



**Allen-Bradley**

*Technical Data*

# MicroLogix 1000 Programmable Controllers

Bulletin 1761



AB PLCs

<b>Table of Contents</b>	MicroLogix 1000 System . . . . .	3
	Communications . . . . .	10
	Programming Instructions . . . . .	13
	Programming Tools . . . . .	13
	Network and Programming Cables . . . . .	14
	Dimensions . . . . .	15
	For More Information . . . . .	17
<b>Tables and Figures</b>	Table 1 - Controller General Specifications . . . . .	4
	Figure 2 - Catalog Number Detail . . . . .	4
	Table 3 - Controller Power and I/O Configuration . . . . .	4
	Table 4 - Controller Power Supply Specifications . . . . .	5
	Figure 5 - DC Input Power Requirements Based on I/O Usage . . . . .	6
	Table 6 - Controller Digital Input Specifications . . . . .	7
	Table 7 - Controller Digital Output Specifications . . . . .	7
	Table 8 - Relay Contact Rating . . . . .	7
	Table 9 - Controller Analog Input Specifications . . . . .	8
	Table 10 - Controller Analog Output Specifications . . . . .	8
	Table 11 - Environmental Specifications . . . . .	9
	Table 12 - MicroLogix 1000 Network Options . . . . .	10
	Table 13 - DH-485 Network Specifications . . . . .	11
	Table 14 - DeviceNet Specifications . . . . .	11
	Table 15 - Ethernet Specifications . . . . .	12
	Table 16 - Network Modules Specifications . . . . .	12
	Table 17 - RSLogix 500 Selection Chart . . . . .	13
	Table 18 - Controller and PC Port Identification . . . . .	14
	Figure 19 - Network Interface Devices Communication Port Identification . . . . .	14
	Table 20 - Network Cable Selection Chart . . . . .	14
	Table 21 - Programming Cable Selection Chart . . . . .	14
	Figure 22 - MicroLogix Controller Dimensions . . . . .	15
	Figure 23 - Network Interface Devices Dimensions . . . . .	16
	Table 24 - Related Publications for MicroLogix 1000 Controllers . . . . .	17
	Table 25 - MicroLogix 1200 and 1500 Technical Data Publications . . . . .	17

## MicroLogix 1000 System



Based on the architecture of the market-leading SLC 500 controller family, the MicroLogix 1000 brings high speed, powerful instructions and flexible communications to applications that demand compact, cost-effective solutions.

The MicroLogix 1000 programmable controller is available in 10-point, 16-point, or 32-point digital I/O versions. Analog versions are also available with 20 digital I/O points and 5 analog I/O points.

The analog I/O circuitry for the MicroLogix 1000 units is embedded into the base controller, not accomplished through add-on modules. So, it provides very high-speed, cost-effective analog performance.

### Advantages

- Fast processing allows for typical throughput time of 1.5 ms for a 500-instruction program
- Built-in EEPROM memory retains all of your ladder logic and data if the controller loses power, eliminating the need for battery back-up or separate memory module
- Controllers that have 24V dc inputs include a built-in high-speed counter (6.6k Hz)
- Multiple input and output commons allow you to use the controller for either sinking or sourcing input devices and provide isolated commons for multi-voltage output applications
- Adjustable DC input filters allow you to customize the input response time and noise rejection to meet your application needs
- RS-232 communication channel allows for simple connectivity to a personal computer
- Peer-to-peer messaging capability allows you to network up to 32 controllers
- RTU slave protocol support using DF1 Half-Duplex allows up to 254 slave nodes to communicate with a single master using radio modems, leased-line modems, or satellite uplinks
- Regulatory agency certifications for world-wide market (CE, C-Tick, UL, c-UL, including Class I Division 2 Hazardous Location)

## Controller Specifications

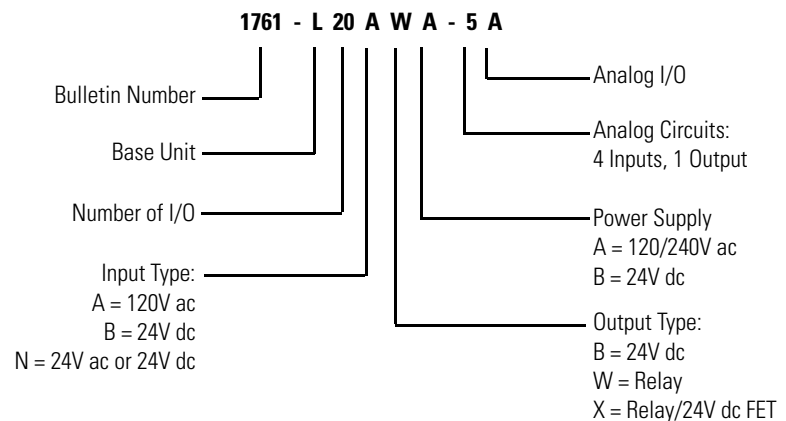
The following tables summarize the specifications for MicroLogix 1000 controllers.

**Table 1 Controller General Specifications**

Specification	All 1761 Controllers
Memory Size and Type	1 K EEPROM (approximately 737 instruction words, 437 data words)
Data Elements	512 internal bits, 40 timers, 32 counters, 16 control files, 105 integer files, 33 diagnostic status
Throughput	1.5 ms (for a typical 500-instruction program) <sup>(1)</sup>

(1) A typical program contains 360 contacts, 125 coils, 7 timers, 3 counters, and 5 comparison instructions.

