Allen-Bradley

1756 ControlLogix and GuardLogix Controllers

ControlLogix Controller Catalog Numbers	1756-L61, 1756-L62, 1756-L63, 1756-L63XT, 1756-L64, 1756-L65 1756-L71, 1756-L72, 1756-L73, 1756-L73XT, 1756-L74, 1756-L75 1756-L71K, 1756-L72K, 1756-L73K, 1756-L74K, 1756-L75K 1756-L81E, 1756-L82E, 1756-L83E, 1756-L84E, 1756-L85E, 1756-L81EK, 1756-L82EK, 1756-L83EK, 1756-L84EK, 1756-L85EK
GuardLogix Controller Catalog Numbers	1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP 1756-L71S, 1756-L71SK, 1756-L72S, 1756-L72SK, 1756-L73S, 1756-L73SK, 1756-L7SP, 1756-L7SPK, 1756-L73SXT, 1756-L7SPXT 1756-L81ES, 1756-L81ESK, 1756-L82ES,1756-L82ESK, 1756-L83ES, 1756-L83ESK, 1756-L84ES, 1756-L84ESK, 1756-L8SP, 1756-L8SPK
Armor ControlLogix Catalog Numbers	1756-L72EROM, 1756-L73EROM
Armor GuardLogix Catalog Numbers	1756-L72EROMS, 1756-L73EROMS
ControlLogix Redundancy Catalog Numbers	1756-RM2, 1756-RM2XT

1756 ControlLogix Controllers

The ControlLogix® controller provides a scalable controller solution that is capable of addressing many I/O points. You can place the ControlLogix controller into any slot of a ControlLogix I/O chassis, and install multiple controllers in the same chassis.

ControlLogix controllers can monitor and control I/O across the ControlLogix backplane, and over network links. The ControlLogix 5580 controllers have an embedded Ethernet port for a direct connection to Ethernet-enabled devices and networks, and also support communication interface modules in the local chassis. To provide communication for ControlLogix 5570 or ControlLogix 5560 controllers, install the appropriate communication interface module into the local chassis.

ControlLogix 5580 and ControlLogix 5570 controllers are available with a conformal coating. A conformal coating provides a layer of protection against contaminants and humidity to help protect the assembly and extend product life in harsh, corrosive environments. Products with a conformal coating have a 'K' suffix at the end of the catalog number.

ControlLogix 5580 Controllers Features and Specifications

Feature	1756-L81E, 1756-L81EK	1756-L82E, 1756-L82EK	1756-L83E, 1756-L83EK	1756-L84E, 1756-L84EK	1756-L85E, 1756-L85EK
Controller tasks	32 tasks 1000 programs/task Local I/O event triggers: No limit				
Built-in communication ports	1 port USB(3) Embedded Ethernet port				
USB port communication	USB 2.0 Full speed (12 Mbps) Programming, configuration, firmware update, and on-line edits only				
Ethernet performance	10/100/1000 Mbps				
Packet Rate Capacity (packets/second)(1)	I/O: 128,000 HMI/MSG: 1000				
Communication options	• EtherNet/IP™ • ControlNet™ • DeviceNet™ • Data Highway Plus™ • Remote I/O • SynchLink™ • Third-party process and device networks				
EtherNet/IP nodes supported, max(2)	60 nodes(5) 100 nodes(6)	80 nodes(5) 175 nodes(6)	100 nodes(4) 250 nodes(6)	150 nodes(5) 250 nodes(6)	300 nodes(7)
Network connections, per network module located in the local chassis	• ControlLogix 5580 Controllers front EtherNet/IP port. See 'EtherNet/IP nodes supported, max' in this table. • 256 EtherNet/IP; 128 TCP (1756-EN2*x*) • 128 EtherNet/IP; 64 TCP (1756-ENBT) • 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB/D, 1756-CNB/E) • 128 ControlNet (1756-CN2/B)				
Controller redundancy	—				
Integrated motion	• Integrated Motion on the EtherNet/IP network				
Programming languages	• Relay Ladder Logic (RLL) • Structured Text • Function Block Diagram • Sequential Function Chart (SFC)				

(1) I/O numbers are maximums; they assume no HMI/MSG. HMI/MSG numbers are maximums, they assume no I/O. Packet rates vary depending on packet size. For more details, see Troubleshoot EtherNet/IP Application Technique, publication ENET-AT003, and the EDS file for a specific catalog number.

(2) A node is an EtherNet/IP device that you add directly to the I/O configuration, and counts toward the node limits of the controller. For more information on EtherNet/IP nodes, see the ControlLogix 5580 Controllers User Manual, publication1756-UM543.

(3) The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.

(4) With Studio 5000 Logix Designer® Application Version 28 and Version 29.

(5) With Studio 5000 Logix Designer Application Version 29.

(6) With Studio 5000 Logix Designer Application Version 30 or greater.

(7) With Studio 5000 Logix Designer Application Version 28 or greater.

Technical Specifications - ControlLogix 5580 Controllers

Attribute	1756-L81E, 1756-L81EK	1756-L82E, 1756-L82EK	1756-L83E, 1756-L83EK	1756-L84E, 1756-L84EK	1756-L85E, 1756-L85EK
User memory	3 MB	5 MB	10 MB	20 MB	40 MB
Digital I/O, max	128,000				
Analog I/O, max	4000				
Total I/O, max	128,000				
Optional nonvolatile memory storage	2 GB Secure Digital Card (1784-SD2), ships pre-installed in the controller				
Energy storage module	Embedded in controller, nonremovable				
Current draw @ 1.2V DC	5.0 mA				
Current draw @ 5.1V DC	1.20 A				
Power dissipation	6.2 W				
Thermal dissipation	21.2 BTU/hr				
Isolation voltage	50V (continuous), Basic Insulation type, USB port to backplane, Ethernet port to backplane, and USB port to Ethernet port Type tested at 1000V AC for 60 seconds				
Weight, approx	0.394 kg (.868 lb)				
Slot width	1				
Module location	Chassis-based, any slot				
Chassis	1756-A4, 1756-A4K, 1756-A7, 1756-A7K, 1756-A10, 1756-A10K, 1756-A13, 1756-A13K,1756-A17, 1756-A17 K Series B, Series C				
Power supply, standard	1756-PA50, 1756-PA72, 1756-PA72K, 1756-PA75, 1756-PA75K, 1756-PB50, 1756-PB72, 1756-PB72K, 1756-PB75, 1756-PB75K, 1756-PH75, 1756-PC75				
Power supply, redundant	1756-PA75R, 1756-PA75RK, 1756-PB75R, 1756-PB75RK, 1756-PSCA2, 1756-PSCA2K				
Wire category(1)	3 - on USB port 2 - on Ethernet ports				
Wire size	Ethernet connections: Ethernet cabling and installation according to IEC 61918 and IEC 61784-5-2				
North American temperature code	T4				
ATEX temperature code	T4				
IECEx temperature code	T4				
Enclosure type rating	None (open-style)				

(1) Use this conductor category information to plan conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Environmental Specifications - ControlLogix 5580 Controllers

Attribute	1756-L81E, 1756-L82E, 1756-L83E, 1756-L84E, 1756-L85E, 1756-L81EK, 1756-L82EK, 1756-L83EK, 1756-L84EK, 1756-L85EK
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)	Chassis series C: 0 °C < Ta < +60 °C (+32 °F < Ta < +140 °F) Chassis series B: 0 °C < Ta < +50 °C (+32 °F < Ta < +122 °F)
Temperature, nonoperating 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)	Chassis series B and C: -40…+85 °C (-40…+185 °F)
Temperature, surrounding air, max	Chassis series C: 60 °C (140 °F) Chassis series B: 50 °C (122 °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)	30 g
Emissions	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
EFT/B Immunity IEC 61000-4-4	±2 kV at 5 kHz on Ethernet ports
Surge Transient Immunity IEC 61000-4-5	±2 kV line-earth (CM) on Ethernet ports
Conducted RF Immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz

