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MicroLogix 1100 Memory Module (1763-MM1)

The controller is shipped with a memory module port cover in place. You can order the memory module to provide removable backup of your User Program and User Data, or to transport your program between controllers.

Memory modules allow:

- user programs and data to be store as backup.
- transport programs for use with other controllers.
- special safety/security features for press control and other critical applications.
- auto-recovery, through a power cycle, after a controller fault.
- comparison of programs.
- data file and memory module write protection.
- removal/insertion under power.

Select MicroLogix 1100 Expansion I/O

Step 7 - Select:

- I/O modules - digital, analog, and temperature
- record your selections in the Selection Record (start on page 86)

MicroLogix 1100 controllers expand by using the same 1762 I/O platform as MicroLogix 1200 controllers. The 1762 I/O expansion modules provide superior functionality in a small sized low-cost package. A variety of modules complement and extend the capabilities of MicroLogix 1100 controllers by maximizing the flexibility of I/O count and type.

The MicroLogix 1100 system design allows modules to be either DIN-rail or panel mounted. The DIN latches and screw mounting holes are an integral part of the package design.

Controller I/O can be expanded by using up to four 1762 I/O modules.

Advantages

- Rackless design, eliminating added system costs and inventory
- Small footprint with high density I/O, minimizing panel space requirements
- Integral high-performance I/O bus
- Software keying to prevent incorrect positioning within the system
- Feature-rich I/O functionality addresses a wide range of applications
- AC/DC relay, 24V DC, 120V AC and 240V AC voltages
- Thermocouple/mV and RTD/Resistance temperature input modules

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Available Modules



1762 Expansion I/O Modules

Cat. No.	Description
Digital	
1762-IA8	8-Point 120V AC Input Module
1762-IQ8	8-Point Sink/Source 24V DC Input Module
1762-IQ8OW6	8 Point Sink/Source 24V DC Input/6-Point AC/DC Relay Output Combination Module
1762-IQ16	16-Point Sink/Source 24V DC Input Module
1762-OA8	8-Point 120/240V AC Triac Output Module
1762-OB8	8-Point Sourcing 24V DC Output Module
1762-OB16	16-Point Sourcing 24V DC Output Module
1762-OW8	8-Point AC/DC Relay Output Module
1762-OW16	16-Point AC/DC Relay Output Module
1762-OX6I	6-Point Isolated AC/DC Relay Output Module
1762-OV32T	32-Point Solid State 24V DC Sink Output Module
1762-OB32T	32-Point Solid State 24V DC Source Output Module
1762-IQ32T	32-Point DC Input Module
Analog	
1762-IF4	4-Channel Voltage/Current Analog Input Module
1762-OF4	4-Channel Voltage/Current Analog Output Module
1762-IF2OF2	Combination 2-Channel Input 2-Channel Output Voltage/Current Analog Module
Specialty	
1762-IR4	4-Channel RTD/Resistance Input Module
1762-IT4	4-Channel Thermocouple/mV Input Module

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1762 Digital I/O

1762 Digital Expansion Input Modules Specifications

Attribute	1762-IA8	1762-IQ8	1762-IQ8OW6 (inputs)	1762-IQ16	1762-IQ32T
Voltage Category	100/120V AC	24V DC (sink/source)(1)	24V DC (sink/source)(1)	24V DC (sink/source)(1)	24V DC sink/source(1)
Operating Voltage Range	79…132V AC @ 47…63 Hz	10…26.4V DC @ 55 °C (131 °F) 10…30V DC @ 30 °C (86 °F)	10…26.4V DC @ 65 °C (149 °F) 10…30V DC @ 30 °C (86 °F)	10…26.4V DC 10…30V DC (3)(2)	10...26.4V DC 10...30V DC
Number of Inputs	8	8	8	16	32
Number of Commons	1	1	inputs: 2 outputs: 1	2	4
Bus Current Draw, max	50 mA @ 5V DC (0.25 W)	50 mA @ 5V DC (0.25 W)	110 mA @ 5V DC (0.55 W) 80 mA @ 24V DC (1.92 W)	70 mA @ 5V DC (0.35 W) (3)	170 mA @ 5V DC 0 mA @ 24V DC
Heat Dissipation, max	2.0 Total Watts	3.7 Total Watts	5.0 Total Watts @ 30V 4.4 Total Watts @ 26.4V	5.4 Total Watts @ 30V 4.3 Total Watts @ 26.4V (3)	5.4 Total Watts @ 26.4V 6.8 Total Watts @ 30.0V
Signal Delay, max	On Delay: 20.0 ms Off Delay: 20.0 ms	On Delay: 8.0 ms Off Delay: 8.0 ms	On Delay: 8.0 ms Off Delay: 8.0 ms	On Delay: 8.0 ms Off Delay: 8.0 ms	On Delay: 8.0 ms Off Delay: 8.0 ms
Off-state Voltage, max	20V AC	5V DC	5V DC	5V DC	5V DC
Off-state Leakage Current, max	2.5 mA	1.5 mA	1.5 mA	1.5 mA	1.0 mA
On-state Voltage, min	79V AC, min, 132V AC, max	10V DC	10V DC	10V DC	10V DC
On-state Current min nom max	 5.0 mA @ 79V AC 47 Hz 12.0 mA @ 120V AC 60 Hz 16.0 mA @ 132V AC 63 Hz	 2.0 mA @ 10V DC 8.0 mA @ 24V DC 12.0 mA @ 30V DC	 2.0 mA @ 10V DC 8.0 mA @ 24V DC 12.0 mA @ 30V DC	 2.0 mA @ 10V DC 8.0 mA @ 24V DC 12.0 mA @ 30V DC	 1.6 mA @ 10V DC (min) 2 mA @ 15V DC (min) 5.7 mA @ 26.4V DC (max) 6.5 mA @ 30.0V DC (max)
Inrush Current, max	250 mA	---	250 mA	---	--

