

# Rockwell Micro Controller Overview

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# Micro 800 Family

Micro800™ controller family



Performance and features



**Micro810®**  
Smart relay



**Micro820®**  
Remote automation



**Micro820® L20E**  
Coming Dec2024



**Micro850® 2080-L50E**  
Three axes of motion support



**Micro870® 2080-L70E**  
Highest memory and I/O

DNP3 support

DF1 support

Supports expansion modules

Supports plug-in modules and microSD™ cards

Motion control with pulse train output (PTO)

EtherNet/IP™ enabled

Class 1 implicit messaging support

Memory and I/O

# Micro 810

- Offers 12-point controllers
- Includes 8 A outputs
- Supports program download
- Optional 1.5-in.local LCD
- Allows you to configure and operate smart relay function blocks without programming (LCD required)



Typical applications include:

- Lighting control
- Heating and cooling
- Compressor control
- Elevator control

## Micro 820

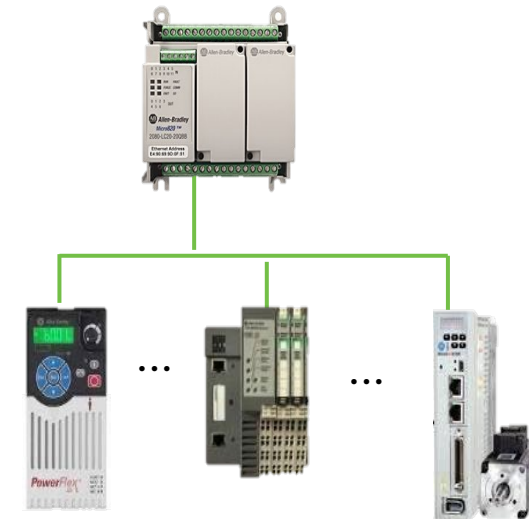
- Offers 20-point controllers
- Provides embedded 0...10V non-isolated analog I/O.
- Provides embedded communications via non-isolated serial port and Ethernet port
- Communicates via EtherNet/IP™
- Provides embedded support 10k thermistor temperature inputs
- Optional 3.5-in. Remote LCD
- Supports up to two Micro800™ Plug-in Modules
- Supports microSD™



## Micro 850

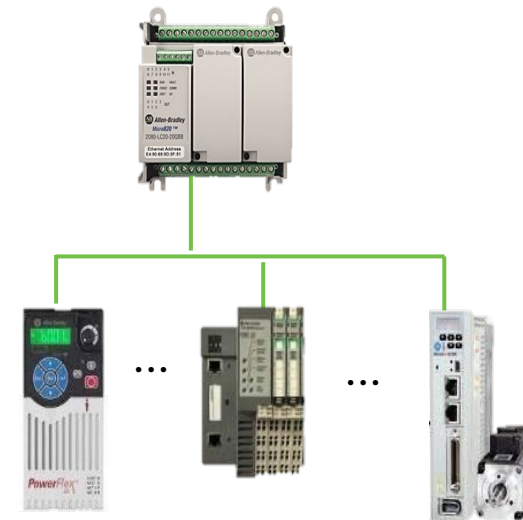


- Class 1 implicit messaging capability\*\*
- Simplified integration to PowerFlex® 520 series and Kinetix® 5100 drives
- Increased protocol connectivity with expanded DF1 communications support



## Micro 870

- Class 1 implicit messaging capability\*\*
- Simplified integration to PowerFlex® 520 series and Kinetix® 5100 drives
- Increased protocol connectivity with additional DNP3 and expanded DF1 communications support
- Enhanced protocol authentication in DNP3 with Secure Authentication version 5 (SAv5)



## Controller: Micro800™ controller family

- The Micro800™ controller is a general-purpose controller, which can be used in a wide range of applications

