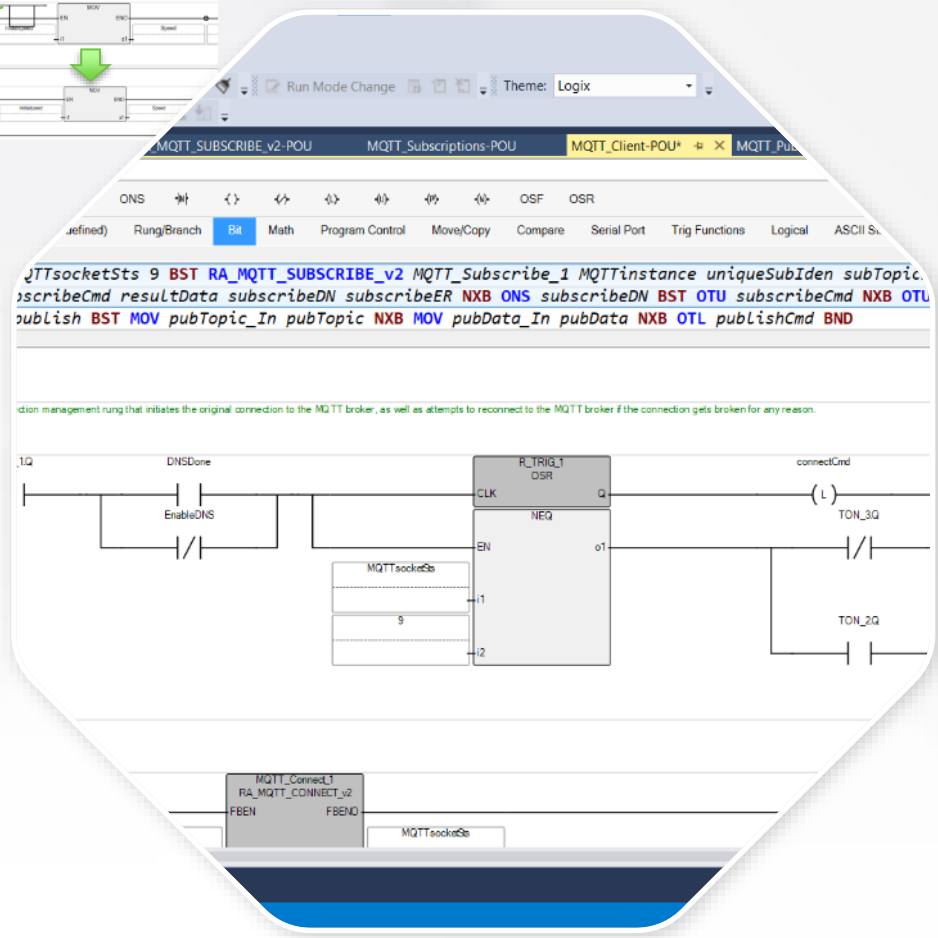
Recap on software version 21 productivity improvements

Branching function



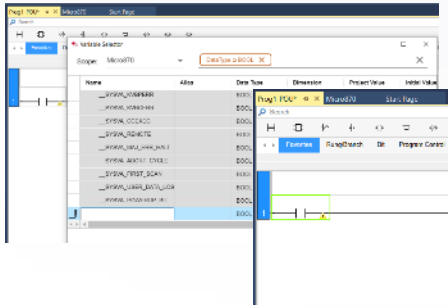
- Branch in Connected Components Workbench™ software **cannot be dragged**
- Instructions must be **added into the branch** to grow it
- Press Ctrl+7 when selected on instruction for shortcut



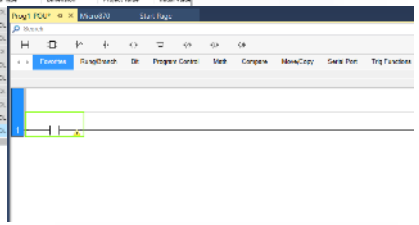
Removal of the automatic Variable Selector pop-up when adding contact

- Allow direct entry of tag variable name after adding instruction

Before

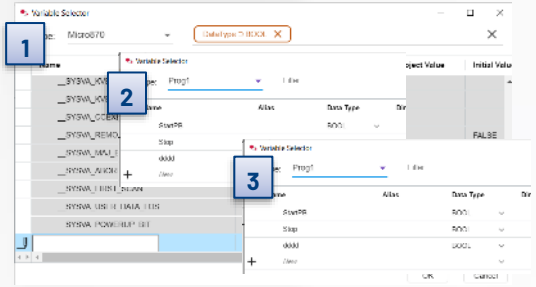


After



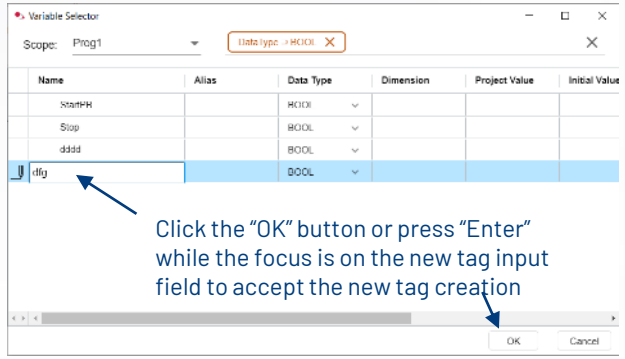
The Variable Selector remembers and opens the last selection by the user

- Remove the need to change scope every time the variable selector is invoked



Simplify tag creation

- The OK button can be pressed after the tag name is entered



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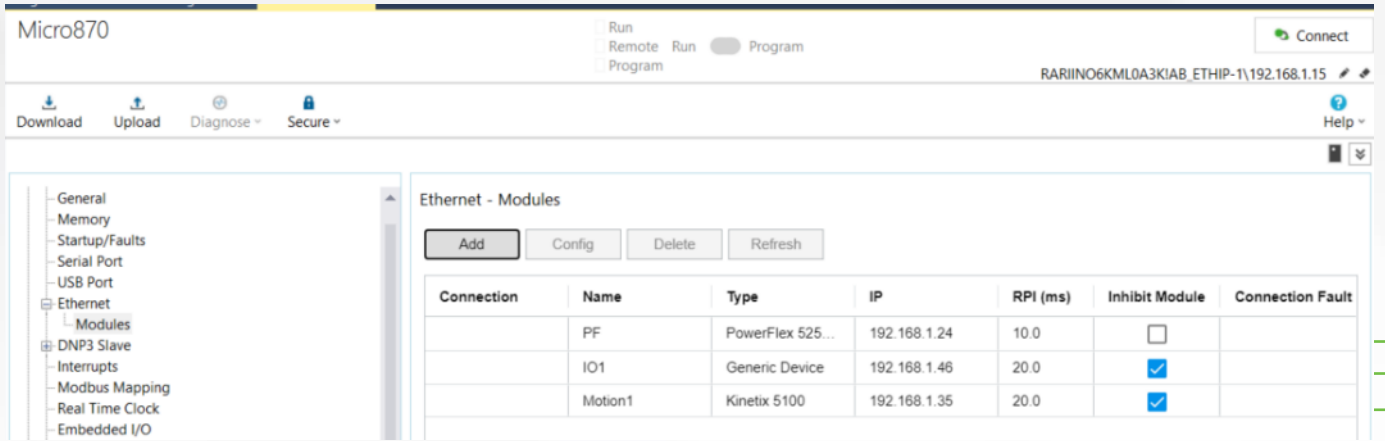
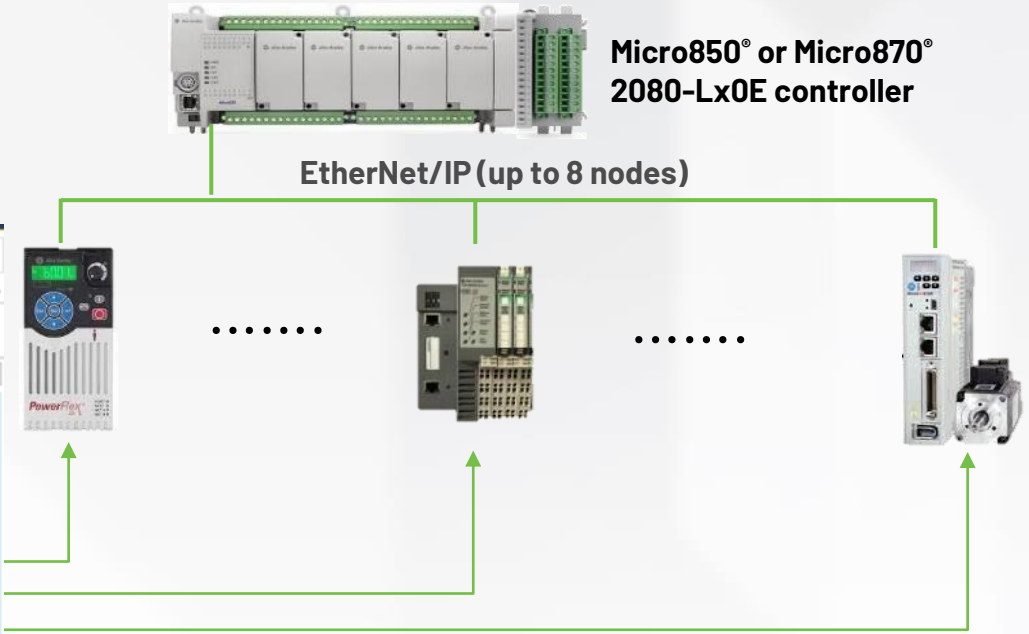
Connected Components Workbench™ software and Micro800™ controller enhancements

