Technical Data

Original Instructions

Allen-Bradley
by ROCKWELL AUTOMATION

CompactLogix Controllers Specifications

Bulletins 1769 and 1768

Rockwell Automation

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

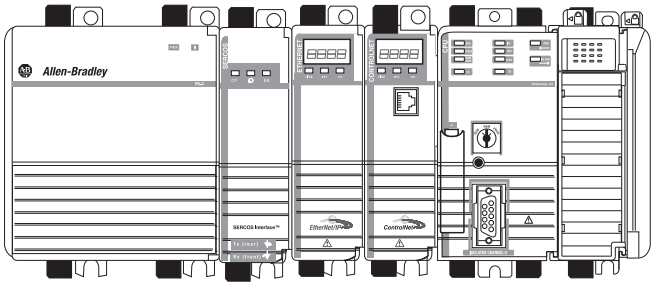
Topic	Pages
Removed EAC certification for CompactLogix™ 5370 and Compact GuardLogix® 5370 Controllers, and Armor™ CompactLogix and Armor Compact GuardLogix Controllers	5, 26

Catalog Numbers

This publication is applicable to the following catalog numbers.

CompactLogix 5370 and Compact GuardLogix 5370 Controllers	1769-L16ER-BB1B, 1769-L18ER-BB1B, 1769-L18ERM-BB1B, 1769-L18ERM-BB1BK, 1769-L19ER-BB1B, 1769-L19ER-BB1BK, 1769-L24ER-QB1B, 1769-L24ER-QBFC1B, 1769-L24ER-QBFC1BK, 1769-L27ERM-QBFC1B, 1769-L30ER, 1769-L30ER-NSE, 1769-L30ERK, 1769-L30ERM, 1769-L30ERMK, 1769-L30ERMS, 1769-L33ER, 1769-L33ERK, 1769-L33ERM, 1769-L33ERMK, 1769-L33ERMS, 1769-L33ERMSK, 1769-L36ERM, 1769-L36ERMS, 1769-L37ERM, 1769-L37ERMK, 1769-L37ERMS, 1769-L37ERMSK, 1769-L38ERM, 1769-L38ERMK, 1769-L38ERMS, 1769-L38ERMSK
Armor CompactLogix and Armor Compact GuardLogix Controllers	1769-L33ERMO, 1769-L33ERMOS, 1769-L36ERMO, 1769-L36ERMOS, 1769-L37ERMO, 1769-L37ERMOS, 1769-L38ERMO, 1769-L38ERMOS
1769 Packaged Controllers	1769-L23-QBFC1B, 1769-L23E-QB1B, 1769-L23E-QBFC1B
1769 Modular Controllers	1769-L31, 1769-L32C, 1769-L35CR, 1769-L32E, 1769-L32EK, 1769-L35E
1768 Controllers	1768-L43, 1768-L43S, 1768-L45, 1768-L45S
Memory Cards	1784-CF128, 1784-SD1, 1784-SD2

1768 CompactLogix Controllers



The 1768-L4*x* controller combines both a 1768 backplane and a 1769 backplane. The 1768 backplane supports the 1768 controller, the 1768 power supply, and a maximum of four 1768 modules. The 1769 backplane supports 1769 modules.