Certifications - ControlLogix 5580 Controllers

Certification[1]	1756-L81E, 1756-L81EK, 1756-L82E, 1756-L82EK, 1756-L83E, 1756-L83EK, 1756-L84E, 1756-L84EK, 1756-L85E, 1756-L85EK
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.
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • DEMKO13ATEX1325026X
IECEx	IECEx System, compliant with: • IEC 60079-15; Potentially Explosive Atmospheres, Protection "n" • IEC 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • IECEx UL 14.0008X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications

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

ControlLogix 5570 Controllers Features and Specifications

Feature	1756-L71, 1756-L71K, 1756-L72, 1756-L72K, 1756-L73, 1756-L73K, 1756-L74, 1756-L74K, 1756-L75, 1756-L75K
Controller tasks	• 32 tasks • 100 programs/task • Event tasks: all event triggers
Built-in communication ports	1 port USB(2)
Communication options	• EtherNet/IP • ControlNet • DeviceNet • Data Highway Plus • Remote I/O • SynchLink • Third-party process and device networks
USB port communication	Programming, configuration, firmware update, and on-line edits only
Controller connections supported, max(1)	500
Network connections, per network module	• 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB/D, 1756-CNB/E) • 128 ControlNet (1756-CN2/B) • 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) • Integrated Motion on the EtherNet/IP network
Programming languages	• Relay Ladder • Structured Text • Function Block Diagram • Sequential Function Chart (SFC)

(1) ControlLogix 5570 controllers use connections to establish communication links between devices. For more information on how to use and calculate connections, see the ControlLogix System User Manual, publication 1756-UM001.

(2) The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.

Technical Specifications - ControlLogix 5570 Controllers

Attribute	1756-L71, 1756-L71K	1756-L72, 1756-L72K	1756-L73, 1756-L73K	1756-L74, 1756-L74K	1756-L75, 1756-L75K
User memory	2 MB	4 MB	8 MB	16 MB	32 MB
I/O memory	0.98 MB				
Optional nonvolatile memory storage	1 GB (1784-SD1 ships with every controller) 2 GB (1784-SD2)				
Digital I/O, max	128,000				
Analog I/O, max	4000				
Total I/O, max	128,000				
Energy storage module	• 1756-ESMCAP, 1756-ESMCAPK capacitor energy storage module (removable, ships installed with every controller) • 1756-ESMNSE, 1756-ESMNSEK capacitor energy storage module (removable, no residual WallClockTime power backup) • 1756-ESMNRM, 1756-ESMNRMK capacitor energy storage module (nonremovable, helps prevent USB connection and SD card use to help secure the controller)				
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(1)	USB 2.0, full speed (12 Mbps)				
Weight, approx	0.25 kg (0.55 lb)				
Slot width	1				
Module location	Chassis-based, any slot				
Chassis	1756-A4, 1756-A4K, 1756-A7, 1756-A7K, 1756-A10, 1756-A10K, 1756-A13, 1756-A13K,1756-A17, 1756-A17 K				
Power supply, standard	1756-PA50, 1756-PA72, 1756-PA72K, 1756-PA75, 1756-PA75K, 1756-PB50, 1756-PB72, 1756-PB72K, 1756-PB75, 1756-PB75K, 1756-PH75				
Power supply, redundant	1756-PA75R, 1756-PA75RK, 1756-PB75R, 1756-PB75RK,1756-PSCA2, 1756-PSCA2K				
Wire category(2)	3 - on USB port				
North American temperature code	T4A				
ATEX temperature code	T4				
IECEx temperature code	T4				
Enclosure type rating	None (open-style)				

(1) The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.
(2) Use this conductor category information to plan conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Environmental Specifications - ControlLogix 5570 Controllers

Attribute	1756-L71, 1756-L71K, 1756-L72, 1756-L72K, 1756-L73, 1756-L73K, 1756-L74K, 1756-L74, 1756-L75, 1756-L75K
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 °C < Ta < +60 °C (+32 °F < Ta < +140 °F)
Temperature, nonoperating 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)	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	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
Conducted RF Immunity IEC 61000-4-6	Not applicable: USB is a temporary programming port.

Certifications - ControlLogix 5570 Controllers

Certification(1)	1756-L71, 1756-L71K, 1756-L72, 1756-L72K, 1756-L73, 1756-L73K, 1756-L74, 1756-L74K, 1756-L75, 1756-L75K
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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: EN 60079-0; General Requirements EN 60079-15; Potentially Explosive Atmospheres, Protection “n” II 3 G Ex nA IIC T4 Gc DEMKO13ATEX1325026X
IECEx	IECEx System, compliant with: IEC 60079-0; General Requirements IEC 60079-15; Potentially Explosive Atmospheres, Protection “n” II 3 G Ex nA IIC T4 Gc IECEx UL 14.0008X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

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

ControlLogix 5560 Controllers Features and Specifications

Feature	1756-L61, 1756-L62, 1756-L63, 1756-L63XT, 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(1)	250
Network connections, per network module	• 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB/D, 1756-CNB/E) • 128 ControlNet (1756-CN2/B) • 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) • Integrated Motion on the EtherNet/IP network
Programming languages	• Relay Ladder • Structured Text • Function Block Diagram • Sequential Function Chart (SFC)

(1) ControlLogix 5560 controllers use connections to establish communication links between devices. For more information on connections, see the ControlLogix System User Manual, publication 1756-UM001.

IMPORTANT Scan time for a project that is loaded in a 1756-L64 or 1756-L65 controller can be slower than for the same project loaded in one of the other 1756-L6x controllers. For instruction execution times, see the Logix5000 Controllers Instruction Execution Time and Memory Use Reference Manual, publication 1756-RM087.

Technical Specifications - ControlLogix 5560 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	128 MB (1784-CF128)				
Digital I/O, max	128,000				
Analog I/O, max	4000				
Total I/O, max	128,000				
Replacement battery(1)	Series A: 1756-BA1, 1756-BATM, 1756-BATA Series B: 1756-BA2			1756-BA2 (0.50 g Lithium)	
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 port 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	Series A: 0.32 kg (0.71 lb) Series B: 0.35 kg (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-PA50, 1756-PA72, 1756-PA75, 1756-PB50, 1756-PB72, 1756-PB75				
Power supply, redundant	1756-PA75R, 1756-PB75R, 1756-PSCA2				
Wire category(2)	2 - on RS-232 port				
North American temperature code	T4A				
IEC temperature code	T4				
Enclosure type rating	None (open-style)				

(1) For Australian Mining certification applications, only a series A controller and a 1756-BA1 battery can be used. For more information, contact your local distributor or sales office.
(2) 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.

Environmental Specifications - ControlLogix 5560 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)
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)	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 IEC 61000-6-4	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 RS-232 port
Surge transient immunity IEC 61000-4-5	±2 kV line-earth (CM) on RS-232 port
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz

Certifications - ControlLogix 5560 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.
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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; 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 IIC T4 X • LCIE01ATEX6020X **IMPORTANT:** The 1756-L64 and 1756-L65 controllers do not have this certification.
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
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.

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 for extended protection in harsh, corrosive environments:

- When used with FLEX I/O-XT™ products, the ControlLogix-XT system can withstand temperature ranges of -20...+70 °C (-4...+158 °F).
- When used independently, the ControlLogix-XT system can withstand temperature ranges of -25...+70 °C (-13...+158 °F).
- Customers who previously used the LXT chassis should now migrate to the K version of the chassis.

