

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ALLEN-BRADLEY CONTROLLOGIX

1756-L71

CONTROLLOGIX 5570 CONTROLLER

Used with the applicable ControlLogix 5570 controllers configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Allen-Bradley official manufacturer documentation

Summary of Changes

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

Topic	Page
Added information about the ControlLogix 5590 Controllers	2...16
Corrected footnotes related to I/O Capacity and Message Rate Capacity	Throughout
Added information about the 1784-MSD8, 1784-MSD8XT, 1784-SD4, and 1784-SD4XT Memory Cards	Throughout
Updated the GuardLogix 5580 and GuardLogix-XT 5580 Controllers Specification tables with TÜV security information	47, 51
Updated Message Rate Capacity for ControlLogix 5590, ControlLogix 5580, and GuardLogix 5580 Controllers	4, 8, 12, 18, 22, 26, 30, 34, 38, 44, 48

Catalog Numbers

This publication is applicable to these controllers and modules:

ControlLogix 5590 Controllers

ControlLogix® 5590 Controllers:	1756-L902TS, 1756-L905TS, 1756-L908TS, 1756-L915TS, 1756-L925TS, 1756-L950TS, 1756-L980TS, 1756-L9SP
ControlLogix-XT™ 5590 Controllers:	1756-L902TSXT, 1756-L905TSXT, 1756-L908TSXT, 1756-L915TSXT, 1756-L925TSXT, 1756-L950TSXT, 1756-L980TSXT, 1756-L9SPXT
ControlLogix-XT 5590 Process Controllers:	1756-L905TPSXT, 1756-L915TPSXT, 1756-L950TPSXT, 1756-L980TPSXT

ControlLogix 5580 and GuardLogix 5580 Controllers

ControlLogix 5580 Controllers:	1756-L81E, 1756-L82E, 1756-L83E, 1756-L84E, 1756-L85E
ControlLogix 5580 Conformal Coated Controllers:	1756-L81EK, 1756-L82EK, 1756-L83EK, 1756-L84EK, 1756-L85EK
ControlLogix-XT 5580 Controllers:	1756-L81EXT, 1756-L82EXT, 1756-L83EXT, 1756-L84EXT, 1756-L85EXT
ControlLogix 5580 No Stored Energy (NSE) Controllers:	1756-L81E-NSE, 1756-L82E-NSE, 1756-L83E-NSE, 1756-L84E-NSE, 1756-L85E-NSE
ControlLogix-XT 5580 NSE Controllers:	1756-L81E-NSEXT, 1756-L82E-NSEXT, 1756-L83E-NSEXT, 1756-L84E-NSEXT, 1756-L85E-NSEXT
ControlLogix 5580 Process Controllers:	1756-L81EP, 1756-L83EP, 1756-L85EP
ControlLogix-XT 5580 Process Controllers:	1756-L81EPXT, 1756-L83EPXT, 1756-L85EPXT
GuardLogix® 5580 Controllers:	1756-L81ES, 1756-L82ES, 1756-L83ES, 1756-L84ES, 1756-L85ES, 1756-L8SP
GuardLogix 5580 Conformal Coated Controllers:	1756-L81ESK, 1756-L82ESK, 1756-L83ESK, 1756-L84ESK, 1756-L8SPK
GuardLogix-XT 5580 Controllers:	1756-L81EXTS, 1756-L82EXTS, 1756-L83EXTS, 1756-L84EXTS, 1756-L8XTSP 1756-L81ESXT, 1756-L82ESXT, 1756-L83ESXT, 1756-L84ESXT, 1756-L8SPXT

ControlLogix 5570 and GuardLogix 5570 Controllers

ControlLogix 5570 Controllers:	1756-L71, 1756-L72, 1756-L73, 1756-L74, 1756-L75
ControlLogix 5570 Conformal Coated Controllers:	1756-L71K, 1756-L72K, 1756-L73K, 1756-L74K, 1756-L75K
ControlLogix-XT 5570 Controllers:	1756-L73XT
GuardLogix 5570 Controllers:	1756-L71S, 1756-L72S, 1756-L73S, 1756-L7SP
GuardLogix 5570 Conformal Coated Controllers:	1756-L71SK, 1756-L72SK, 1756-L73SK, 1756-L7SPK
GuardLogix-XT 5570 Controllers:	1756-L73SXT, 1756-L7SPXT
Armor™ ControlLogix 5570 Controllers:	1756-L72EROM, 1756-L73EROM
Armor™ GuardLogix® 5570 Controllers:	1756-L72EROMS, 1756-L73EROMS

Controller Redundancy

ControlLogix Redundancy Modules:	1756-RM3, 1756-RM3-2SFP, 1756-RM3XT 1756-RM2, 1756-RM2K, 1756-RM2XT
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ControlLogix 5570 Standard and Conformal Coated Controllers

Features - ControlLogix 5570 Standard and Conformal Coated Controllers

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, including a combination of one continuous, periodic, and event tasks • 32 programs/tasks prior to RSLogix 5000® programming software, version 15.01.00 • 100 programs/task beginning with RSLogix 5000 programming software, version 15.01.00 • 1000 programs/task beginning with Logix Designer application, version 24.00.00
Built-in communication ports	1-port USB ⁽¹⁾
Communication options	• EtherNet/IP • ControlNet • DeviceNet • Data Highway Plus • Remote I/O • SERCOS • Third-party process and device networks
USB port communication	Programming, configuration, firmware update, and online edits only
Controller connections supported max ⁽²⁾	500
Network connections, per network module	• 1000 I/O; 528 EtherNet/IP; 512 TCP (1756-EN4TR) • 256 EtherNet/IP; 128 TCP (1756-EN2x) • 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	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 logic • Structured text • Function Block Diagram • Sequential function chart (SFC)

(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) 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](#).