**Figure 2 Catalog Number Detail**



**Table 3 Controller Power and I/O Configuration**

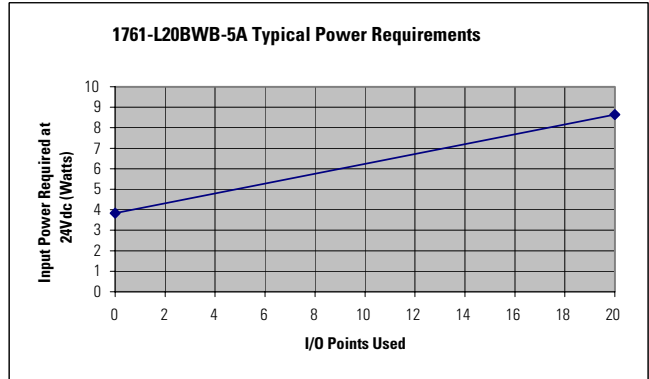
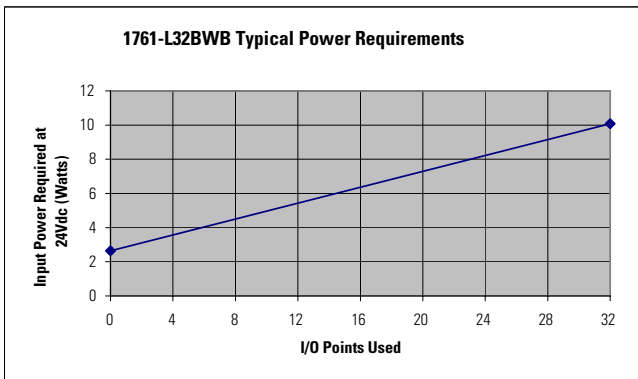
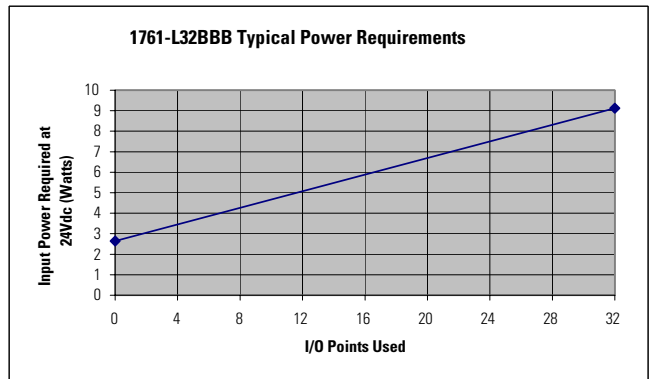
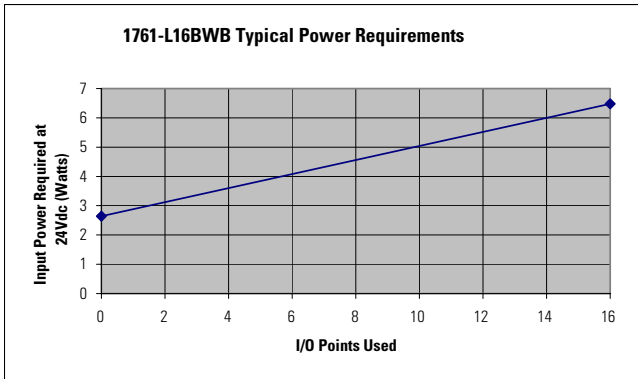
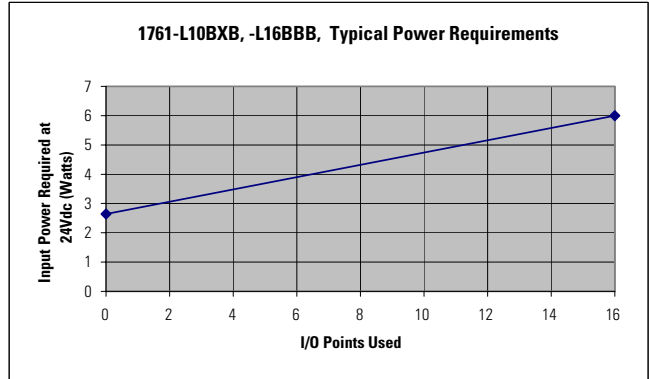
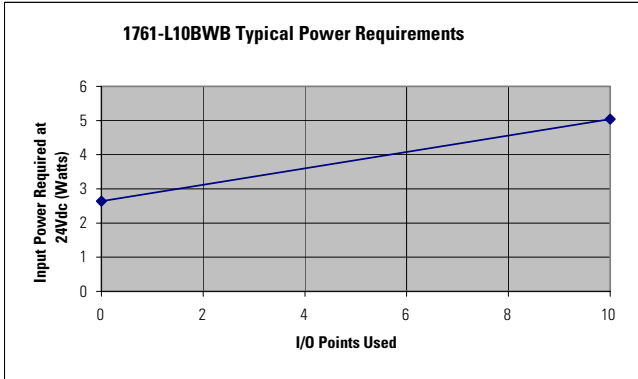
Line Power	Inputs	Outputs	High Speed I/O	Catalog Number
120/240V ac	(10) 120V ac	(6) Relay	n/a	1761-L16AWA
120/240V ac	(20) 120V ac	(12) Relay	n/a	1761-L32AWA
120/240V ac	(12) 120V ac, (4) Analog	(8) Relay, (1) Analog	n/a	1761-L20AWA-5A
120/240V ac	(6) 24V dc	(4) Relay	(1) 6.6 kHz input	1761-L10BWA
120/240V ac	(10) 24V dc	(6) Relay	(1) 6.6 kHz input	1761-L16BWA
120/240V ac	(12) 24V dc, (4) Analog	(8) Relay, (1) Analog	(1) 6.6 kHz input	1761-L20BWA-5A
120/240V ac	(20) 24V dc	(12) Relay	(1) 6.6 kHz input	1761-L32BWA
120/240V ac	(20) 120V ac	(10) Triac, (2) Relay <sup>(1)</sup>	n/a	1761-L32AAA
120/240V ac	(10) 24V ac or dc	(6) Relay	n/a	1761-L16NWA
24V dc	(6) 24V dc	(4) Relay	(1) 6.6 kHz input	1761-L10BWB
24V dc	(10) 24V dc	(6) Relay	(1) 6.6 kHz input	1761-L16BWB
24V dc	(12) 24V dc	(8) Relay	(1) 6.6 kHz input	1761-L20BWB-5A
24V dc	(20) 24V dc	(12) Relay	(1) 6.6 kHz input	1761-L32BWB
24V dc	(6) 24V dc	(2) MOSFET sourcing, (2) relay <sup>(1)</sup>	(1) 6.6 kHz input	1761-L10BWB
24V dc	(10) 24V dc	(4) MOSFET sourcing, (2) relay <sup>(1)</sup>	(1) 6.6 kHz input	1761-L16BWB
24V dc	(20) 24V dc	(10) MOSFET sourcing, (2) relay <sup>(1)</sup>	(1) 6.6 kHz input	1761-L32BWB
24V dc	(10) 24V ac or dc	(6) Relay	n/a	1761-L16NWB

