1756 ControlLogix Controllers Specifications

Controller Catalog Numbers 1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65, 1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP, 1756-L63XT

CompactFlash Card Catalog Numbers 1784-CF64, 1784-CF128

Environmental Specifications - 1756 Controllers

Attribute	1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65, 1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, 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)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Nonoperating Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g at 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

1756 ControlLogix Controllers

The ControlLogix controller provides a scalable controller solution that is capable of addressing a large amount of I/O points.

The ControlLogix controller can be placed into any slot of a ControlLogix I/O chassis and multiple controllers can be installed in the same chassis. Multiple controllers in the same chassis communicate with each other over the backplane (just as controllers can communicate over networks) but operate independently.

ControlLogix controllers can monitor and control I/O across the ControlLogix backplane, as well as over I/O links. ControlLogix controllers can communicate over EtherNet/IP, ControlNet, DeviceNet, DH+, Remote I/O, and RS-232-C (DF1/DH-485 protocol) networks and many third party process and device networks. To provide communication for a ControlLogix controller, install the appropriate communication interface module into the chassis.

Feature	1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65	
Controller tasks	• 32 tasks • 100 programs/task • Event tasks: all event triggers	
Built-in communication ports	1 port RS-232 serial	
Communication options	• EtherNet/IP • ControlNet • DeviceNet	• Data Highway Plus • Remote I/O • SynchLink • Third party process and device networks
Serial port communication	• ASCII • DF1 full/half-duplex • DF1 radio modem	• DH-485 • Modbus via logic
Controller connections supported, max	250	
Network connections, per network module	• 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB)	• 256 EtherNet/IP; 128 TCP (1756-EN2*x*) • 128 EtherNet/IP; 64 TCP (1756-ENBT)
Controller redundancy	Full support	
Integrated motion	SERCOS interface	Analog options: • Encoder input • LDT input • SSI input
Programming languages	• Relay ladder • Structured text	• Function block • SFC

Technical Specifications - 1756 ControlLogix Controllers

Attribute	1756-L61	1756-L62	1756-L63	1756-L64	1756-L65
User memory	2 MB	4 MB	8 MB	16 MB	32 MB
I/O memory	478 KB				
Optional flash memory	64 MB (cat. no. 1784-CF64) 128 MB (cat. no. 1784-CF128)				
Digital I/O, max	128,000				
Analog I/O, max	4000				
Total I/O, max	128,000				
Replacement battery	Series A: 1756-BA1, 1756-BATM, 1756-BATA Series B: 1756-BA2	Series A: 1756-BA1, 1756-BATM, 1756-BATA Series B: 1756-BA2	Series A: 1756-BA1, 1756-BATM, 1756-BATA Series B: 1756-BA2	1756-BA2	
Current draw @ 5V DC	1200 mA				
Current draw @ 24V DC	14 mA				
Power dissipation	3.5 W				
Thermal dissipation	11.9 BTU/hr				
Isolation voltage	30V (continuous), Basic Insulation Type, RS-232 to system Controllers tested to withstand 707V DC for 60 s				
Serial cables	1756-CP3 or 1747-CP3, right angle connector to controller, straight to serial port, 3 m				
SIL 2	Use standard ControlLogix controllers				
SIL 3	Use GuardLogix controllers (1756-L61S, 1756-L62S, 1756-L63S) and the Safety Partner (1756-LSP)				
Weight, approx.	Series A: 0.32 kg Series B: 0.35 kg (Series A: 0.71 lb Series B: 0.78 lb)	Series A: 0.32 kg Series B: 0.35 kg (Series A: 0.71 lb Series B: 0.78 lb)	Series A: 0.32 kg Series B: 0.35 kg (Series A: 0.71 lb Series B: 0.78 lb)	Series A: 0.32 kg Series B: 0.35 kg (Series A: 0.71 lb Series B: 0.78 lb)	Series A: 0.32 kg Series B: 0.35 kg (Series A: 0.71 lb Series B: 0.78 lb)
Slot width	1				
Module location	Chassis-based, any slot				
Chassis	1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17				
Power supply, standard	1756-PA72/C, 1756-PA75/B, 1756-PB72/C, 1756-PB75/B, 1756-PC75/B, 1756-PH75/B				
Power supply, redundant	1756-PA75R, 1756-PB75R, 1756-PSCA2				
Wire category	2 - on communication ports[1]				
North American temperature code	T4A				
IEC temperature code	T4	T4	T4	T4	T4
Enclosure type rating	None (open-style)				