1756-L73XT ControlLogix Controller Specifications

Technical Specifications - 1756-L73XT ControlLogix Controller

Attribute	1756-L73XT
User memory	8 MB
I/O memory	0.98 MB
Optional nonvolatile memory	1 GB (1784-SD1 ships with every controller) 2 GB (1784-SD2)
Digital I/O, max	128,000
Analog I/O, max	4000
Total I/O, max	128,000
Replacement battery	—
Energy storage modules	• 1756-ESMCAPXT capacitor energy storage module (removable, ships installed with every controller) • 1756-ESMNSEXT capacitor energy storage module (removable, no residual WallClockTime power backup) • 1756-ESMNRMXT capacitor energy storage module (nonremovable, helps prevent USB connection and SD card use to help secure the controller)
Current draw @ 5.1V DC	800 mA
Current draw @ 1.2V DC	5 mA
Power dissipation	2.5 W
Thermal dissipation	8.5 BTU/hr
Isolation voltage	30V (continuous), basic insulation type, USB port to backplane Type tested at 500V AC for 60 s
USB port(1)	USB 2.0, full speed (12 Mbps)
Weight, approx	0.25 kg (0.55 lb)
Slot width	1
Module location	Chassis-based, any slot
Chassis	1756-A7XT, 1756-A10XT For low temperature applications only, use 1756-A4K, 1756-A7K, 1756-A10K, 1756-A13K, 1756-A17K
Power supply, standard	1756-PAXT, 1756-PA30XT, 1756-PBXT, 1756-PB30XT
Power supply, redundant	None
Wire category(2)	3 - on USB ports
North American temperature code	T4A
IECEx temperature code	T4
ATEX temperature code	T4
Enclosure type rating	None (open-style)

(1) The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.
(2) Use this conductor category information to plan conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Environmental Specifications - 1756-L73XT ControlLogix Controller

Attribute	1756-L73XT
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 °C < Ta < +70 °C (-13 °F < Ta < +158 °F) When using a 1756-A7LXT chassis, surrounding air temperature range is -25 °C < Ta < +60 °C (-13 °F < Ta < +140 °F) even when using an 'XT' controller.
Temperature, nonoperating 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	70 °C (158 °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	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
Conducted RF Immunity IEC 61000-4-6	Not applicable: USB is a temporary programming port.

Certifications - 1756-L73XT ControlLogix Controller

Certification(1)	1756-L73XT
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 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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • DEMKO13ATEX1325026X
IECEx	IECEx System, compliant with: • IEC 60079-0; General Requirements • IEC 60079-15; Potentially Explosive Atmospheres, Protection "n" • II 3 G Ex nA IIC T4 Gc • IECEx UL 14.0008X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

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

1756-L63XT ControlLogix Controller Specifications

Technical Specifications - 1756-L63XT Controller

Attribute	1756-L63XT
User memory	8 MB
I/O memory	478 KB
Optional nonvolatile memory storage	128 MB (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 port 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-A7XT, 1756-A10XT For low temperature applications only, use 1756-A4K, 1756-A7K, 1756-A10K, 1756-A13K, 1756-A17K
Power supply, standard	1756-PAXT, 1756-PA30XT, 1756-PBXT, 1756-PB30XT
Power supply, redundant	None
Wire category(1)	2 - on RS-232 port
North American temperature code	T4A
IEC 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.

Environmental Specifications - 1756-L63XT 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) When using a 1756-A7LXT chassis, surrounding air temperature range is -25…+60 °C (-13…+140 °F) even when using an 'XT' controller
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	70 °C (158 °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 RS-232 port
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

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.
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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection 'n' • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 X • LCIE01ATEX6020X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3

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

1756 GuardLogix Controllers

GuardLogix 5580 Controller with Safety Partner

GuardLogix 5570 Controller with Safety Partner

A GuardLogix® controller is a ControlLogix controller that also provides the ability to perform safety functions. You must use a primary safety controller and a safety partner to achieve up to SIL CL 3/PLe/Cat. 4. A major benefit of this system is that it is still one project, safety and standard together. The safety partner is a part of the system, is automatically configured, and requires no user setup.

With the introduction of the GuardLogix 5580 controller, users can achieve up to SIL 2/PLd (Category 3) with a single controller and the use of the safety task and safety I/O.

During development, safety and standard have the same rules; multiple programmers, online editing, and forcing are all allowed. Once the safety system is validated and the safety signature applied, safety memory is protected, the safety logic cannot be modified, and all safety functions operate with SIL integrity. If the safety partner is present, the safety integrity will be SIL3. If no safety partner is present, the safety integrity will be SIL2.

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, minimizing 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 one GuardLogix controller can use remote distributed safety I/O between different cells/areas.

1756 GuardLogix controllers are available with a conformal coating. The conformal coating provides a layer of protection against contaminants and humidity to help protect the assembly and extend product life in harsh, corrosive environments. Products with a conformal coating have a ‘K’ suffix at the end of the catalog number.

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-L71S, 1756-L72S, 1756-L73S, 1756-L73SXT, 1756-L71SK, 1756-L72SK, 1756-L73SK	1756-L81ES, 1756-L82ES, 1756-L83ES, 1756-L84ES, 1756-L81ESK, 1756-L82ESK, 1756-L83ESK, 1756-L84ESK
Safety communication options	Standard and safety • EtherNet/IP • ControlNet • DeviceNet	
Network connections, per network module	• 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB/D, 1756-CNB/E) • 128 ControlNet (1756-CN2/B) • 256 EtherNet/IP; 128 TCP (1756-EN2*x*) • 128 EtherNet/IP; 64 TCP (1756-ENBT)	• GuardLogix 5580 Controllers front EtherNet/IP port. See 'EtherNet/IP nodes supported, max' in this table. • 256 EtherNet/IP; 128 TCP (1756-EN2*x*) • 128 EtherNet/IP; 64 TCP (1756-ENBT) • 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB/D, 1756-CNB/E) • 128 ControlNet (1756-CN2/B)
EtherNet/IP nodes supported, max(1)	—	1756-L81ES, 1756-L81ESK: 100 nodes 1756-L82ES, 1756-L82ESK: 175 nodes 1756-L83ES, 1756-L83ESK: 250 nodes 1756-L84ES, 1756-L84ESK: 250 nodes
Controller redundancy	Not supported	
Programming languages	• Relay Ladder Logic (RLL) • Structured Text • Function Block Diagram • Sequential Function Chart (SFC) • Safety Task supports only RLL and the additional safety application instructions	

(1) A node is an EtherNet/IP device that you add directly to the I/O configuration, and counts toward the node limits of the controller. For more information on EtherNet/IP nodes, see the ControlLogix 5580 Controllers and GuardLogix 5580 Controllers User Manual, publication1756-UM543.

Safety Partners

Primary Controller	Safety Partner
1756-L61S, 1756-L62S, 1756-L63S	1756-LSP
1756-L71S, 1756-L71SK, 1756-L72S,1756-L72SK, 1756-L73S,1756-L73SK	1756-L7SP, 1756-L7SPK
1756-L73SXT	1756-L7SPXT
1756-L81ES, 1756-L81ESK, 1756-L82ES, 1756-L82ESK, 1756-L83ES, 1756-L83ESK, 1756-L84ES, 1756-L84ESK	1756-L8SP, 1756-L8SPK

GuardLogix 5580 Controllers Features and Specifications

Feature	1756-L81ES, 1756-L81ESK	1756-L82ES, 1756-L82ESK	1756-L83ES, 1756-L83ESK	1756-L84ES, 1756-L84ESK	1756-L8SP, 1756-L8SPK
Controller tasks	31 standard tasks, 1 safety task 1000 programs/task Local I/O event triggers: No limit				—
Built-in communication ports	1 port USB[3] Embedded Ethernet port				—
USB port communication	USB 2.0 Full speed (12 Mbps) Programming, configuration, firmware update, and on-line edits only				—
Ethernet performance	10/100/1000 Mbps				—
Packet Rate Capacity (packets/second)[1]	I/O: 128,000 HMI/MSG: 1000				—
Communication options	• EtherNet/IP™ • ControlNet™ • DeviceNet™ • Data Highway Plus • Remote I/O • SynchLink • Third-party process and device networks				—
EtherNet/IP nodes supported, max[2]	100 nodes	175 nodes	250 nodes	250 nodes	—
Network connections, per network module located in the local chassis	• GuardLogix 5580 Controllers front EtherNet/IP port. See 'EtherNet/IP nodes supported, max' in this table. • 256 EtherNet/IP; 128 TCP (1756-EN2*x*) • 128 EtherNet/IP; 64 TCP (1756-ENBT) • 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB/D, 1756-CNB/E) • 128 ControlNet (1756-CN2/B)				—
Controller redundancy	—				—
Integrated motion	• Integrated Motion on the EtherNet/IP network				—
Programming languages	• For the safety task, GuardLogix controllers support Ladder Diagram only. • For standard tasks, GuardLogix controllers support: – Ladder Diagram (LD) – Structured Text (ST) – Function Block Diagram (FBD) – Sequential Function Chart (SFC)				—

(1) I/O numbers are maximums; they assume no HMI/MSG. HMI/MSG numbers are maximums, they assume no I/O. Packet rates vary depending on packet size. For more details, see Troubleshoot EtherNet/IP Application Technique, publication ENET-AT003, and the EDS file for a specific catalog number.

