



## **1756 ControlLogix Controllers Specifications**

### **ControlLogix Controller Catalog Numbers**

1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65,  
1756-L72, 1756-L73, 1756-L74, 1756-L75

### **GuardLogix Controller Catalog Numbers**

1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP

### **ControlLogix-XT Controller Catalog Number**

1756-L63XT

### **ControlLogix Redundancy Catalog Numbers**

1756-RM, 1756-RMXT

### **Memory Card Catalog Numbers**

1784-CF64, 1784-CF128, 1784-SD1, 1784-SD2

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## Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication [SGI-1.1](#) available from your local Rockwell Automation sales office or online at <http://www.rockwellautomation.com/literature/>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence



**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

### IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

Rockwell Automation, Rockwell Software, Allen-Bradley, ArmorBlock, ArmorBlock Guard I/O, ArmorBlock MaXum, ArmorPoint, Compact I/O, CompactBlock I/O, CompactBlock Guard I/O, CompactLogix, ControlLogix, ControlLogix-XI, Data Highway Plus, DH+, DriveLogix, FactoryTalk, FLEX Ex, FLEX I/O, FLEX I/O-XI, FlexLogix, Guard I/O, GuardLogix, InView, MicroLogix, On-Machine, PanelView, PanelView e, PanelView Plus, PLC-2, PLC-3, PLC-5, POINT I/O, POINT Guard I/O, PowerFlex, RSLinx, RSLinx Enterprise, RSLinx 5000, SCANport, SLC, SoftLogix, SynchLink, TechConnect are trademarks of Rockwell Automation, Inc.

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## 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.

ControlLogix controllers can monitor and control I/O across the ControlLogix backplane, as well as over network links. To provide communication for a ControlLogix controller, install the appropriate communication interface module into the chassis.

### Features - Standard ControlLogix Controllers

Feature	1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65	1756-L72, 1756-L73, 1756-L74, 1756-L75
Controller tasks	<ul style="list-style-type: none"> <li>• 32 tasks</li> <li>• 100 programs/task</li> <li>• Event tasks: all event triggers</li> </ul>	
Built-in communication ports	1 port RS-232 serial	1 port USB
Communication options	<ul style="list-style-type: none"> <li>• EtherNet/IP</li> <li>• ControlNet</li> <li>• DeviceNet</li> <li>• Data Highway Plus</li> <li>• Remote I/O</li> <li>• SynchLink</li> <li>• Third-party process and device networks</li> </ul>	
Serial port communication	<ul style="list-style-type: none"> <li>• ASCII</li> <li>• DF1 full/half-duplex</li> <li>• DF1 radio modem</li> <li>• DH-485</li> <li>• Modbus via logic</li> </ul>	—
Controller connections supported, max	250	500
Network connections, per network module	<ul style="list-style-type: none"> <li>• 100 ControlNet (1756-CN2/A)</li> <li>• 40 ControlNet (1756-CNB)</li> <li>• 256 EtherNet/IP; 128 TCP (1756-EN2x)</li> <li>• 128 EtherNet/IP; 64 TCP (1756-ENBT)</li> </ul>	
Controller redundancy	Full support	
Integrated motion	<ul style="list-style-type: none"> <li>• SERCOS interface</li> <li>• Analog options (encoder input, LDT input, SSI input)</li> </ul>	
Programming languages	<ul style="list-style-type: none"> <li>• Relay ladder</li> <li>• Structured text</li> <li>• Function block</li> <li>• SFC</li> </ul>	

### IMPORTANT

Scan time for a project loaded in a 1756-L64 or 1756-L65 controller may be slower than for the same project loaded in one of the other 1756-L6x controllers. See the Logix5000 Controllers Instruction Execution Time and Memory Use Reference Manual, publication [1756-RM087](#), for instruction execution times.