(1) Two isolated relays per unit.

**Table 4 Controller Power Supply Specifications**

Catalog Number	Power Supply Voltage	Power Consumption			Power Supply Inrush Current (max.)	24V dc Sensor Power
		120V ac	240V ac	24V dc		
<b>1761-</b>						
<b>L16AWA</b>	85 to 264V ac at 47 to 63 Hz	15 VA	21 VA	n/a	30A for 8 ms	n/a
<b>L20AWA-5A</b>		20 VA	27 VA			
<b>L32AWA</b>		19 VA	25 VA			
<b>L10BWA</b>		24 VA	32 VA			
<b>L16BWA</b>		26 VA	33 VA			
<b>L20BWA-5A</b>		30 VA	36 VA			
<b>L32BWA</b>		29 VA	36 VA			
<b>L32AAA</b>		16 VA	22 VA			n/a
<b>L16NWA</b>		26 VA	33 VA			
<b>L16NWB</b>		20.4 to 26.4V dc	n/a			n/a
<b>L10BXB</b>						
<b>L16BBB</b>						
<b>L10BWB</b>						
<b>L16BWB</b>						
<b>L20BWB-5A</b>	10W			50A for 4 ms		
<b>L32BWB</b>	7W			30A for 4 ms		
<b>L32BBB</b>						

Figure 5 DC Input Power Requirements Based on I/O Usage



**Table 6 Controller Digital Input Specifications**

Specification	120/240V ac Controllers	24V dc Controllers	24V ac Controllers
On-State Voltage Range	79 to 132V ac at 47 to 62 Hz	14 to 26.4V dc max. at +55°C (+131°F) 14 to 30.0V dc max. at +30°C (+86°F)	18 to 26.4V ac at 55°C (131°F) 18 to 30V ac at 30°C (86°F)
Off-State Voltage Range	0 to 20V ac	0 to 5V dc	0 to 3V ac
Operating Frequency	n/a	standard inputs: 30 Hz to 1.0 kHz high-speed inputs: 30 Hz to 6.6 kHz	47 to 63 Hz
Signal Delay (max.)	ON Delay = 20 ms OFF Delay = 20 ms	standard inputs: selectable from 0.5 to 16 ms high-speed inputs: selectable from 0.075 to 16 ms	ON Delay = 20 ms (max.) OFF Delay = 20 ms (max.)
On-State Current (min.)	5.0 mA at 79V ac at 47 Hz	2.5 mA at 14V dc	3.0 mA at 18V ac
On-State Current (nominal.)	12.0 mA at 120V ac at 60 Hz	8.0 mA at 24V dc	8.0 mA at 24V ac
On-State Current (max.)	16.0 mA at 132V ac at 63 Hz	12.0 mA at 30V dc	12 mA at 30V ac
Off-State Leakage Current (max.)	2.5 mA	1.5 mA	1.0 mA
Nominal Impedance	12K $\Omega$ at 50 Hz, 10K $\Omega$ at 60 Hz	3K $\Omega$	3K $\Omega$
Maximum Inrush Current	250 mA max. <sup>(1)</sup>	n/a	n/a

(1) To reduce the inrush maximum to 35 mA, apply a 6.8K  $\Omega$  5W resistor in series with the input. The on-state voltage increases to 92V ac as a result.