(2) A node is an EtherNet/IP device that you add directly to the I/O configuration, and counts toward the node limits of the controller. For more information on EtherNet/IP nodes, see the ControlLogix 5580 Controllers and GuardLogix 5580 Controllers User Manual, publication1756-UM543.

(3) The USB port is intended for temporary local programming purposes only and not intended for permanent connection. Do not use the USB port in hazardous locations.

Technical Specifications - GuardLogix 5580 Controllers

Attribute	1756-L81ES, 1756-L81ESK	1756-L82ES, 1756-L82ESK	1756-L83ES, 1756-L83ESK	1756-L84ES, 1756-L84ESK	1756-L8SP, 1756-L8SPK
User memory	3 MB	5 MB	10 MB	20 MB	—
Safety memory	1.5 MB	2.5 MB	5 MB	6 MB	(2)
Digital I/O, max	128,000				—
Analog I/O, max	4000				—
Total I/O, max	128,000				—
Optional nonvolatile memory storage	2 GB Secure Digital Card (1784-SD2), ships pre-installed in the controller				—
Energy storage module	Embedded in controller, nonremovable				Embedded in safety partner, nonremovable
Current draw @ 1.2V DC	5.0 mA				
Current draw @ 5.1V DC	1.20 A				
Power dissipation	6.2 W				
Thermal dissipation	21.2 BTU/hr				
Isolation voltage	50V (continuous), Basic Insulation type, Ethernet to backplane, USB to backplane, and USB to Ethernet Type tested at 1000V AC for 60 seconds				
Weight, approx	0.394 kg (.868 lb)				
Slot width	1				
Module location	Chassis-based, any slot (the safety partner must be installed in the slot to the immediate right of the primary controller)				
Chassis	1756-A4, 1756-A4K, 1756-A7, 1756-A7K, 1756-A10, 1756-A10K, 1756-A13, 1756-A13K,1756-A17, 1756-A17 K Series B, Series C				
Power supply, standard	1756-PA50, 1756-PA72, 1756-PA72K, 1756-PA75, 1756-PA75K, 1756-PB50, 1756-PB72, 1756-PB72K, 1756-PB75, 1756-PB75K, 1756-PH75, 1756-PC75				
Power supply, redundant	1756-PA75R, 1756-PA75RK, 1756-PB75R, 1756-PB75RK, 1756-PSCA2, 1756-PSCA2K				
Wire category(1)	3 - on USB port 2 - on Ethernet ports				
Wire size	Ethernet connections: Ethernet cabling and installation according to IEC 61918 and IEC 61784-5-2				
North American temperature code	T4				
ATEX temperature code	T4				
IECEx temperature code	T4				
Enclosure type rating	None (open-style)				

(1) Use this conductor category information to plan conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

(2) Same as corresponding primary controller.

Environmental Specifications -GuardLogix 5580 Controllers

Attribute	1756-L81ES, 1756-L82ES, 1756-L83ES, 1756-L84ES 1756-L81ESK, 1756-L82ESK, 1756-L83ESK, 1756-L84ESK, 1756-L8SP, 1756-L8SPK
Temperature, operating (SIL 2/PLd) 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 °C < Ta < +60 °C (+32 °F < Ta < +140 °F) for Series C Chassis Note: If operating above +55 °C (+131 °F), modules greater than 6.2W shall not be installed in slots adjacent to the controller.
Temperature, operating (SIL 3/PLe) 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 °C < Ta < +60 °C (+32 °F < Ta < +140 °F) for Series C Chassis 0 °C < Ta < +50 °C (+32 °F < Ta < +122 °F) for Series B Chassis
Temperature, nonoperating 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)	Chassis series B and C: -40…+85 °C (-40…+185 °F)
Temperature, Surrounding Air, max (SIL 2/PLd)	60 °C (140 °F) for Series C Chassis Note: If operating above +55 °C (+131 °F), modules greater than 6.2W shall not be installed in slots adjacent to the controller.
Temperature, Surrounding Air, max (SIL 3/PLe)	60 °C (140 °F) for Series C Chassis 50 °C (122 °F) for Series B Chassis
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)	30 g
Emissions	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 3V/m with 1 kHz sine-wave 80% AM from 2700…6000 MHz
EFT/B Immunity IEC 61000-4-4	±2 kV at 5 kHz on Ethernet ports
Surge Transient Immunity IEC 61000-4-5	±2 kV line-earth (CM) on Ethernet ports
Conducted RF Immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz

Certifications - GuardLogix 5580 Controllers

Certification[1]	1756-L81ES, 1756-L82ES, 1756-L83ES, 1756-L84ES, 1756-L81ESK, 1756-L82ESK, 1756-L83ESK, 1756-L84ESK, 1756-L8SP, 1756-L8SPK
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 150115. CSA Certified Process Control Equipment for Class I, Division 2 Group A,B,C,D Hazardous Locations. See CSA File 150115.
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations
CE	European Union 2014/30/EU 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 ISO 13849-1; Safety-related parts of control systems • EN 62061; Functional safety of safety-related control systems • Up to Cat. 4/PL e according to EN ISO 13849-1 and SIL CL 3 according to EN/IEC 62061 when used in combination with the 1756-L8SP safety partner • Up to Cat. 3/PL d according to EN ISO 13849-1, and SIL CL 2 according to EN/IEC 62061 when not used in combination with the 1756-L8SP safety partner • TÜV 01/205/5611 European Union 2011/65/EU RoHS, compliant with: • EN 50581; Technical documentation
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	European Union 2014/34/EU ATEX Directive, compliant with: • EN 60079-0; General Requirements • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • II 3 G Ex nA IIC T4 Gc • DEMKO13ATEX1325026X
IECEx	IECEx System, compliant with: • IEC 60079-0; General Requirements • IEC 60079-15; Potentially Explosive Atmospheres, Protection "n" • II 3 G Ex nA IIC T4 Gc • IECEx UL 14.0008X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation
TÜV certified for functional safety[2]	Capable of SIL 3, CAT. 4/PLe
EtherNet/IP	ODVA conformance tested to CIP Safety EtherNet/IP specifications

(1) See the Product Certification link at http://www.rockwellautomation.com/global/certification/overview.page for Declarations of Conformity, Certificates, and other certification details.

(2) When used with specified firmware revisions. See the Product Safety Certificate at http://www.rockwellautomation.com/global/certification/overview.page for a full list of safety-related certifications.