Features - 1768 CompactLogix Controllers

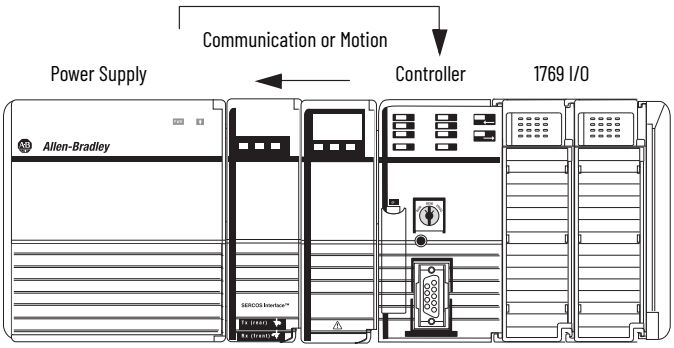
Characteristic	1768-L43	1768-L45	1768-L43S	1768-L45S
Available user memory	2 MB	3 MB	2 MB standard 0.5 MB safety	3 MB standard 1 MB safety
CompactFlash card	1784-CF128			
Communication options	EtherNet/IP (standard and safety) ControlNet (standard and safety) DeviceNet (standard)			
Serial communication port	1 RS-232 port			
Module expansion capacity	Two 1768 modules Sixteen 1769 modules			
Power supply distance rating	–			
Programming languages	Relay ladder Structured Text Function block Sequential Function Chart		Standard task: all languages Safety task: relay ladder, safety application instructions	

Compact GuardLogix Safety System

The Compact GuardLogix controller is a 1768-L4xS CompactLogix controller that provides safety control to achieve SIL 3/PLe according to ISO 13849. A major benefit of this system is that it's still one project; safety and standard control together. See page 3 for more information on how to develop projects with Compact GuardLogix controllers.

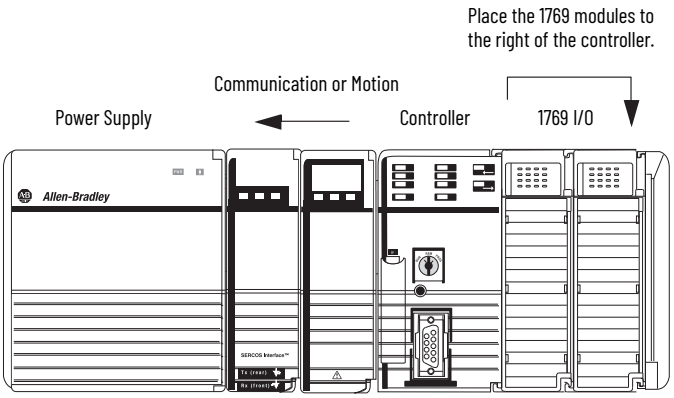
Placement - 1768 CompactLogix L4 Controllers

In a 1768-L4*x* controller system, place 1768 modules between the power supply and the controller.



Place the 1769 modules to the right of the 1768 backplane:

- As many as eight 1769 modules can be attached to the right of the 1768 system.
- The 1769 I/O connected directly to the 1768 backplane does not need a 1769 power supply.
- Additional 1769 modules must be in additional I/O banks.
- Each additional I/O bank must have its own 1769 power supply.



Local I/O Performance - 1768 CompactLogix L4 Controllers

Configure an individual RPI for each local 1769 Compact I/O module. Use the default RPI numbers that the programming software automatically assigns or select faster RPI values as fast as 1 ms. I/O module update times do not affect overall 1768 bus performance in the following situations:

- Use faster RPI values for time critical I/O without impacting overall 1769 Compact I/O performance.
- Use Immediate Output (IOT) instructions for further reduction in I/O module update times.

Certifications - 1768 CompactLogix Controllers

Certification[1]	1768-L43 1768-L45	1768-L43S 1768-L45S
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.	
CE	European Union 2004/108/EC EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)	
		European Union 2006/42/EC MD, compliant with: EN 60204-1; Electrical equipment of machines EN ISO 13849-1; Safety-related parts of control systems EN 62061; Functional safety of safety-related control systems
RCM	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions	
Ex	–	European Union 94/9/EC ATEX Directive, compliant with: EN 60079-15; Potentially Explosive Atmospheres, Protection 'n' EN60079-0; General Requirements II 3 G Ex nA nL IIC T4 Gc
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3	
Functional Safety[2]	–	Certified by TÜV: capable of SIL 1 to 3, according to IEC 61508; and PLe/Cat. 4 according to ISO 13849-1

(1) When marked. See the Product Certification link at rok/auto/certifications for Declarations of Conformity, Certificates, and other certification details.
(2) When used with specified programming software versions.