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Attribute	1762-IA8	1762-IQ8	1762-IQ8OW6 (inputs)	1762-IQ16	1762-IQ32T
Impedance, nom	12 kΩ @ 50 Hz 10 kΩ @ 60 Hz	3 kΩ	3 kΩ	3 kΩ	4.7 kΩ
Isolated Groups	Group 1: inputs 0…7 (internally connected commons)	Group 1: inputs 0…7 (internally connected commons)	Group 1: inputs 0…3 Group 2: inputs 4…7 Group 3: outputs 0…5	Group 1: inputs 0…7 Group 2: inputs 8…15	Group 1: Inputs 0...7 Group 2 : Inputs 8...15 Group 3 : Inputs 16...23 Group 4 : Inputs 24...31
Input Group to Backplane Isolation	Verified by one of the following dielectric tests: 1517V AC for 1 s or 2145V DC for 1 s 132V AC working voltage (IEC Class 2 reinforced insulation)	Verified by one of the following dielectric tests: 1200V AC for 1 s or 1697V DC for 1 s 75V DC working voltage (IEC Class 2 reinforced insulation)	Verified by one of the following dielectric tests: Input Group to Backplane isolation - 1200V AC for 1 s or 1697V DC for 1 s 75V DC working voltage (IEC Class 2 reinforced insulation) Output Group to Backplane isolation - 1836V AC for 1 s or 2596V DC for 1 s 265V AC working voltage (IEC Class 2 reinforced insulation) Input Group to Output Group isolation - 1836V AC for 1 s or 2596V DC for 1 s 265V AC working voltage (basic insulation) 150V AC working voltage (IEC Class 2 reinforced insulation)	Verified by one of the following dielectric tests: 1200V AC for 1 s or 1697V DC for 1 s 75V DC working voltage (IEC Class 2 reinforced insulation)	Verified by one of the following dielectric tests: 1,200V AC for 2 s or 1,697V DC for 2 s 75V DC working voltage (IEC Class 2 reinforced insulation)

(1) Sinking/Sourcing Inputs - Sourcing/sinking describes the current flow between the I/O module and the field device. Sourcing I/O circuits supply (source) current to sinking field devices. Sinking I/O circuits are driven by a current sourcing field device. Field devices connected to the negative side (DC Common) of the field power supply are sinking field devices. Field devices connected to the positive side (+V) of the field supply are sourcing field devices.

(2) Refer to Publication 1762-IN10, MicroLogix 1762-IQ16 DC Input Module Installation Instructions, for the derating chart.

(3) Only applicable to Series B I/O modules

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1762 Digital Expansion Output Modules Specifications

