MicroLogix 1400 Controllers

Combining the features you demand from the MicroLogix 1100 controller, such as EtherNet/IP, online editing and a built-in LCD, plus adding enhanced features, such as increased I/O, faster High Speed Counter/PTO and communication capabilities, the MicroLogix 1400 controller allows you to meet even greater application needs.

Use the embedded LCD to set the Ethernet network configuration, display floating point values on user-configurable display, set OEM logos, change file addresses, and increase the LCD data wiring capability to support a whole file.

Benefits

- Ethernet port provides web server and e-mail capability.
- Built-in LCD with backlight allows you to view controller and I/O status, and provides a simple interface for messages, bit/integer monitoring and manipulation.
- Expand your application capabilities through support of up to seven expansion I/O modules (1762 I/O) with 256 digital I/O.

Target Applications

- Material Handling
- Packaging Applications
- General Industrial Machinery
- Printing
- Food and Beverage
- Pharmaceutical
- Water Wastewater / SCADA
- Clutch/Brake control
- Position Control — Pick-and-place / Conveyor

Product Design

The MicroLogix 1400 system offers higher I/O count, faster high-speed counter/PTO, and enhanced network capabilities. MicroLogix 1400 controllers without embedded analog come with 32 digital I/O count, while analog versions have 32 digital I/O and 6 analog I/O. All versions can be expanded using up to seven 1762 I/O modules — the same I/O modules that MicroLogix 1100 and 1200 controllers utilize.

The MicroLogix 1400 controller houses embedded inputs, outputs, power supply, and communication ports. It also provides the interface to expansion I/O when required by an application.

Features

- Up to six embedded 100 kHz high-speed counters (on controllers with DC inputs).
- Two serial ports with DF1/DH-485/Modbus RTU/DNP3/ASCII protocol support.
- Embedded 10/100 Mbps Ethernet port with EtherNet/IP, Modbus TCP/IP and DNP3 over IP support
- 10K words user program memory and 10K words user data memory.
- Up to 128 KB for data logging and 64 KB for recipe.
- Program with RSLogix 500 or RSLogix Micro programming software.

Communication

The MicroLogix 1400 controllers provide an isolated RS-232C/RS-485 port, an RJ45 Ethernet port, and a non-isolated RS-232C port. The ports can be used for the following types of communication.

Communication	Description
Communication channel 0 Isolated RS-232C and RS-485 electrical compatibility (on separate pins)	• Use the RS-485 cable (1763-NC01) to interface directly to RS-485 networks. • DF1 full-duplex, DF1 half-duplex master and slave, DF1 radio modem. • DH-485; If you use RS-232C port and existing cables, an Advanced Interface Converter (1761-NET-AIC) and external power is required for networking. DH-485 is also supported directly using the RS-485 cable (1763-NC01) on this port. • Modbus RTU master and RTU slave; If you use RS-232C port and existing cables, an Advanced Interface Converter (1761-NET-AIC) and external power is required for networking. Modbus RTU networking is also supported directly using the RS-485 cable (1763-NC01) on this port. • DNP3 slave. • ASCII.
Communication channel 1 RJ45 port supports EtherNet/IP for peer-to-peer messaging	• 10/100 Mbps port with support for BOOTP, DHCP, and SNMP capability directly from the controller. • Automatically assign IP address through DHCP or BOOTP, or configure using RSLogix 500 programming software. • Monitor your IP address through the LCD Display (or use the write-on nameplate). • Supports CIP as well as DNP3 over IP and Modbus TCP/IP. • Allows controllers to exchange data with other controllers through messaging; does not support scanning of I/O on Ethernet adapters.
Communication channel 2 Non-isolated RS-232C port	• DF1 full-duplex, DF1 half-duplex master and slave, DF1 radio modem. • DH-485; an Advanced Interface Converter (1761-NET-AIC) and external power is required for networking. • Modbus RTU master and RTU slave; an Advanced Interface Converter (1761-NET-AIC) and external power is required for networking. • DNP3 slave. • ASCII.

Specifications

General Specifications

Specification	1766 Controllers
Operating Temperature	-20...60 ˚C (-4...140 ˚F)
Nonoperating Temperature	-40...85 ˚C (-40...185 ˚F)
Relative Humidity	5...95% noncondensing
Vibration	3 g at 10… 500 Hz
Operating Shock	30 g
Nonoperating Shock	Panel mount: 50 g DIN mount: 40 g
Certifications*	UL Listed Industrial Control Equipment for use in Class 1, Division 2, Hazardous Locations, Groups A, B, C, D CE marked for all applicable directives C-Tick marked for all applicable acts

* When product is marked. See the Product Certification link at www.ab.com for declarations of Conformity, Certificates, and other certification details

MicroLogix 1400 Controllers

	MicroLogix 1400 Controllers with Digital I/O			MicroLogix 1400 Controllers with Digital and Analog I/O		
	1766-L32BWA	1766-L32AWA	1766-L32BXB	1766-L32BWAA	1766-L32AWAA	1766-L32BXBA
Line Voltage	120/240V AC		24V DC	120/240V AC		24V DC
Memory Size and Type	20 kB battery-backed RAM: 10 kB user program 10 kB user data					
Data Elements	configurable, user-defined file structure, 10 KB max. data size					
Data Logging	128 KB (without recipe), 64 KB recipe storage					
Battery Backup	Yes					
Number of Inputs	(12) Fast 24V DC (8) Normal 24V DC	(20) 120V AC	(12) Fast 24V DC (8) Normal 24V DC	(12) Fast 24V DC (8) Normal 24V DC (4) Analog Voltage Inputs	(20) 120V AC (4) Analog Voltage Inputs	(12) Fast 24V DC (8) Normal 24V DC (4) Analog Voltage Inputs
Number of Outputs	(12) Relay	(12) Relay	(6) Relay (3) Fast DC (3) Normal DC	(12) Relay (2) Analog Voltage Outputs	(12) Relay (2) Analog Voltage Outputs	(6) Relay (3) Fast DC (3) Normal DC (2) Analog Voltage Outputs
Serial Port	(1) RS-232C/RS-485§ (1) RS-232C♣					
Serial Protocols	DF1 full-duplex DF1 half-duplex master/slave DF1 radio modem DH-485 Modbus RTU master/slave ASCII DNP3 slave					
Ethernet Port	(1) 10/100 EtherNet/IP port					
Ethernet Protocols	EtherNet/IP messaging only Modbus TCP/IP DNP3 Over IP					
Trim Potentiometers	2 digital					
High-Speed Inputs (Pulse Catch)	Up to 6 channels @ 100 kHz	—	Up to 6 channels @ 100 kHz	Up to 6 channels @ 100 kHz	—	Up to 6 channels @ 100 kHz
Real-time Clock	Yes, embedded					
PID	Yes (limited by loop and stack memory)					
Pulse Width Modulated	—		3 channels @ 40 kHz	—		3 channels @ 40 kHz
Pulse Train Outputs	—		3 channels @ 100 kHz	—		3 channels @ 100 kHz
Dual Axis Servo Control	—		Through embedded PTO	—		Through embedded PTO
Embedded LCD	Yes					
Floating Point Math	Yes					
Online Editing	Yes					

★ Isolated RS-232C/RS-485 combo port.
‡ Nonisolated RS-232C with standard D-sub connector.