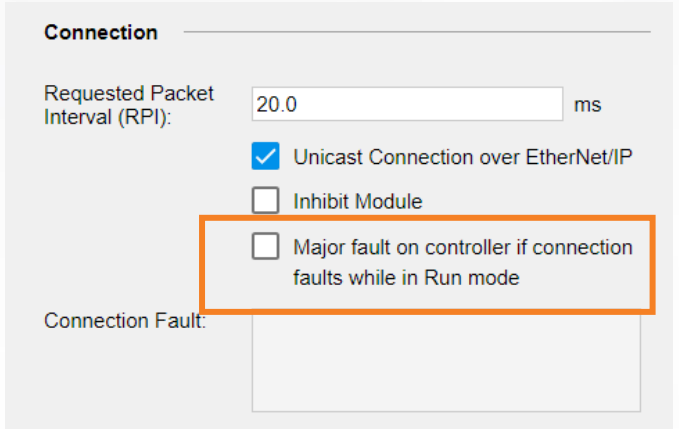
Remote node connectivity over EtherNet/IP

Connected Components Workbench™ software version 22 and Micro800™ controller firmware revision 22 enhancements





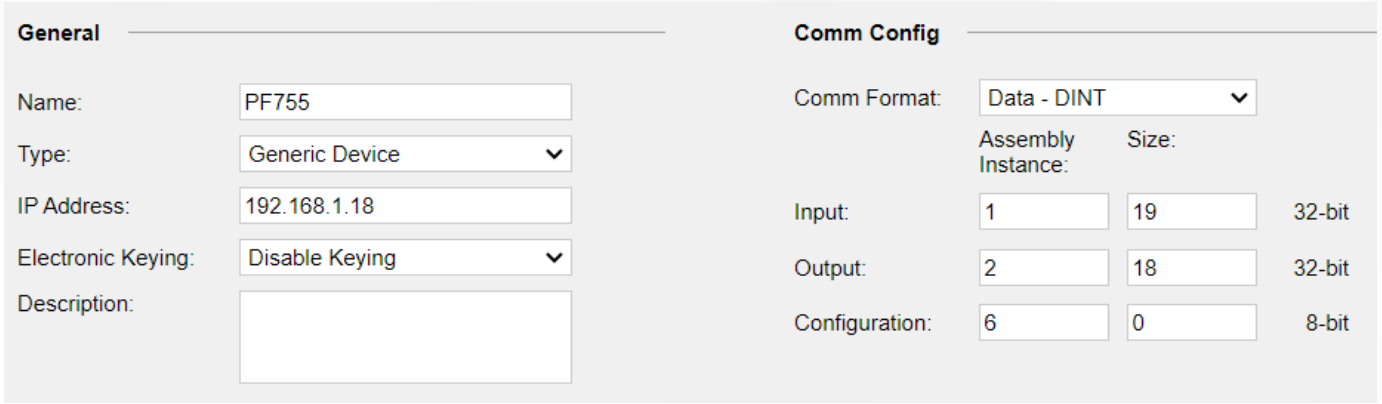
- Improves Class 1 communication fault feedback
- Added the Major fault on the controller if connection fault happens in RUN Mode
  - Same experience as Logix implementation



Remote node connectivity over EtherNet/IP using Generic Profile

Connected Components Workbench™ software version 22 and Micro800™ controller firmware revision 22 enhancements

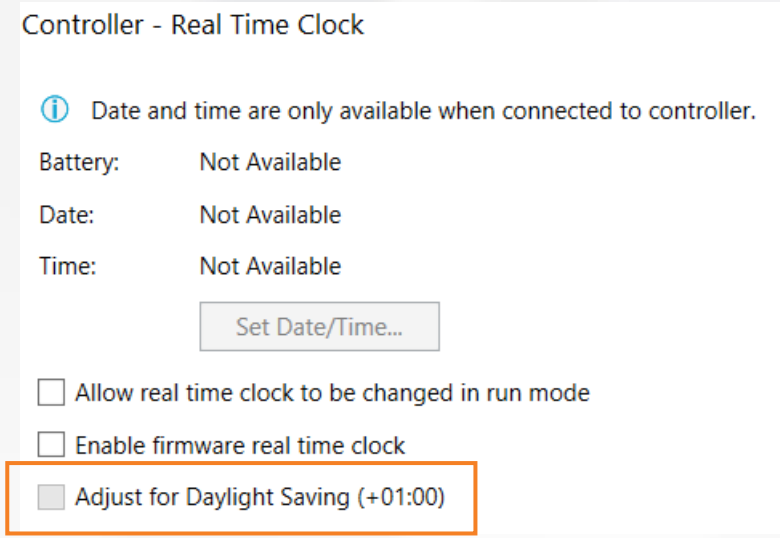
- Additional sample codes created to support Class 1 connection to the following devices:
- PowerFlex® 755 drives
  - Typical bit control (Start/Stop/Jog/Fault Reset/FWD/REV/etc.)
  - Speed Command
  - Status feedback (Ready/Active/Faulted/Accelerating/Decelerating/At Speed/etc.)
  - Speed feedback
  - Datalink example for REAL value
  - Datalink example for DINT value

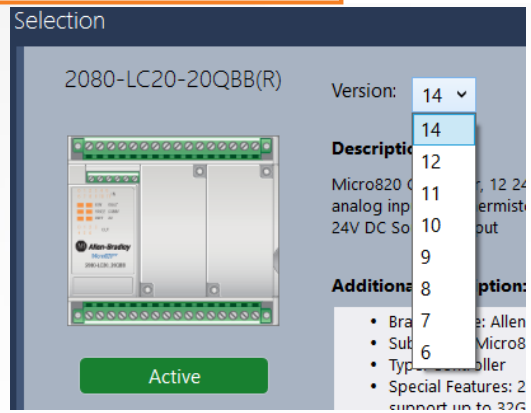


Daylight Saving function

Connected Components Workbench™ software version 22 and Micro800™ controller firmware revision 22 enhancements

- Applicable to Micro820® project version 14, and Micro850® L50E and Micro870® L70E project version 22
- When checked, the controller internal clock or Real Time Clock (RTC) in the Memory module or SD card plug-in will increase by one hour
- Supports ease of time reference changes