Attribute	1762-OA8	1762-OB8	1762-OB16	1762-OB32T	1762-OV32T
Voltage Category	100…240V AC	24V DC	24V DC	24V DC source	24V DC sink
Operating Voltage Range	85…265V AC @ 47…63 Hz	20.4…26.4V DC	20.4…26.4V DC	10.2...26.4V DC	
Number of Outputs	8	8	16	32	
Number of Commons	2	1	1	2	
Bus Current Draw, max	115 mA @ 5V DC (0.575 W)	115 mA @ 5V DC (0.575 W)	175 mA @ 5V DC (0.88 W)	175 mA @ 5V DC 0 mA @ 24V DC	
Heat Dissipation, max	2.9 Total Watts	1.61 Total Watts	2.9 Total watts @ 30 °C (86 °F) 2.1 Total watts at 55 °C (131 °F)	3.4W @ 26.4V DC	2.7 W @ 26.4 V DC
Signal Delay, max - resistive load	On Delay: 1/2 cycle Off Delay: 1/2 cycle	On Delay: 0.1 ms Off Delay: 1.0 ms	On Delay: 0.1 ms Off Delay: 1.0 ms	On Delay: 0.5 ms Off Delay: 4.0 ms	
Off-state Leakage, max	2 mA @ 132V 2.5 mA @ 265V	1.0 mA	1.0 mA	0.1 mA @ 26.4V DC	
On-state Current, min	10 mA	1.0 mA	1.0 mA	1.0 mA	
On-state Voltage Drop, max	1.5V @ 0.5 A	1.0V DC	1.0Vdc	0.3V DC @ 0.5 A	
Continuous Current per Point, max	0.25 A @ 55 °C (131 °F) 0.5 A @ 30 °C (86 °F)	0.5 A @ 55 °C (131 °F) 1.0 A @ 30 °C (86 °F)	0.5 A @ 55 °C (131 °F) 1.0 A @ 30 °C (86 °F)	0.5 A @ 60 °C (140 °F)	
Continuous Current per Common, max	1.0 A @ 55° (131 °F) 2.0 A @ 30 °C (86 °F)	4.0 A @ 55 °C (131 °F) 8.0 A @ 30 °C (86 °F)	4.0 A @ 55 °C (131 °F) 8.0 A @ 30 °C (86 °F)	2.0 A @ 60 °C (140 °F)	
Continuous Current per Module, max	2.0 A @ 55 °C (131 °F) 4.0 A @ 30 °C (86 °F)	4.0 A @ 55 °C (131 °F) 8.0 A @ 30 °C (86 °F)	4.0 A @ 55 °C (131 °F) 8.0 A @ 30 °C (86 °F)	4.0 A @ 60 °C (140 °F)	
Surge Current, max	5.0 A(1)	2.0 A(2)	2.0(2)	2.0 A (Repeatable every 2 s @ 60 °C (140 °F) for 10 ms)	

(1) Repeatability is once every 2 seconds for a durations of 25 ms.

(2) Repeatability is once every 2 seconds @ 55 °C (131 °F), once every second @ 30 °C (86 °F) for a duration of 10 ms.

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1762 Digital Expansion Relay Output Modules Specifications

Attribute	1762-IQ8OW6 (outputs)	1762-OW8	1762-OW16	1762-OX6I
Voltage Category	AC/DC normally open relay	AC/DC normally open relay	AC/DC normally open relay	AC/DC Type C Relay
Operating Voltage Range	5…265V AC 5…125V DC	5…265V AC 5…125V DC	5…265V AC 5…125V DC	5…265V AC 5…125V DC
Number of Outputs	6	8	16	6 (N.C., N.O.)
Number of Commons	inputs: 2 outputs: 1	2	2	6
Bus Current Draw, max	110 mA @ 5V DC (0.55 W) 80 mA @ 24V DC (1.92 W)	80 mA @ 5V DC (0.40 W) 90 mA @ 24V DC (2.16 W)	140 mA @ 5V DC (0.70 W) 180 mA @ 24V DC (4.32 W) (1)	110 mA @ 5V DC (0.55 W) 110 mA @ 24V DC (2.64 W)
Heat Dissipation, max	5.0 Total Watts @ 30V 4.4 Total Watts @ 26.4V	2.9 Total Watts	6.1 Watts (1)	2.8 Watts
Signal Delay, max - resistive load	On Delay: 10 ms Off Delay: 10 ms	On Delay: 10 ms Off Delay: 10 ms	On Delay: 10 ms Off Delay: 10 ms	On Delay: 10 ms Off Delay: 20 ms
Off-state Leakage, max	0 mA	0 mA	0 mA	0 mA
On-state Current, min	10 mA @ 5V DC	10 mA @ 5V DC	10 mA	100 mA
On-state Voltage Drop, max	N/A	N/A	N/A	N/A
Continuous Current per Point, max	2.5 A (Also see MicroLogix 1500 Controller Relay Contact Rating on page 72.)			7 A (Also see MicroLogix 1500 Controller Relay Contact Rating on page 72.)
Continuous Current per Common, max	8 A	8 A	8 A	7 A (Also see MicroLogix 1500 Controller Relay Contact Rating on page 72.)
Continuous Current per Module, max	8 A	16 A	16 A	30 A
Surge Current, max	See MicroLogix 1500 Controller Relay Contact Rating on page 72.			

