Rockwell Automation
Allen-Bradley

MicroLogix™ 1000 Programmable Controllers

(Catalog Numbers 1761-L16AWA, -L16BWA, -L32AWA, -L32BWA, -L16BBB, -L16BWB, -L32BBB, -L32BWB, -L32AAA)

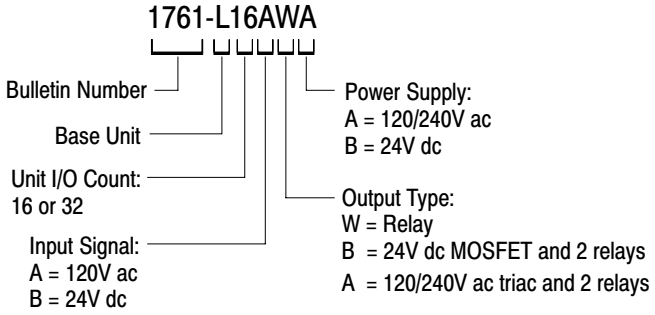
Installation Instructions

Overview

Install your controller using these installation instructions. The only tools you require are a Flat head or Phillips head screwdriver and drill.

Catalog Number Detail

The catalog number for the controller is composed of the following:

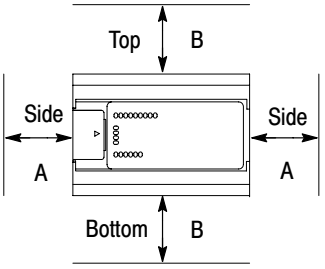


Physical Dimensions

Controller: 1761-	Length: mm (in.)	Depth: mm (in.)	Height: mm (in.)
L16AWA	133 (5.24)	73 (2.87)	80 (3.15)
L16BWA	120 (4.72)		
L32AWA	200 (7.87)		
L32BWA			
L32AAA			
L16BBB	120 (4.72)	40 (1.57)	80 (3.15)
L16BWB			
L32BBB	200 (7.87)		
L32BWB			

Controller Spacing

The following figure shows the recommended *minimum* spacing for the controller.



A. Greater than or equal to 50.8 mm (2 in.).
B. Greater than or equal to 50.8 mm (2 in.).

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Note: The controller is shown horizontally mounted.

Mounting Your Controller Horizontally

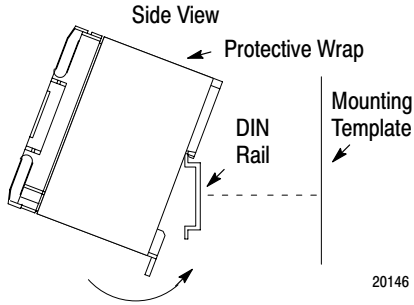
The controller should be mounted horizontally within an enclosure using either the DIN rail or mounting screw option. Use the mounting template from the front of this document to help you space and mount the controller properly.

ATTENTION: Be careful of metal chips when drilling mounting holes for your controller. Drilled fragments that fall into the controller could cause damage. Do not drill holes above a mounted controller if the protective wrap is removed.

Using a DIN Rail

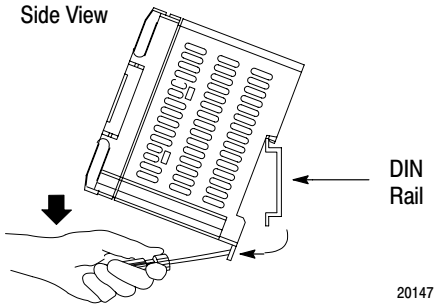
To install your controller on the DIN rail:

1. Mount your DIN rail. (Make sure that the placement of the controller on the DIN rail meets the recommended spacing requirements. Refer to the mounting template from the front of this document.)
2. Hook the top slot over the DIN rail.
3. While pressing the controller against the rail, snap the controller into position.
4. Leave the protective wrap attached until you are finished wiring the controller.



To remove your controller from the DIN rail:

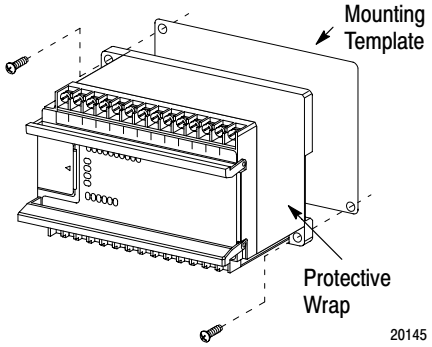
1. Place a screwdriver in the DIN rail latch at the bottom of the controller.
2. Holding the controller, pry downward on the latch until the controller is released from the DIN rail.