1756-L7S GuardLogix Controllers Specifications

Technical Specifications - 1756-L7S GuardLogix Controllers

Attribute	1756-L71S, 1756-L71SK	1756-L72S, 1756-L72SK	1756-L73S, 1756-L73SK	1756-L7SP, 1756-L7SPK
User memory	2 MB	4 MB	8 MB	—
Safety memory	1 MB	2 MB	4 MB	(2)
I/O memory	0.98 MB			—
Optional nonvolatile memory storage	1 GB (1756-SD1 ships with every controller) 2 GB (1756-SD2)			—
Digital I/O, max	128,000			—
Analog I/O, max	4000			—
Total I/O, max	128,000			—
Replacement battery	—			
Energy storage modules	• 1756-ESMCAP capacitor energy storage module (removable, ships installed with every controller) • 1756-ESMNSE capacitor energy storage module (removable, no residual WallClockTime power backup) • 1756-ESMNRM capacitor energy storage module (nonremovable, helps prevent USB connection and SD card use to help secure the controller)			• 1756-SPESMNSE capacitor energy storage module for the safety partner (removable, no residual WallClockTime power backup) • 1756-SPESMNRM capacitor energy storage module for the safety partner (nonremovable, helps prevent USB connection and SD card use to help secure the controller)
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, USB port-to-system, type tested at 980V AC for 60 s			
Weight, approx	0.25 kg (0.55 lb)			
Slot width	2 (both modules needed; each is one slot)			
Module location	Chassis-based, any slot (the safety partner must be installed in the slot to the immediate right of the primary controller)			
Chassis	1756-A4, 1756-A4K, 1756-A7, 1756-A7K, 1756-A10, 1756-A10K, 1756-A13, 1756-A13K,1756-A17, 1756-A17K			
Power supply, standard	1756-PA50, 1756-PA72, 1756-PA72K, 1756-PA75, 1756-PA75K, 1756-PB50, 1756-PB72, 1756-PB72K, 1756-PB75, 1756-PB75K			
Wire category(1)	3 - on USB ports			
North American temperature code	T4A			
ATEX temperature code	T4			
IECEx temperature code	T4			
Enclosure type rating	None (open-style)			

(1) Use this Conductor Category information to plan conductor routing. See Industrial Wiring and Grounding Guidelines, publication 1770-4.1.
(2) Same as corresponding primary controller.

Environmental Specifications - 1756-L7*S* GuardLogix Controllers

Attribute	1756-L71S, 1756-L72S, 1756-L73S, 1756-L7SP 1756-L71SK, 1756-L72SK, 1756-L73SK, 1756-L7SPK
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 °C < Ta < +60 °C (+32 °F < Ta < +140 °F)
Temperature, nonoperating 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
Temperature, surrounding air, max	60 °C (140 °F)
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	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
Conducted RF Immunity IEC 61000-4-6	Not applicable: USB is a temporary programming port.

Certifications - 1756-L7S GuardLogix Controllers

Certification[1]	1756-L71S, 1756-L72S, 1756-L73S, 1756-L7SP 1756-L71SK, 1756-L72SK, 1756-L73SK, 1756-L7SPK
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 EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-0; General Requirements • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • Ex nA IIC T4 Gc • DEMKO15 ATEX 1593X
IECEx	IECEx System, compliant with: • EN 60079-0; General Requirements • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • II 3 G Ex nA IIC T4 Gc • IECEx UL 15.0125X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
TÜV certified for functional safety[2]	Capable of SIL CL 3 according to IEC 61508, capable of Category 4 according to EN954-1, and capable of PL(e) according to ISO 13849-1 when used as described in the GuardLogix 5570 and Compact GuardLogix 5370 Controller Systems Safety Reference Manual, publication 1756-RM099.
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

(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 firmware revisions. See the Product Safety Certificate at the Product Certification link (http://www.ab.com) for a full list of safety-related certifications.

1756-L6S GuardLogix Controllers Specifications

Technical Specifications - 1756-L6S 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	Same as corresponding primary controller
I/O memory	478 KB			—
Optional nonvolatile memory storage	128 MB (1784-CF128)(2) 1 GB (1784-SD1, ships with every controller) 2 GB (1784-SD2)			—
Digital I/O, max	128,000			—
Analog I/O, max	4000			—
Total I/O, max	128,000			—
Replacement battery	1756-BA2 (0.50 g lithium)			
Energy storage modules	—			
Current draw @ 1.2V DC	—			
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	2 (both modules needed; each is one slot)			
Module location	Chassis-based, any slot (the safety partner must be installed in the slot to the immediate right of the primary controller)			
Chassis	1756-A4, 1756-A7, 1756-A10, 1756-A13, 1756-A17			
Power supply standard	1756-PA50, 1756-PA72, 1756-PA75, 1756-PB50, 1756-PB72, 1756-PB75			
Wire category(1)	2 - on RS-232 port			
North American temperature code	T4A			
Enclosure type rating	None (open-style)			

(1) Use this conductor category information for to plan conductor routing as described in the system level installation manual. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.
(2) RSLogix 5000® programming software, version 18 or later.

Environmental Specifications - 1756-L6S GuardLogix Controllers

Attribute	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 °C…+60 °C (+32…+140 °F) on 1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP
Temperature, nonoperating 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)	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 IEC 61000-6-4	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 RS-232 port
Surge transient immunity IEC 61000-4-5	±2 kV line-earth (CM) on RS-232 port
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz

Certifications - 1756-L6S GuardLogix Controllers

Certification[1]	1756-L61S, 1756-L62S, 1756-L63S, 1756-LSP
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) 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 EN 61000-6-4; Industrial Emissions
FM	FM Approved Equipment for use in Class I, Division 2 Group A, B, C, D Hazardous Locations
KC	Korean Registration of Broadcasting and Communication Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
TÜV certified for functional safety[2]	Capable of Cat. 4/PL e according to EN ISO 13849-1 and SIL 3 according to EN 62061/IEC 61508 when used as described in the GuardLogix Controller Systems Safety Reference Manual, publication 1756-RM093.
UL certified for functional safety[2]	Capable of SIL CL 3, see UL File E256621.

(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 firmware revisions.

1756 GuardLogix-XT Controllers

The GuardLogix-XT™ controllers function the same way as the traditional GuardLogix controllers. The GuardLogix-XT controllers are conformally coated for extended protection in harsh, corrosive environments. The GuardLogix-XT system can withstand temperature ranges from -25...+70 °C (-13...+158 °F). You must use a 1756-L73SXT primary controller with a 1756-L7SPXT safety partner.

Customers who previously used the LXT chassis should now migrate to the K version of the chassis.

Attribute	1756-L73SXT	1756-L7SPXT
User memory	8 MB	—
Safety memory	4 MB	Same as corresponding primary controller
I/O memory	0.98 MB	
Digital I/O, max	128,000	
Analog I/O, max	4,000	
Total I/O, max	128,000	
Energy storage modules	• 1756-ESMCAPXT capacitor energy storage module extreme temperature (removable, ships installed with every controller) • 1756-ESMNSEXT capacitor energy storage module extreme temperature (removable, no residual WallClockTime power backup) • 1756-ESMNRMXT capacitor energy storage module extreme temperature (nonremovable, helps prevent USB connection and SD card use to help secure the controller)	• 1756-SPESMNSEXT capacitor energy storage module for the safety partner extreme temperature (removable, no residual WallClockTime power backup) • 1756-SPESMNRMXT capacitor energy storage module for the safety partner extreme temperature (nonremovable, helps prevent USB connection and SD card use to help secure the controller)
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, USB port to backplane Type tested at 980V AC for 60 s	
Weight, approx	0.25 kg (0.55 lb)	
Slot width	2 (need 2 modules; each uses a slot)	
Module location	Chassis-based, any slot (the safety partner must be in a slot to the right of the primary)	
Chassis	1756-A7XT, 1756-A10XT For low temperature applications only, use 1756-A4K, 1756-A7K, 1756-A10K, 1756-A13K, 1756-A17K	
Power supply	1756-PAXT, 1756-PA30XT, 1756-PBXT, 1756-PB30XT	
Wire category(1)	3 - on USB ports	
North American temperature code	T4A	
ATEX temperature code	T4	
IECEx 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.

Environmental Specifications - 1756 GuardLogix-XT Controllers

Attribute	1756-L73SXT, 1756-L7SPXT
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 °C< Ta < +70 °C (-13 °F < Ta < +158 °F) When using a 1756-A7LXT chassis, surrounding air temperature range is -25…+60 °C (-13…+140 °F) even when using an XT controller
Temperature, nonoperating 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	70 °C (158 °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	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
Conducted RF Immunity IEC 61000-4-6.	Not applicable: USB is a temporary programming port.