(1) Only applicable to Series B I/O modules

1762 Analog Modules

1762 Analog Expansion Modules Common Specifications

Attribute	1762-IF4	1762-IF2OF2	1762-OF4
Bus Current Draw, max	40 mA @ 5V DC 50 mA @ 24V DC	40 mA @ 5V DC 105 mA @ 24V DC	40 mA @ 5V DC 165 mA @ 24V DC
Analog Normal Operating Range	Voltage: -10…10V DC Current: 4…20 mA	Voltage: 0…10V DC Current: 4…20 mA	Voltage: 0…0V DC Current: 4…20 mA
Full Scale(1) Analog Ranges	Voltage: -10.5…10.5V DC Current: -21…21 mA	Voltage: 0…0.5V DC Current: 0…21 mA	Voltage: 0…0.5V DC Current: 0…21 mA
Resolution	15 bits (bipolar) (2)	12 bits (unipolar)	12 bits (unipolar)
Repeatability(3)	±0.12% (2)	±0.12% (2)	±0.12% (2)
Input and Output Group to System Isolation	30V AC/30V DC rated working voltage(4) (N.E.C. Class 2 required) (IEC Class 2 reinforced insulation) type test: 500V AC or 707V DC for 1 minute		30V AC/30V DC rated working voltage (IEC Class 2 reinforced insulation) type test: 500V AC or 707V DC for 1 minute

(1) The over- or under-range flag is set when the normal operating range is exceeded. The module continues to convert the analog input up to the maximum full scale range.

(2) Only applicable to Series B I/O modules.

(3) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.

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(4) Rated working voltage is the maximum continuous voltage that can be applied at the terminals with respect to Earth ground.

1762 Analog Expansion Input Modules Specifications

Attribute	1762-IF4	1762-IF2OF2
Number of Inputs	4 differential (bipolar)	2 differential (unipolar)
Update Time (typical)	130, 250, 290, 450, 530 ms (selectable)	2.5 ms
A/D Converter Type	Successive approximation	Successive approximation
Common Mode Voltage Range(1)	±27V	±27V
Common Mode Rejection(2)	> 55 dB @ 50 and 60 Hz	> 55 dB @ 50 and 60 Hz
Non-linearity (in percent full scale)	±0.12% (2)	±0.12% (2)
Typical Overall Accuracy(3)	±0.32% full scale @ -20…65 °C (-4…149 °F)(4) ±0.24% full scale @ 25 °C (77 °F)	±0.55% full scale @ -20…65 °C (-4…149 °F)(4) ±0.3% full scale @ 25 °C (77 °F)
Input Impedance	Voltage Terminal: 200 kΩ, Current Terminal: 275 Ω	Voltage Terminal: 200 kΩ, Current Terminal: 250 Ω
Current Input Protection	±32 mA	±32 mA
Voltage Input Protection	±30V	±30V
Channel Diagnostics	Over or under range or open circuit condition by bit reporting for analog inputs.	

(1) For proper operation, both the plus and minus input terminals must be within ±27V of analog common.

(2) V_{cm} = 1 V_{pk-pk} AC.

(3) V_{cm} = 0 (includes offset, gain, non-linearity and repeatability error terms).

(4) Only applicable to Series B I/O modules

1762 Analog Expansion Output Modules Specifications

Attribute	1762-IF2OF2	1762-OF4
Number of Outputs	2 single-ended (unipolar)	4 single-ended (unipolar)(2)
Update Time (typical)	4.5 ms	2.5 ms
D/A Converter Type	Resistor string	R-2R Ladder Voltage Switching
Resistive Load on Current Output	0…500 Ω (includes wire resistance)	0…500 Ω (includes wire resistance)
Load Range on Voltage Output	> 1 kΩ	> 1 kΩ
Reactive Load, Current Output	< 0.1 mH	< 0.1 mH
Reactive Load, Voltage Output	< 1 µF	< 1 µF
Typical Overall Accuracy(1)	±1.17% full scale @ -20…65 °C (-4…149 °F) (2), ±0.5% full scale @ 25 °C (77 °F)	±1.17% full scale @ -20…65 °C (-4…149 °F)(2) ±0.5% full scale @ 25°C
Output Ripple, range 0…500 Hz (referred to output range)	< ±0.1%	< ±0.1%
Non-linearity (in percent full scale)	< ±0.59%(2)	< ±0.59%(2)
Open and Short-circuit Protection	Continuous	Continuous
Output Protection	±32 mA	±32 mA

(1) Includes offset, gain, non-linearity and repeatability error terms.

(2) Only applicable to Series B I/O modules.

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1762 Temperature Input Modules

Use these modules as a cost effective means of addressing process applications that require temperature measurement and control. Each channel can be individually configured by using RSLogix 500 programming software. On-screen configuration lets you choose the input type, filtering frequency, data format, and status data. On-board scaling is also provided.