Using Mounting Screws

To install your controller using mounting screws:

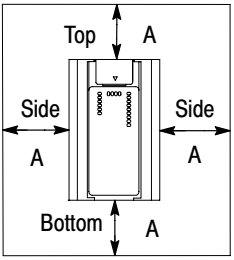
1. Remove the mounting template from the front of this document.
2. Secure the template to the mounting surface. (Make sure your controller is spaced properly.)
3. Drill holes through the template.
4. Remove the mounting template.
5. Mount the controller.
6. Leave the protective wrap attached until you are finished wiring the controller.



Mounting Your Controller Vertically

Your controller can also be mounted vertically within an enclosure using mounting screws or a DIN rail. To insure the stability of your controller, we recommend using mounting screws.

To insure the controller's reliability, the following environmental specifications must not be exceeded.



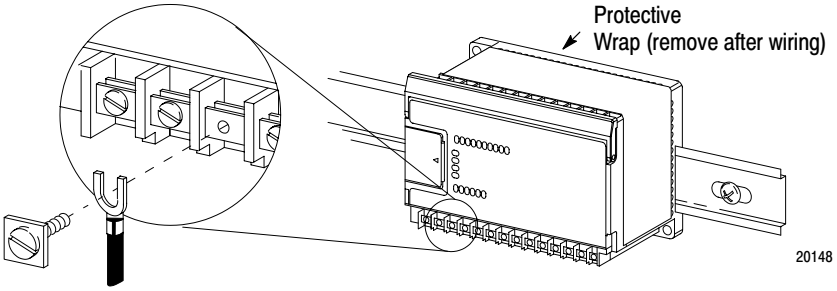
A. Greater than or equal to 50.8 mm (2 in.).

Description:	Specification:
Operating Temperature	0°C to 45°C (32°F to 113°F)
Operating Shock (Panel mounted)	9.0g peak acceleration (11±1 ms duration) 3 times each direction, each axis
Operating Shock (DIN rail mounted)	7.0g peak acceleration (11±1 ms duration) 3 times each direction, each axis

Note: When mounting your controller vertically, the nameplate should be facing downward.

Grounding Your Controller

In solid-state control systems, grounding helps limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw of the controller (third screw from left on output terminal rung) to the ground bus. Use the heaviest wire gauge listed for wiring your controller.



ATTENTION: All devices connected to the user 24V power supply or to the RS-232 channel must be referenced to chassis ground or floating. Failure to follow this procedure may result in property damage or personal injury.

Chassis ground, user 24V ground, and the RS-232 ground are internally connected. You must connect the chassis ground terminal screw to chassis ground prior to connecting any devices.

On the 1761-L16BBB, 1761-L32BBB, 1761-L16BWB, and 1761-L32BWB controllers, the user supply 24V dc IN and chassis ground are internally connected.

You must also provide an acceptable grounding path for each device in your application. For more information on proper grounding guidelines, see the *Industrial Automation Wiring and Grounding Guidelines* (publication 1770-4.1).

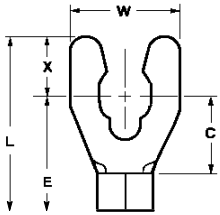
Sinking and Sourcing

Type:	Definition:
Sinking Input	The input energizes when high-level voltage is applied to the input terminal (active high).
Sourcing Input	The input energizes when low-level voltage is applied to the input terminal (active low).