**Technical Specifications - 1756-L6x 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 nonvolatile memory storage	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 <sup>(1)</sup>	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 @ 5.1V 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 720V DC for 60 s				
Serial cables	1756-CP3 or 1747-CP3, right angle connector to controller, straight to serial port, 3 m (9.84 ft)				
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 <sup>(2)</sup>				
North American temperature code	T4A				
IEC temperature code	T4				
Enclosure type rating	None (open-style)				

<sup>(1)</sup> For Australian Mining certification applications, only Series A and a 1756-BA1 battery can be used. For more information, contact your local distributor or sales office.

<sup>(2)</sup> 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.

**Environmental Specifications - 1756-L6x ControlLogix Controllers**

Attribute	1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65
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 Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 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	Group 1, Class A
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
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	10Vrms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz

**Certifications - 1756-L6x ControlLogix Controllers**

<b>Certification<sup>(1)</sup></b>	<b>1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65</b>
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: <ul style="list-style-type: none"> <li>• EN 61326-1; Meas./Control/Lab., Industrial Requirements</li> <li>• EN 61000-6-2; Industrial Immunity</li> <li>• EN 61000-6-4; Industrial Emissions</li> <li>• EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</li> </ul>
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 60079-15; Potentially Explosive Atmospheres, Protection “n” (Zone 2)</li> <li>• EN60079-0; General Requirements</li> <li>• II 3 G Ex nA IIC T4 X</li> </ul> <p><b>Important:</b> The 1756-L64 and 1756-L65 controllers do not have this certification.</p>
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
Functional safety <sup>(2)</sup>	Certified by TÜV: Capable of SIL2 <b>Important:</b> This certification applies only to the 1756-L61, 1756-L62, and 1756-L63 controllers.

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

<sup>(2)</sup> When used with specified firmware revisions.

**Technical Specifications - 1756-L7x ControlLogix Controllers**

Attribute	1756-L72	1756-L73	1756-L74	1756-L75
User memory	4 MB	8 MB	16 MB	32 MB
I/O memory	0.98 MB			
Optional nonvolatile memory storage	1 GB (cat. no. 1784-SD1) 2 GB (cat. no. 1784-SD2)			
Digital I/O, max	128,000			
Analog I/O, max	4000			
Total I/O, max	128,000			
Energy storage module	1756-ESMCAP capacitor-based energy-storage module 1756-ESMNSE energy-storage module without stored energy 1756-ESMNRM energy-storage module that secures the controller by preventing the USB connection and Secure Digital card use			
Current draw @ 1.2V DC	5 mA			
Current draw @ 5.1V DC	800 mA			
Power dissipation	2.5 W			
Thermal dissipation	8.5 BTU/hr			
Isolation voltage	30V (continuous), basic insulation type, USB port-to-system Type tested at 500V AC for 60 s			
USB port	USB 2.0, full speed (12 Mbps)			
USB cable	Samtec cable, P/N RSP-199350			
Weight, approx.	0.25 kg (0.55 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	3 - on USB port <sup>(1)</sup>			
North American temperature code	T5			
IEC temperature code	T5			
Enclosure type rating	None (open-style)			

<sup>(1)</sup> 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.

**Environmental Specifications - 1756-L7x ControlLogix Controllers**

Attribute	1756-L72, 1756-L73, 1756-L74, 1756-L75
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 Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 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 (45 g with SD card installed)
Emissions CISPR 11	Group 1, Class A
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

**Certifications - 1756-L7x ControlLogix Controllers**

Certification <sup>(1)</sup>	1756-L72, 1756-L73, 1756-L74, 1756-L75
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: <ul style="list-style-type: none"> <li>• EN 61326-1; Meas./Control/Lab., Industrial Requirements</li> <li>• EN 61000-6-2; Industrial Immunity</li> <li>• EN 61000-6-4; Industrial Emissions</li> <li>• EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</li> </ul>
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 60079-15; Potentially Explosive Atmospheres, Protection 'n'</li> <li>• EN 60079-0; General Requirements</li> <li>• II 3 G Ex nA IIC T5X</li> </ul>