### Micro800™ Expansion I/O



**Wide variety of expansion I/O options simplifies the architecture**

### Micro800™ Plug-In



**Flexibility to customize your applications with space-saving plug-in modules**

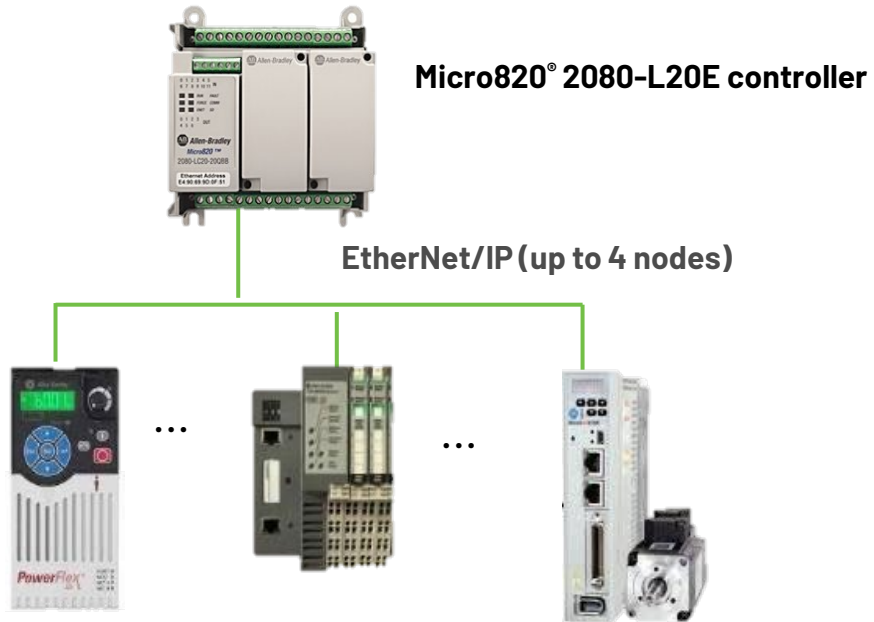
### Micro800™ Partner Products



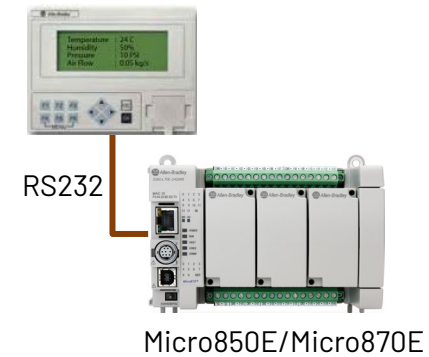
**Seamless integration of our partner modules**

# Coming in 2024

Ethernet/IP Support for Micro 820  
PowerFlex 525/Kinetix 5100/ Point I/O



Remote LCD support for  
Micro 850 and 870





- New workflow for ease of integration of PowerFlex® 520-series and Kinetix® 5100 drives
- Easy workflow and similar user experience, like in a Logix Designer application

**Ethernet - Modules**

Connection	Name	Type	IP	RPI (ms)	Inhibit Module	Connection Fault

After adding one Ethernet device

Online with the controller, provides online status and fault information of Ethernet device

**Module configuration screens**

**New Module**

**General**

Name: [ ]

Type: PowerFlex 525-EENET

IP Address: 0.0.0.0

Mode: Position

Major Revision: 0

Minor Revision: 000

Electronic Keying: Disable Keying

**New Module**

**General**

Name: [ ]

Type: Kinetix 5100

Catalog: 2198-E1004-ERS

IP Address: 0.0.0.0

Connection: Data

Major Revision: 0

Minor Revision: 000

**New Module**

**General**

Name: [ ]

Type: Generic Device

IP Address: 0.0.0.0

Electronic Keying: Disable Keying

Description: [ ]

**Comm Config**

Comm Format: Data - DINT

Assembly Instance Size: [ ]

Input: 1 1 32-bit

Output: 1 1 32-bit

Configuration: 1 0 8-bit

**Connection**

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

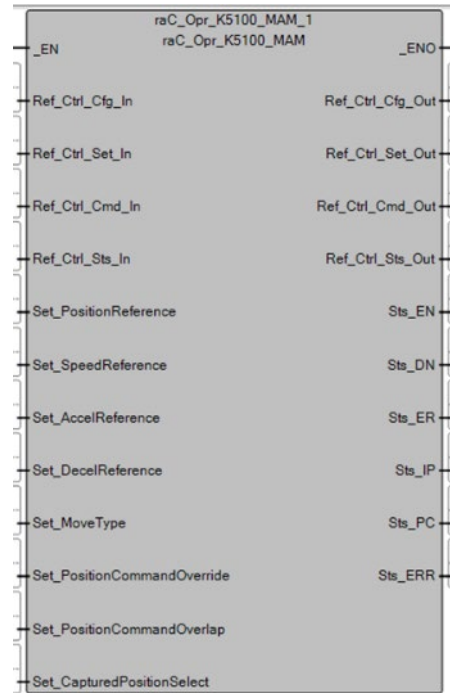
Connection Fault: [ ]