Bit level commenting

Connected Components Workbench™ software version 22 enhancement

- Applicable to Micro820® project version 14, and Micro850® L50E and Micro870® L70E project version 22
- Provides bit level comments for application-related needs
- Provides backward support on commenting to MicroLogix™ users

Commenting function at structure level

Pump	Pump		
Start	BOOL		Start Signal
Stop	BOOL		Stop Signal
Error	BOOL		Error Signal
Freq_Command	REAL		Pump Speed

Commenting function at variables level

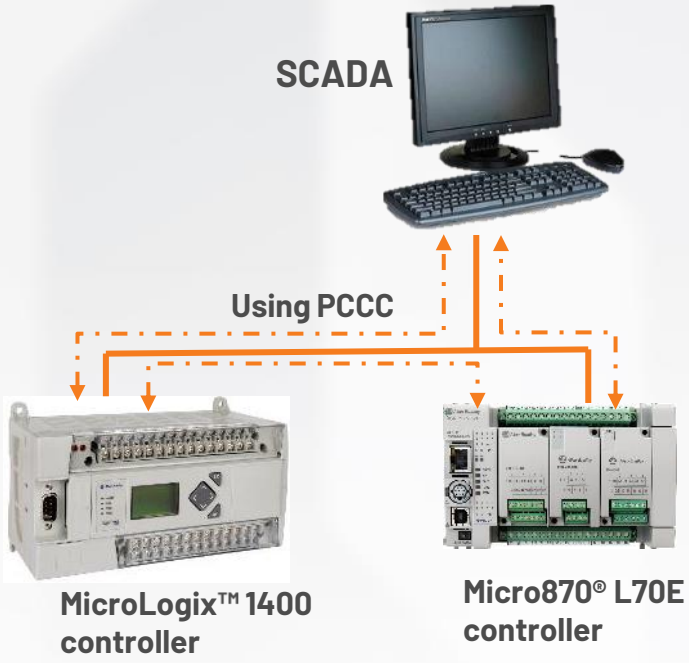
Name	Comment	Alias	Data Type
Pump1			Pump
Pump1.Start	Start Signal		BOOL
Pump1.Stop	Stop Signal		BOOL
Pump1.Error	Error Signal		BOOL
Pump1.Freq_Command	Pump Speed		REAL
Pump2			Pump
Pump2.Start	Start Signal		BOOL
Pump2.Stop	Stop Signal		BOOL
Pump2.Error	Error Signal		BOOL
Pump2.Freq_Command	Pump Speed		REAL
Status			INT
Status.0	Start		
Status.1	Stop		
Status.2	Error		

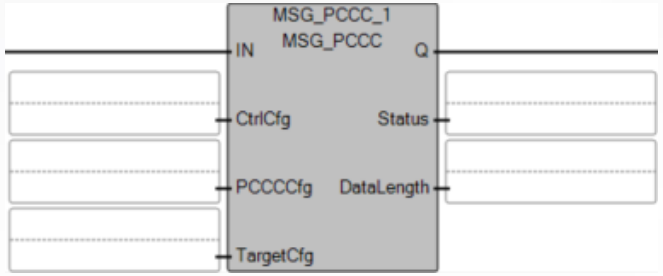
PCCC support

Connected Components Workbench™ software version 22 and Micro800™ controller firmware revision 22 enhancements

- Applicable to Micro870® L70E project version 22
- Native PCCC instruction support in Micro870® L70E controller, which provides Read and Write from Micro870® L70E to MicroLogix™, HMI and SCADA program
- Micro870® L70E controller supports additional commands to respond in PCCC

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





PCCC support

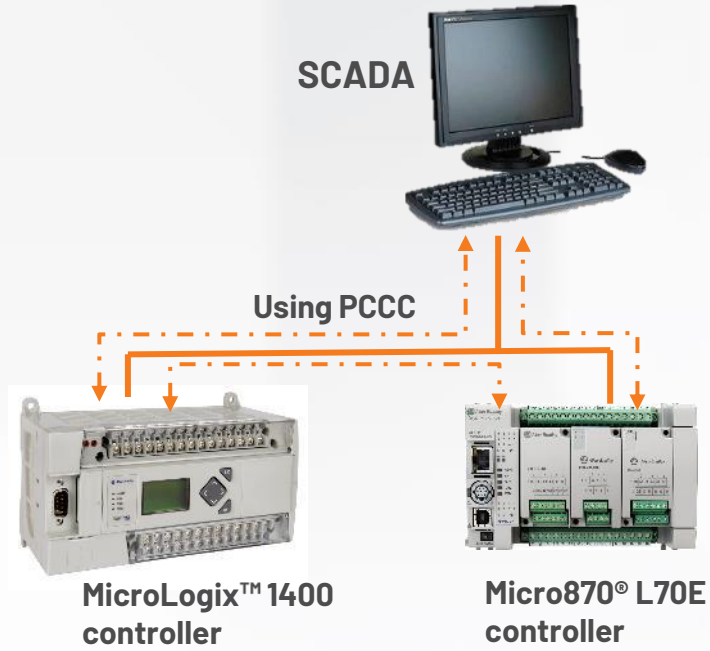
Connected Components Workbench™ software version 22 and Micro800™ controller firmware revision 22 enhancements

- Legacy address mapping in Connected Components Workbench™ software version 22
  - Simplified user interface for ease of configuration
  - Similar format as in Studio 5000 Logix Designer® application
  - All import of CSV file to speed up configuration
  - Up to 100 entries can be mapped

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



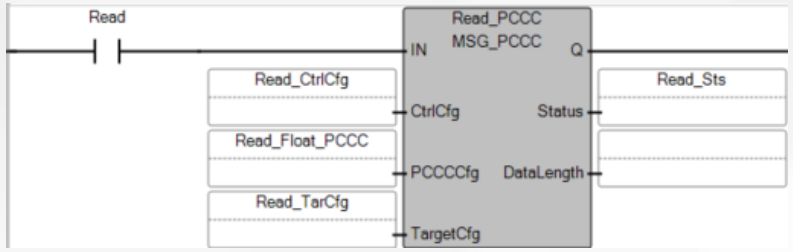
PCCC example communicating to a MicroLogix™ 1400 controller

Connected Components Workbench™ software version 22 and Micro800™ controller firmware revision 22 enhancements

MicroLogix™ 1400 controller

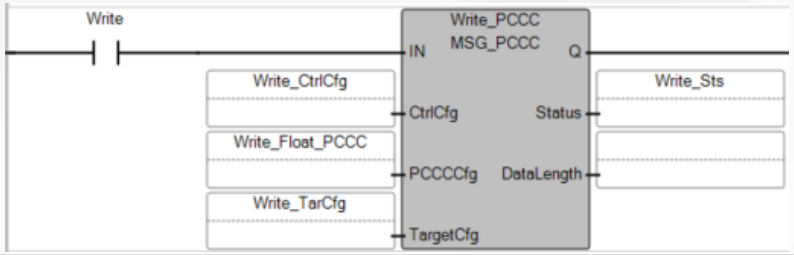
Micro870® L70E controller

- Perform a Float data Read from MicroLogix™ 1400 to Micro870® L70E 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 Micro870® L70E 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

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Additional capabilities

Micro800™ controller firmware revision 22 enhancements

- Program download to the controller via DF1
- Increased HMI and SCADA communication timing via CIP to Micro800™ controllers

Read from 2080-L70E-24QBB with V21 FW (Before CIP Symbolic Enhancement)			
Tag	**Request time**	**No. of variables**	**Time taken**
First tag	11:35:55.260367	10	48.523ms
Last tag	11:35:55.308890		
Tag	**Response time**	**No. of variables**	**Time taken**
First tag	11:36:15.263071	10	48.389ms
Last tag	11:36:15.311460		