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



## 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-L6xS 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.

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

### Features - GuardLogix Controllers

Feature	1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP
Safety communication options	Standard and safety <ul style="list-style-type: none"> <li>• EtherNet/IP</li> <li>• ControlNet</li> <li>• DeviceNet</li> </ul>
Network connections, per network module	<ul style="list-style-type: none"> <li>• 100 ControlNet (1756-CN2/A)</li> <li>• 40 ControlNet (1756-CNB)</li> <li>• 256 EtherNet/IP; 128 TCP (1756-EN2x)</li> <li>• 128 EtherNet/IP; 64 TCP (1756-ENBT)</li> </ul>
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 <sup>(1)</sup>	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 @ 5.1V 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 Type tested at 720V DC for 60 s			
Serial cables	1756-CP3 or 1747-CP3, right angle connector to controller, straight to serial port, 3 m (9.84 ft)			
Weight, approx.	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 <sup>(2)</sup>			
North American temperature code	T4A			
Enclosure type rating	None (open-style)			

<sup>(1)</sup> The GuardLogix controller does not support user program storage or retrieval by using a CompactFlash card.

<sup>(2)</sup> 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](#).

**Environmental Specifications - 1756 GuardLogix Controllers**

<b>Attribute</b>	<b>1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP</b>
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 Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 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	Group 1, Class A
ESD immunity IEC 61000-4-2	6kV contact discharges 8kV 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
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	10Vrms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz

**Certifications - 1756 GuardLogix Controllers**

<b>Certification<sup>(1)</sup></b>	<b>1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP</b>
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: <ul style="list-style-type: none"> <li>• EN 61000-6-4; Industrial Emissions</li> <li>• EN 61326-1; Meas./Control/Lab., Industrial Requirements</li> <li>• EN 61000-6-2; Industrial Immunity</li> <li>• EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</li> </ul>
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
Functional Safety <sup>(2)</sup>	Certified by TÜV: capable of SIL 3, according to IEC 61508; and PLe/Cat. 4 according to ISO 13849-1:2006. Certified by UL: capable of SIL 3, see UL File E256621.

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

<sup>(2)</sup> When used with specified firmware revision.

## 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 are conformally coated to extend product life in harsh, corrosive environments.

- When used with FLEX I/O-XT products, the ControlLogix-XT system can withstand temperatures range from -20...70 °C (-4...158 °F).
- When used independently, the ControlLogix-XT system can withstand temperature ranges from -25...70 °C (-13...158 °F).

### 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 @ 5.1V 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 Type tested at 720V DC for 60 s
Serial cables	1756-CP3 or 1747-CP3, right angle connector to controller, straight to serial port, 3 m (9.84 ft)
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 <sup>(1)</sup>
North American temperature code	T4A
IEC temperature code	T4
Enclosure type rating	None (open-style)

<sup>(1)</sup> 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.

**Environmental Specifications - 1756-L63XT and 1756-L73XT Controller**

Attribute	1756-L63XT
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 Damp Heat)	5...95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 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	Group 1, Class A
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
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	10Vrms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz

**Certifications - 1756-L63XT Controller**

Certification <sup>(1)</sup>	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.
CE	European Union 2004/108/EC EMC Directive, compliant with: <ul style="list-style-type: none"> <li>EN 61000-6-4; Industrial Emissions</li> <li>EN 61326-1; Meas./Control/Lab., Industrial Requirements</li> <li>EN 61000-6-2; Industrial Immunity</li> <li>EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</li> </ul>
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: <ul style="list-style-type: none"> <li>EN 60079-15; Potentially Explosive Atmospheres, Protection 'n'</li> <li>EN 60079-0; General Requirements</li> <li>II 3 G Ex nA IIC T4 X</li> </ul>
Functional safety <sup>(2)</sup>	Certified by TÜV: Capable of SIL 2

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

<sup>(2)</sup> When used with specified firmware revisions.

