

Installation Instructions

MicroLogix™ 1500 Programmable Controller Base Units

(Catalog Numbers 1764-24AWA, 1764-24BWA, and
1764-28BxB)

http://literature.rockwellautomation.com/idc/groups/literature/documents/in/1764-in001_-mu-p.pdf

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For More Information

Table 1 Related Publications

For	Refer to this Document	Pub. No.
A more detailed description of how to install and use your MicroLogix 1500 programmable controller.	MicroLogix 1500 Programmable Controllers User Manual	1764-UM001A-US-P
A reference manual that contains data and function files, instruction set, and troubleshooting information for MicroLogix 1200 and MicroLogix 1500.	MicroLogix 1200 and MicroLogix 1500 Instruction Set Reference Manual	1762-RM001B-US-P
More information on proper wiring and grounding techniques.	Industrial Automation Wiring and Grounding Guidelines	1770-4.1

If you would like a manual, you can:

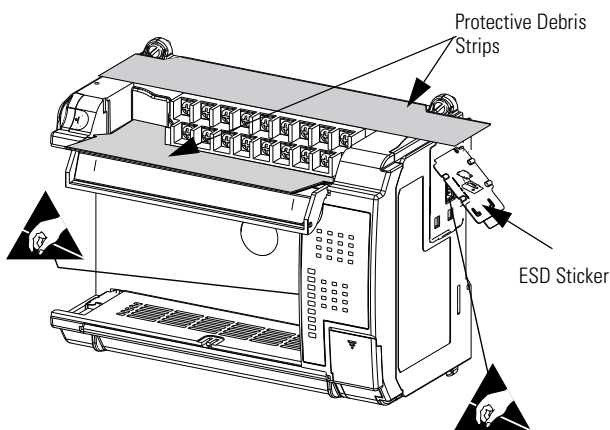
- download a free electronic version from the internet:
<http://literature.rockwellautomation.com>
- purchase a printed manual by contacting your local Allen-Bradley distributor or Rockwell Automation representative

Overview

Install your controller using these installation instructions.

ATTENTION

Do not remove protective debris strips until after the base and all other equipment in the panel near the base is mounted and wiring is complete. Once wiring is complete, remove protective debris strips and install processor unit. Failure to remove strips before operating can cause overheating.

**ATTENTION**

Be careful of metal chips when drilling mounting holes for your controller or other equipment within the enclosure or panel. Drilled fragments that fall into the controller could cause damage. Do not drill holes above a mounted controller if the protective debris strips have been removed.

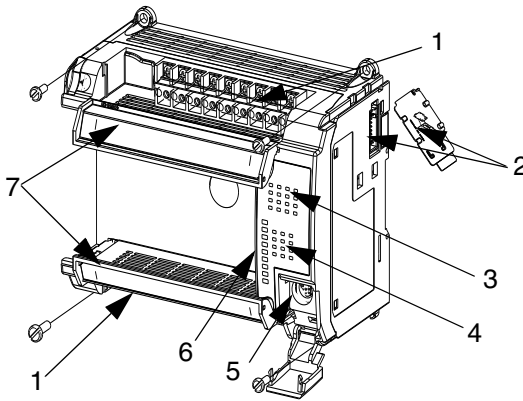
ATTENTION

Electrostatic discharge can damage semiconductor devices inside the base unit. Do not touch the connector pins or other sensitive areas.

Base Unit Description

Table 2 Standard Base Units

Catalog Number	Base Unit I/O and Power Supply
1764-24AWA	120V ac inputs/ relay outputs/ 120/240V ac power supply
1764-24BWA	24V dc inputs/ relay outputs/ 120/240V ac power supply
1764-28BXB	24V dc inputs/ FET and relay outputs/ 24V dc power supply


Table 3 Base Unit Description

Feature	Description
1	Removable Terminal Blocks
2	Interface to Expansion I/O, Removable ESD Sticker
3	Input LEDs
4	Output LEDs
5	RS-232 Communication Port (CH0)
6	Status LEDs
7	Terminal Doors and Label

Hazardous Location Considerations

This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only. The following WARNING statement applies to use in hazardous locations.