Environmental Specifications - 1768 CompactLogix Controllers

Attribute	1768-L43, 1768-L43S, 1768-L45, 1768-L45S
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold) IEC 60068-2-2 (Test Bd, Operating Dry Heat) IEC 60068-2-14 (Test Na, Operating Thermal Shock)	0...60 °C (32...140 °F)
Temperature, storage IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock)	-40...+85 °C (-40...+185 °F)
Temperature, surrounding air, max	60 °C (140 °F)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	5 g @ 10...500 Hz
Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	30 g
Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	50 g
Emissions CISPR 11	IEC 61000-6-4
ESD immunity IEC 61000-4-2	6 kV contact discharges 8 kV air discharges
Radiated RF immunity IEC 61000-4-3	10V/m with 1 kHz sine wave 80% AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine wave 80% AM from 2000...2700 MHz

Environmental Specifications - 1768 CompactLogix Controllers

Attribute	1768-L43, 1768-L43S, 1768-L45, 1768-L45S
EFT/B immunity IEC 61000-4-4	±4 kV at 5 kHz on communication ports
Surge transient immunity IEC 61000-4-5	±2 kV line-earth (CM) on communication ports
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine wave 80% AM from 150 kHz...80 MHz

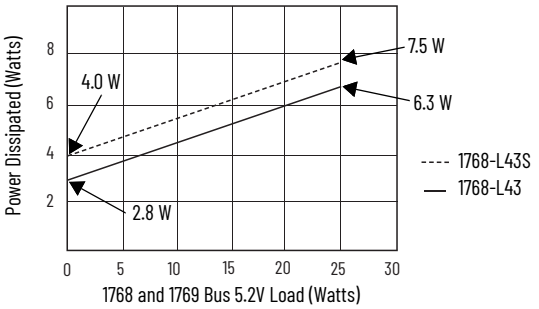
Technical Specifications - 1768 CompactLogix Controllers

Attribute	1768-L43	1768-L43S	1768-L45	1768-L45S
User memory	2 MB	2 MB standard 0.5 MB safety	3 MB	3 MB standard 1 MB safety
Optional nonvolatile memory	1784-CF128			
Number of 1768 modules, max	2		4	
Number of 1768 communication modules, max	2			
Number of 1768 motion modules, max	2		4	
Number of 1769 I/O modules, max	16		30	
Number of I/O banks, max	2		3	
Replacement battery	–			
Backplane current draw @ 24V DC	1.3 A	1.4 A	2.0 A	2.1 A
1768 current draw @ 5V DC	2.8 A		5.6 A	
1769 current draw @ 5V DC	2.0 A		2.0 A	
Total 1768 and 1769 current draw @ 5V DC	4.8 A		7.6 A	
Power dissipation	6.3 W	7.5 W	8.3 W	9.5 W
Power consumption	31.3 W	33.6 W	48.0 W	50.4 W
Isolation voltage	30V (continuous), functional insulation type Type tested at 500V AC for 60 s; RS-232 to system			
Communication ports	RS-232 Fully isolated, 38.4 Kbps max			
Serial cables	1756-CP3 or 1747-CP3, right angle connector to controller, straight to serial port, 3 m			
Weight, approx	0.34 kg (11.99 oz)	0.45 kg (15.9 oz)	0.34 kg (11.99 oz)	0.45 kg (15.9 oz)
Dimensions (HxWxD)	131.1 x 56.4 x 121.1 mm (5.18 x 2.22 x 4.81 in.)	131.6 x 89.6 x 122.1 mm (5.18 x 3.53 x 4.81 in.)	131.1 x 56.4 x 121.1 mm (5.18 x 2.22 x 4.81 in.)	131.6 x 89.6 x 122.1 mm (5.18 x 3.53 x 4.81 in.)
Slot width	1	1.5	1	1.5
Module location	DIN rail or panel mount			
Panel-mount screw torque	1.16 N•m (10 lb•in) - use M4 or #8 screws			
Power supply distance rating	4 modules			
Power supply	1768-PA3, 1768-PB3			
Wire category[1]	2 - on communication ports			
IEC temperature code	–	T4	–	T4
North American temperature code	T4			
Enclosure type rating	None (open-style)			