## Controller Memory Use

The following equations provide a rough memory estimate.

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

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

<sup>(2)</sup> 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
<b>Chassis-based I/O</b>				
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
<b>In-cabinet I/O</b>				
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
<b>On-machine I/O</b>				
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
<b>In-cabinet I/O</b>			
1791DS CompactBlock Guard I/O	No	No	Yes
1791ES CompactBlock Guard I/O	Yes	No	No
1734 POINT Guard I/O	Yes	No	No
<b>On-machine I/O</b>			
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
<b>Industrial Computers</b>							
Rockwell Automation industrial computers (all) <sup>(1)</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Graphic Terminals</b>							
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
<b>Message Displays</b>							
InView message displays	Yes	Yes	Yes	Yes	Yes	Yes	Yes

<sup>(1)</sup> 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 <sup>(1)</sup>
1756 ControlLogix 1756 GuardLogix	Yes	Yes	Yes	Yes	Yes	Yes
1768, 1769 CompactLogix 1768 Compact GuardLogix	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 <sup>(2)</sup> (3)	Yes	Yes <sup>(4)</sup>	Yes	Yes	—
1747 SLC	Yes <sup>(5)</sup>	Yes	Yes <sup>(4)</sup>	Yes	Yes	Yes
1761 MicroLogix	Yes	No	Yes <sup>(4)</sup>	No	Yes	Yes
1762 MicroLogix	Yes	No	Yes <sup>(4)</sup>	No	Yes	Yes
1763 MicroLogix	Yes	No	Yes <sup>(4)</sup>	No	Yes	Yes
1764 MicroLogix	Yes	No	Yes <sup>(4)</sup>	No	Yes	Yes
1772 PLC-2	—	—	—	Yes	Yes	—
1775 PLC-3	—	—	—	Yes	Yes	—
5250 PLC-5/250	—	—	No	Yes	Yes	—

<sup>(1)</sup> The 1756-DH485 module supports full DH-485 functionality.

<sup>(2)</sup> 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.

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

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

<sup>(5)</sup> Use a 1747-L55x controller with OS501 or later.



## 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 <sup>(1)</sup>	—	—
Communication module	—	1203-CN <sup>(2)</sup> 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

<sup>(1)</sup> 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 1794-ACNR15 ControlNet adapter module.

<sup>(2)</sup> Use the generic module configuration to configure the 1203-CN1 module and a CIP generic MSG instruction to communicate with the module.

## ControlLogix Redundancy

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

- Two 1756 chassis, each with the same of the following:
  - Number of slots
  - Modules in the same slots
  - Redundancy firmware revisions in each module
  - Two additional ControlNet nodes outside the redundant chassis pair if the application uses ControlNet networks
- One 1756-RM or 1756-RMXT<sup>1</sup> module per chassis that is connected by a 1756-RMC<sub>x</sub> cable
- One or two 1756-L6x or 1756-L7x controllers in each chassis
- Up to seven **enhanced** ControlNet communication modules, that is, 1756-CN2/B, 1756-CN2R/B, 1756-CN2RXT modules
- Up to seven **enhanced** EtherNet/IP communication modules, that is, 1756-EN2T, 1756-EN2TR, or 1756-EN2TXT modules

### Technical Specifications - 1756 Redundancy Modules

Attribute	1756-RM	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-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17	1756-A4LXT, 1756-A5LXT, 1756-A7LXT
Power supply, standard	1756-PA72/C, 1756-PA75/B, 1756-PB72/C, 1756-PB75/B, 1756-PC75/B, 1756-PH75/B	1756-PBXT
Power supply, redundant	1756-PA75R, 1756-PB75R, 1756-PSCA2	None
North American temperature code	T4	
IEC temperature code	T4	
Enclosure type	None (open-style)	
Weight	0.293 kg (0.64 lb)	
Mounting	ControlLogix-XT chassis, single-slot module	