**Table 7 Controller Digital Output Specifications**

Specification	Relay	MOSFET	Triac
Operating Voltage Range	5 to 125V dc 5 to 264V ac	20.4 to 26.4V dc	85 to 264V ac
Continuous Current per Point (max.)	See Table 8, Relay Contact Rating.	1.0A at 55°C (131°F) 1.5A at 30°C (86°F)	0.5A at 55°C (131°F) 1.0A at 30°C (86°F)
Continuous Current per Common (max.)	8.0A	3A for L10BBB and L16BBB 6A for L32BBB	6A
Continuous Current per Controller (max.)	1440 VA	3A for L10BBB and L16BBB 6A for L32BBB	1440 VA
On-State Current (min.)	10.0 mA	1 mA	10.0 mA
Off-State Leakage Current (max.)	0 mA	1 mA	2 mA at 132V ac 4.5 mA at 264V ac
Signal Delay (max.) - resistive load	ON Delay = 10 ms OFF Delay = 10 ms	ON Delay = 0.1 ms OFF Delay = 1 ms	ON Delay = 8.8 ms at 60 Hz ON Delay = 10.6 ms at 50 Hz OFF Delay = 11.0 ms
Surge Current per Point (peak)	n/a	4A for 10 ms <sup>(1)</sup>	10A for 25 ms <sup>(1)</sup>

(1) Repeatability is once every 2 seconds at +55°C (+131°F).

**Table 8 Relay Contact Rating**

Maximum Voltage	Amperes		Amperes Continuous	Voltamperes	
	Make	Break		Make	Break
240V ac	7.5A	0.75A	2.5A	1800 VA	180 VA
120V ac	15A	1.5A			
125V dc	0.22A <sup>(1)</sup>		1.0A	28 VA	
24V dc	1.2A <sup>(1)</sup>		2.0A		

(1) For dc voltage applications, the make/break ampere rating for relay contacts can be determined by dividing 28 VA by the applied dc voltage. For example, 28 VA/48V dc = 0.58A. For dc voltage applications less than 48V, the make/break ratings for relay contacts cannot exceed 2A. For dc voltage applications greater than 48V, the make/break ratings for relay contact cannot exceed 1A.

**Table 9 Controller Analog Input Specifications**

Specification	1761-L20xxx-5A
Voltage Input Range <sup>(1)</sup>	-10.5 to +10.5V dc
Current Input Range <sup>(1)</sup>	-21 to +21 mA
Input Coding (-21 to +21 mA, -10.5 to +10.5V dc)	-32,768 to +32,767
Voltage Input Impedance	210K $\Omega$
Current Input Impedance	160 $\Omega$
Input Resolution <sup>(2)</sup>	16 bit
Non-linearity	< 0.002%
Overall Accuracy 0°C to +55°C (+32°F to +131°F)	$\pm$ 0.7% of full scale
Overall Accuracy Drift 0°C to +55°C (+32°F to +131°F) (max.)	$\pm$ 0.176%
Overall Accuracy at 25°C (77°F) (max.)	$\pm$ 0.525%
Update Time	selectable from 4 to 100 ms
Voltage Input Overvoltage Protection	24V dc
Current Input Overcurrent Protection	$\pm$ 50 mA
Input to Output Isolation and Field Wiring to Logic Isolation	30V rated working voltage, 500V isolation (test 60 Hz for 1s)

(1) The two voltage inputs accept  $\pm$ 10.5V dc. The two current inputs accept  $\pm$ 21 mA.

(2) The analog input update rate and input resolution are a function of the input filter selection.

**Table 10 Controller Analog Output Specifications**

Description	Specification
Voltage Output Range <sup>(1)</sup>	0 to 10V dc
Current Output Range <sup>(1)</sup>	4 to 20 mA
Non-linearity	0.02%
Step Response	2.5 ms (at 95%)
Load Range - Voltage Output	1K $\Omega$ to $\infty$ $\Omega$
Load Range - Current Output	0 to 500 $\Omega$
Output Coding (4 to 20 mA, 0 to 10V dc)	0 to 32,767
Voltage Output Miswiring and Current Output Miswiring	can withstand short circuit
Output Resolution	15 bit
Analog Output Settling Time	3 msec (maximum)
Overall Accuracy 0°C to +55°C	$\pm$ 1.0% of full scale
Overall Accuracy Drift 0°C to +55°C (max.)	$\pm$ 0.28%
Overall Accuracy at +25°C (+77°F) (max.) - Current Output	0.2%
Field Wiring to Logic Isolation	30V rated working/500V isolation

(1) The analog output can be configured for either voltage (0V dc to +10V dc) or current (4 to 20 mA).