OK Cancel

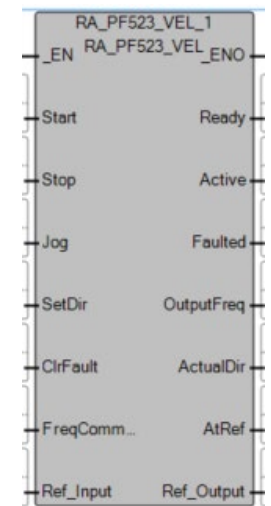
# Connected Components Workbench software version 21 enhancements

- Pre-developed user-defined function blocks (UDFB) for ease of programming
  - 11 user-defined function blocks (UDFBs) for Kinetix® 5100 servo drives, similar to the Logix user interface using Add-On Instructions (AOIs).
  - Three user-defined function blocks (UDFBs) for the PowerFlex® 520-series drives

Kinetix® 5100 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	

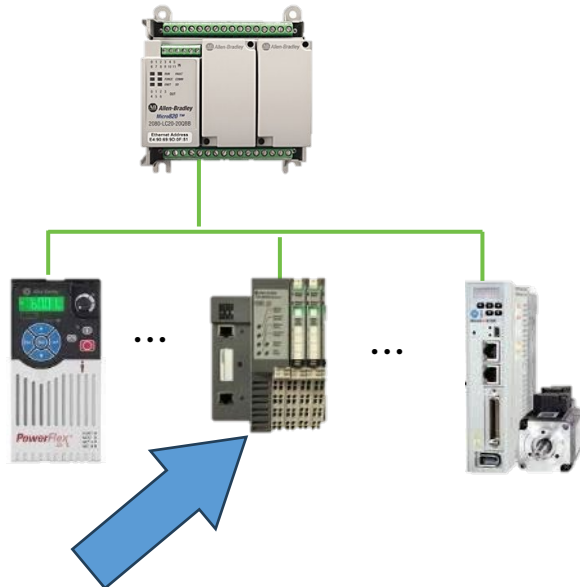


PowerFlex® 520-series UDFB
RA_PF523_VEL
RA_PF525_VEL
RA_PF525_POS



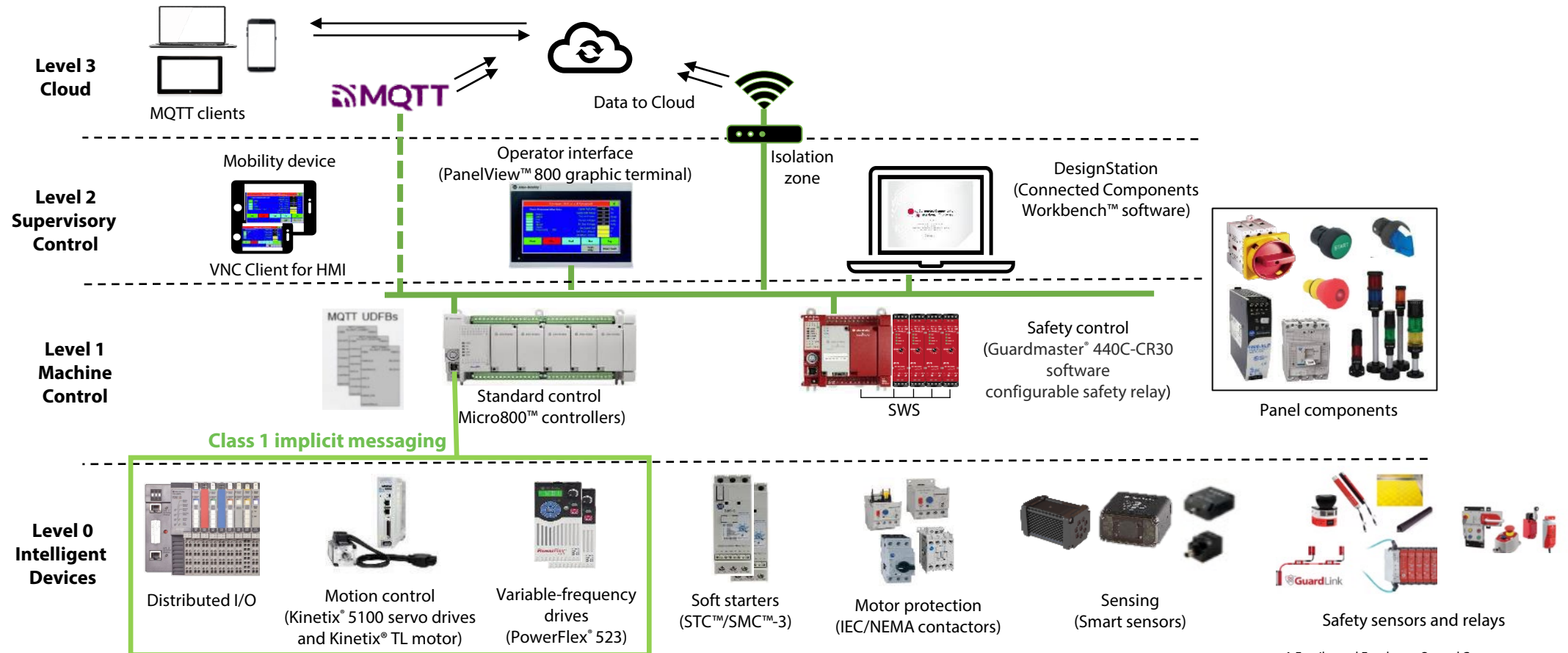