Certifications - 1756 GuardLogix-XT Controllers

Certification[1]	1756-L73SXT, 1756-L7SPXT
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 EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-0; General Requirements • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • II 3 G Ex nA IIC T4 Gc • DEMKO15 ATEX 1593X
IECEx	IECEx System, compliant with: • EN 60079-0; General Requirements • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • II 3 G Ex nA IIC T4 Gc • IECEx UL 15.0125X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
TÜV certified for functional safety[2]	Capable of SIL CL 3 according to IEC 61508, capable of Category 4 according to EN954-1, and capable of PL(e) according to ISO 13849-1 when used as described in the GuardLogix Controller Systems Safety Reference Manual, publication 1756-RM093.
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

(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 firmware revision.

1756 Armor ControlLogix and Armor GuardLogix Controllers

The Armor™ ControlLogix® and Armor™ GuardLogix® controllers extend the ControlLogix platform to the On-Machine™ space to put industrial control closer to the application, and sometimes onto the machine itself.

The Armor GuardLogix controllers are certified for use in safety applications up to Safety Integrity Level (SIL) 3 and Performance Level PLe (Category 4), where the de-energized state is the safe state.

Dual independent EtherNet/IP ports and Device Level Ring (DLR) capabilities provide resiliency from loss of network connections due to one connection failure.

The controllers support the same environmental ratings and global certifications as the ControlLogix and GuardLogix controllers, but now provide Ingress Protection (IP67 and UL Type 4/4x) for dust and washdown protection.

With so many hardware functions in one device, these controllers minimize cabinet hardware and simplify wiring layouts. The controllers do not require specialty tools or specialty personnel for component replacement. These features can help improve Mean Time to Repair (MTTR), simplify troubleshooting, and make system status readily available without having to open a cabinet or visit a control room.

Features - Armor ControlLogix and Armor GuardLogix Controllers

Feature	1756-L72ER0M, 1756-L73ER0M	1756-L72ER0MS, 1756-L73ER0MS
Communication options	Standard on EtherNet/IP networks	Standard and safety on EtherNet/IP networks
Network connections	256 EtherNet/IP; 128 TCP	
Controller redundancy	Not supported	
Programming languages	• Relay Ladder Logic (RLL) • Structured Text • Function Block Diagram • Sequential Function Chart (SFC)	• Relay Ladder Logic (RLL) • Structured Text • Function Block Diagram • Sequential Function Chart (SFC) • Safety Task supports only RLL and the additional safety application instructions

Armor ControlLogix and Armor GuardLogix Controller Specifications

Technical Specifications - Armor ControlLogix and Armor GuardLogix Controllers

Attribute	1756-L72EROM	1756-L72EROMS	1756-L73EROM	1756-L73EROMS
Standard memory	4 MB	4 MB	8 MB	8 MB
Safety memory	—	2 MB	—	4 MB
I/O memory	0.98 MB			
Optional nonvolatile memory storage	1 GB (1756-SD1 ships with every controller) 2 GB (1756-SD2)			
Digital I/O, max	128,000			
Analog I/O, max	4000			
Total I/O, max	128,000			
Input voltage range	18…32V DC			
Input voltage, nom	24V DC			
Input system power, pins 2 and 3	18…32V DC @ 8 A			
Input pass through power, pins 1 and 4	SELV 18…32V DC @ 8 A			
Output external power, pins 2 and 3	18…32V DC @ 6 A			
Output pass through power, pins 1 and 4	SELV 18…32V DC @ 8 A			
Fusing	Non-replaceable fuse is soldered in place(3)			
Isolation voltage	30V (continuous), Basic Insulation Type, Power to enclosure, Ethernet channels to Power, and non-redundant Ethernet channels to non-redundant Ethernet channels. No isolation between redundant Ethernet channels Type tested at 707V DC for 60 seconds			
Weight, approx	7.04 kg (15.50 lb)	7.15 kg (15.725 lb)	7.04 kg (15.50 lb)	7.15 kg (15.725 lb)
Dimensions	240.0 x 292.0 x 164.52 mm (9.4 x 11.5 x 6.5 in.)			
Ethernet ports	4 Ethernet M12 Category 5E			
Ethernet cable	802.3 compliant shielded or unshielded twisted pair			
USB port(1)	USB 1.1, full speed (12 Mbps)			
Wire Size	PE Ground: 1.3…5.2 mm^2 (16…0 AWG)			
Terminal block torque specifications	PE Ground: 2 N•m (17.7 lb•in)			
Wire category(2)	3 - on USB ports 2 - on power ports 2 - on Ethernet ports			
Enclosure type rating	UL Type 4/4x Meets IP67 (when marked) with receptacle dust caps or cable termination			

(1) The USB port is intended for temporary local programming purposes only and not intended for permanent connection.

(2) Use this Conductor Category information to plan conductor routing. See Industrial Wiring and Grounding Guidelines, publication 1770-4.1.

(3) This fuse is intended to guard against fire hazard due to short circuit conditions.

Environmental Specifications - Armor ControlLogix and Armor GuardLogix Controllers

Attribute	1756-L72ER0M, 1756-L72ER0MS, 1756-L73ER0M, 1756-L73ER0MS
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, nonoperating 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
Temperature, ambient, max	60 °C (140 °F)
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)	30 g
Emissions	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 3V/m with 1 kHz sine-wave 80% AM from 2700…6000 MHz
EFT/B immunity IEC 61000-4-4	±3 kV at 5 kHz and 100 kHz on Power Ports ±3 kV at 5 kHz and 100 kHz on Ethernet Ports
Surge transient immunity IEC 61000-4-5	±1 kV line-line (DM) and ±2 kV line-earth (CM) on power ports ±2 kV line-earth (CM) on Ethernet ports
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz
Voltage variation IEC 61000-4-29	10 ms interruption on DC supply ports

Certifications - Armor ControlLogix and Armor GuardLogix Controllers

Certification[1]	1756-L72EROM, 1756-L73EROM	1756-L72EROMS, 1756-L73EROMS
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584.	
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 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 EN 61000-6-4; Industrial Emissions	
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3	
TÜV certified for functional safety[2]	—	Capable of Cat. 4/PL e according to EN ISO 13849-1 and SIL 3 according to EN 62061/IEC 61508 when used as described in the GuardLogix 5570 and Compact GuardLogix 5370 Controller Systems Safety Reference Manual, publication 1756-RM099.

(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 firmware revisions.

Controller Compatibility

The following tables provide compatibility with I/O modules, display devices, and other controllers and communication devices.

Control Distributed I/O Modules

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

I/O Modules	EtherNet/IP	ControlNet	DeviceNet	Remote I/O
Chassis-based I/O				
1715 Redundant I/O	Yes	No	No	Yes
1746 SLC™ I/O	No	No	No	Yes
1756 ControlLogix I/O	Yes	Yes	No	No
1769 Compact I/O™	No	No	Yes	Yes(2)
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
5069 Compact I/O™ (1)	Yes	No	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

(1) Compatible with ControlLogix 5580 Controllers only.

(2) With a third-party module.