**Environmental Specifications - 1756 Redundancy Module**

<b>Attribute</b>	<b>1756-RM</b>	<b>1756-RMXT</b>
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)	-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 Damp Heat)	5...95% noncondensing	
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 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	Group 1, Class A	
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	

**Certifications - 1756 Redundancy Module**

<b>Certification<sup>(1)</sup></b>	<b>1756-RM</b>	<b>1756-RMXT</b>
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: <ul style="list-style-type: none"> <li>• EN 61326-1; Meas./Control/Lab., Industrial Requirements</li> <li>• EN 61000-6-2; Industrial Immunity</li> <li>• EN 61000-6-4; Industrial Emissions</li> <li>• EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</li> </ul>	
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions	
c-UL-us	UL Listed Industrial Control Equipment, certified for U.S. 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.	
Ex	European Union 94/9/EC ATEX Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 60079-15; Potentially Explosive Atmospheres, Protection "n"</li> <li>• EN 60079-0; General Requirements</li> <li>• II 3 G Ex nA IIC T4 X</li> </ul>	
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations	—
Functional safety <sup>(2)</sup>	Certified by TÜV: Capable of SIL 2	

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

<sup>(2)</sup> When used with specified firmware revisions.

## ControlLogix Connections

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

- 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-L6x controller supports 250 connections; the 1756-L7x controller supports 500. To calculate the total connections for a controller, consider the connections to local I/O modules and the connections to remote modules. Use this 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 communication module 1756-DHRIOXT communication module		1	
1756-DH485 communication module		1	
<b>Total</b>			

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 supports determines how many connections the controller can access through that module. Use this table to tally **remote** connections for the controller.

<b>Connection Type</b>	<b>Device Quantity</b>	<b>Connections per Device</b>	<b>Total Connections</b>
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 Each consumer		1	
		1	
Consumed tag		1	
Cached message		1	
Block-transfer message		1	
<b>Total</b>			

## ControlLogix Controller Accessories

### Memory Cards

Memory cards offer nonvolatile memory to permanently store a user program and tag data on a controller. The 1756-L7x ControlLogix controller comes with 1784-SD1 Secure Digital card already installed. The 1756-L6x controllers support optional CompactFlash cards that you purchase separately. The memory cards install in a socket on the controller. Through RSLogix 5000 software, you can manually trigger the controller to save to or load from nonvolatile memory or configure the controller to load from nonvolatile memory on powerup.

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

#### Technical Specifications - 1784 Memory Cards

Attribute	1784-CF64	1784-CF128	1784-SD1	1784-SD2
Memory	64 MB	128 MB	1 GB	2 GB
Supported controllers	1756-L6x		1756-L7x	
Weight, approx.	14.2 g (0.5 oz)		1.76 g (0.062 oz)	

#### Environmental Specifications - 1784 Memory Cards

Attribute	1784-CF64	1784-CF128	1784-SD1, 1784-SD2
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 Damp Heat)	5...95% noncondensing		
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 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	Group 1, Class A		
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		

### Certifications - 1784 Memory Cards

Certification <sup>(1)</sup>	1784-CF64, 1784-CF128, 1784-SD1, 1784-SD2
CE	European Union 2004/108/EC EMC Directive, compliant with: <ul style="list-style-type: none"> <li>EN 61000-6-4; Industrial Emissions</li> <li>EN 61326-1; Meas./Control/Lab., Industrial Requirements</li> <li>EN 61000-6-2; Industrial Immunity</li> <li>EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</li> </ul>
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions

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

## 1756 Energy Storage Modules

Instead of a battery, the 1756-L7x controller ships with a 1756-ESMCAP energy storage module (ESM) already installed.