[1] Use this conductor category information for planning conductor routing as described in the system level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Certifications - 1756 ControlLogix Controllers

Certification[1]	1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65
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.
CSA	CSA Certified Process Control Equipment. See CSA File LR54689C. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C.
ATEX	European Union 94/9/EC ATEX Directive, compliant with: EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (Zone 2)
CE	European Union 2004/108/IEC 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)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
TÜV	TÜV Certified for Functional Safety: up to and including SIL 2

(1) When marked. See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

For Australian Mining certification, use a 1756-BA1 battery. For guidelines, see your local distributor or sales office

1756 GuardLogix Controllers

A GuardLogix controller is a ControlLogix controller that also provides safety control. The GuardLogix system is a dual controller solution — you must use a 1756-L6*x*S primary controller and a 1756-LSP safety partner to achieve SIL 3/CAT. 4. A major benefit of this system is that it's still a single project, safety and standard together. The safety partner controller is a part of the system, is automatically configured, and requires no user setup.

During development, safety and standard have the same rules, multiple programmers, online editing, and forcing are all allowed. Once the project is tested and ready for final validation, you set the Safety Task to a SIL 3 integrity level, which is then enforced by the GuardLogix controller. When safety memory is locked and protected, the safety logic can't be modified and all safety functions operate with SIL 3 integrity. On the standard side of the GuardLogix controller, all functions operate like a regular Logix controller. Thus online editing, forcing, and other activities are all allowed.

With this level of integration, safety memory can be read by standard logic and external devices, like HMIs or other controllers, eliminating the need to condition safety memory for use elsewhere. The result is easy system-wide integration and the ability to display safety status on displays or marquees. Use Guard I/O modules for field device connectivity on Ethernet or DeviceNet networks, and for safety interlocking between GuardLogix controllers use Ethernet or ControlNet networks. Multiple GuardLogix controllers can share safety data for zone to zone interlocking, or a single GuardLogix controller can use remote distributed safety I/O between different cells/areas.

1756 GuardLogix Controllers Features

In addition to the standard features of a ControlLogix controller, the GuardLogix controller has these safety-related features.

Feature	1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP	
Safety communication options	Standard and safety • EtherNet/IP • ControlNet • DeviceNet	
Network connections, per network module	• 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB)	• 256 EtherNet/IP; 128 TCP (1756-EN2*x*) • 128 EtherNet/IP; 64 TCP (1756-ENBT)
Controller redundancy	Not supported	
Programming languages	Relay ladder	

Technical Specifications - 1756 GuardLogix Controllers

Attribute	1756-L61S	1756-L62S	1756-L63S	1756-LSP
User memory	2 MB	4 MB	8 MB	—
Safety memory	1 MB	1 MB	3.75 MB	—
I/O memory	478 KB			—
Optional flash memory[1]	64 MB (cat. no. 1784-CF64) 128 MB (cat. no. 1784-CF128)			—
Digital I/O, max	128,000			—
Analog I/O, max	4000			—
Total I/O, max	128,000			—
Replacement battery	1756-BA2			
Current draw @ 5V DC	1200 mA			
Current draw @ 24V DC	14 mA			
Power dissipation	3.5 W			
Thermal dissipation	11.9 BTU/hr			
Isolation voltage	30V (continuous), Basic Insulation Type, RS-232 to system Controllers tested to withstand 707V DC for 60 s			
Serial cables	1756-CP3 or 1747-CP3, right angle connector to controller, straight to serial port, 3 m			
SIL 2	Use standard ControlLogix controllers			
SIL 3	Use GuardLogix controllers (1756-L61S, 1756-L62S, 1756-L63S) and the Safety Partner (1756-LSP)			
Weight, approx.	0.32 kg (0.70 lb)	0.32 kg (0.70 lb)	0.32 kg (0.70 lb)	0.32 kg (0.70 lb)
Slot width	1			
Module location	Chassis-based, any slot			
Chassis	1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17			
Power supply, standard	1756-PA72/C, 1756-PA75/B, 1756-PB72/C, 1756-PB75/B, 1756-PC75/B, 1756-PH75/B			
Power supply, redundant	1756-PA75R, 1756-PB75R, 1756-PSCA2			
Wire category	2 - on communication ports[2]			
North American temperature code	T4A			
Enclosure type rating	None (open-style)			

[1] The GuardLogix controller does not support user program storage or retrieval by using a CompactFlash card.