Read from 2080-L70E-24QBB with V22 (After CIP Symbolic Enhancement)		
Request time	**No. of variables**	**Time taken**
06:13:08.528	10	1ms
06:13:08.529		
Response time	**No. of variables**	**Time taken**
06:14:08.535	10	1ms
06:14:08.536		

Before

```
Common Industrial Protocol
  Service: Get Attribute Single (Response)
      1... .... = Request/Response: Response (0x1)
      .000 1110 = Service: Get Attribute Single (0x0e)
  Status: Success:
```

After

```
Common Industrial Protocol
  Service: Multiple Service Packet (Request)
      0... .... = Request/Response: Request (0x0)
      .000 1010 = Service: Multiple Service Packet (0x0a)
  Request Path Size: 2 words
  Request Path: Message Router, Instance: 0x01
  Multiple Service Packet (Request)
      Number of Services: 10
    Offset List
    Service Packet #1: 'Add1_int' - Data_Table_Read
    Service Packet #2: 'Addr1' - Data_Table_Read
    Service Packet #3: 'Addr1_real' - Data_Table_Read
    Service Packet #4: 'Addr1_string' - Data_Table_Read
    Service Packet #5: 'Asdres_dint' - Data_Table_Read
    Service Packet #6: 'BIT2' - Data_Table_Read
    Service Packet #7: 'CLASS2' - Data_Table_Read
    Service Packet #8: 'Country1' - Data_Table_Read
    Service Packet #9: 'Rtr1' - Data_Table_Read
    Service Packet #10: 'defd' - Data_Table_Read
```

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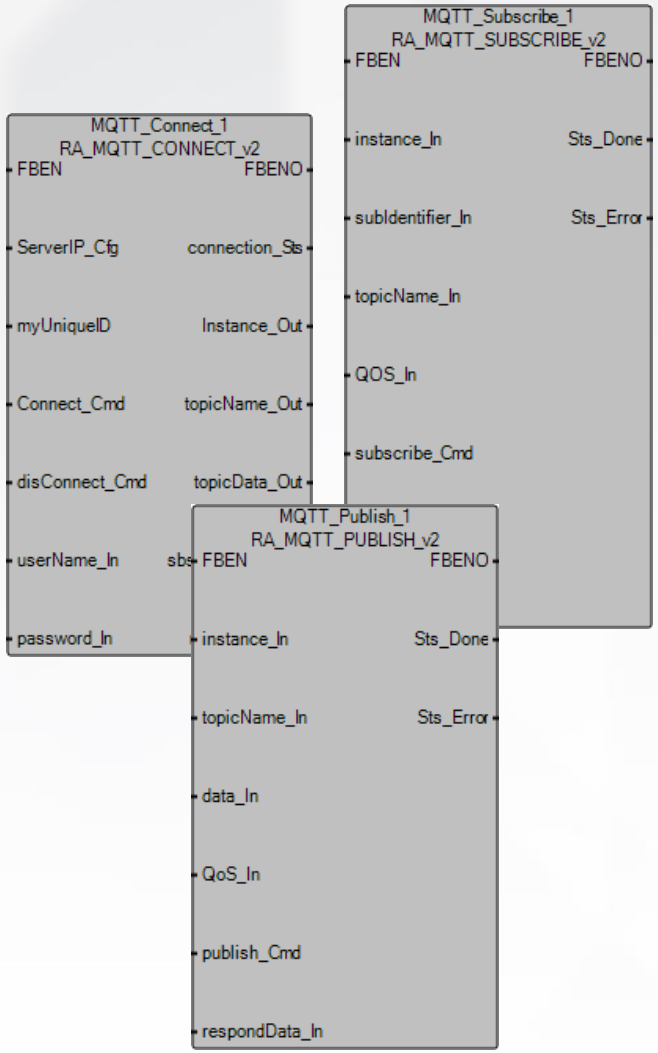
MQTT version 2 update

Micro800™ MQTT user-defined function block (UDFB) version 2

MQTT client function block enable Micro800™ controller to communicate on the Internet of Things (IoT) space

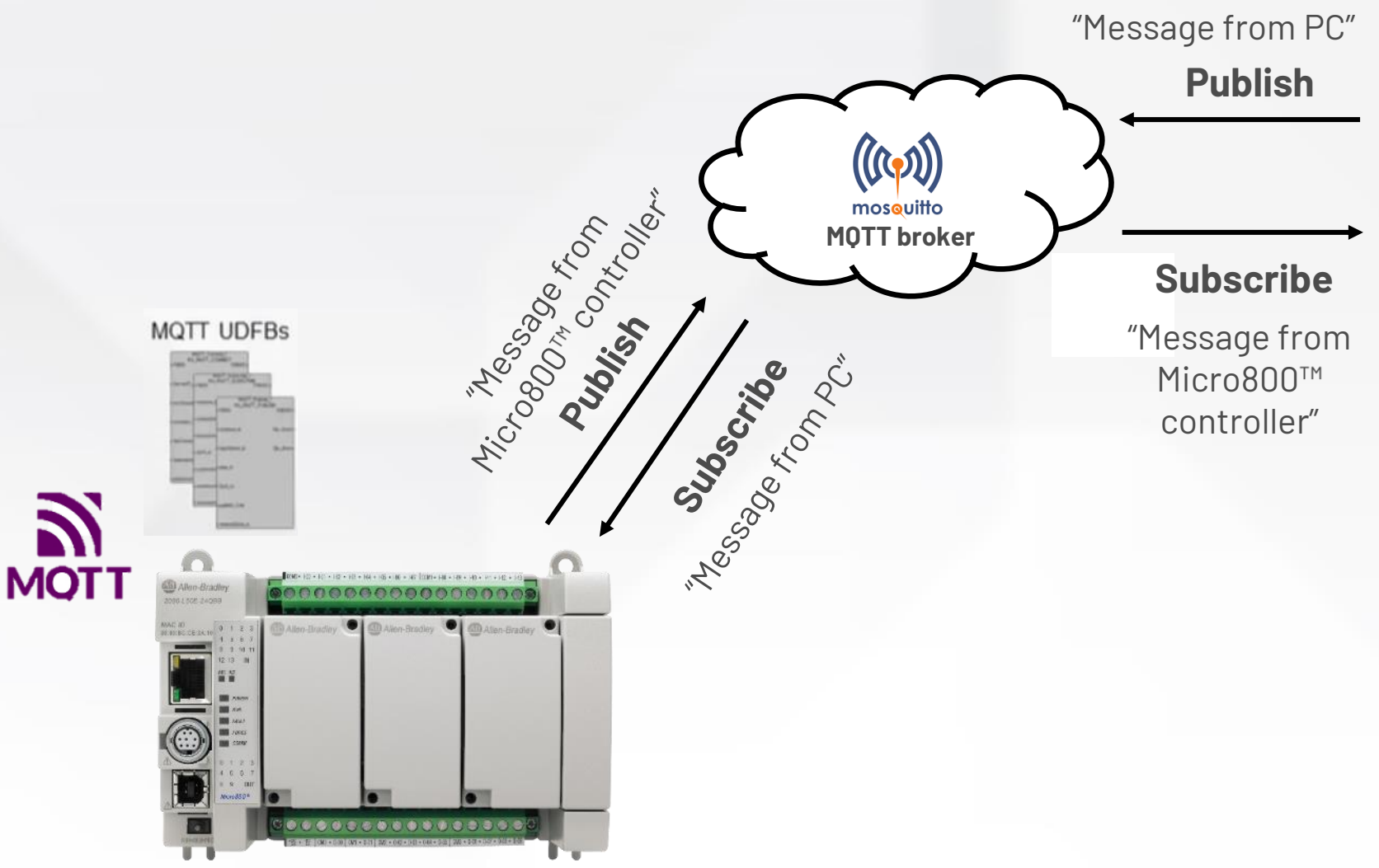
- Message Queuing Telemetry Transport (MQTT) protocol is one of the common protocols on the Internet of Things (IoT) space
- Publish and subscribe the topic to and from the MQTT broker
- Support authentication (username and password)
- Support Last Will and Testament
- Support Quality of Service 0 to 2
- Support communication on unencrypted port (Port 1883) only
- Tested with private and public MQTT brokers such as CloudMQTT and Mosquitto
- Tested on ThingWorx platform with MQTT client connector, mobile phone application and PC MQTT client software