### Technical Specifications - 1756 Energy Storage Modules

Attribute	1756-ESMCAP	1756-ESMNSE	1756-ESMNRM
Description	Capacitor-based energy-storage module  Comes with the controller	ESM without WallClockTime back-up power  Use this ESM if your application requires that the installed ESM deplete its residual energy to 40 µJoule or less before transporting it into or out of your application. In this case, complete these steps before you remove the ESM.  1. Turn off power to the chassis. After you turn off power to the chassis, the controller's OK status indicator transitions from Green to Solid Red to OFF.  2. Wait <b>at least 20 minutes</b> for the residual stored energy to decrease to 40 µJoule or less before you remove the ESM.  There is no visual indication of when the 20 minutes has expired. <b>You must track that time period.</b>  Additionally, you can use this ESM with a 1756-L73 (8 MB) or smaller memory-sized controller only.	Energy-storage module that secures the controller by preventing the USB connection and access to SD card removal. If the SD card is installed prior to insertion of the 1756 ESMNRM module, the SD card remains functional, but not removable.  This ESM provides your application an enhanced degree of security.
Current draw @ 5.1V DC	330 mA	300 mA	330 mA
North American temperature code	T5		
IEC temperature code	T5		



**Certifications - 1756 Energy Storage Modules**

<b>Certification<sup>(1)</sup></b>	<b>1784-CF64, 1784-CF128</b>
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 US and Canada. See UL File E194810.
CE	European Union 2004/108/EC EMC Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 61326-1; Meas./Control/Lab., Industrial Requirements</li> <li>• EN 61000-6-2; Industrial Immunity</li> <li>• EN 61000-6-4; Industrial Emissions</li> <li>• EN 61131-2; Programmable Controllers (Clause 8, Zone A &amp; B)</li> </ul>
C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 60079-15; Potentially Explosive Atmospheres, Protection 'n'</li> <li>• EN 60079-0; General Requirements</li> <li>• II 3 G Ex nA IIC T5 X</li> </ul>

<sup>(1)</sup> 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-L6x 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 remain in 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.

### Technical Specifications - 1756 ControlLogix Batteries

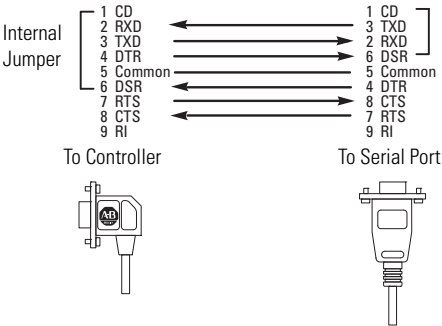
Attribute	1756-BA1	1756-BA2	1756-BATM <sup>(1)</sup>	1756-BATA
Description	Lithium battery (0.59 g)	Lithium battery (0.59 g)	Externally-mounted battery assembly	Replacement lithium battery for 1756-BATM (5 g max lithium per each D cell; contains 2 D cells)
ControlLogix controllers	1756-L61, 1756-L62, 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	—	—
Supported legacy controllers	1756-L55Mx controllers <sup>(2)</sup> 1756-L60M03SE controller	—	1756-L55Mx controllers <sup>(3)</sup> 1756-L60M03SE controller	1756-BATM battery module

<sup>(1)</sup> The 1756-BATM externally-mounted battery assembly is recommended for use with all 1756-L55x, and is highly recommended for use with all series A 1756-L6x controllers, and provides longer battery life than the 1756-BA1 battery. The 1756-BATM assembly includes one 1756-BATA lithium battery assembly and a 1 m (3.28 ft) cable to connect housing to controller.

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

### Serial Communication Cables

The 1756-L6x controllers have a built-in serial port.



#### Technical Specifications - 1756 Serial 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 (9.84 ft)	

# Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://www.rockwellautomation.com/support/>, 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://www.rockwellautomation.com/support/>.

## Installation Assistance

If you experience an anomaly within the first 24 hours of installation, review the information that is contained in this manual.

You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the <a href="#">Worldwide Locator</a> at <a href="http://www.rockwellautomation.com/support/americas/phone_en.html">http://www.rockwellautomation.com/support/americas/phone_en.html</a> , or contact your local Rockwell Automation representative.

## 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 to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

## Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication [RA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

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