Control Safety Distributed I/O Modules

The GuardLogix controller can control these safety distributed 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	Yes
On-Machine I/O			
1732DS ArmorBlock® Guard I/O™	No	No	Yes
1732ES ArmorBlock Guard I/O	Yes	No	No

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)
Industrial Computers						
Allen-Bradley® industrial computers (all)(1)	Yes	Yes	Yes	Yes	Yes	Yes
Graphic Terminals						
PanelView™ Plus and PanelView e terminals	Yes	Yes	Yes	Yes	Yes	Yes
PanelView Standard terminals	Yes	Yes	Yes	Yes	Yes	Yes
PanelView e terminals	No	Yes	No	Yes	Yes	No
Message Displays						
InView™ message displays	Yes	Yes	Yes	Yes	Yes	Yes

(1) Includes Allen-Bradley integrated display rotating media (HDD) and solid state (SSD) computers, Rockwell Automation® non-display computers, and Allen-Bradley 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(5)
1756 ControlLogix 1756 GuardLogix	Yes	Yes	Yes	Yes	Yes	Yes
5069 CompactLogix™	Yes	No	No	No	No	No
1768, 1769 CompactLogix 1768, 1769 Compact GuardLogix	Yes	Yes	Yes	No	Yes	Yes
1789 SoftLogix™ 5800	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®(1) (2)(3)	Yes	Yes	Yes	Yes	Yes	No
1747 SLC™(4)	Yes	Yes	Yes	Yes	Yes	Yes
1761 MicroLogix™(4)	Yes	No	Yes	No	Yes	Yes
1762 MicroLogix(4)	Yes	No	Yes	No	Yes	Yes
1763 MicroLogix (4)	Yes	No	Yes	No	Yes	Yes
1764 MicroLogix (4)	Yes	No	Yes	No	Yes	Yes
1772 PLC-2®	No	No	No	Yes	Yes	No
1775 PLC-3®	No	No	No	Yes	Yes	No
5250 PLC-5/250	No	No	No	Yes	Yes	No

(1) 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.
(2) The 1785-ENET Ethernet communication interface module must be series A, firmware revision D or later.
(3) The PLC-5, SLC, and MicroLogix processors appear as I/O points to the Logix controller. Use the appropriate DeviceNet interface for the controller.
(4) Use a 1747-L55*x* controller with OS501 or later.
(5) The 1756-DH485 module supports full DH-485 functionality.

Communicate with Other Communication Devices

The controller can communicate with these communication devices.

Communication Device	EtherNet/IP	ControlNet	DeviceNet	DH+
Linking device	1788-EN2DNROM	1788-CN2DN 1788-CN2FF	1788-EN2DNR 1788-EN2DNROM (On-Machine version) 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 (1)	—	1203-FM1 1203-FB1	—	—
Communication module (2)	—	1203-CN 1770-KFC15 1770-KFCD15 1747-KFC15	1770-KFD 1770-KFG	1770-KF2
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 1794-ACNR15 ControlNet adapter.
(2) 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 5560 and ControlLogix 5570 controllers support controller redundancy. In a redundant controller system, you need these components:

- Two 1756 chassis, each with the same of the following:
  - Number of slots
  - Compatible 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-RM2 or 1756-RM2XT redundancy module per chassis that is connected by a 1756-RMC*x* cable
- One or two ControlLogix 5560 or ControlLogix 5570 controllers
- As many as seven enhanced communication modules, that is, 1756-CN2/B, 1756-CN2R/B, 1756-CN2RXT modules, or 1756-EN2T, 1756-EN2TR, 1756-EN2TXT modules

1756-RM2, 1756-RM2XT Redundancy Modules

Technical Specifications - 1756-RM2, 1756-RM2XT Redundancy Modules

Attribute	1756-RM2, 1756-RM2K	1756-RM2XT
Current draw @ 5.1V DC	1.16 A	
Current draw @ 24V DC	3.4 mA	
Power dissipation	6 W, max	
Thermal dissipation	21 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-A7XT, 1756-A10XT, 1756-A4LXT, 1756-A5LXT, 1756-A7LXT
Controller families, supported	ControlLogix 5560, ControlLogix 5570	
Power supply, standard	1756-PA72, 1756-PA75, 1756-PB72, 1756-PB75	1756-PAXT, 1756-PBXT
Power supply, redundant	1756-PA75R, 1756-PB75R, 1756-PSCA2	None
North American temperature code	T4	
IECEx temperature code	T4	
ATEX temperature code	T4	
Enclosure type	None (open-style)	
Weight, approx	0.29 kg (0.64 lb)	
Mounting	ControlLogix-XT chassis, single-slot module	

Environmental Specifications - 1756-RM2, 1756-RM2XT Redundancy Modules

Attribute	1756-RM2, 1756-RM2K	1756-RM2XT
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, nonoperating 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)	70 °C (158 °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	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	

Certifications - 1756-RM2, 1756-RM2XT Redundancy Modules

Certification[1]	1756-RM2, 1756-RM2K	1756-RM2XT
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)	
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; 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: • EN 60079-15; Potentially Explosive Atmospheres, Protection “n” • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • DEMKO13ATEX1325026X	
IECEx	IECEx System, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection “n” • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • IECEx UL 14.0008X	
FM	FM Approved Equipment for use in Class I Division 2 Group A,B,C,D Hazardous Locations	—
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3	
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation	

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

ControlLogix Controller Accessories

You can use these accessories with ControlLogix controllers.

Memory Cards

Memory cards offer nonvolatile memory to store a user program and tag data on a controller.

- The ControlLogix 5560 controllers support optional 1784-CF128 CompactFlash cards purchased separately.
- The ControlLogix 5570 controllers come with the 1784-SD1 Secure Digital (SD) card installed.
- The ControlLogix 5580 controllers come with the 1784-SD2 Secure Digital (SD) card installed.

The memory cards are installed in a socket on the controller. Through the programming 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.

Technical Specifications - 1784 Memory Cards

Attribute	1784-CF128	1784-SD1	1784-SD2
Memory	128 MB	1 GB	2 GB
Supported controllers	1756-L6, 1756-L6S(1)	1756-L71, 1756-L71K, 1756-L71S, 1756-L71SK, 1756-L72, 1756-L72K, 1756-L72S, 1756-L72SK, 1756-L72EROM, 1756-L72EROMS, 1756-L73, 1756-L73K, 1756-L73S, 1756-L73SK, 1756-L73EROM, 1756-L73EROMS, 1756-L73XT, 1756-L73SXT, 1756-L74, 1756-L74K, 1756-L75, 1756-L75K 1756-L81E, 1756-L81EK, 1756-L81ES, 1756-L81ESK,1756-L82E, 1756-L82EK, 1756-L82ES, 1756-L82ESK, 1756-L83E, 1756-L83EK, 1756-L83ES, 1756-L83ESK, 1756-L84E, 1756-L84EK, 1756-L84ES, 1756-L84ESK, 1756-L85E, 1756-L85EK	
Weight, approx	14.20 g (0.50 oz)	1.76 g (0.06 oz)	

(1) For safety controllers using RSLogix 5000 programming software version 18 or later.

Environmental Specifications - 1784 Memory Cards

Attribute	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	

Environmental Specifications - 1784 Memory Cards

Attribute	1784-CF128	1784-SD1, 1784-SD2
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[1]	1784-CF128, 1784-SD1	1784-SD2
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)	
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions	
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3	

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

1756 Energy Storage Modules

These energy storage modules are available for ControlLogix 1756 controllers.

1756-L7 and 1756-L7S Energy Storage Modules

Instead of a battery, the 1756-L7 and 1756-L7S controllers are shipped with a 1756-ESMCAP energy storage module (ESM) already installed.

Technical Specifications - 1756-L7 and 1756-L7S Energy Storage Modules(1)

Attribute	1756-ESMCAP, 1756-ESMCAPK	1756-ESMNSE, 1756-ESMNSEK	1756-ESMNRM, 1756-ESMNRMK
Description	Capacitor energy storage module (removable, ships installed with every controller).	Capacitor energy storage module (removable, no residual WallClockTime power backup). Use this ESM if your application requires that the installed ESM deplete its residual energy to 40 µJ or less before transporting it into or out of your application. Additionally, you can use this ESM with a 1756-L73 (8 MB) or smaller memory-sized controller only. Wait at least 20 minutes for the residual stored energy to decrease to 40 µJ or less before you remove the ESM.	Capacitor energy storage module (nonremovable, helps prevent USB connection and SD card use to help secure the controller). 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	T4A		
ATEX temperature code	T4		
IECEx temperature code	T4		
Enclosure type rating	None (open-style)		

(1) The energy storage modules for the On-Machine controllers are not field-accessible and must be returned to Rockwell Automaton for maintenance or replacement.