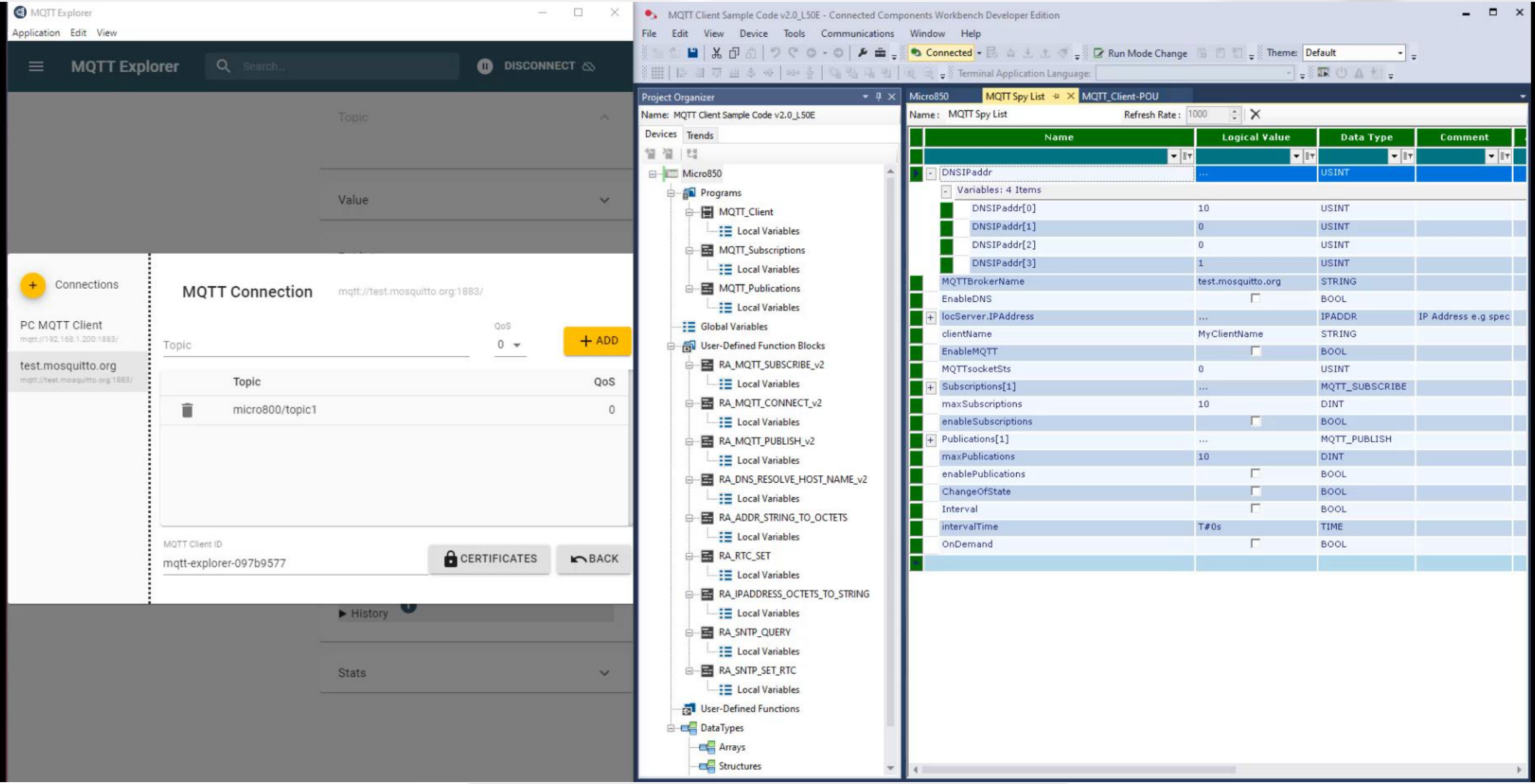
New capabilities in MQTT user-defined function block (UDFB) version 2

- Support subscription and publish to an array of pre-defined topics
- Auto reconnect when there is a loss of communication to the broker

MQTT capability demonstration



MQTT Explorer


MQTT Explorer
Application Edit View
MQTT Explorer
Search...
DISCONNECT
Topic
Value
Connections
PC MQTT Client
mqtt://192.168.1.200:1883/
test.mosquitto.org
mqtt://test.mosquitto.org:1883/
MQTT Connection
mqtt://test.mosquitto.org:1883/
Topic
QoS
0
+ ADD
Topic
QoS
micro800/topic1
0
MQTT Client ID
mqtt-explorer-097b9577
CERTIFICATES
BACK
History
Stats
MQTT Client Sample Code v2.0_L50E - Connected Components Workbench Developer Edition
File Edit View Device Tools Communications Window Help
Connected
Run Mode Change
Theme: Default
Terminal Application Language:
Project Organizer
Name: MQTT Client Sample Code v2.0_L50E
Devices Trends
Micro850
Programs
MQTT_Client
Local Variables
MQTT_Subscriptions
Local Variables
MQTT_Publications
Local Variables
Global Variables
User-Defined Function Blocks
RA_MQTT_SUBSCRIBE_v2
Local Variables
RA_MQTT_CONNECT_v2
Local Variables
RA_MQTT_PUBLISH_v2
Local Variables
RA_DNS_RESOLVE_HOST_NAME_v2
Local Variables
RA_ADDR_STRING_TO_OCTETS
Local Variables
RA_RTC_SET
Local Variables
RA_IPADDRESS_OCTETS_TO_STRING
Local Variables
RA_SNTP_QUERY
Local Variables
RA_SNTP_SET_RTC
Local Variables
User-Defined Functions
DataTypes
Arrays
Structures
Micro850
MQTT Spy List
MQTT_Client-POU
Name: MQTT Spy List
Refresh Rate: 1000
Name
Logical Value
Data Type
Comment
DNSIPaddr ... USINT
Variables: 4 Items
DNSIPaddr[0] 10 USINT
DNSIPaddr[1] 0 USINT
DNSIPaddr[2] 0 USINT
DNSIPaddr[3] 1 USINT
MQTTBrokerName test.mosquitto.org STRING
EnableDNS BOOL
locServer.IPAddress ... IPADDR IP Address e.g spec
clientName MyClientName STRING
EnableMQTT BOOL
MQTTsocketSts 0 USINT
Subscriptions[1] ... MQTT_SUBSCRIBE
maxSubscriptions 10 DINT
enableSubscriptions BOOL
Publications[1] ... MQTT_PUBLISH
maxPublications 10 DINT
enablePublications BOOL
ChangeOfState BOOL
Interval BOOL
intervalTime T#0s TIME
OnDemand BOOL

Rockwell Automation

Modernize your machines with Micro800™ controllers

Modernize your machines with Micro800™ controllers

Active
Active Mature
End of Life
Discontinued
Modernization paths

DNP3 support
Class 1 implicit messaging support
DF1 support (full-duplex, half-duplex and Radio modem)
CIP Symbolic | CIP Symbolic and PCCC
Supports expansion modules
Motion control with pulse train output (PTO)
Supports plug-in modules and microSD cards
EtherNet/IP enabled