Wiring Your Controller

Wire Type:	Wire Size: (2 wire maximum per terminal screw)
Solid	#14 to #22 AWG
Stranded	#16 to #22 AWG

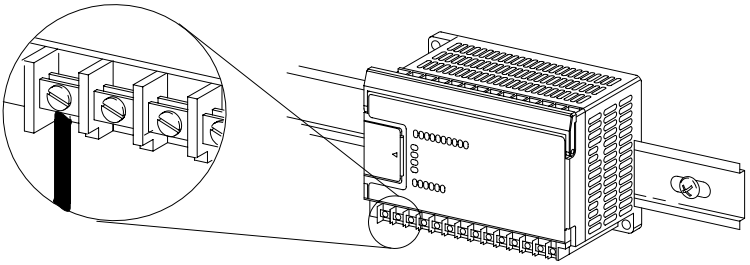
Important: The diameter of the terminal screw head is 5.5 mm (0.220 in.). The input and output terminals of the MicroLogix 1000 controller are designed for the following spade lugs:



Call-out	Dimension
C	6.35 mm (0.250 in.)
E	10.95 mm (0.431 in.) maximum
L	14.63 mm (0.576 in.) maximum
W	6.35 mm (0.250 in.)
X	3.56 mm (0.140 in.)
C+X	9.91 mm (0.390 in.) maximum

We recommend using either of these AMP spade lugs: part number 53120-1, if using 22–16 AWG, or part number 53123-1, if using 16–14 AWG.

Important: If you use wires without lugs, make sure the wires are securely captured by the pressure plate. This is particularly important at the four end terminal positions where the pressure plate does not touch the outside wall.



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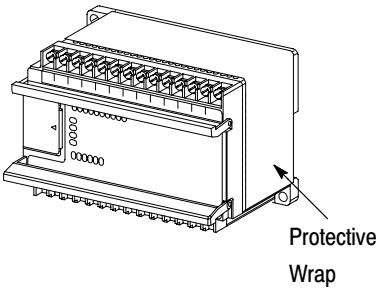
Important: Be careful when stripping wires. Wire fragments that fall into the controller could cause damage. Remove the protective wrap *after* wiring your controller. Failure to remove the wrap may cause the controller to overheat.



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Important: ⏚ This symbol denotes a functional earth ground terminal which provides a low impedance path between electrical circuits and earth for non-safety purposes, such as noise immunity improvement.

General Specifications

Description:		Specification: 1761-L								
		16AWA	**16BWA**	**32AWA**	**32BWA**	**32AAA**	**16BBB**	**16BWB**	**32BBB**	**32BWB**
Memory Size and Type		1 K EEPROM (approximately 737 instruction words: 437 data words)								
Power Supply Voltage		85–264V ac					20.4–26.4V dc			
Power Supply Usage	120V ac	12 VA	19 VA	16 VA	24 VA	16 VA	Not Applicable			
	240V ac	18 VA	26 VA	22 VA	30 VA	22 VA				
	24V dc	Not Applicable					5 VA	5 VA	7 VA	7 VA
24V dc Sensor Power (V dc at mA)		Not Applicable	200 mA	Not Applicable	200 mA	Not Applicable				
Max Capacitive Load (User 24V dc)		Not Applicable	200 µF	Not Applicable	200 µF					
Power Cycles		50,000 minimum								
Operating Temp.		0° C to 55° C (32° F to 131° F) for horizontal mounting 0° C to 45° C (32° F to 113° F) for vertical mounting								
Storage Temp.		–40° C to 85° C (–40° F to 185° F)								
Operating Humidity		5 to 95% noncondensing								
Vibration		Operating: 5 Hz to 2k Hz, 0.381 mm (0.015 in.) peak to peak/2.5g panel mounted,① 1hr per axis Non-operating: 5 Hz to 2k Hz, 0.762 mm (0.030 in.) peak to peak/5g, 1hr per axis								
Shock		Operating: 10g peak acceleration (7.5g DIN rail mounted)② (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		• CSA certified • UL listed • CE marked for all applicable directives. (Refer to the *MicroLogix™ 1000 Programmable Controllers User Manual* [publication number 1761-6.3] for more information regarding compliance to European Union directives.)								
Terminal Screw Torque		0.9 N-m maximum (8.0 in.-lbs)								
Electrostatic Discharge		IEC801-2 @ 8K V								
Radiated Susceptibility		IEC801-3 @ 10 V/m, 27 MHz – 1000 MHz except for 3V/m, 87 MHz – 108 MHz, 174 MHz – 230 MHz, and 470 MHz – 790 MHz								
Fast Transient		IEC801-4 @ 2K V Power Supply, 1K V I/O								
Isolation		1500V ac								

① DIN rail mounted controller is 1g.

② Relays are derated an additional 2.5g on 32 pt. controllers.