**Table 11 Environmental Specifications**

Specification	1761 Controllers
Operating Temperature	Horizontal mounting: 0°C to +55°C (+32°F to +131°F) Vertical mounting <sup>(1)</sup> : 0°C to +45°C (+32°F to +113°F) for digital I/O, 0°C to +40°C (+32°F to +104°F) for analog I/O
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	5 to 95% non-condensing
Vibration	Operating: 5 Hz to 2 kHz, 0.381 mm (0.015 in.) peak-to-peak, 2.5g panel mounted <sup>(2)</sup> , 1 hr per axis Non-Operating: 5 Hz to 2 kHz, 0.762 mm (0.030 in.) peak-to-peak, 5g, 1 hr per axis
Shock 10 and 16 Point Controllers	Operating: 10g peak acceleration (7.5g DIN rail mounted) (11 ± 1 ms duration) 3 times each direction, each axis Non-Operating: 20g peak acceleration (11 ± 1 ms duration), 3 times each direction, each axis
Shock 32 Point and Analog Controllers	Operating: 7.5g peak acceleration (5.0g DIN rail mounted) (11 ± 1 ms duration) 3 times each direction, each axis Non-Operating: 20g peak acceleration (11 ± 1 ms duration), 3 times each direction, each axis
Agency Certification	<ul style="list-style-type: none"> <li>• UL Listed Industrial Control Equipment</li> <li>• C-UL Listed Industrial Control Equipment for use in Canada</li> <li>• UL Listed Industrial Control Equipment for use in Class 1, Division 2, Hazardous Locations, Groups A, B, C, D</li> <li>• CE marked for all applicable directives</li> <li>• C-Tick marked for all applicable acts</li> </ul>
Electrostatic Discharge	EN 61000-4-2 at 8 KV
Radiated Susceptibility	EN 61000-4-3 at 10 V/m, 27 MHz to 1000 MHz, 3V/m, 87 MHz to 108 MHz, 174 MHz to 230 MHz, and 470 MHz to 790 MHz
Fast Transient	EN 61000-4-4 at 2K Power Supply, I/O; 1 KV Comms
Isolation	1500V ac

(1) DC input voltage derated linearly from 30°C (30V to 26.4V).

(2) DIN rail mounted controller is 1g.

## Communications

## MicroLogix 1000 Communications Advantages

- Enhanced RS-232 port (includes 24V dc power for network interface devices)
- 300; 600; 1200; 4800; 9600; 19,200 and 38,400 baud rates
- RTS/CTS hardware handshake signals
- Connection to DH-485, DeviceNet and Ethernet networks through the 1761-NET-AIC, 1761-NET-DNI, 1761-NET-ENI and 1761-NET-ENIW interface modules
- Connection to modems for remote communications

The MicroLogix 1000 allows you to choose the network that best meets your needs.

**Table 12 MicroLogix 1000 Network Options**

<b>If your application requires:</b>	<b>Use this network:</b>
<ul style="list-style-type: none"> <li>• Connection to dial-up modems for remote program maintenance or data collection</li> <li>• Connection to leased-line or radio modems for use in SCADA systems</li> <li>• Remote Terminal Unit (RTU) functions</li> </ul>	DF1 Full-Duplex DF1 Half-Duplex Slave
<ul style="list-style-type: none"> <li>• Plant-wide and cell-level data sharing with program maintenance</li> <li>• Data sharing between 32 controllers</li> <li>• Program upload, download, and monitoring to all controllers</li> <li>• Compatibility with multiple Allen-Bradley HMI devices</li> </ul>	DH-485 via the 1761-NET-AIC
<ul style="list-style-type: none"> <li>• Connection of low-level multi-vendor devices directly to plant floor controllers</li> <li>• Data sharing between 64 devices</li> <li>• Better diagnostics for improved data collection and fault detection</li> <li>• Less wiring and reduced start-up time than traditional, hard-wired systems</li> </ul>	DeviceNet via the 1761-NET-DNI
<ul style="list-style-type: none"> <li>• Program upload/download</li> <li>• Peer-to-peer communication</li> <li>• E-mail communication</li> <li>• 10 base T-port with embedded LEDS</li> <li>• web server capability (ENIW only)</li> </ul>	EtherNet/IP via the 1761-NET-ENI or 1761-NET-ENIW

The following section provides information about the network interface devices:

- AIC+ Advanced Interface Converter, 1761-NET-AIC
- DNI DeviceNet Interface, 1761-NET-DNI
- ENI Ethernet Interface, 1761-NET-ENI
- ENIW Ethernet Interface with Web Server Capability, 1761-NET-ENIW

## Network Interface Devices

The network interface devices can be mounted on a panel or DIN rail. See Figure 19 on page 14 for device drawings.

### *AIC+ Advanced Interface Converter*

The AIC+ provides an interface to DH-485 networks from an RS-232 port. It can be used with all MicroLogix controllers, SLC 5/03 and higher, and a number of PanelView terminals. *All devices communicating on the network must be using DH-485 protocol. Do not use DH-485 protocol to communicate with modems.*

The AIC+ also provides isolation between all ports for a more stable network and protection for connected devices.

**Table 13 DH-485 Network Specifications<sup>(1)</sup>**

Specification	1761-NET-AIC
Maximum Number of Nodes	32 per multidrop network
Maximum Length	1219m (4000 ft) per multidrop network

(1) See Table 16, Network Modules Specifications, for more 1761-NET-AIC specifications.

### *DNI DeviceNet Interface*

DNI capabilities:

- Peer-to-peer messaging between Allen-Bradley controllers and other devices using the DF1 Full-Duplex protocol
- Programming and on-line monitoring over the DeviceNet network
- With a DNI connected to a modem, you can dial in to any other DNI-controller combination on DeviceNet
- Other DeviceNet products can send explicit (Get or Set) messages with the DNI at any time
- The controller can initiate an explicit message to a UCMM (Unconnected Message Manager) compatible device on DeviceNet

**Table 14 DeviceNet Specifications<sup>(1)</sup>**

Specification	1761-NET-DNI
Maximum Number of Nodes	64
Maximum Length	500m at 125K baud or 100m at 500K baud
DeviceNet Agency Certification	ODVA conformance 2.0-A12

(1) See Table 16, Network Modules Specifications, for more 1761-NET-DNI specifications.