[2] Use this conductor category information for planning conductor routing as described in the system level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Certifications - 1756 GuardLogix Controllers

Certification[1]	1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP
UL	UL Certified for Functional Safety up to and including SIL 3, see UL File E256621.[2]
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.
CSA	CSA Certified Process Control Equipment. See CSA File LR54689C. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C.
CE	European Union 2004/108/EC EMC Directive, compliant with: • EN 61000-6-4; Industrial Emissions • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
FM	FM Approved Equipment for use in Class I, Division 2 Group A, B, C, D Hazardous Locations
TÜV	Functional Safety: SIL 1 to 3, according to IEC 61508; up to PL(e) according to ISO 13849-1:2006; Category 1 to 4, according to EN954-1; NFPA79; when used as described in the GuardLogix Controller Systems Safety Reference Manual, publication 1756-RM093.

(1) When marked. See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

(2) When used with specified software versions.

1756 ControlLogix-XT Controllers

The ControlLogix-XT controllers function in the same way as the traditional ControlLogix controllers. The ControlLogix-XT products include control and communication system components that, when used with FLEX I/O-XT products, provide a complete control system solution that can be used in environments where temperatures range from -20...70 °C (-4...158 °F).

When used independently, the ControlLogix-XT system can withstand environments where the temperature ranges from -25...70 °C (-13...158 °F).

Environmental Specifications - 1756-L63XT Controller

Attribute	Value
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	-25…70 °C (-13…158 °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)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Nonoperating Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g at 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

Technical Specifications - 1756-L63XT Controller

Attribute	1756-L63XT
User memory	8 MB
I/O memory	478 KB
Optional flash memory	64 MB (cat. no. 1784-CF64) 128 MB (cat. no. 1784-CF128)
Digital I/O, max	128,000
Analog I/O, max	4000
Total I/O, max	128,000
Replacement battery	1756-BA2
Current draw @ 5V DC	1200 mA
Current draw @ 24V DC	14 mA
Power dissipation	3.5 W
Thermal dissipation	11.9 BTU/hr
Isolation voltage	30V (continuous), Basic Insulation Type, RS-232 to system Controllers tested to withstand 707V DC for 60 s, RS232 to system

Attribute	1756-L63XT
Serial cables	1756-CP3 or 1747-CP3, right angle connector to controller, straight to serial port, 3 m
SIL 2	Use standard ControlLogix controllers
SIL 3	Use GuardLogix controllers (1756-L61S, 1756-L62S, 1756-L63S) and the Safety Partner (1756-LSP)
Weight, approx.	0.35 kg (0.78 lb)
Slot width	1
Module location	Chassis-based, any slot
Chassis	1756-A5XT, 1756-A7LXT
Power supply, standard	1756-PBXT
Power supply, redundant	None
Wire category	2 - on communication ports(1)
North American temperature code	T4A
IEC temperature code	T4
Enclosure type rating	None (open-style)

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

Certifications - 1756-L63XT Controller

Certification(1)	1756-L63XT
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.
ATEX	European Union 94/9/EC ATEX Directive, compliant with: EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (Zone 2)
CE	European Union 2004/108/EC EMC Directive, compliant with: • EN 61000-6-4; Industrial Emissions • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

(1) When marked. See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

Controller Memory Use

The following equations provide an estimate of the memory needed for a controller. These numbers are rough estimates.

Controller tasks	_____ * 4000	=	_____ bytes (minimum 1 task)
Digital I/O points	_____ * 400	=	_____ bytes
Analog I/O points	_____ * 2600	=	_____ bytes
DeviceNet modules[1]	_____ * 7400	=	_____ bytes
Other communication modules[2]	_____ * 2000	=	_____ bytes
Motion axis	_____ * 8000	=	_____ bytes
FactoryTalk alarm instruction	_____ * 1000	=	_____ bytes (per alarm)
FactoryTalk subscriber	_____ * 10000	=	_____ bytes

(1) The first DeviceNet module is 7400 bytes. Additional DeviceNet modules are 5800 bytes each.

(2) Count all the communication modules in the system, not just those in the local chassis. This includes device connection modules, adapter modules, and ports on PanelView terminals.