Environmental Specifications - 1756-L7 and 1756-L7S Energy Storage Modules

Attribute	1756-ESMCAP, 1756-ESMCAPK, 1756-ESMNSE, 1756-ESMNSEK, 1756-ESMNRM, 1756-ESMNRMK
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 °C < Ta < +60 °C (+32 °F < Ta < +140 °F)
Temperature, nonoperating 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)	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	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

Certifications - 1756-L7 and 1756-L7S Energy Storage Modules

Certification[1]	1756-ESMCAP, 1756-ESMCAPK, 1756-ESMNSE, 1756-ESMNSEK, 1756-ESMNRM, 1756-ESMNRMK
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: • 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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	• European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection ”n” • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • DEMKO13 ATEX 1325026X
IECEx	IECEx System, compliant with: • EN 60079-0; General Requirements • EN 60079-15; Potentially Explosive Atmospheres, Protection ”n” • II 3 G Ex nA IIC T4 Gc • IECEx UL 14.0008X
KC	Korean Registration of Broadcasting and Communication Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

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

Extreme Temperature Energy Storage Modules

The 1756-L7 XT and the 1756-L7 SXT extreme temperature controllers are shipped with a 1756-ESMCAPXT installed.

Technical Specifications - 1756 Extreme Temperature Energy Storage Modules

Attribute	1756-ESMCAPXT	1756-ESMNSEXT	1756-ESMNRMXT
Description	Extreme-temperature capacitor energy storage module (removable, ships installed with every extreme-temperature controller).	Extreme-temperature capacitor energy storage module (removable, no residual WallClockTime power backup). Use this ESM if your application requires that the installed ESM deplete its residual energy to 40 µJ or less before transporting it into or out of your application. Additionally, you can use this ESM with a 1756-L73 (8 MB) or smaller memory-sized controller only. Wait at least 20 minutes for the residual stored energy to decrease to 40 µJ or less before you remove the ESM.	Extreme-temperature capacitor energy storage module (nonremovable, helps prevent USB connection and SD card use to help secure the controller). If the SD card is installed before 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	T4A		
ATEX Temp Code	T4		
IECEx temperature code	T4		
Enclosure type rating	None (open-style)		

Environmental Specifications - 1756 Extreme Temperature Energy Storage Modules

Attribute	1756-ESMCAPXT	1756-ESMNSEXT	1756-ESMNRMXT
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°C < Ta < +70 °C (-13°F < Ta < +158 °F)		
Temperature, nonoperating 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	70 °C (158 °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	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		

Certifications - 1756 Extreme Temperature Energy Storage Modules

Certification[1]	1756-ESMCAPXT, 1756-ESMNSEXT, 1756-ESMNRMXT
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: • 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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection “n” • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • DEMKO13 ATEX 1325026X
IECEx	IECEx System, compliant with: • IEC 60079-15; Potentially Explosive Atmospheres, Protection “n” • IEC 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • IECEx UL 14.0008X
KC	Korean Certification of Broadcasting and Communication Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

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

GuardLogix Safety Partner Energy Storage Modules

The 1756-L7SP safety partner for a GuardLogix system has these energy storage modules available.

Technical Specifications - 1756-L7SP Safety Partner Energy Storage Modules[1]

Attribute	1756-SPESMNSE, 1756-SPESMNSEK	1756-SPESMNRM
Description	Capacitor energy storage module for the safety partner (removable, no residual WallClockTime power backup). Use this ESM if your application requires that the installed ESM deplete its residual energy to 40 µJ or less before transporting it into or out of your application. Additionally, you can use this ESM with a 1756-L73 (8 MB) or smaller memory-sized controller only. Wait at least 20 minutes for the residual stored energy to decrease to 40 µJ or less before you remove the ESM.	Capacitor energy storage module for the safety partner (nonremovable, helps prevent USB connection and SD card use to help secure the controller). If the SD card is installed before 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	300 mA	330 mA
North American temperature code	T4A	
ATEX temperature code	T4	
IECEx temperature code	T4	
Enclosure type rating	None (open-style)	

(1) The energy storage modules for the On-Machine controllers are not field-accessible and must be returned to Rockwell Automaton for maintenance or replacement.

Environmental Specifications - 1756-L7SP Safety Partner Energy Storage Modules

Attribute	1756-SPESMNSE, 1756-SPESMNSEK	1756-SPESMNRM
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 °C < Ta < +60 °C (+32 °F < Ta < +140 °F)	
Temperature, nonoperating 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)	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	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	

Certifications - 1756-L7SP Safety Partner Energy Storage Modules

Certification[1]	1756-SPESMNSE, 1756-SPESMNSEK, 1756-SPESMNRM
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: • 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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection “n” • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • DEMKO15 ATEX 1593X
IECEx	IECEx System, compliant with: • IEC 60079-15; Potentially Explosive Atmospheres, Protection “n” • IEC 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • IECEx UL 15.0125X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

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

GuardLogix Extreme-temperature Safety Partner Energy-storage Modules

The 1756-L7SPXT extreme-temperature safety partner is shipped with a 1756-SPESMNSEXT energy storage module installed.

Technical Specifications - 1756-L7SPXT Extreme-temperature Safety Partner Energy-storage Modules

Attribute	1756-SPESMNSEXT	1756-SPESMNRMXT
Description	Capacitor energy storage module for the extreme-temperature safety partner (removable, no residual WallClockTime power backup). Use this ESM if your application requires that the installed ESM deplete its residual energy to 40 µJ or less before transporting it into or out of your application. Additionally, you can use this ESM with a 1756-L73 (8 MB) or smaller memory-sized controller only. Wait at least 20 minutes for the residual stored energy to decrease to 40 µJ or less before you remove the ESM.	Capacitor energy storage module for the safety extreme-temperature partner (helps prevent USB connection and SD card use to help secure the controller). If the SD card is installed before 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	300 mA	330 mA
North American temperature code	T4A	
ATEX Temp Code	T4	
IECEx temperature code	T4	
Enclosure type rating	None (open-style)	

Environmental Specifications - 1756-L7SPXT Extreme-temperature Safety Partner Energy Storage Modules

Attribute	1756-SPESMNSEXT	1756-SPESMNRMXT
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 °C < Ta < +70 °C (-13 °F < Ta <+158 °F)	
Temperature, nonoperating 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	70 °C (158 °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	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	

Certifications - 1756-L7SPXT Extreme-temperature Safety Partner Energy-storage Modules

Certification[1]	1756-SPESMNSEXT, 1756-SPESMNRMXT
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: • 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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: • EN 60079-15; Potentially Explosive Atmospheres, Protection “n” • EN 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • DEMKO15 ATEX 1593X
IECEx	IECEx System, compliant with: • IEC 60079-15; Potentially Explosive Atmospheres, Protection “n” • IEC 60079-0; General Requirements • II 3 G Ex nA IIC T4 Gc • IECEx UL 15.0125X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
EAC	Russian Customs Union TR CU 020/2011 EMC Technical Regulation Russian Customs Union TR CU 004/2011 LV Technical Regulation

(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 5560 controller ships with a battery. The ControlLogix 5560 controllers have nonvolatile memory if you install a 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 remains 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 [1]

Attribute	1756-BA1	1756-BA2	1756-BATM[3]	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-L55M controllers[2] 1756-L60M03SE controller	—	1756-L55M controllers[3] 1756-L60M03SE controller	1756-BATM battery module

(1) To ship lithium batteries globally, there can be specific restrictions and special packaging requirements. Contact the shipping company for packaging and shipping guidelines and restrictions.
(2) The 1756-L55M22, 1756-L55M23, and 1756-L55M24 controllers have nonvolatile memory and can be used without a battery.
(3) The 1756-BATM externally mounted battery assembly is recommended for use with all 1756-L55*x* controllers, and 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 assembly includes one 1756-BATA lithium battery assembly and a 1 m (3.28 ft) cable to connect housing to the controller.

Serial Communication Cables

The 1756-L6 and 1756-L6S 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

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	www.rockwellautomation.com/knowledgebase
Local Technical Support Phone Numbers	Locate the phone number for your country.	www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	www.rockwellautomation.com/literature
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	www.rockwellautomation.com/global/support/pcdc.page

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