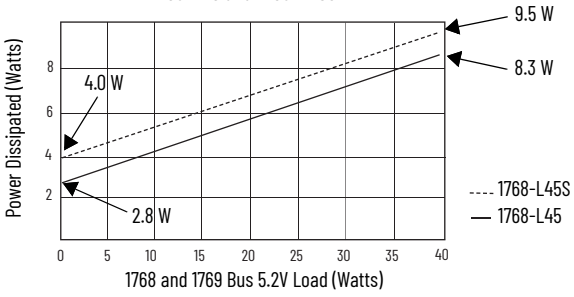
(1) Use this conductor category information to plan conductor routing as described in the system-level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Power Dissipation - 1768 CompactLogix Controllers

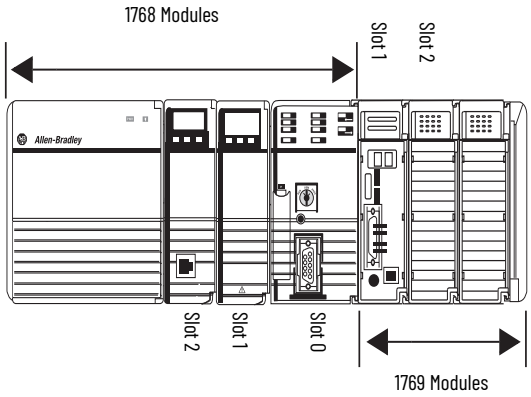
1768-L43 and 1768-L43S



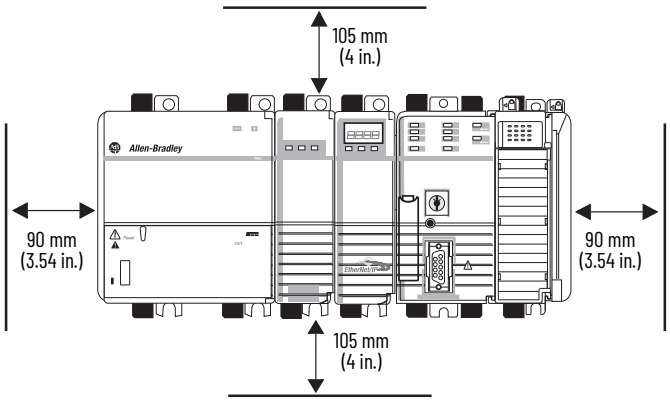
1768-L45 and 1768-L45S



Slot Numbering - 1768 CompactLogix Controllers

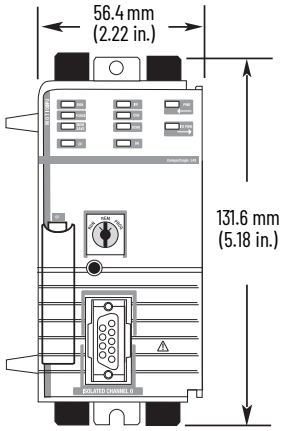


Minimum Spacing Requirements - 1768 CompactLogix Controllers

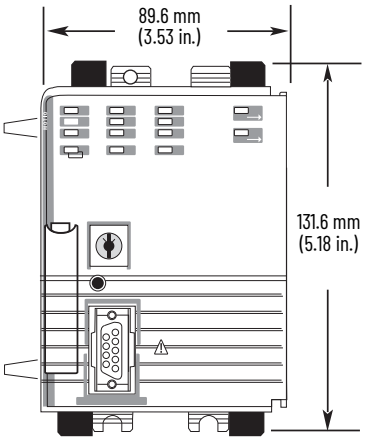


Dimensions - 1768 CompactLogix Controllers

1768-L43 and 1768-L45



1768-L43S and 1768-L45S



All 1768 L4 Controllers
Side View