For redundant controller systems, double the memory estimate you calculate. For example, if you estimate you need 2 MB of memory, select a controller with 4 MB of memory.

Reserve 20...30% of the controller memory to accommodate growth.

Controller Compatibility

Control Distributed I/O Modules

The controller can control these distributed I/O modules via the I/O Configuration tree in RSLogix 5000 programming software.

I/O Modules	EtherNet/IP	ControlNet	DeviceNet	Remote I/O
Chassis-based I/O				
1746 SLC I/O	No	No	No	Yes
1756 ControlLogix I/O	Yes	Yes	No	No
1769 Compact I/O	No	No	Yes	No
1771 Universal I/O	No	Yes	No	Yes
In-Cabinet I/O				
1734 POINT I/O	Yes	Yes	Yes	No
1734D POINTBlock I/O	No	No	Yes	No
1790, 1790D, 1790P CompactBlock LDX I/O	No	No	Yes	No
1791D, 1791P, 1791R CompactBlock I/O	No	No	Yes	No
1794 FLEX I/O	Yes	Yes	Yes	Yes
1797 FLEX Ex I/O	No	Yes	No	No
On-Machine I/O				
1732 ArmorBlock I/O	Yes	No	Yes	No
1738 ArmorPoint I/O	Yes	Yes	Yes	No
1792D ArmorBlock MaXum I/O	No	No	Yes	No
1799 Embedded I/O	No	No	Yes	No

Control Safety I/O Modules

The GuardLogix controller can control these safety I/O modules in a safety system.

I/O Modules	EtherNet/IP	ControlNet	DeviceNet
In-Cabinet I/O			
1791DS CompactBlock Guard I/O	No	No	Yes
1791ES CompactBlock Guard I/O	Yes	No	No
1734 Point Guard I/O	Yes	No	No
On-Machine I/O			
1732DS ArmorBlock Guard I/O	No	No	Yes

Communicate with Display Devices

The controller can communicate with these display devices.

Display Devices	EtherNet/IP	ControlNet	DeviceNet	DH+	Remote I/O	RS-232 (DF1)	DH-485
Industrial Computers							
Rockwell Automation industrial computers (all)[1]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Graphic Terminals							
PanelView Plus and PanelView CE terminals	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PanelView Standard terminals	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PanelView "e" terminals	No	Yes	No	Yes	Yes	No	No
Message Displays							
InView message displays	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(1) Includes: Rockwell Automation integrated display rotating media (HDD) and solid state (SSD) computers, Rockwell Automation non-display computers, and Rockwell Automation integrated display computers with keypad.

Communicate with Other Controllers

The controller can communicate with these programmable controllers.

Controller	EtherNet/IP	ControlNet	DeviceNet	DH+	RS-232 (DF1)	DH-485[1]
1756 ControlLogix, 1756 GuardLogix	Yes	Yes	Yes	Yes	Yes	Yes
1768, 1769 CompactLogix	Yes	Yes	Yes	No	Yes	Yes
1789 SoftLogix5800	Yes	Yes	Yes	No	Yes	No
1794 FlexLogix	Yes	Yes	Yes	No	Yes	Yes
PowerFlex with DriveLogix	Yes	Yes	Yes	No	Yes	Yes
1785 PLC-5	Yes[2] [3]	Yes	Yes[4]	Yes	Yes	—
1747 SLC	Yes[5]	Yes	Yes[4]	Yes	Yes	Yes
1761 MicroLogix	Yes	No	Yes[4]	No	Yes	Yes
1762 MicroLogix	Yes	No	Yes[4]	No	Yes	Yes
1763 MicroLogix	Yes	No	Yes[4]	No	Yes	Yes
1764 MicroLogix	Yes	No	Yes[4]	No	Yes	Yes
1772 PLC-2	—	—	—	Yes	Yes	—
1775 PLC-3	—	—	—	Yes	Yes	—
5250 PLC-5/250	—	—	No	Yes	Yes	—

(1) The 1756-DH485 module supports full DH-485 functionality.

(2) The Ethernet PLC-5 controller must be series C, firmware revision N.1 or later; series D, firmware revision E.1 or later; or series E, firmware revision D.1 or later.

(3) The 1785-ENET Ethernet communication interface module must be series A, firmware revision D or later.