Micro810®
Smart relay

Micro820®
Remote automation

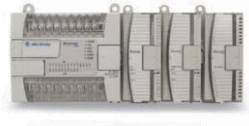
Micro850® L50E
High embedded plug-in

Micro870® L70E
High memory and expansion I/O

Pico™

MicroLogix™ 1000

MicroLogix™ 1100



MicroLogix™ 1200

MicroLogix™ 1400

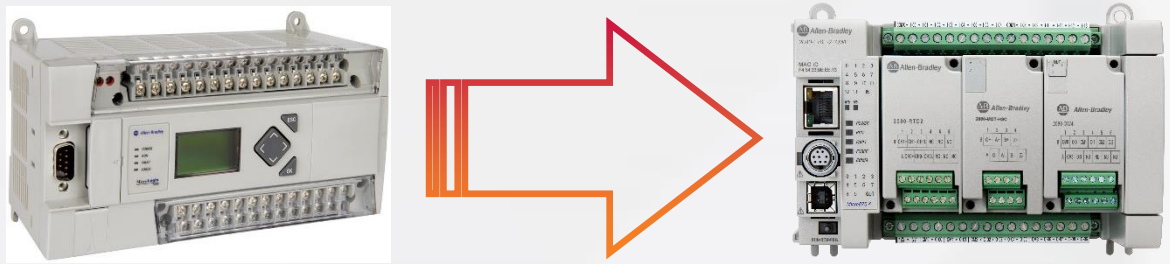
MicroLogix™ 1500

Upsell and reuse I/O

CompactLogix™ 5370

Micro800™ controllers provide **better performance, availability and longevity**, while maintaining the MicroLogix™ communication with the Micro870® L70E controller

Benefits of MicroLogix™ to Micro870® L70E modernization

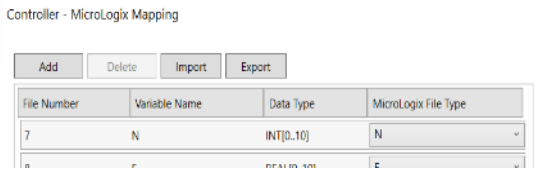


Tools

- **Logix Theme** in Connected Components Workbench software provides instruction familiarity to RSLogix 500® users and allow copy and paste of code
- **MicroLogix™ to Micro800™ controller conversion tool** in Connected Components Workbench software helps customers to jump-start in Micro800™ project

Protocol compatibility

- Support **DNP3 with Secure Authentication version 5 (SAv5)**
  - Remote password update function
- Support **PCCC commands**
  - SLC Typed Read and Write
  - Function code A9, A1 and AB
- Legacy address mapping for ease of reusing the same HMI and SCADA



New expansion

- **Ease of integration** using EtherNet/IP devices with pre-defined tags for PowerFlex® 520 series and Kinetix® 5100 drives
- **Cloud connectivity** with MQTT user-defined function blocks (UDFB)
- Achieve **code modularity** with use of user-defined function blocks (UDFB) and user-defined tags (UDT)

Incremental benefits

- Enhanced performance
- Considerable reduction in planned downtime
- Scalable offering with plug-ins and expansion I/O to meet different Micro space requirements.
- Enhanced security
  - Encrypted firmware and password protection support for program and code level

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Intelligent DIO

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FLEX 5000® I/O overview

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FLEX 5000® I/O

Flexible distributed I/O platform

Rugged design

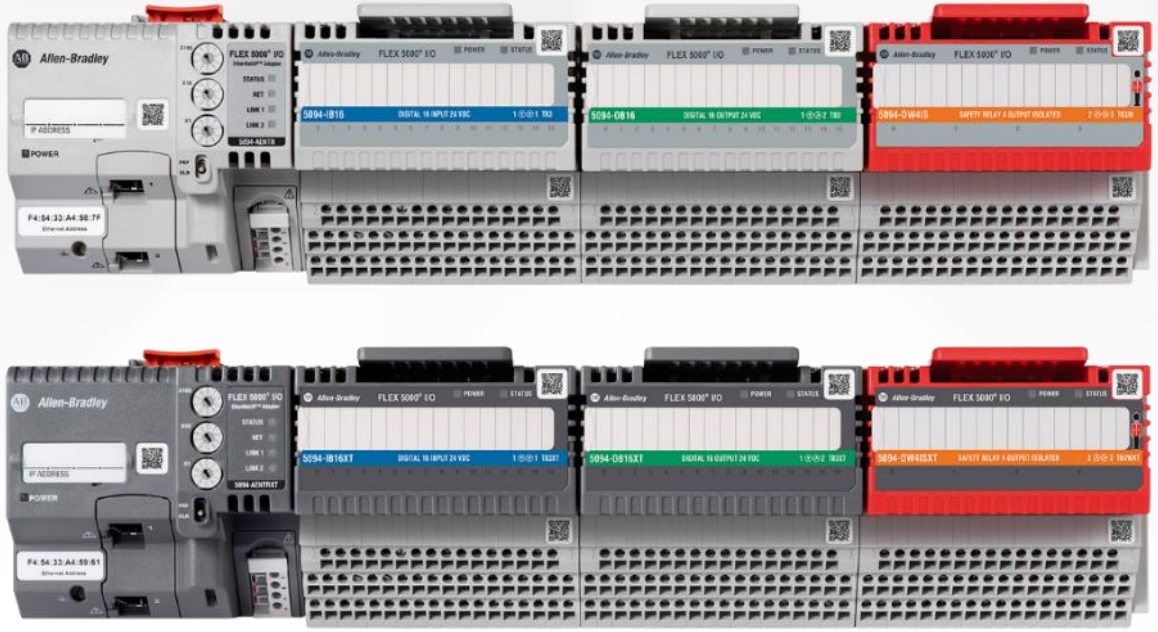
Operating temperature:
-40...+70 °C
(-40...+158 °F)

Hazardous environments:
Class I, Div. 2
Zone 2 Groups
A, B, C, D

XT
(Extreme environment)
Class G1, G2 and G3
conformal coating

Network adapters

1 gigabit (Gb) EtherNet/IP™ and backplane
Supports copper or fiber media



I/O modules

Support standard and safety I/O modules in one bank

Standard I/O:
8/16/32-channel digital in/out
8-channel analog in/out

Safety I/O:
(certified up to SIL 3, PLe, Cat. 4)
16-channel digital in/out
4-channel analog in/out

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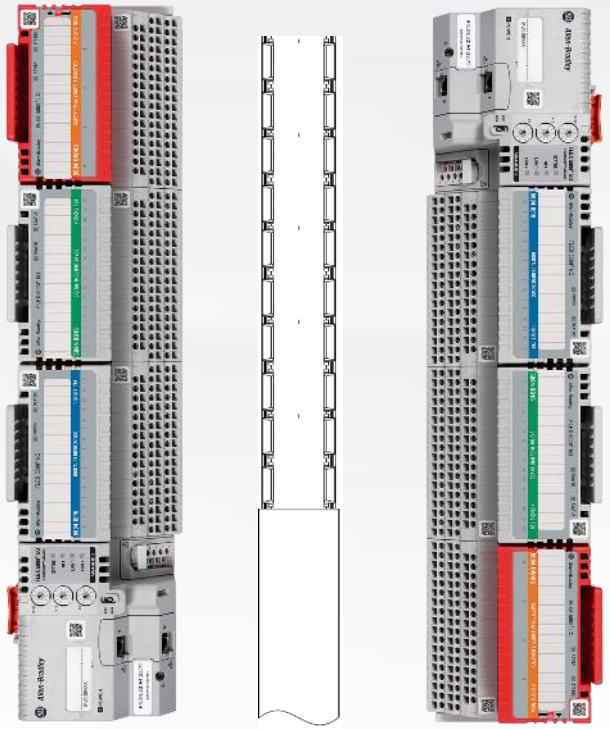
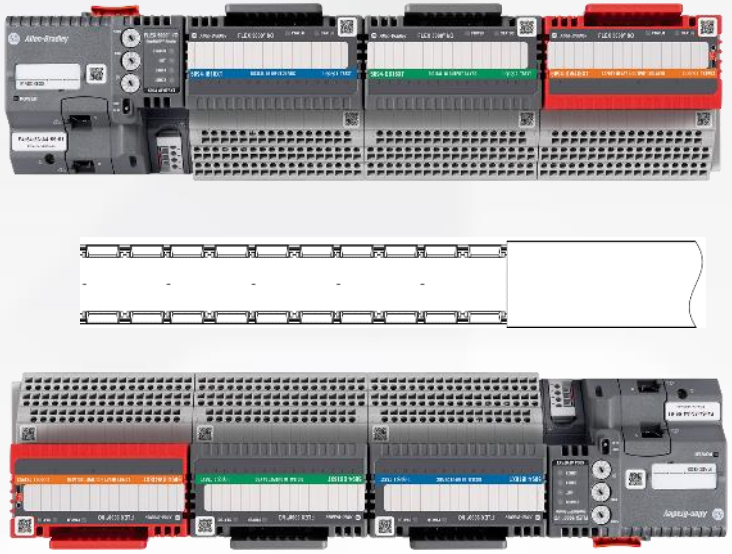
FLEX 5000® I/O