WARNING

EXPLOSION HAZARD



- Substitution of components may impair suitability for Class I, Division 2.
- Do not replace components or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Do not connect or disconnect components unless power has been switched off or the area is known to be non-hazardous.
- This product must be installed in an enclosure. All cables connected to the product must remain in the enclosure or be protected by conduit or other means.
- All wiring must comply with N.E.C. article 501-4(b).

Use only the following communication cables in Class I, Division 2 hazardous locations.

Table 4 Cable Listing

Environment Classification	Communication Cables
Class I, Division 2 Hazardous Environment	1761-CBL-PM02 Series C or later
	1761-CBL-HM02 Series C or later
	1761-CBL-AM00 Series C or later
	1761-CBL-AP00 Series C or later
	2707-NC8 Series B or later
	2707-NC10 Series B or later
	2707-NC11 Series B or later

Environnements dangereux

Cet équipement est conçu pour être utilisé dans des environnements de Classe 1, Division 2, Groupes A, B, C, D ou non dangereux. La mise en garde suivante s'applique à une utilisation dans des environnements dangereux.

MISE EN GARDE



DANGER D'EXPLOSION

- La substitution de composants peut rendre cet équipement impropre à une utilisation en environnement de Classe 1, Division 2.
- Ne pas remplacer de composants ou déconnecter l'équipement sans s'être assuré que l'alimentation est coupée et que l'environnement est classé non dangereux.
- Ne pas connecter ou déconnecter des composants sans s'être assuré que l'alimentation est coupée ou que l'environnement est classé non dangereux.
- Ce produit doit être installé dans une armoire. Tous les câbles qui lui sont connectés doivent rester dans l'armoire ou être protégés par un conduit ou par d'autres moyens.

N'utilisez que les câbles de communication suivants dans des environnements dangereux de Classe 1, Division 2.

Table 5 Liste des câbles

Classification d'environnement	Câbles de communication
Environnement dangereux Classe 1, Division 2	1761-CBL-PM02, série C ou ultérieure
	1761-CBL-HM02, série C ou ultérieure
	1761-CBL-AM00, série C ou ultérieure
	1761-CBL-AP00, série C ou ultérieure
	2707-NC8, série B ou ultérieure
	2707-NC10, série B ou ultérieure
	2707-NC11, série B ou ultérieure

Mounting the Controller

General Considerations

Most applications require installation in an industrial enclosure (Pollution Degree 2) to reduce the effects of electrical interference (Over Voltage Category II) and environmental exposure. Locate your controller as far as possible from power lines, load lines, and other sources of electrical noise such as hard-contact switches, relays, and AC motor drives. For more information on proper grounding guidelines, see the *Industrial Automation Wiring and Grounding Guidelines* publication 1770-4.1.

ATTENTION

Vertical mounting is not recommended due to heat build-up considerations.

ATTENTION

Be careful of metal chips when drilling mounting holes for your controller or other equipment within the enclosure or panel. Drilled fragments that fall into the base or processor unit could cause damage. Do not drill holes above a mounted controller if the protective debris strips have been removed or the processor has been installed.

NOTE

Remove the ESD sticker to install expansion I/O modules. An end cap terminator (catalog numbers 1769-ECR or -ECL) or an extension cable (catalog numbers 1769-CRR1, -CRR3, -CLL1, -CLL3, -CRL1, -CRL3) must be used at the end of the group of I/O modules attached to the MicroLogix 1500 Controller. The end cap terminator is not provided with the base unit. A maximum of eight I/O modules may be connected to the base.

