ControlLogix 5580 Process Controllers

The ControlLogix 5580 process controllers are an extension of the Logix 5000 controller family that focuses on plant-wide process control. These process controllers come configured with a default process tasking model and dedicated PlantPAx® process instructions optimized for process applications and that improve design and deployment efforts.

The ControlLogix 5580 process controllers provide extended protection in corrosive gas environments and can be used in temperature extremes from -25...+70 °C (-13...+158 °F) when deployed as part of a Logix-XT system.

Features - ControlLogix 5580 Process Controllers

Feature	1756-L81EP	1756-L83EP	1756-L85EP
Controller tasks	32 tasks, including a combination of one continuous, periodic, and event tasks, 1000 programs/task		
Built-in communication ports(1)	1 port USB(2) 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(3)(4)	• 128,000 without CIP Security • 40,000 with integrity • 20,000 with integrity and confidentiality		
Message Rate Capacity HMI/MSG (Class 3) - messages/second(3)(4)(5)			
front port	• 2000 without CIP Security • 1500 with integrity • 900 with integrity and confidentiality		
backplane(6)	• 4000 with multiple 1756-EN4TR modules		
backplane in Logix redundancy(6)	• 2000		
Communication options	• EtherNet/IP • ControlNet • DeviceNet • Data Highway Plus • Remote I/O • SERCOS • Third-party process and device networks		
EtherNet/IP nodes supported, max(7)	100 nodes	250 nodes	300 nodes(8)
OPC UA nodes supported max(9)(10)	–	1200 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-EN2*x* 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 • Analog options (encoder input, LDT input, SSI input) • Integrated Motion on the EtherNet/IP network		
Controller redundancy	Full support with Studio 5000 Logix Designer application version 33.00.00 or later.(1)		
Programming languages	• Relay Ladder Logic (RLL) • Structured Text • Function Block Diagram • Sequential Function Chart (SFC)		

(1) 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.
(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) 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.
(4) For information on integrity and confidentiality, see the CIP Security with Rockwell Automation Products Application Technique, publication SECURE-AT001.
(5) Maximums assume that the processor is the target, not the originator.
(6) Controller performance not impacted by CIP Security.
(7) 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, publication 1756-UM543.
(8) Additional EtherNet/IP nodes may be possible depending on remaining controller resources.
(9) 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.
(10) With Studio 5000 Logix Designer application version 36.00.00 or later.

Technical Specifications - ControlLogix 5580 Process Controllers

Attribute	1756-L81EP	1756-L83EP	1756-L85EP
Standard memory	3 MB	10 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-A17K Series B, Series C • 1756-A7XT, 1756-A10XT Series C • 1756-A7ZXT, 1756-A10ZXT		
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 Process Controllers

Attribute	1756-L81EP, 1756-L83EP, 1756-L85EP
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)	-25 °C ≤ Ta ≤ +70 °C (-13°F ≤ Ta ≤ +158 °F) XT Chassis, Series C or ZXT Chassis -25 °C ≤ Ta ≤ +60 °C (-13 °F ≤ Ta ≤ +140 °F) Standard Chassis, Series C -25 °C ≤ Ta ≤ +50 °C (-13 °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) XT Chassis, Series C or ZXT Chassis, Standard Chassis, Series C or B
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)	5…95% noncondensing
Conformal coated	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.

Certifications - ControlLogix 5580 Process Controllers

Certification[1]	1756-L81EP, 1756-L83EP, 1756-L85EP
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.
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)
RCM	Australian Radiocommunications Act, compliant with EN 61000-6-4; Industrial Emissions
ATEX	European Union 2014/34/EU ATEX Directive, compliant with: • EN IEC 60079-0; General Requirements • EN IEC 60079-7; Potentially Explosive Atmospheres, Protection "e" • II 3 G Ex ec IIC T4 Gc • UL 22 ATEX 2817X
IECEx	IECEx System, compliant with: • IEC 60079-7; Potentially Explosive Atmospheres, Protection "e" • IEC 60079-0; General Requirements • II 3 G Ex ec IIC T4 Gc • IECEx UL 22.0062X
UKEx	In conformity with the following UKEx Statutory Instruments and their amendments: • Schedule 1 of the UKEx Regulation 2016 No. 1107 • Equipment protection by increased safety "e", reference certificate number UL22UKEX2601X • Zone 2 classification according to UKEx Regulation 2016 No. 1107
UKCA	In conformity with the following UK Statutory Instruments and their amendments: • 2016 No. 1091, Electromagnetic Compatibility Regulations • 2016 No. 1107, Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations • 2012 No. 3032, Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with Article 58-2 of Radio Waves Act, Clause 3
CCC	CCC 2020122309111998 CNCA-C23-01 强制性产品认证实施规则 防爆电气 CNCA-C23-01 CCC Implementation Rule Explosion-Proof Electrical Products
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications
CIP Security	ODVA conformance tested to CIP Security specifications
TÜV certified for security	IEC 62443-4-2 SL1
Morocco	In conformity with the following regulations: • Arrêté ministériel n° 6404-15 du 1 er muharram 1437 (15 octobre 2015) Équipements électriques destinés à être utilisés sous certaines limites de tension • Arrêté ministériel n° 6404-15 du 29 ramadan 1436 (16 juillet 2015) Compatibilité électromagnétique des équipements

(1) See the Product Certification website at rok.auto/certifications for Declarations of Conformity, Certificates, and other certification details.