(4) The PLC-5, SLC, and MicroLogix processors appear as I/O points to the Logix controller. Use the appropriate DeviceNet interface for the controller.

(5) Use a 1747-L55*x* controller with OS501 or greater.

Communicate with Other Communication Devices

The controller can communicate with these communication devices.

Communication Device	EtherNet/IP	ControlNet	DeviceNet	DH+
Linking device (ControlLogix controllers only)	1788-EN2DN	1788-CN2DN 1788-CN2FF	1788-EN2DN 1788-CN2DN	—
PCMCIA card	—	1784-PCC	1784-PCD	1784-PCMK
PCI card	—	1784-PCIC 1784-PCICS	1784-PCID 1784-PCIDS 1784-CPCIDS	—
Drives SCANport module	—	1203-FM1 1203-FB1[1]	—	—
Communication module	—	1203-CN[2] 1770-KFC15 1770-KFCD15 1747-KFC15	1770-KFD 1770-KFG	—
Communication card	—	1784-PKTCS 1784-KTCS 1784-KTCX15	1784-PKTX 1784-PKTXD	—
USB communication device	—	1784-U2CN	1784-U2DN	1784-U2DHP

[1] Use a CIP generic MSG instruction to communicate with the 1203-FM1 SCANport module on a DIN rail that is remote to the controller. The remote DIN rail also requires a 1794-ACN15 or 1794ACNR15 ControlNet adapter module.

[2] Use the generic module configuration to configure the 1203-CN1 module and a CIP generic MSG instruction to communicate with the module.

Redundancy

The ControlLogix controller supports controller redundancy. In a redundant controller system, you need these components:

- Two 1756 chassis each with the same:
  - number of slots.
  - modules in the same slots.
  - redundancy firmware revisions in each module.
  - Two additional ControlNet nodes outside the redundant chassis pair.

You need **one** of the following redundancy modules:

- One 1756-RM module per chassis, which supports:
  - two 1756-L61, 1756-L62, 1761-L63 controllers or one 1756-L64 controller.
  - maximum of seven communication modules, which can be 1756-CN2 series B, 1756-CN2R series B, and 1756-EN2T modules.
  - one 1756-RMC*x* cable.
- One 1757-SRM module per chassis, which supports:
  - one 1756-L61, 1756-L62, 1756-L63, 1756-L64 controller
  - maximum of seven communication modules, which can be 1756-CNB series D or E, 1756-CNBR series D or E, 1756-ENBT, and 1756-EWEB modules
  - one 1757-SRC*x* cable

Technical Specifications - 1756, 1757 Redundancy Modules

Attribute	1756-RM	1757-SRM
Voltage, max	—	30V AC/DC
Current, max	—	100 mA
Current draw @ 1.2V DC	4 mA	—
Current draw @ 3.3V DC	—	750 mA
Current draw @ 5V DC	1200 mA	1000 mA
Current draw @ 24V DC	120 mA	90 mA
Power dissipation	9.0 W	9.6 W
Thermal dissipation	31 BTU/hr	38.49 BTU/hr
Connector cables	1756-RMC1, 1 m (3.28 ft) 1756-RMC3, 3 m (9.84 ft) 1756-RMC10, 10 m (32.81 ft)	1757-SRC1, 1 m (3.28 ft) 1757-SRC3, 3 m (9.84 ft) 1757-SRC10, 10 m (32.81 ft) 1757-SRC50, 50 m (164.04 ft) 1757-SRC100, 100 m (328.08 ft)
Slot width	1 slot	2 slot
Module location	Chassis-based, any slot	Chassis-based, any slot. Recommended defaults: slots 5-6 in 10-slot and 17-slot chassis, slots 4-5 in 7-slot and 13-slot chassis
Chassis	1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17	

Attribute	1756-RM	1757-SRM
Power supply, standard	1756-PA72/C, 1756-PA75/B, 1756-PB72/C, 1756-PB75/B, 1756-PC75/B, 1756-PH75/B	
Power supply, redundant	1756-PA75R, 1756-PB75R, 1756-PSCA2	
Wire size	—	Relay Terminals: 0.3... 2.1 mm^2 (22...14 AWG) solid or stranded shielded copper wire rated at 75 °C (167 °F) or greater 1.2 mm (3/64 in.) insulation max
Wire category	—	3 - on relay terminals[1]
Wire type	—	Copper
North American temperature code	T4	T4A
IEC temperature code	—	T4