### ENI Ethernet Interface

The ENI provides EtherNet/IP connectivity for all MicroLogix controllers and other DF1 Full-Duplex devices. The ENI allows you to easily connect a MicroLogix controller to a new or existing Ethernet network to update/download programs, communicate between controllers, and generate e-mail messages via SMTP (simple mail transport protocol).

The 1761-NET-ENIW adds web-server capabilities, enabling the display of 4 standard data web pages with user-configurable data descriptions, and 10 user-configurable web page links on the ENIW home page.

**Table 15 Ethernet Specifications**

Specification	1761-NET-ENI/-ENIW
Communication Rate	10 MHz
Connector	10Base-T (RJ45)

### AIC+, DNI, ENI, and ENIW Specifications

**Table 16 Network Modules Specifications**

Specification	1761-NET-AIC	1761-NET-DNI	1761-NET-ENI/-ENIW
24V dc Power Source Requirements <sup>(1)</sup>	20.4 to 28.8V dc	11 to 25V dc	20.4 to 26.4V dc
24V dc Current Draw	120 mA	200 mA	100 mA
Inrush Current (max.)	200 mA	400 mA	200 mA
Internal Isolation	500V dc for 1 minute	500V dc for one minute	710V dc for one minute
Operating Temperature	0°C to +60°C (+32°F to +140°F)		(0°C to +55°C (+32°F to +131°F))
Storage Temperature	-40°C to +85°C (-40°F to +185°F)		
Humidity	5% to 95% non-condensing		
Vibration	operating: 10 to 500 Hz, 5.0g, 0.030 in. peak-to-peak, 2 hour each axis	operating: 5 to 2000 Hz, 2.5g, 0.015 in. peak-to-peak, 1 hour each axis non-operating: 5 to 2000 Hz, 5.0g, 0.030 in. peak-to-peak, 1 hour each axis	operating: 10 to 500 Hz, 5.0g, 0.030 in. peak-to-peak, 2 hours each axis
Shock	operating: 30g, ±3 times each axis non-operating: 50g, ±3 times each axis	operating: 30g, ±3 times each axis non-operating: 50g, ±3 times each axis	operating: 30g, ±3 times each axis non-operating: 35g (DIN rail mount) 50g (panel mount) ±3 times each axis
Agency Certification	<ul style="list-style-type: none"> <li>• UL Listed Industrial Control Equipment</li> <li>• C-UL Listed Industrial Control Equipment for use in Canada</li> <li>• UL Listed Industrial Control Equipment for use in Class 1, Division 2, Hazardous Locations, Groups A, B, C, D</li> <li>• CE marked for all applicable directives</li> <li>• C-Tick marked for all applicable acts</li> </ul>		

(1) When the device is connected to a MicroLogix controller, power is provided by the MicroLogix controller's communication port.

## Programming Instructions

The MicroLogix 1000 has the range of functionality necessary to address diverse applications. The controller uses the following types of instructions:

- Basic Instructions
- Comparison Instructions
- Data Instructions
- Communication Instruction
- Math Instructions
- Program Flow Control Instructions
- Application Specific Instructions
- High-Speed Counter Instruction

## Programming Tools

### Programming Software

The RSLogix 500 ladder logic programming package helps you maximize performance, save project development time, and improve productivity. This product has been developed to operate on Windows® operating systems. RSLogix 500 can be used for programming both the SLC 500 and MicroLogix controller families.

**Table 17 RSLogix 500 Selection Chart**

Catalog Number	Description
9324-RL0300ENE	RSLogix 500 Standard Edition Programming Software for SLC 500 and MicroLogix controller families. (CD-ROM)
9324-RL0100ENE	RSLogix 500 Starter Edition Programming Software for MicroLogix controller families. (CD-ROM)
9324-RL0700NXENE	RSLogix 500 Professional Edition. CD-ROM also includes RSLogix Emulate 500, RSNetwork for DeviceNet and RSNetwork for ControlNet.



### Hand-Held Programmer (HHP)

The HHP allows you to create, edit, monitor, and troubleshoot Instruction List (Boolean) programs for your MicroLogix 1000 controller. This device also allows you to store programs and to transfer programs through the use of an optional removable memory module.

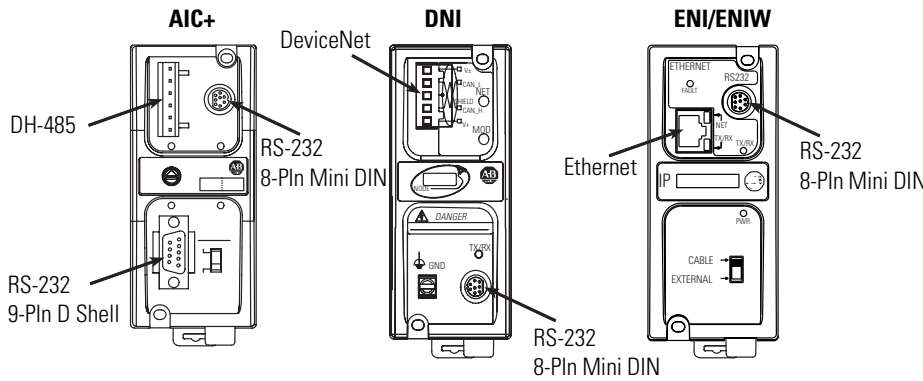
# Network and Programming Cables

Use the communication cables listed below with MicroLogix 1000 controllers. Cables come in several lengths and connector styles to provide connectivity between MicroLogix controllers and other devices.