1762 Temperature Expansion Input Modules Specifications

Attribute	1762-IT4	1762-IR4
Bus Current Draw, max	40 mA @ 5V DC 50 mA @ 24V DC	40 mA @ 5V DC 50 mA @ 24V DC
Number of Channels	4 input channels plus a CJC sensor	4 input channels
Accepted Inputs	Thermocouples Types: J, K, T, E, R, S, B, N, C Millivolt Input Ranges: ±50 mV and ±100 mV	RTDs: Platinum (385 and 3916), Copper (426), Nickel (672 and 618), Nickel-Iron (518) Resistance Ranges: 0…3000 Ω
Filter Frequency	10 Hz…1 kHz	10 Hz…1 kHz
Temperature Units	°C or °F	°C or °F
Data Formats	Raw/Proportional, Engineering Units, Engineering Units x 10, Scaled-for-PID, Percent Range	
Accuracy at 25 °C (77 °F)	Thermocouple Inputs: ±0.5…±3.0 °C (±0.9…±5.4 °F) depending on thermocouple type Millivolt Inputs: ±15…±20 mV	With Autocalibration enabled… RTD Inputs: ±0.2…±0.6 °C (±0.36…±1.08 °F) depending on RTD type Resistance Inputs: ±0.5…±1.5 Ω depending on resistance value
Accuracy at 0…55 °C (32…131 °F)	±0.8…±10 °C (±1.5…±18 °F) depending on thermocouple type Millivolt Inputs: ±25…±30 mV	With Autocalibration enabled… RTD Inputs: ±0.4…±1.1 °C (±0.72…±1.98 °F) depending on RTD type Resistance Inputs: ±0.25…±2.5 Ω depending on resistance value
Channel Update Time (typical)	7…303 ms per enabled channel + CJC update time, depending on filter selection (CJC update time is equal to the largest enabled channel's update time.)	6…303 ms per enabled channel, depending on filter selection
Channel Diagnostics	Over- or under-range and open-circuit by bit reporting	Over- or under-range or broken input by bit reporting
Calibration	The module performs autocalibration on channel enable and on a configuration change between channels. You can also program the module to calibrate every five minutes.	
Common Mode Noise Rejection	115 dB min @ 50 Hz (with 10 Hz or 50 Hz filter) 115 dB min @ 60 Hz (with 10 Hz or 60 Hz filter)	110 dB min @ 50 Hz (with 10 or 50 Hz filter) 110 dB min @ 60 Hz (with 10 or 60 Hz filter)
Normal Mode Noise Rejection	85 dB min @ 50 Hz (with 10 Hz or 50 Hz filter) 85 dB min @ 60 Hz (with 10 Hz or 60 Hz filter)	70 dB min @ 50 Hz (with 10 or 50 Hz filter) 70 dB min @ 60 Hz (with 10 or 60 Hz filter)
Input Group to System Isolation	720V DC for 1 minute	707V DC for 1 minute
Channel-to-Channel Isolation	±10V DC	±10V DC
Repeatability(1)	Thermocouples at 25 °C (77 °F) and 10 Hz filter selected: ±0.1…±2.0 °C (±0.18…±3.6 °F) depending on thermocouple type Millivolt Inputs: ±6 µV	±0.1 °C (±0.18 °F) for Nickel and Nickel-Iron ±0.2 °C (±0.36 °F) for other RTD inputs ±0.04 Ω for 150 Ω resistances ±0.2 Ω for other resistances
Input Impedance	>10 MΩ	>10 MΩ

(1) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.

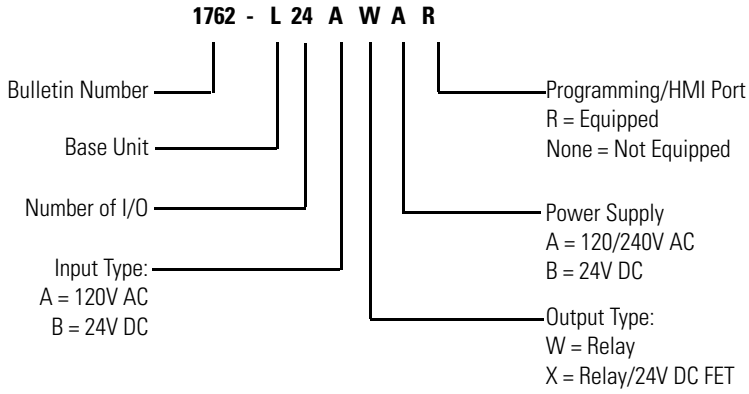
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Select MicroLogix 1200 Controllers

Step 8 - Select:

- controller - review power and I/O configurations to select a controller catalog number; see power supply and I/O specifications for more detailed information
- accessories - memory and real-time clock modules
- record your selections in the Selection Record (start on page 86)

MicroLogix 1200 Controllers Catalog Number Detail



MicroLogix 1200 Controller Power and I/O Configuration

Cat. No.	Line Voltage	Number of Inputs	Number of Outputs	High Speed I/O
1762-L24AWA, -L24AWAR	120/240V AC	(14) 120V AC	(10) Relay	N/A
1762-L40AWA, -L40AWAR	120/240V AC	(24) 120V AC	(16) Relay	N/A
1762-L24BWA, -L24BWAR	120/240V AC	(10) Standard 24V DC (4) Fast 24V DC	(10) Relay	(4) 20 kHz input
1762-L40BWA, -L40BWAR	120/240V AC	(20) Standard 24V DC (4) Fast 24V DC	(16) Relay	(4) 20 kHz input
1762-L24BXB, -L24BXBR	24V DC	(10) Standard 24V DC (4) Fast 24V DC	(5) Relay (4) Standard 24V DC FET (1) Fast 24V DC FET	(4) 20 kHz input (1) 20 kHz output
1762-L40BXB, -L40BXBR	24V DC	(20) Standard 24V DC (4) Fast 24V DC	(8) Relay (7) Standard 24V DC FET (1) Fast 24V DC FET	(4) 20 kHz input (1) 20 kHz output