[1] Use this conductor category information for planning conductor routing as described in the system level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Certifications - 1756, 1757 Redundancy Modules

Certification[1]	1756-RM, 1757-SRM
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.
CSA	CSA Certified Process Control Equipment. See CSA File LR54689C. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C.
ATEX	European Union 94/9/EC ATEX Directive, compliant with: EN 60079-15; Potentially Explosive Atmospheres, Protection “n” (Zone 2)
CE	European Union 2004/108/IEC 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)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
TÜV	TÜV Certified for Functional Safety: up to and including SIL 2

[1] When marked. See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

Environmental Specifications - 1756-RMXT Redundancy Module

Attribute	1756-RMXT
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	-25…70 °C (-13…158 °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)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Nonoperating Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g at 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

Technical Specifications - 1756-RMXT Redundancy Module

Attribute	1756-RMXT
Current draw @ 1.2V DC	4 mA
Current draw @ 5.1V DC	1.2 A
Current draw @ 24V DC	120 mA
Power dissipation	9.0 W
Thermal dissipation	31 BTU/hr
Connector cables	1756-RMC1, 1 m (3.28 ft) 1756-RMC3, 3 m (9.84 ft) 1756-RMC10, 10 m (32.81 ft)
Slot width	1 slot
Module location	Chassis-based, any slot
Chassis	1756-A5XT, 1756-A7LXT
Power supply, standard	1756-PBXT
Power supply, redundant	None
North American temperature code	T4

Certifications - 1756-RMXT Redundancy Module

Certification[1]	1756-RMXT
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.
CSA	CSA Certified Process Control Equipment. See CSA File LR54689C. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File LR69960C.
CE	European Union 2004/108/IEC 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)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations

(1) When marked. See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

ControlLogix Connections

A ControlLogix system uses connections to establish communication links between devices. The types of connections include:

- controller-to-local I/O modules or local communication modules.
- controller-to-remote I/O or remote communication modules.
- controller-to-remote I/O (rack-optimized) modules.
- produced and consumed tags.
- messages.
- controller access by RSLogix 5000 programming software.
- controller access by RSLinx software for HMI or other applications.

You indirectly determine the number of connections the controller uses by configuring the controller to communicate with other devices in the system. The limit of connections may ultimately reside in the communication module you use for the connection. If a message path routes through a communication module, the connection related to the message also counts towards the connection limit of that communication module.

The 1756 controller supports 250 connections. To calculate the total connections for a controller, consider the connections to local I/O modules and the connections to remote modules. Use the following table to tally **local** connections.

Connection Type	Device Quantity	Connections per Device	Total Connections
Local I/O module (always a direct connection)		1	
1756-M16SE, 1756-M08SE, 1756-M03SE SERCOS motion module 1756-M02AE, 1756-M02AS, 1756-HYD02 analog motion module		3	
1756-CN2, 1756-CN2R communication module 1756-CNB, 1756-CNBR communication module 1756-CN2RXT communication module		0	
1756-EN2F, 1756-EN2T communication module 1756-ENBT, 1756-EWEB communication module 1756-EN2TXT communication module		0	
1756-DNB communication module		2	
1756-DHRIO communication module 1756-RIO 1756-DHRIOXT		1	
1756-DH485 communication module		1	
Total			

Regardless of how you configure local I/O modules (rack-optimized or direct connect), the controller establishes a direct connection for each local I/O module.

Remote connections depend on the communication module. The number of connections the module itself supports determines how many connections the controller can access through that module. Use the following table to tally **remote** connections for the controller.

Connection Type	Device Quantity	Connections per Device	Total Connections
Remote ControlNet communication module Configured as a direct (none) connection Configured as a rack-optimized connection		0 **or** 1	
Remote I/O module over a ControlNet network (direct connection)		1	
Remote Ethernet communication module Configured as a direct (none) connection Configured as a rack-optimized connection		0 **or** 1	
Remote I/O module over an EtherNet/IP network (direct connection)		1	
Remote device over a DeviceNet network (accounted for in rack-optimized connection for local 1756-DNB module)		0	
Other remote communication adapter		1	
Safety input module		1	
Safety output module		2	
Produced tag		1	
Each consumer		1	
Consumed tag		1	
Cached message		1	
Block-transfer message		1	
Total			

ControlLogix Controller Accessories

1784 Industrial CompactFlash Cards

CompactFlash cards offer nonvolatile memory (flash) to permanently store a user program and tag data on a ControlLogix controller. You install the 1784 CompactFlash card in a socket on the controller. You can manually trigger the controller to save to or load from nonvolatile memory or configure the controller to load from nonvolatile memory on power up.