**Table 18 Controller and PC Port Identification**

Device	Port
MicroLogix 1000 Communications Port	8-pin Mini DIN
Personal Computer Communications Port	9-Pin D Shell

**Figure 19 Network Interface Devices Communication Port Identification**



NOTE: The AIC+ is recommended for isolation purposes when the controller and an operator interface device are not using the same power supply.

**Table 20 Network Cable Selection Chart**

Connectors	Length	Catalog Number	Connectors	Length	Catalog Number
8-pin Mini DIN to 8-pin Mini DIN	0.5m (1.5 ft)	1761-CBL-AM00	8-pin Mini DIN to 9-pin D Shell	0.5m (1.5 ft)	1761-CBL-AP00
8-pin Mini DIN to 8-pin Mini DIN	2m (6.5 ft)	1761-CBL-HM02	8-pin Mini DIN to 9-pin D Shell	2m (6.5 ft)	1761-CBL-PM02
8-pin Mini DIN to 8-pin Mini DIN	5m (16 ft)	2711-CBL-HM05	8-pin Mini DIN to 9-pin D Shell	5m (16 ft)	2711-CBL-PM05
8-pin Mini DIN to 8-pin Mini DIN	10m (32 ft)	2711-CBL-HM10	8-pin Mini DIN to 9-pin D Shell	10m (32 ft)	2711-CBL-PM10
9-pin D Shell to 9-pin D Shell	0.5m (1.5 ft)	1761-CBL-AC00	6-pin Phoenix to RJ45 (DH-485)	3m (10 ft)	1761-CBL-AS03
9-pin D Shell to 9-pin D Shell	3m (10 ft)	1747-CP3	6-pin Phoenix to RJ45 (DH-485)	9m (30 ft)	1761-CBL-AS09

**Table 21 Programming Cable Selection Chart**

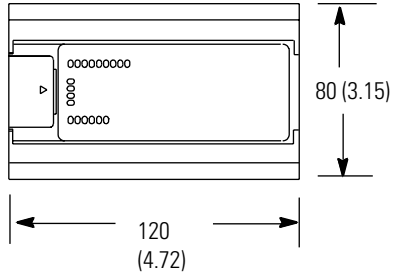
MicroLogix 1000, 1200, and 1500 Channel 0 (8-pin Mini DIN)		MicroLogix 1500 with 1764-LRP Processor Channel 1 (9-pin RS-232)		Programming Device
Catalog Number	Length	Catalog Number	Length	
1761-CBL-PM02	2m (6.5 ft)	1747-CP3	3m (10 ft)	Personal Computer (9-pin D Shell)
1761-CBL-HM02	2m (6.5 ft)	n/a		Hand-Held Programmer (HHP)

# Dimensions

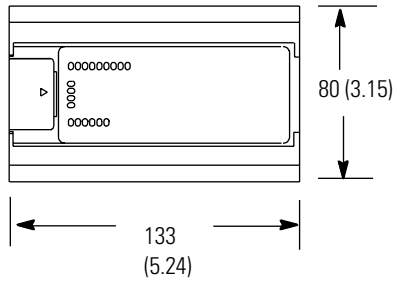
Dimensions are in millimeters (inches).

**Figure 22 MicroLogix Controller Dimensions**

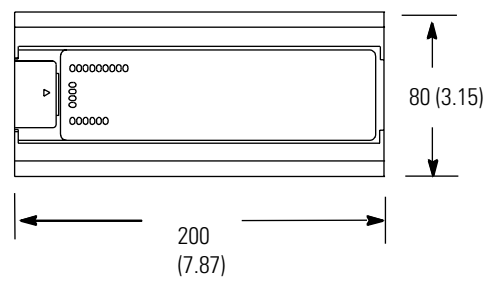
**1761-L10BWA, -L10BWB, -L10BXB,  
-L16BBB, -L16BWA, -L16BWB,  
-L16NWA, -L16NWB**



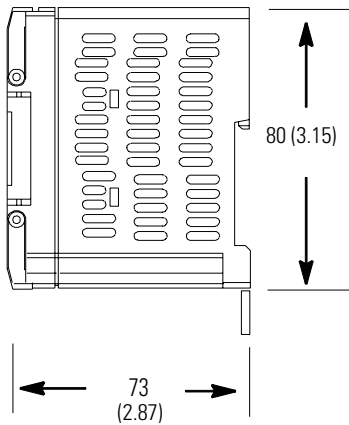
**1761-L16AWA**



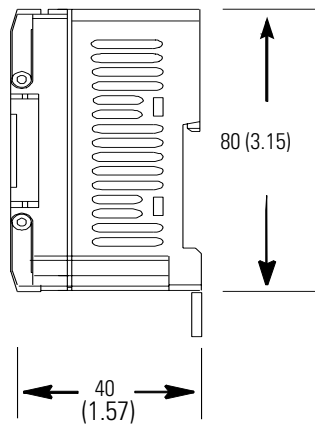
**1761-L20AWA, -L20BWA, -L20BWB, -L32AWA,  
-L32BWA, -L32AAA, -L32BBB, -L32BWB**