Technical Specifications - ControlLogix 5570 Standard and Conformal Coated 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				
Nonvolatile memory storage	1 GB Secure Digital (SD) card (1784-SD1), ships pre-installed in the controller ⁽¹⁾				
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 (non-removable, 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 Compliant and tested according to IEC/UL 61010-1				
USB port ⁽²⁾	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-A17K				
Power supply, standard	1756-PA50, 1756-PA50K, 1756-PA72, 1756-PA72K, 1756-PA75, 1756-PA75K, 1756-PB50, 1756-PB50K 1756-PB72, 1756-PB72K, 1756-PB75, 1756-PB75K, 1756-PC75, 1756-PH75				
Power supply, redundant	1756-PA75R, 1756-PA75RK, 1756-PB75R, 1756-PB75RK, 1756-PSCA2, 1756-PSCA2K				
Wire category ⁽³⁾	3 - on USB port				
Temperature code	T4				
Enclosure type rating	None (open-style)				

(1) Larger versions may be available. See [Memory Cards on page 61](#).

(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.

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

Environmental Specifications - ControlLogix 5570 Standard and Conformal Coated Controllers

Attribute	1756-L71, 1756-L72, 1756-L73, 1756-L74, 1756-L75	1756-L71K, 1756-L72K, 1756-L73K, 1756-L74K, 1756-L75K
Temperature, operating IEC 60068-2-1 (Test Ae, Operating Cold), IEC 60068-2-2 (Test Be, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	$0^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ ($+32^{\circ}\text{F} \leq T_a \leq +140^{\circ}\text{F}$)	
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)	$-40...+85^{\circ}\text{C}$ ($-40...+185^{\circ}\text{F}$)	
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)	5...95% noncondensing	
Conformal coated	No	Yes
Corrosive Atmosphere ASTM B845-97 Method K Accelerated Test (20-Day Exposure)	—	Severity Level G3 ⁽¹⁾ per ANSI/ISA 71.04-2013, Airborne Contaminants—Gases Severity Level CX ⁽¹⁾⁽²⁾ per IEC 60721-3-3:2019, Chemically Active Substances
Vibration	IEC 60068-2-6 (Test Fc, Operating)	
Shock, operating	IEC 60068-2-27 (Test Ea, Unpackaged Shock)	
Shock, nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock)	
Emissions	IEC 61000-6-4	
ESD immunity	IEC 61000-4-2	
Radiated RF immunity	IEC 61000-4-3	
Conducted RF Immunity	IEC 61000-4-6 (Not applicable: USB is a temporary programming port.)	

(1) Once the factory packaging seal is broken, plugs or covers must be installed in all unoccupied ports or slots for the product to maintain its corrosive atmosphere rating.

(2) Up to 86.4 g/(m²-yr), mass loss of copper due to corrosion.

GuardLogix 5570 Standard and Conformal Coated Controllers

Features - GuardLogix 5570 Controllers

Feature	1756-L71S, 1756-L71SK, 1756-L72S, 1756-L72SK, 1756-L73S, 1756-L73SK	1756-L7SP, 1756-L7SPK
Safety communication options	Standard and safety • EtherNet/IP • ControlNet • DeviceNet	—
Network connections per network module located in the local chassis	• 1000 I/O; 528 EtherNet/IP; 512 TCP (1756-EN4TR) • 256 EtherNet/IP; 128 TCP (1756-EN2x) • 128 EtherNet/IP; 64 TCP (1756-ENBT) • 128 ControlNet (1756-CN2/B) • 100 ControlNet (1756-CN2/A) • 40 ControlNet (1756-CNB/D, 1756-CNB/E)	—
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)	—

Technical Specifications - GuardLogix 5570 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	Configured to match primary controller
I/O memory	0.98 MB			—
Nonvolatile memory storage	1 GB Secure Digital (SD) card (1784-SD1), ships pre-installed in the controller ⁽¹⁾			—
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 (non-removable, 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 (non-removable, 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 Compliant and tested according to IEC/UL 61010-1			—
Weight, approx	0.25 kg (0.55 lb)			—
Slot width	2 (both modules needed; each is one slot)			—
Module location	Chassis-based, any slot			Chassis slot immediately to the 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-PA50K, 1756-PA72, 1756-PA72K, 1756-PA75, 1756-PA75K, 1756-PB50, 1756-PB50K 1756-PB72, 1756-PB72K, 1756-PB75, 1756-PB75K, 1756-PC75, 1756-PH75			—
Power supply, redundant	1756-PA75R, 1756-PA75RK, 1756-PB75R, 1756-PB75RK, 1756-PSCA2, 1756-PSCA2K			—
Wire category ⁽²⁾	3 - on USB ports			—
Temperature code	T4			—
Enclosure type rating	None (open-style)			—

(1) Larger versions may be available. See [Memory Cards on page 72](#).

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