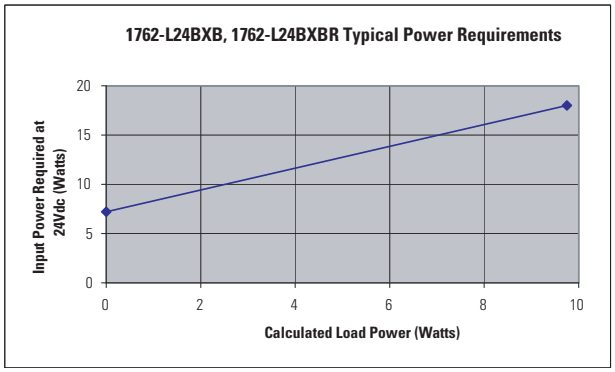
MicroLogix 1200 Controller Power Supply Specifications

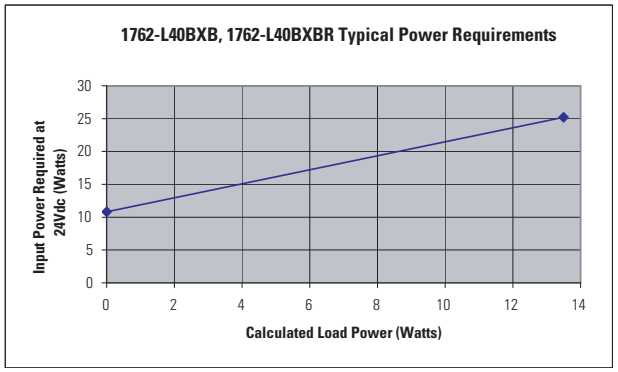
Attribute		1762-					
		L24AWA, L24AWAR	L40AWA, L40AWAR	L24BWA, L24BWAR	L40BWA, L40BWAR	L24BXB, L24BXBR	L40BXB, L40BXBR
Power Supply Voltage		85…265V AC @ 47…63 Hz				20.4…26.4V DC Class 2 SELV	
Power Consumption		68 VA	80 VA	70 VA	82 VA	27 W	40 W
Power Supply Inrush Current, max		120V AC: 25 A for 8 ms 240V AC: 40 A for 4 ms				24V DC: 15 A for 20 ms	24V DC: 15 A for 30 ms
Load Current(1), max	5V DC	400 mA	600 mA	400 mA	600 mA	400 mA	600 mA
	24V DC	350 mA	500 mA	350 mA	500 mA	350 mA	500 mA
Load Power, max		10.4 W	15 W	12 W	16 W	10.4 W	15 W
24V DC Sensor Power		---	---	250 mA, 400 µF capacitance, max	400 mA, 400 µF capacitance, max	---	---

(1) See Perform MicroLogix 1200 Controller System Expansion Calculations on page 62 for an example system validation worksheet to calculate expansion I/O power usage.

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MicroLogix 1200 Controller DC Input Power Requirements for BXB Units





MicroLogix 1200 Controller Input Specifications

Attribute	1762-L24AWA, 1762-L24AWAR 1762-L40AWA, 1762-L40AWAR	1762-L24BWA, 1762-L24BXB, 1762-L40BWA, 1762-L40BXB 1762-L24BWAR, 1762-L24BXBR, 1762-L40BWAR, 1762-L40BXBR	
		Inputs 0 through 3	**Inputs 4 and higher**
On-state Voltage Range	79…132V AC @ 47 Hz…63 Hz	14…26.4V DC @ 55 °C (131 °F) 14…30.0V DC @ 30 °C (86 °F)	10…26.4V DC @ 55 °C (131 °F) 10…30.0V DC @ 30 °C (86 °F)
Off-state Voltage Range	0…20V AC	0…5V DC	
Operating Frequency	N/A	0 Hz…20 kHz	0 Hz…1 kHz (scan time dependent)
Signal Delay, max	ON Delay = 20 ms OFF Delay = 20 ms	Standard inputs: selectable from 0.5…16 ms high-speed inputs: selectable from 0.025…16 ms	
On-state Current: min nom max	 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, max	2.5 mA, max	1.5 mA, min	
Impedance, nom	12 kΩ @ 50 Hz 10 kΩ @ 60 Hz	3.3 kΩ	2.7 kΩ
Inrush Current, max	250 mA at 120V AC	---	

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MicroLogix 1200 Controller Digital Output Specifications