Mounting Dimensions

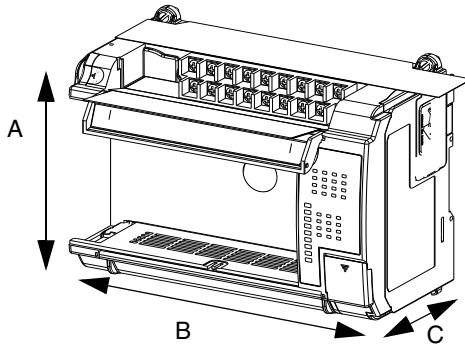
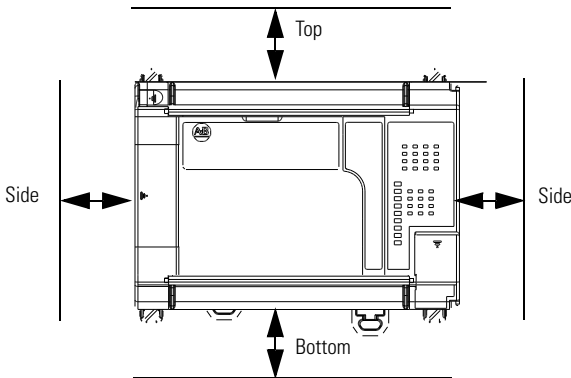


Table 6 Dimensions

Dimension	1764-24AWA	1764-24BWA	1764-28BxB
Height (A)	138 mm (5.43 in.)		
Width (B)	168 mm (6.62 in.)		
Depth (C)	87 mm (3.43 in.)		

Controller Spacing

The base unit is designed to be mounted horizontally, with the Compact™ expansion I/O extending to the right of the base unit. Allow 50 mm (2 in.) of space on all sides for adequate ventilation, as shown below.



Using a DIN Rail

The base unit and expansion I/O DIN rail latches lock in the open position so that an entire system can be easily attached to or removed from the DIN rail. The maximum extension of the latch is 15 mm (0.67 in.) in the open position. A flat-blade screw driver is required for removal of the base unit. The base can be mounted to EN50022-35x7.5 or EN50022-35x15 DIN rails. DIN rail mounting dimensions are shown below.

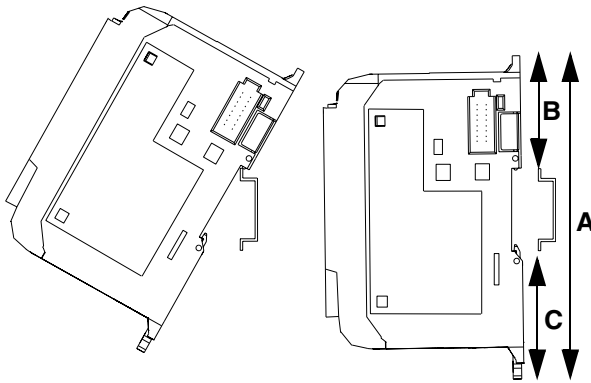


Table 7 DIN Rail Mounting Dimensions

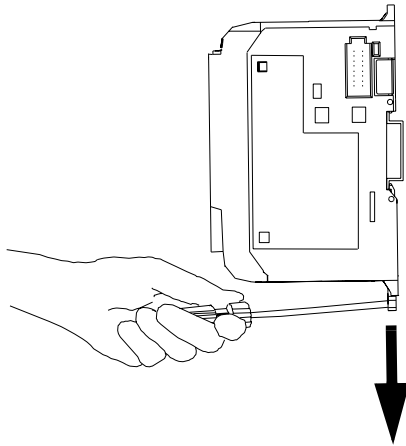
Dimension	Height
A	138 mm (5.43 in.)
B	47.6 mm (1.875 in.)
C	47.6 mm (1.875 in.) DIN latch closed 54.7 mm (2.16 in.) DIN latch open

To install your base unit on the DIN rail:

1. Mount your DIN rail. (Make sure that the placement of the base unit on the DIN rail meets the recommended spacing requirements, see “Controller Spacing” on page 10. Refer to the mounting template from the inside back cover of this document.)
2. Hook the top slot over the DIN rail.
3. While pressing the base unit down against the top of the rail, snap the bottom of the base unit into position.
4. Leave the protective debris strip attached until you are finished wiring the base unit and any other devices.