## New tool to help customers integrate POINT I/O into Micro800 using Class 1 Implicit messaging

- New Excel macro file to help customers and internal team to quickly define the Input, Output and Configuration size based on the selection. All yellow-colored field need be changed to meet customer application
- 3 different sheets to help customer get the right information



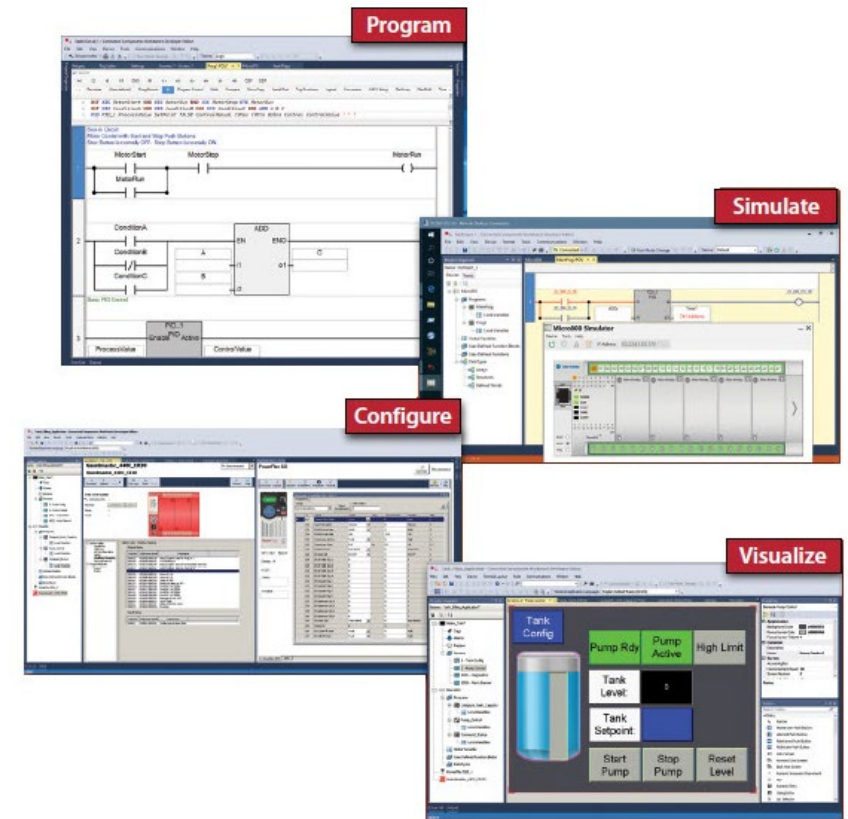
# Overview of Micro Control System

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



## 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 (UDFs) 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 the converter tool and copy/paste feature



