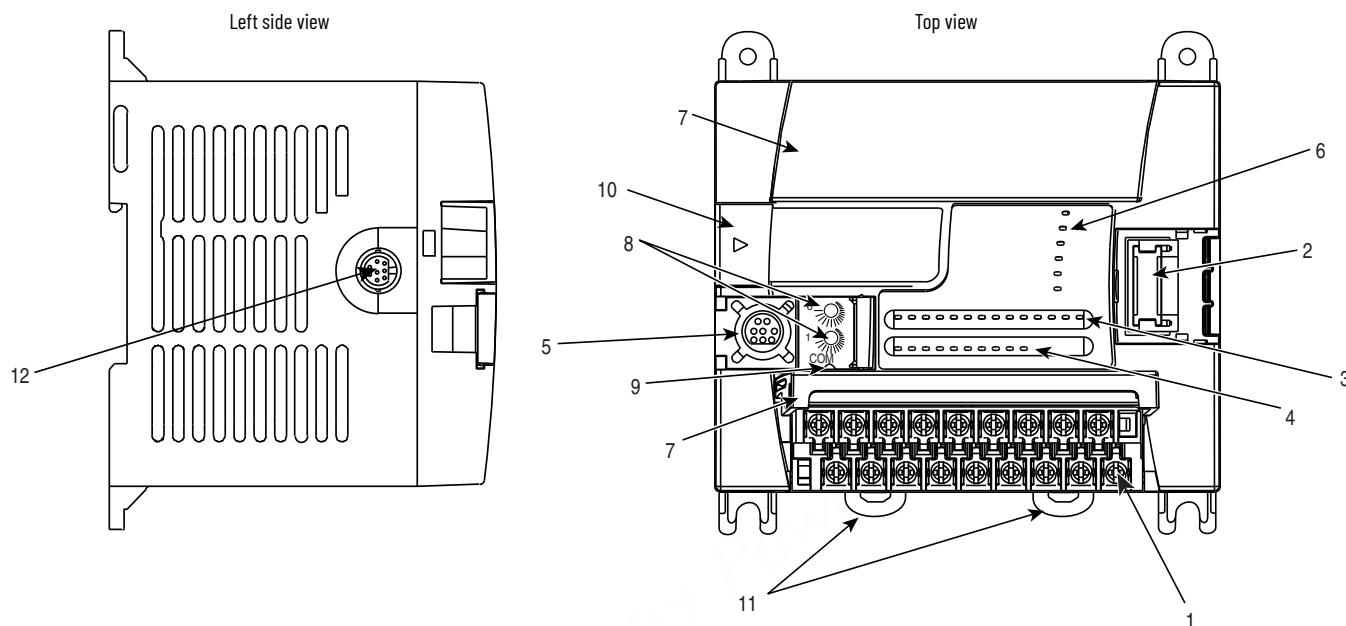


Hardware Overview

Hardware Features

The MicroLogix 1200 programmable controller contains a power supply, input and output circuits, and a processor. The controller is available in 24 I/O points and 40 I/O points configurations.

Figure 1 - Controller Hardware Features



Controller Description

	Description		Description
1	Terminal blocks (Removable terminal blocks on 40-point controllers only)	7	Terminal doors and labels
2	Bus connector interface to expansion I/O	8	Trimpots
3	Input LEDs	9	Communications Toggle push button
4	Output LEDs	10	Memory module port cover ⁽¹⁾ or memory module and/or real-time clock ⁽²⁾
5	Communication port/Channel 0	11	DIN rail latches
6	Status LEDs	12	Programmer/HMI port (Equipped with 1762-LxxxxR controllers only)