Flexible installation options



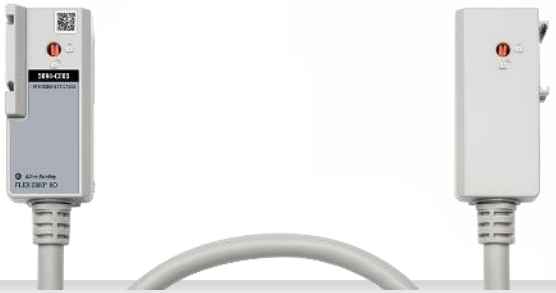
Mount the I/O to meet application requirements



Mount up to 8 or 16 I/O modules

Horizontal or vertical
Can be inverted

Interconnect cable bank expansion



Certifications available at release

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FLEX 5000® I/O

Flexibility in design and maintenance

Simplified system design and maintenance

One-to-one RTB mapping

Catalogs:
RTB3, RTB3I, RTB3W, RTB3T, RTB3IT, RTB3AC, RTB32C, RTB32V

Per channel cold junction compensation (CJC), remote CJC support

RTB options:
Screw and spring/push-in

Removable terminal block (RTB)

Mounting Base (MB)

Easy snap-on installation

Simple plug-in shielding TB

Easy terminal base selection

Consistent I/O and power wiring

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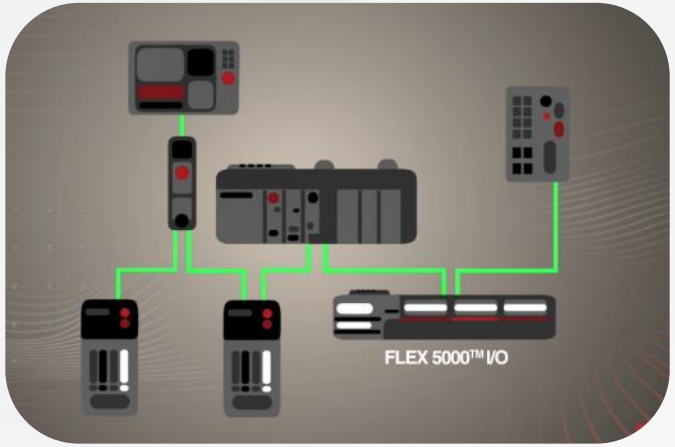
FLEX 5000® I/O

Flexible network topologies

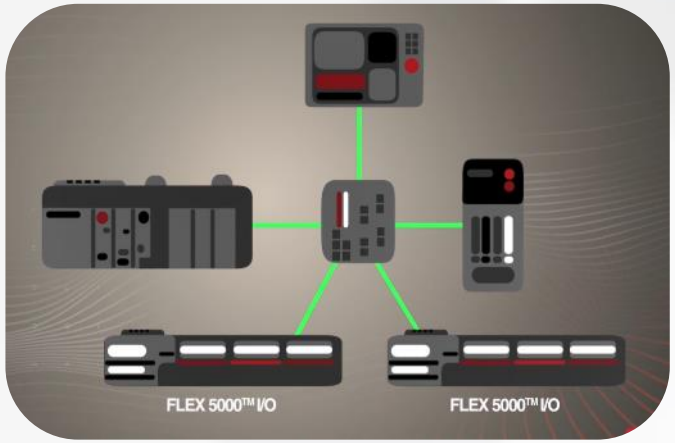
1 gigabit (Gb) EtherNet/IP™
1 gigabit (Gb) backplane speed

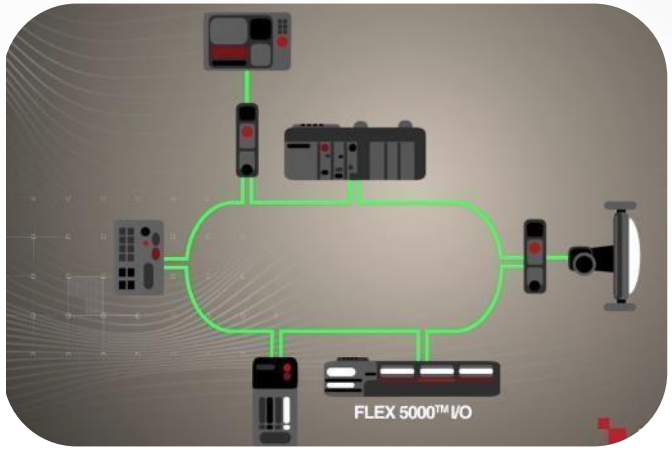
Copper or small form-factor pluggable (SFP) fiber ports

Linear

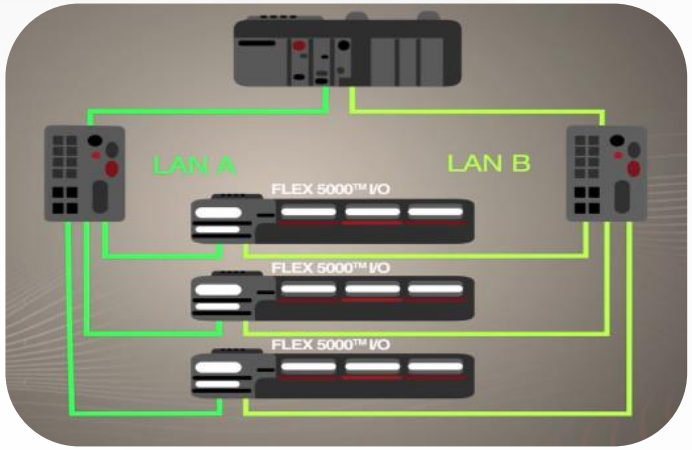


Star





Parallel Redundancy Protocol (PRP)



FLEX 5000® I/O

Plant-wide I/O for Discrete, Hybrid and Process industries

Digital modules

- 8/16/32 points digital input or output
- Eight points isolated relay output
- Counter functionality
- Electronic output protection

Analog modules

- Eight channel analog input or output
- Highly integrated HART
- Voltage/Current/RTD/Thermocouple input module

Specialty modules

- High-speed counter
- Frequency input

Every I/O module has dual color light-emitting diodes (LEDs) for status and diagnostics and QR Code for identification

FLEX 5000® I/O

Integrated control and safety for the Discrete, Hybrid and Process industries

Offers a complete portfolio of discrete and analog fail-safe I/O modules, designed for Discrete and Process safety applications that require speed, frequency measurement, temperature sensors, analog devices with HART, and digital safety devices for functional safety certified in accordance with IEC 61508. TÜV certified up to SIL 3, PLe, Cat. 4.

FLEX 5000® I/O modules with GuardLogix® 5580 safety controller

Provide exceptional ease of use with reduced installation time and cost

- **NO** special wiring
- **NO** user programming code
- **NO** I/O Add-On Instructions
- **NO** additional hardware required

Digital safety

5094-IB16S
5094-IB16SXT

5094-OB16S
5094-OB16SXT

5094-OW4IS
5094-OW4ISXT

Analog safety

5094-IF4IHS
5094-IF4IHSXT

5094-OF4IHS
5094-OF4IHSXT

5094-IRT8S
5094-IRT8SXT

5094-IJ2IS
5094-IJ2ISXT

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Resources

make sure **it's genuine**

Avoid the risks of unauthorized resellers and counterfeit products by securing your supply chain and purchasing with confidence from an Authorized Distributor.