# Micro800™ controllers with Connected Components Workbench™

- Micro800™ controllers with Connected Components Workbench™ software version 22 provide implicit messaging support to EtherNet/IP devices
- Supported in Micro850® 2080-L50E and Micro870® 2080-L70E controller catalogs only
- Predefined tags available for PowerFlex® 520-series and Kinetix® 5100 drives
- Generic tags for all other EtherNet/IP devices
- Up to eight devices supported
- Pre-developed user-defined function block (UDFB) instructions for PowerFlex® 520-series and Kinetix® 5100 drives
- Enhance overall user efficiency with bit level commenting and daylight saving functionalities
- Expand communication capability and ease MicroLogix™ to Micro800 modernization with the Programmable Controller Communication Commands (PCCC) support in Micro870® 2080-L70E controllers



# Converting MicroLogix to Micro 800

Conversion Tool built into Connected Components WorkBench

Version  
**22**

*Updates to make conversion easier are always being added*

**Simplifies modernization to Micro800™ controllers**

MicroLogix to Micro800 Converter 5.04

**i** Export MicroLogix project as .SLC library file.  
In RSLogix500, use 'Save As' and create a library file (.SLC) and check 'Export database' to Logix format.

**MicroLogix Source**

Source Project (\*.SLC):  
 ...

Documentation file(s) using the same name  
 ...

**Micro800 Target**

Catalog ID:  ...

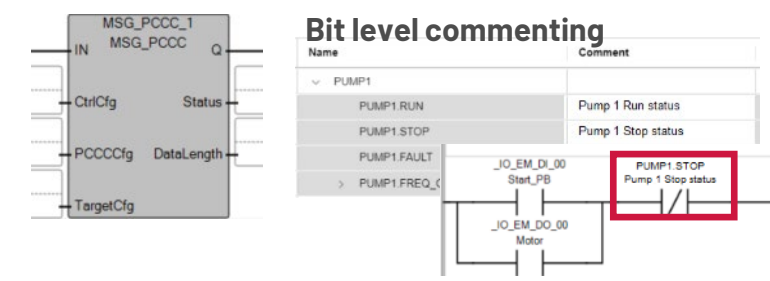
Major Revision: 12

**Option**

Concatenate instruction description to variable comment

Controller - MicroLogix Mapping **Legacy address mapping**

File Number	Variable Name	Data Type	MicroLogix File Type
7	Value2	INT[0..10]	N
8	Value1	INT	B
9	Temp1	REAL[0..10]	F
10	value3	DINT[0..20]	L



# Bit level comments creation tool

- Simple excel to help customers port over the comments from MicroLogix into CCW



Name	Comment	Alias
▼ B3		
▼ B3[0]		
B3[0].0		
B3[0].1		
B3[0].2		
B3[0].3		
B3[0].4		
B3[0].5		
B3[0].6		
B3[0].7		
B3[0].8		
B3[0].9		
B3[0].10		
B3[0].11		
B3[0].12		
B3[0].13		
B3[0].14		
B3[0].15		
> B3[1]		

Scope: Prog1 Filter...

Name	Comment	Alias
▼ B3		
▼ B3[0]	Status1	
B3[0].0	Message Start Found	
B3[0].1	End Character Found	
B3[0].2	Receive String Empty	
B3[0].3	Complete Message Received	
B3[0].4	Received Message for this ACU	
B3[0].5	Received Message Checksum Good	
B3[0].6	Process Read Subroutine Running	
B3[0].7	Message 2 Letter Code in ST21:0	
B3[0].8	Temp	
B3[0].9	Message 2 Letter Code in ST21:1	
B3[0].10	Process Read Done	
B3[0].11	Write Subroutine Running	
B3[0].12	Outgoing Message Processe	
B3[0].13	Value to be Encrypted is Negative	
B3[0].14	Clear After PLC Fault	
B3[0].15	Command Processing	



# Software comparison of Standard and Developer Editions

- Developer Edition provides advanced features to improve users' design time, development, and delivery
- Standard Edition offer basic essential features with high availability for simple project creation, debugging, and device configuration
- Micro800™ Simulator is available in both editions

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

\* 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.



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