ControlLogix 5580 Standard and Conformal Coated Controllers

Features - ControlLogix 5580 Standard and Conformal Coated Controllers

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, including a combination of one continuous, periodic, and event tasks 1000 programs/task				
Built-in communication ports(10)	1-port USB(1) Embedded Ethernet port				
USB port communication	USB 2.0 Full speed (12 Mbps) Programming, configuration, firmware update, and online edits only				
Ethernet performance	10/100/1000 Mbps				
I/O Capacity (Class 0/1) - packets/second(2)(3)	• 128,000 without CIP Security™ • 40,000 with integrity • 20,000 with integrity and confidentiality				
Message Rate Capacity HMI/MSG (Class 3) - messages/second(2)(3)(4)					
front port	• 2000 without CIP Security • 1500 with integrity • 900 with integrity and confidentiality				
backplane(5)	• 4000 with multiple 1756-EN4TR modules				
backplane in Logix redundancy(5)	• 2000				
Communication options	• EtherNet/IP™ • ControlNet® • DeviceNet® • Data Highway Plus™ • Remote I/O • SERCOS(6) • Third-party process and device networks				
EtherNet/IP nodes supported max(7)	60 nodes(9) 100 nodes(10)	80 nodes(9) 175 nodes(10)	100 nodes(8) 250 nodes(10)	150 nodes(9) 250 nodes(10)	300 nodes(11)
OPC UA nodes supported max(12)(13)	–	600 nodes	1200 nodes	10,000 nodes	15,000 nodes
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. • 1000 I/O; 528 EtherNet/IP; 512 TCP (1756-EN4TR or variant rated for harsh environments) • 256 EtherNet/IP; 128 TCP (1756-EN2x or variant rated for harsh environments) • 128 EtherNet/IP; 64 TCP (1756-ENBT or variant rated for harsh environments) • 100 ControlNet (1756-CN2/A or variant rated for harsh environments) • 40 ControlNet (1756-CNB/D, 1756-CNB/E or variant rated for harsh environments) • 128 ControlNet (1756-CN2/B or variant rated for harsh environments)				
Integrated motion	• SERCOS interface beginning with Studio 5000 Logix Designer® application version 31.00.01 or later • Analog options (encoder input, LDT input, SSI input) beginning with Studio 5000 Logix Designer application version 31.00.01 or later • Integrated Motion on the EtherNet/IP network				
Controller redundancy	Full support with Studio 5000 Logix Designer application version 33.00.02 or later(14)				
Programming languages	• Relay ladder logic (RLL) • 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) 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.
(3) For information on integrity and confidentiality, see the CIP Security with Rockwell Automation Products Application Technique, publication SECURE-AT001.
(4) Maximums assume that the processor is the target, not the originator.
(5) Controller performance not impacted by CIP Security.
(6) With Studio 5000 Logix Designer® application version 31.00.01 or later.
(7) An EtherNet/IP node is a 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, publication 1756-UM543.
(8) With Studio 5000 Logix Designer application versions 28.00.01 and 29.00.02.
(9) With Studio 5000 Logix Designer application version 29.00.02.
(10) With Studio 5000 Logix Designer application version 30.00.00 or later.
(11) Additional EtherNet/IP nodes may be possible depending on remaining controller resources.
(12) An OPC UA node is a data structure, such as a single tag, that can be exchanged between industrial processes to external resources and applications. For more information on OPC UA nodes, see the OPC UA in 5580 and 5380 Controllers User Manual, publication 1756-UM023.
(13) With Studio 5000 Logix Designer application version 36.00.00 or later.
(14) When the controller is enabled for redundancy: the Ethernet port is off, Integrated motion is not supported, and DeviceNet, ControlNet, RIO, DH+™ networks are not supported. See the Redundancy Systems User Manual, publication 1756-UM015.

Technical Specifications - ControlLogix 5580 Standard and Conformal Coated Controllers

Attribute	1756-L81E, 1756-L81EK	1756-L82E, 1756-L82EK	1756-L83E, 1756-L83EK	1756-L84E, 1756-L84EK	1756-L85E, 1756-L85EK
Standard 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				
Nonvolatile memory storage	4 GB Secure Digital (SD) card (1784-SD4), ships pre-installed in the controller(1)				
Energy storage module	Embedded in controller, non-removable				
Number of power cycles	80,000				
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 Compliant and tested according to IEC/UL 61010-1				
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-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 port 2 - on Ethernet ports				
Wire size	Ethernet connections: Ethernet cabling and installation according to IEC 61918 and IEC 61784-5-2				
Temperature code	T4				
Enclosure type rating	None (open-style)				

(1) Larger versions may be available. See Memory Cards on page 42.
(2) Use this conductor category information to plan conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

Environmental Specifications - ControlLogix 5580 Standard and Conformal Coated 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 Ae, Operating Cold), IEC 60068-2-2 (Test Be, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	0 °C ≤ Ta ≤ +60 °C (+32 °F ≤ Ta ≤ +140 °F) Standard Chassis, Series C 0 °C ≤ Ta ≤ +50 °C (+32 °F ≤ Ta ≤ +122 °F) Standard Chassis, Series B	
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) Chassis Series C and B	
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	
EFT/B Immunity	IEC 61000-4-4	
Surge Transient Immunity	IEC 61000-4-5	
Conducted RF Immunity	IEC 61000-4-6	

(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.