(1) Shipped with controller

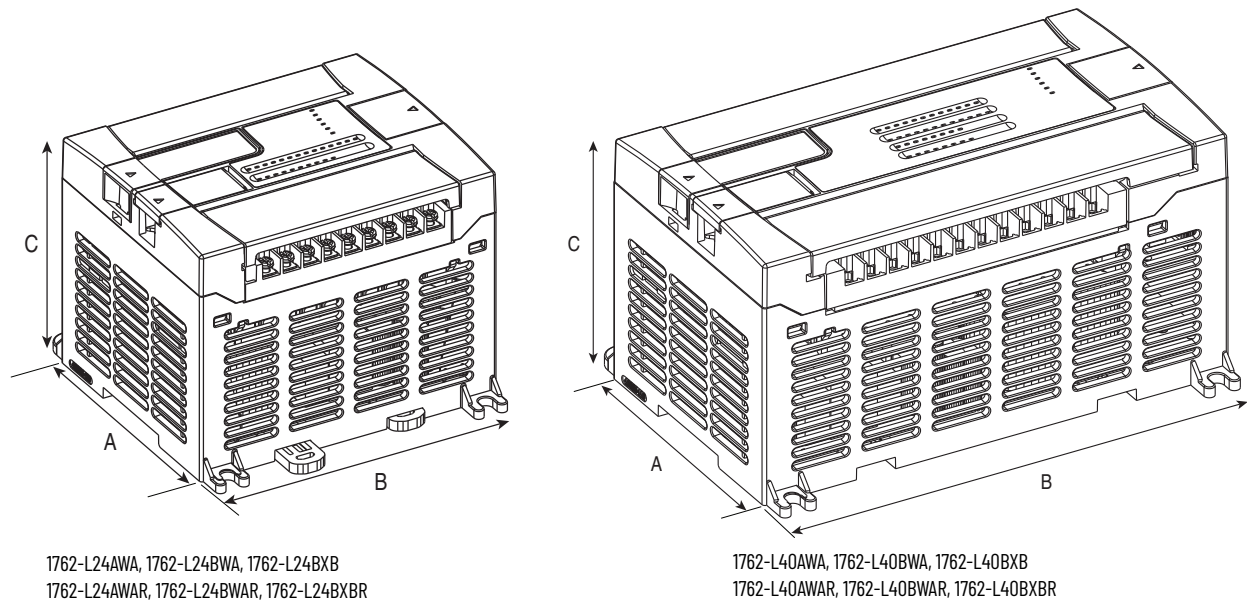
(2) Optional equipment

Controller Input Power and Embedded I/O

Catalog Number	Description		
	Input Power	Inputs	Outputs
1762-L24AWA, 1762-L24AWAR	120/240V AC	14 120V AC	10 relay
1762-L24BWA, 1762-L24BWAR	120/240V AC	10 24V DC 4 fast 24V DC	10 relay
1762-L24BXB, 1762-L24BXBR	24V DC	10 24V DC 4 fast 24V DC	5 relay, 4 24V DC FET 1 high-speed 24V DC FET

Controller Mounting Dimensions

Figure 5 - Controller Dimensions

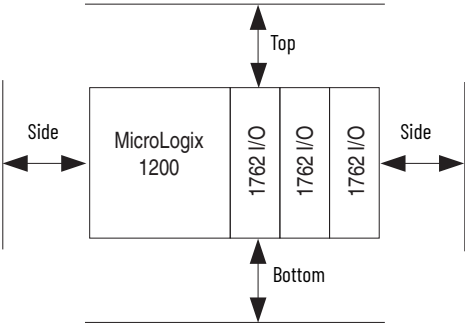


Dimension	1762-L24AWA 1762-L24AWAR	1762-L24BWA 1762-L24BWAR	1762-L24BXB 1762-L24BXR	1762-L40AWA 1762-L40AWAR	1762-L40BWA 1762-L40BWAR	1762-L40BXB 1762-L40BXR
A	90 mm (3.5 in.)			90 mm (3.5 in.)		
B	110 mm (4.33 in.)			160 mm (6.30 in.)		
C	87 mm (3.43 in.)			87 mm (3.43 in.)		

Controller and Expansion I/O Spacing

The controller mounts horizontally, with the expansion I/O extending to the right of the controller. Allow 50 mm (2 in.) of space on all sides of the controller system for adequate ventilation. Maintain spacing from enclosure walls, wireways, and adjacent equipment, as shown in [Figure 6](#).

Figure 6 - Controller and Expansion I/O Spacing



Mount the Controller

MicroLogix 1200 controllers are suitable for use in an industrial environment when installed in accordance with these instructions. Specifically, this equipment is intended for use in clean, dry environments (Pollution degree 2^(a)) and to circuits not exceeding Over Voltage Category II^(b) (IEC 60664-1)^(c).

(a) Pollution Degree 2 is an environment where, normally, only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation shall be expected.
(b) Over Voltage Category II is the load level section of the electrical distribution system. At this level transient voltages are controlled and do not exceed the impulse voltage capability of the product's insulation.
(c) Pollution Degree 2 and Over Voltage Category II are International Electrotechnical Commission (IEC) designations.