The GuardLogix controller does not support user program storage or retrieval by using a CompactFlash card.

Environmental Specifications - 1784-CF64, 1784-CF128

Attribute	1784-CF64, 1784-CF128
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	-25…70 °C (-13…158 °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)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Nonoperating Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g at 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

Technical Specifications - 1784-CF64, 1784-CF128

Attribute	1784-CF64	1784-CF128
Memory	64 MB	128 MB
Weight, approx.	14.2 g (0.5 oz)	

Certifications - 1784-CF64, 1784-CF128

Certification[1]	1784-CF64, 1784-CF128
CE	European Union 2004/108/EC EMC Directive, compliant with: • EN 61000-6-4; Industrial Emissions • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

(1) When marked. See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

1756 ControlLogix Batteries

Each ControlLogix controller ships with a battery. The 1756-L6*x* controllers have nonvolatile memory if you install a 1784-CF64 or 1784-CF128 industrial CompactFlash card. With nonvolatile memory, the controller can be used without a battery. If you do not use a battery, current tag data will be at the state it was when the nonvolatile memory was saved.

These tables summarize battery life, replacement battery compatibility, and recommendations for use of an externally mounted battery assembly.

Attribute	1756-BA1	1756-BA2	1756-BATM[1]	1756-BATA
Description	Lithium battery (0.59 g)	Lithium battery (0.59 g)	Externally mounted battery assembly	Replacement lithium battery for 1756-BATM (5 g max lithium per each D cell; contains 2 D cells)
ControlLogix controllers	1756-L61, 1756-L62, 1756-L63 controllers, series A	1756-L61, 1756-L62, 1756-L63 controllers, series B 1756-L64, 1756-L65 controllers	1756-L61, 1756-L62, 1756-L63 controllers, series A	1756-BATM battery module
GuardLogix controllers	—	1756-L61S, 1756-L62S, 1756-L63S	—	—

(1) The 1756-BATM externally mounted battery assembly is highly recommended for use with all series A 1756-L6*x* controllers and provides longer battery life than the 1756-BA1 battery. The 1756-BATM includes one 1756-BATA lithium battery assembly and a 1 m (3.28 ft) cable to connect housing to controller.

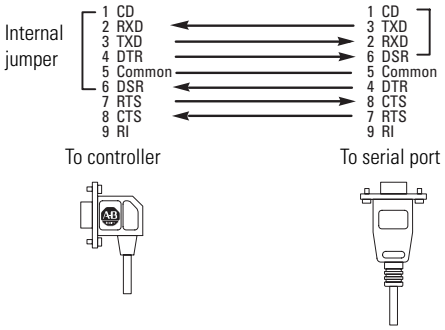
1756 ControlLogix Replacement Batteries—Legacy Controllers

Attribute	1756-BA1	1756-BATM[1]	1756-BATA
Description	Lithium battery (0.59 g)	Externally mounted battery assembly	Replacement lithium battery for 1756-BATM (5 g max lithium per each D cell; contains 2 D cells)
Supported controllers	1756-L55M*x* controllers[2] 1756-L60M03SE controller	1756-L55M*x* controllers[2] 1756-L60M03SE controller	1756-BATM battery module

(1) The 1756-BATM externally mounted battery assembly is recommended for use with all 1756-L55*x* controllers and provides longer battery life than the 1756-BA1 battery. The 1756-BATM includes one 1756-BATA lithium battery assembly and a 1 m (3.28 ft) cable to connect housing to controller.

(2) The 1756-L55M22, 1756-L55M23, and 1756-L55M24 controllers have nonvolatile memory and can be used without a battery.

Serial Communication Cables



Attribute	1756-CP3	1747-CP3
Connector type	Female 9-pin D-shell	
Connector angle	Right angle connector to controller, straight to serial port	
Length	3 m (118 in.)	

Notes:

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://support.rockwellautomation.com, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://support.rockwellautomation.com.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States	1.440.646.3434 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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