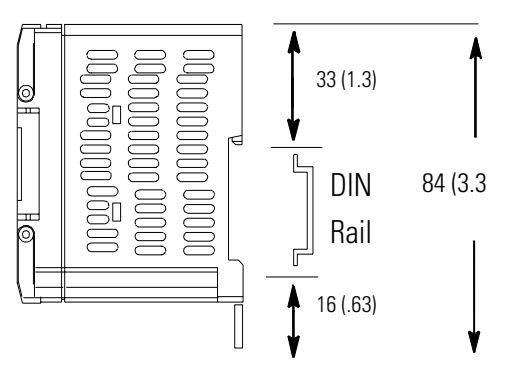
**1761-L10BWA, -L16AWA, -L16BWA -L20AWA,  
-L20BWA, -L32AWA, -L32BWA, -L32AAA**



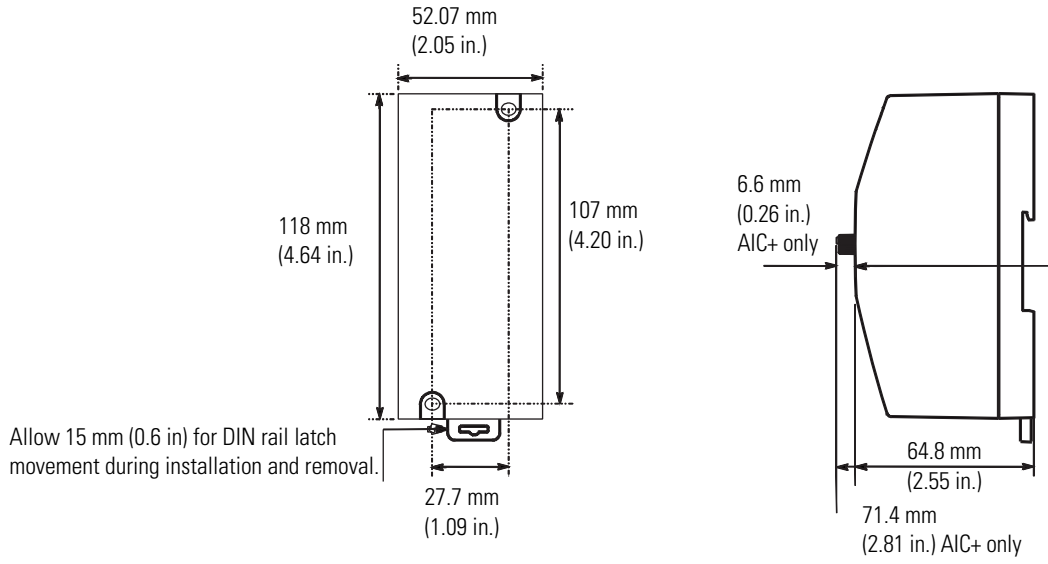
**1761-L10BWB, -L16BWB, -L16BBB,  
-L20BWB, -L32BWB, -L32BBB**



**MicroLogix 1000 DIN Rail  
Dimensions**



**Figure 23 Network Interface Devices Dimensions**





## For More Information

## Available Documentation

MicroLogix 1000 user documentation presents information according to the tasks you perform and the programming environment you use. Refer to the table below for information on MicroLogix 1000 publications.

**Table 24 Related Publications for MicroLogix 1000 Controllers**

Title	Publication Number
MicroLogix™ 1000 Programmable Controllers User Manual	1761-6.3
MicroLogix™ 1000 with Hand-Held Programmer (HHP) User Manual	1761-6.2
AIC+ Advanced Interface Converter User Manual	1761-6.4
DeviceNet™ Interface User Manual	1761-6.5
Ethernet Interface User Manual	1761-UM006
Allen-Bradley Programmable Controller Grounding and Wiring Guidelines	1770-4.1

If you would like a technical data for the MicroLogix 1200 or MicroLogix 1500 controllers, refer to the following table.

**Table 25 MicroLogix 1200 and 1500 Technical Data Publications**

See this Document	Publication Number
MicroLogix™ 1200 Technical Data	1762-TD001
MicroLogix™ 1500 Technical Data	1764-TD001

## MicroLogix Downloads

Visit the MicroLogix web site at <http://www.ab.com/micrologix> to learn more about MicroLogix products and download MicroLogix software utilities and manuals. Software utilities are available for configuring the DNI and ENI(W) network interface devices.

Manuals are available in PDF format. To purchase a printed manual or download a free electronic version, visit us at <http://www.theautomationbookstore.com>. For fast access to related publications, visit the MicroLogix Internet site <http://www.ab.com/micrologix>. Electronic versions of our manuals are available for you to search and download.

## Rockwell Software Web Site

For more information on Rockwell Software products, such as RSLogix 500, please visit their web site at <http://www.rockwellsoftware.com>.

## Notes



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**Corporate Headquarters**

Rockwell Automation, 777 East Wisconsin Avenue, Suite 1400, Milwaukee, WI, 53202-5302 USA, Tel: (1) 414.212.5200, Fax: (1) 414.212.5201

**Headquarters for Allen-Bradley Products, Rockwell Software Products and Global Manufacturing Solutions**

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36-BP 3A/B, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

**Headquarters for Dodge and Reliance Electric Products**

Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433

Europe: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 17741

Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 351 6723, Fax: (65) 355 1733

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