Communication Connections

Introduction

The method you use and cabling required to connect your controller depends on what type of system you are employing. This chapter also describes how the controller establishes communication with the appropriate network.

MicroLogix 1200 controllers with the additional communications port (1762-L24AWAR, 1762-L24BWAR, 1762-L24BXBR, 1762-L40AWAR, 1762-L40BWAR, 1762-L40BXBR) offer advanced communications options, providing a clean, cost effective solution for applications requiring a network connection and HMI.

The additional communications port (Programmer/HMI Port) enables two communication devices to be connected to the controller simultaneously. For example, it provides local connectivity of an operator interface or programming terminal such as DF1 PanelView™ HMI, IBM-compatible personal computer using RSLogix 500 programming software, or 1747-PSD program storage device, and also allows the primary port (Channel 0) to be connected to either a network, a modem, or an ASCII device such as a barcode reader or weigh scale.

Supported Communication Protocols

MicroLogix 1200 controllers support the following communication protocols from the primary RS-232 communication channel, Channel 0:

- DH-485
- DF1 Full-duplex
- DF1 Half-duplex master and slave
- DF1 Radio modem
- Modbus RTU master and slave
- ASCII

The 1762-L24AWAR, 1762-L24BWAR, 1762-L24BXBR, 1762-L40AWAR, 1762-L40BWAR, and 1762-L40BXBR controllers are equipped with an additional RS-232 communication channel called the Programmer/HMI port, which supports DF1 Full-duplex only. The controller cannot initiate messages through this port. It can only respond to messages sent to it. All communication parameters are fixed and cannot be changed by a user.

See [Default Communication Configuration on page 53](#) for the configuration settings.

For more information on MicroLogix 1200 communications, see MicroLogix 1200 and MicroLogix 1500 Programmable Controllers Instruction Set Reference Manual, publication [1762-RM001](#).

Default Communication Configuration

The MicroLogix 1200 has the following default communication configuration. The same default configuration is applied for both Channel 0 and the Programmer/HMI Port (for 1762-LxxxxR only). The configurations for the Programmer/HMI Port are fixed and you cannot change them.



For Channel 0, the default configuration is present when:

- The controller is powered-up for the first time
- The Communications Toggle push button specifies default communications (the DCOMM LED is on)
- An OS upgrade is completed

See [Connect to Networks via RS-232 Interface on page 97](#) for more information on communicating.

Specifications

Controller Specifications

General Specifications

Attribute	1762-L24AWA 1762-L24AWAR	1762-L24BWA 1762-L24BWAR	1762-L24BXB 1762-L24BXHR	1762-L40AWA 1762-L40AWAR	1762-L40BWA 1762-L40BWAR	1762-L40BXB 1762-L40BXHR
Dimensions	Height: 90 mm (3.54 in.), 104 mm (4.09 in.) (with DIN latch open) Width: 110 mm (4.33 in.) Depth: 87 mm (3.42 in.)			Height: 90 mm (3.54 in.), 104 mm (4.09 in.) (with DIN latch open) Width: 160 mm (6.30 in.) Depth: 87 mm (3.42 in.)		
Shipping weight	0.9 kg (2.0 lbs)			1.1 kg (2.4 lbs)		
Number of I/O	14 inputs, 10 outputs			24 inputs, 16 outputs		
Power supply voltage	100...240V AC (-15%, +10%) @ 47...63 Hz		24V DC (-15%, +10%) Class 2, SELV	100...240V AC (-15%, +10%) @ 47...63 Hz		24V DC (-15%, +10%) Class 2, SELV
Heat dissipation	15.2 W	15.7 W	17.0 W	21.0 W	22.0 W	27.9 W
Power supply inrush current	120V AC: 25 A for 8 ms 240V AC: 40 A for 4 ms		24V DC: 15 A for 20 ms	120V AC: 25 A for 8 ms 240V AC: 40 A for 4 ms		24V DC: 15 A for 30 ms
Power supply usage	68VA	70VA	27 W	80VA	82VA	40 W
Power supply output	5V DC	400 mA	400 mA ⁽¹⁾	600 mA	600 mA ⁽²⁾	600 mA
	24V DC	350 mA	350 mA ⁽¹⁾	500 mA	500 mA ⁽²⁾	500 mA
Sensor power output	none	250 mA @ 24V DC AC Ripple < 500 mV peak-to-peak 400 µF max. ⁽¹⁾	none	none	400 mA @ 24V DC AC Ripple < 500 mV peak-to-peak 400 µF max. ⁽²⁾	none
Input circuit type	120V AC	24V DC sinking/sourcing	24V DC sinking/sourcing	120V AC	24V DC sinking/sourcing	24V DC sinking/sourcing
Output circuit type	Relay	Relay	Relay/FET	Relay	Relay	Relay/FET
Terminal screw torque	0.791 N•m (7 lb•in) rated					