Learn more about avoiding the dangers of unauthorized sources and counterfeit products.

Plus, discover the benefits of Product Registration, including a complimentary warranty extension.*

Visit rok.auto/product-registration to learn more

**Product Registration Program Extended Warranty Terms apply, see Product Registration webpage for details.*

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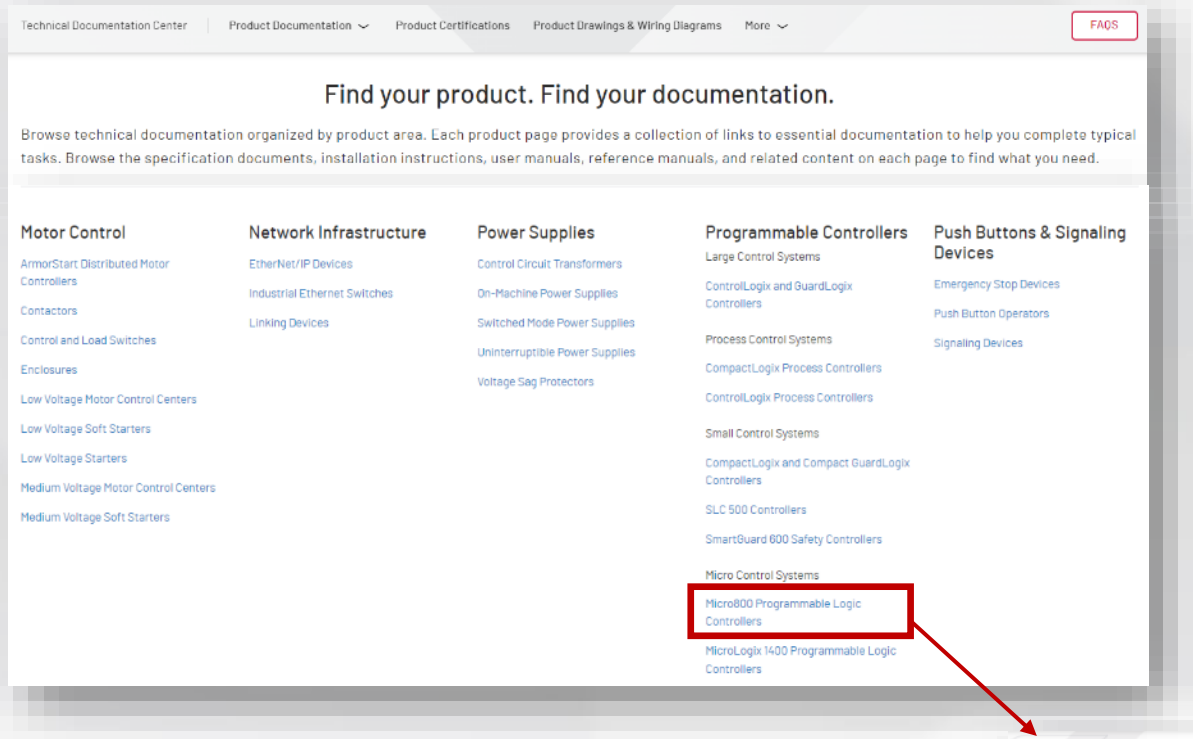

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- Access technical content organized by product line
- Each page includes links to essential manuals to help you install, configure, and use your product
- No need for multiple searches; find what you need, all in one place

[Visit the Technical Documentation Center](rok.auto/techdocs)

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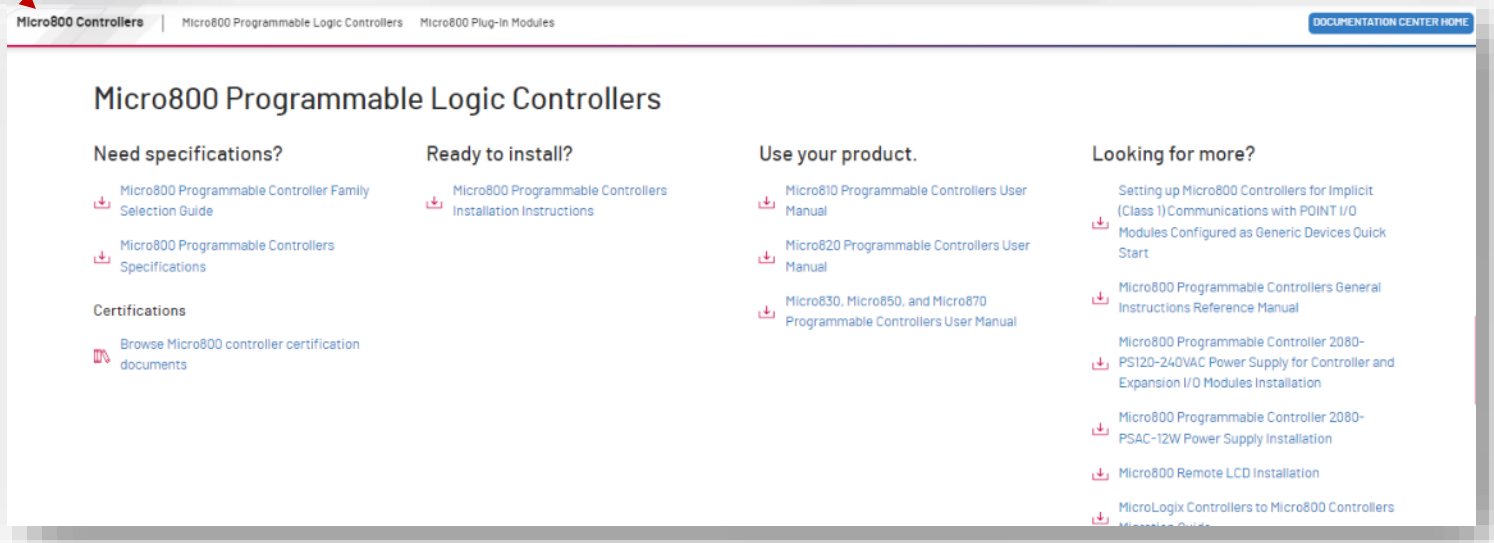
Or scan here.



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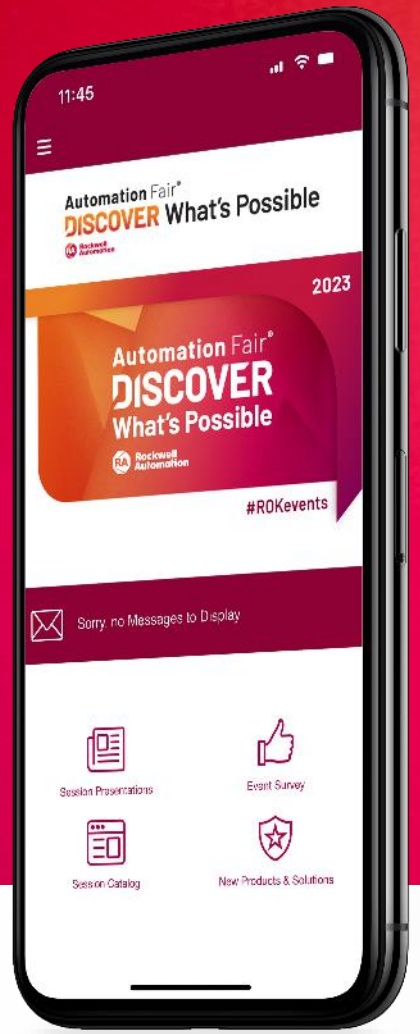

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We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

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