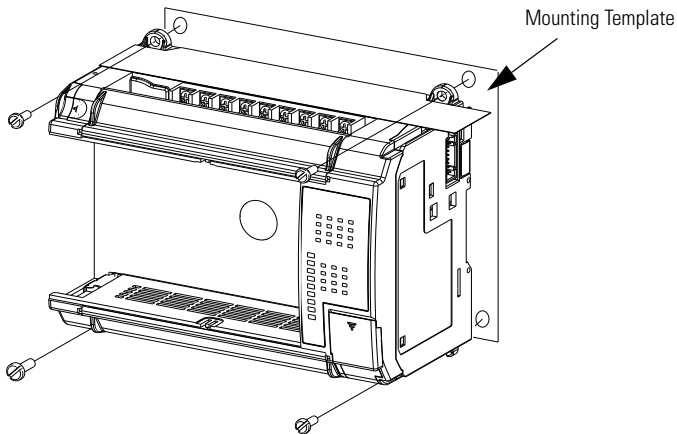
To remove your base unit from the DIN rail:

1. Place a flat-blade screwdriver in the DIN rail latch at the bottom of the base unit.
2. Holding the base unit, pry downward on the latch until the latch locks in the open position. This releases the base unit from the DIN rail.



Using Mounting Screws

Mount to panel using #8 or M4 screws.

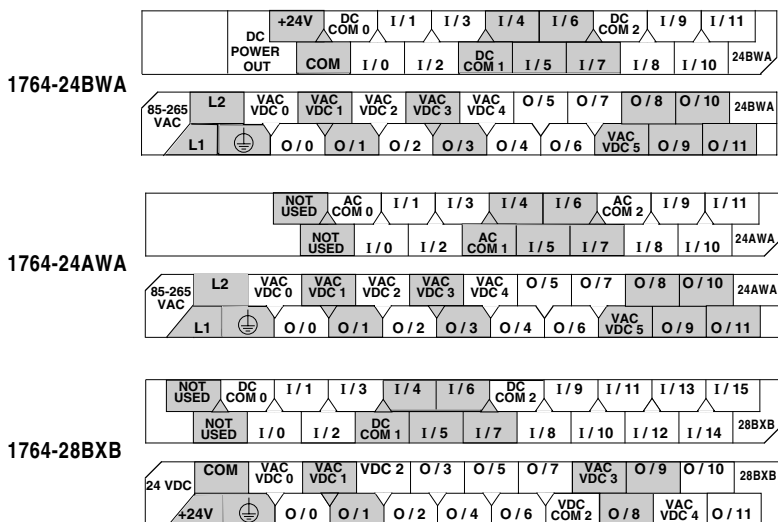


To install your base unit using mounting screws:

1. Remove the mounting template from the inside back cover of this document.
2. Secure the template to the mounting surface. (Make sure your base unit is spaced properly, see “Controller Spacing” on page 10).
3. Drill holes through the template.
4. Remove the mounting template.
5. Mount the base unit.
6. Leave the protective debris strips attached until you are finished wiring the base unit and any other devices.

Wiring the Controller

Terminal Block Layout



Wire Requirements

Table 8 Wire Type Recommendation

Wire Type		Wire Size (2 wire maximum per terminal screw)
Solid	Cu-90°C (194°F)	#14 to #22 AWG
Stranded	Cu-90°C (194°F)	#14 to #22 AWG

Wiring torque = 1.13 Nm (10 in-lb) rated; 1.3 Nm (12 in-lb) maximum

ATTENTION



Be careful when stripping wires. Wire fragments that fall into the controller could cause damage. Once wiring is complete, be sure the base unit is free of all metal fragments before removing protective debris strips and installing the processor unit. Failure to remove strips before operating can cause overheating.

Wiring Recommendation

When wiring without spade lugs, keep the finger-safe covers in place. Loosen the terminal screw and route the wires through the opening in the finger-safe cover. Tighten the terminal screw making sure the pressure plate secures the wire.