(1) Do not allow the total load power consumed by the 5V DC, 24V DC, and sensor power outputs to exceed 12 W.

(2) Do not allow the total load power consumed by the 5V DC, 24V DC, and sensor power outputs to exceed 16 W.

See [System Loading and Heat Dissipation on page 105](#) for system validation worksheets.

Input Specifications

Attribute	1762-L24AWA 1762-L40AWA 1762-L24AWAR 1762-L40AWAR	1762-L24BWA, 1762-L24BXB, 1762-L40BWA, 1762-L40BXB 1762-L24BWAR, 1762-L24BXHR, 1762-L40BWAR, 1762-L40BXHR	
		Inputs 0...3	Inputs 4 and Higher
On-state voltage range	79...132V AC	14...24V DC (+10% @ 55 °C/131 °F) (+25% @ 30 °C/86 °F)	10...24V DC (+10% @ 55 °C/131 °F) (+25% @ 30 °C/86 °F)
Off-state voltage range	0...20V AC	0...5V DC	
Operating frequency	47...63 Hz	0 Hz...20 kHz	0 Hz...1 kHz (scan time dependent)
On-state current: Minimum Nominal Maximum	5.0 mA @ 79V AC 12 mA @ 120V AC 16.0 mA @ 132V AC	2.5 mA @ 14V DC 7.3 mA @ 24V DC 12.0 mA @ 30V DC	2.0 mA @ 10V Dc 8.9 mA @ 24V Dc 12.0 mA @ 30V DC
Off-state leakage current	2.5 mA max.	1.5 mA min.	
Nominal impedance	12 kΩ @ 50 Hz 10 kΩ @ 60 Hz	3.3 kΩ	2.7 kΩ
Inrush current @ 120V AC, max	250 mA	Not applicable	

Output Specifications

Attribute		1762-L24AWA 1762-L24BWA 1762-L24AWAR 1762-L24BWAR	1762-L24BXB 1762-L24BXBR	1762-L40AWA 1762-L40BWA 1762-L40AWAR 1762-L40BWAR	1762-L40BXB 1762-L40BXBR
Relay and FET Outputs					
Controlled load, max		1440VA	–	1440VA	1440VA
Continuous current, max					
Current per group common		8 A	7.5 A	8 A	8 A
Current per controller	@ 150V max	30 A or total of per-point loads, whichever is less			
	@ 240V max	20 A or total of per-point loads, whichever is less			
Relay Outputs					
Turn on time/Turn off time, min		10 ms ⁽¹⁾			
Relay life - Electrical		See Figure 73			
Relay life - Mechanical		20,000,000 cycles			
Load current, min		10 mA			

(1) Scan time dependent

Relay Contact Ratings

Maximum Volts	Amperes		Amperes Continuous	Voltamperes	
	Make	Break		Make	Break
240V AC	7.5 A	0.75 A	2.5 A ⁽¹⁾	1800VA	180VA
120V AC	15 A	1.5 A	2.5 A ⁽¹⁾	1800VA	180VA
125V DC	0.22 A ⁽²⁾		1.0 A	28VA	
24V DC	1.2 A ⁽²⁾		2.0 A		

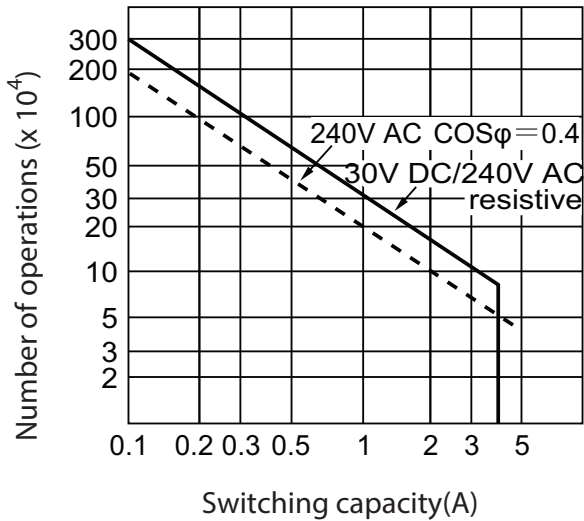
(1) 1.5 A above 40 °C (104 °F).