Attribute	1762-		
	L24AWA, L24BWA, L24BXB, L40AWA, L40BWA, L40BXB, L24AWAR, L24BWAR, L24BXBR, L40AWAR, L40BWAR, L40BXBR	L24BXB, L40BXB L24BXBR, L40BXBR	
	Relay	FET Standard Operation	FET High-speed Operation (Output 2 only)
Operating Voltage Range	5…125V DC 5…264V AC	21.6…27.6V DC	21.6…27.6V DC
Continuous Current per Point, max	See MicroLogix 1500 Controller Relay Contact Rating on page 72.	See below, MicroLogix 1200 Controller FET Standard Outputs Continuous Current per Point, max.	100 mA
Continuous Current per Common, max	8.0 A	7.5 A for L24BXB, L24BXBR 8.0 A for L40BXB, L40BXBR	
Continuous Current per Controller, max	30 A or total of per-point loads, whichever is less at 150V max 20 A or total of per-point loads, whichever is less at 240V max		
On-state Current, min	10.0 mA	1 mA	10.0 mA
Off-state Leakage Current, max	0 mA	1 mA	
Signal Delay, max - resistive load	ON Delay = 10 ms OFF Delay = 10 ms	ON Delay = 0.1 ms OFF Delay = 1.0 ms	ON Delay = 6 µs OFF Delay = 18 µs
Surge Current per Point (peak)	---	4 A for 10 ms(1)	

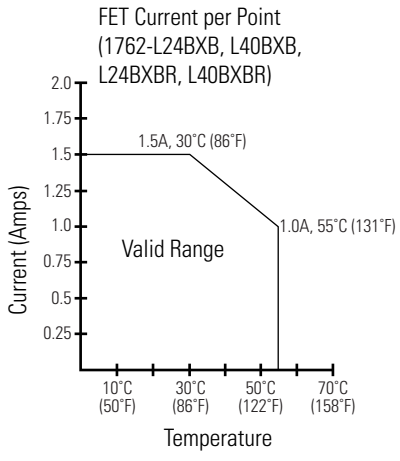
(1) Repeatability is once every 2 seconds @ 55 °C (131 °F), once every 1 second @ 30 °C (86 °F).

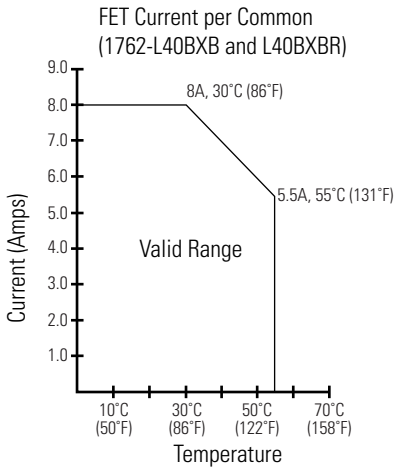
MicroLogix 1200 Controller Relay Contact Rating

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

(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 = 0.58 A. For DC voltage applications less than 48V, the make/break ratings for relay contacts cannot exceed 2 A. For DC voltage applications greater than 48V, the make/break ratings for relay contact cannot exceed 1 A.

MicroLogix 1200 Controller FET Standard Outputs Continuous Current per Point, max





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MicroLogix 1200 Memory and Real-Time Clock Modules

The controller is shipped with a memory module port cover in place. You can order the memory module, real-time clock, or combination module to suit your needs.

Real-time Clock (1762-RTC)

- Allows for time/date scheduling
- Self-contained battery provides long-term time base

Memory Module (1762-MM1)

- User program and data back-up
- Program compare
- Data file protection
- Memory module write protection
- Removal/insertion under power

Combination Memory and Real-time Clock Module (1762-MM1RTC)

Provides all real-time clock and memory back-up functions of the 1762-RTC and 1762-MM1 modules

Select MicroLogix 1200 Expansion I/O

Step 9 - Select:

- I/O modules - digital, analog, and temperature
- perform system expansion calculations
- record your selections in the Selection Record (start on page 86)

MicroLogix 1200 controllers expand by using the same 1762 I/O platform as MicroLogix 1100 controllers. The 1762 I/O expansion modules provide superior functionality in a small sized low-cost package. A variety of modules complement and extend the capabilities of MicroLogix 1200 controllers by maximizing the flexibility of I/O count and type.

The MicroLogix 1200 system design allows modules to be either DIN rail or panel mounted. The DIN latches and screw mounting holes are an integral part of the package design.

Controller I/O can be expanded by using up to six expansion modules per controller (depending on power budget).

See Select MicroLogix 1100 Expansion I/O on page 50 for available modules and specifications.

1762 Expansion I/O Modules Connected to a MicroLogix 1200 Controller



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Perform MicroLogix 1200 Controller System Expansion Calculations

A download is also available for system validation. On the Internet, go to http://www.ab.com/micrologix.