(2) For DC voltage applications, the make/break ampere rating for relay contacts can be determined by dividing 28VA by the applied DC voltage. For example, 28VA/48V DC = 0.58 A. For DC voltage applications less than 14V, the make/break ratings for relay contacts cannot exceed 2 A.



ATTENTION: Do not exceed the “Current per group common” specification.

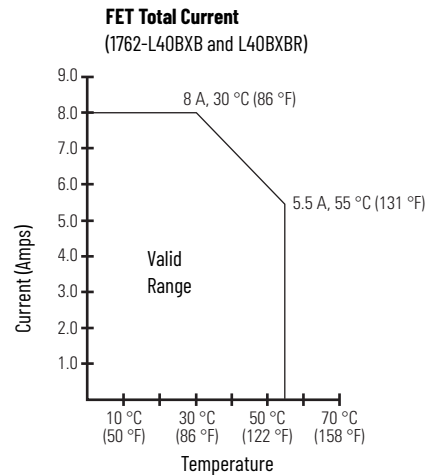
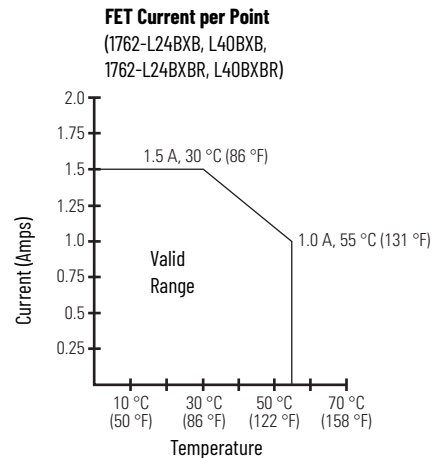
Figure 73 - Relay Life Chart



BXB FET Output Specifications

Attribute	General Operation	High Speed Operation ⁽¹⁾ (Output 2 Only)
Power supply voltage	24V DC (-15%, +10%)	
On-state voltage drop: At maximum load current At maximum surge current	1V DC 2.5V DC	Not applicable Not applicable
Current rating per point: Maximum load Minimum load Maximum leakage	See graphs below. 1.0 mA 1.0 mA	100 mA 10 mA 1.0 mA

Maximum output current (temperature dependent):



Surge current per point: Peak current Maximum surge duration Maximum rate of repetition @ 30 °C (86 °F) Maximum rate of repetition @ 55 °C (131 °F)	4.0 A 10 ms Once every second Once every 2 seconds	Not applicable Not applicable Not applicable Not applicable
Turn-on time, max	0.1 ms	6 µs
Turn-off time, max	1.0 ms	18 µs
Repeatability, max	Not applicable	2 µs
Drift, max	Not applicable	1 µs per 5 °C (41 °F)

(1) Output 2 is designed to provide increased functionality over the other FET outputs. Output 2 may be used like the other FET transistor outputs, but in addition, within a limited current range, it may be operated at a higher speed. Output 2 also provides a pulse train output (PTO) or pulse width modulation output (PWM) function.

AC Input Filter Settings

Nominal Filter Setting (ms)	On-delay (ms)		Off-delay (ms)	
	Minimum	Maximum	Minimum	Maximum
8	2	20	10	20

Fast DC Input Filter Settings (Inputs 0...3)

Nominal Filter Setting (ms)	On-delay (ms)		Off-delay (ms)		Maximum Counter Frequency 50% Duty Cycle
	Minimum	Maximum	Minimum	Maximum	
0.025	0.005	0.025	0.005	0.025	20.0 kHz
0.075	0.040	0.075	0.045	0.075	6.7 kHz
0.100	0.050	0.100	0.060	0.100	5.0 kHz
0.250	0.170	0.250	0.210	0.250	2.0 kHz
0.500	0.370	0.500	0.330	0.500	1.0 kHz
1.00	0.700	1.000	0.800	1.000	0.5 kHz
2.000	1.700	2.000	1.600	2.000	250 Hz