To have a valid system, both current and power requirements must be satisfied. Use the following worksheets to make your calculations.

Follow these steps to verify the controller power supply loading.

1. Use the following table to select the components for your system. Do not exceed the MAXIMUM LIMIT for the number of I/O modules.
2. Fill in the current amounts and add up the TOTAL CALCULATED CURRENT.

MicroLogix 1200 Controller Power Supply Loading - Calculate System Current

Cat. No.		Bus Current Draw Attribute		Calculated Current for System	
		at 5V DC (mA)	at 24V DC (mA)	at 5V DC (mA)	at 24V DC (mA)
1761-NET-AIC(1)(2)		0	120(2)		
1761-NET-ENI, 1761-NET-ENIW(1)(2)		0	100(2)		
2707-MVH232 or 2707-MVP232(1)(2)		0	80(2)		
Cat. No.	**n = Number of Modules (6 max)**	**A**	**B**	**n x A**	**n x B**
1762-IA8		50	0		
1762-IQ8		50	0		
1762-IQ8OW6		110	80		
1762-IQ16 (Series A)		60	0		
1762-OA8		115	0		
1762-OB8		115	0		
1762-OB16		175	0		
1762-OW8		80	90		
1762-OW16 (Series A)		120	140		
1762-OX6I		110	110		
1762-IF2OF2		40	105		
1762-IF4		40	50		
1762-OF4		40	165		
1762-IR4		40	50		
1762-IT4		40	50		
1762-OV32T		175	0		
1762-OB32T		175	0		
1762-IQ32T		170	0		
1762-IQ16 (Series B)		70	0		
1762-OW16 (Series B)		140	180		
TOTAL MODULES:		**TOTAL CALCULATED CURRENT:**		**(C)**	**(D)**
For 1762-L24BWA, 1762-L40BWA, 1762-L24BWAR, and 1762-L40BWAR only, add sum of any User 24V DC Sensor Current				**(E)**	

(1) These are optional accessories. Current is consumed only if the accessory is installed.

(2) Current for the 1761-NET-AIC or 1761-NET-ENI(W) can be supplied by the controller's communication port or from an external 24V DC source. No current is consumed from the controller when a user-suppled, external source is used. If an external source is to be used, do not select the device here. The current for a 2707-MVH232 or 2707-MVP232 MicroView Operator Interface is supplied from the controller's communication port, if directly connected.

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3. Using the table below, verify that (C), (D), and (E) do not exceed the MAXIMUM LIMITS. If the MAXIMUM LIMIT is exceeded, you will need to adjust your selections.

MicroLogix 1200 Controller Maximum Load Current

Cat. No.	Load Current	5V DC	24V DC	User 24V DC Sensor Current
1762-L24AWA 1762-L24AWAR 1762-L24BXB, 1762-L24BXBR	Calculated Value	(C)	(D)	N/A
	MAXIMUM LIMIT	400 mA	350 mA	
1762-L24BWA 1762-L24BWAR	Calculated Value	(C)	(D)	(E)
	MAXIMUM LIMIT	400 mA	350 mA	250 mA
1762-L40AWA 1762-L40AWAR 1762-L40BXB, 1762-L40BXBR	Calculated Value	(C)	(D)	N/A
	MAXIMUM LIMIT	600 mA	500 mA	
1762-L40BWA 1762-L40BWAR	Calculated Value	(C)	(D)	(E)
	MAXIMUM LIMIT	600 mA	500 mA	400 mA

4. Use the table below to verify that the system is within the power loading limits of the controller.

   Fill in the (C), (D), and (E) values where indicated. Then calculate Watts and add up the Total Watts. Verify that Total Watts does not exceed the MAXIMUM POWER LIMIT. If the MAXIMUM POWER LIMIT is exceeded, you will need to adjust your selections.

MicroLogix 1200 Controller Maximum Load Power

Cat. No.	5V Power Consumption Calculated Watts			24V Power Consumption Calculated Watts			Calculated Watts (sum of 5V and 24V)	MAXIMUM POWER LIMIT
1762-L24AWA 1762-L24AWAR	**(C)**	x 5V	= W	**(D)**	x 24V	= W	W	10.4 W
1762-L24BXB 1762-L24BXBR	**(C)**	x 5V	= W	**(D)**	x 24V	= W	W	10.4 W
1762-L24BWA 1762-L24BWAR	**(C)**	x 5V	= W	**(D)+(E)**	x 24V	= W	W	12 W
1762-L40AWA 1762-L40AWAR	**(C)**	x 5V	= W	**(D)**	x 24V	= W	W	15 W
1762-L40BXB 1762-L40BXBR	**(C)**	x 5V	= W	**(D)**	x 24V	= W	W	15 W
1762-L40BWA 1762-L40BWAR	**(C)**	x 5V	= W	**(D)+(E)**	x 24V	= W	W	16 W

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