Manuals+ — User Manuals Simplified.

Allen-Bradley 5580 ControlLogix Controllers Instructions

Contents

Allen-Bradley 5580 ControlLogix Controllers

ControlLogix 5580 Controllers

- Standard Catalog Numbers: 1756-L81E, 1756-L81EK, 1756-L82E, 1756-L82EK, 1756-L83E, 1756-L83EK, 1756-L84E,
  1756-L84EK, 1756-L85E, 1756-L85EK
- No Stored Energy (NSE) Catalog Numbers: 1756-L81E-NSE, 1756-L82E-NSE, 1756-L83E-NSE, 1756-L84E-NSE, 1756-L85E-NSE
- ControlLogix-XT Catalog Numbers: 1756-L81EXT, 1756-L82EXT, 1756-L83EXT, 1756-L84EXT, 1756-L85EXT
- Process Catalog Numbers: 1756-L81EP, 1756-L83EP, 1756-L85EP

The ControlLogix® 5580 controllers help enable faster system performance, capacity, productivity, and security to help meet the growing demands of smart machines and equipment for manufacturing.

- Integrated Motion over EtherNet/IP™ for up to 256 axes.
- 1 Gb embedded Ethernet port enables high performance, communications, I/O, and motion control.
- Secure Digital (SD) card provides optional nonvolatile memory to store user program and tag data on the controller.
- Digitally signed and encrypted firmware helps protect against malicious intent.
- ControlLogix NSE controllers deplete their residual stored energy to specific levels.
- ControlLogix Process controllers are optimized for process applications.
- ControlLogix-XT™ and ControlLogix Process controllers are designed for temperature extremes.
- ControlLogix Standard controllers with a 'K' in the catalog number, ControlLogix NSE controllers, ControlLogix-XT controllers, and
- ControlLogix Process controllers are conformal coated for extended protection in harsh, corrosive environments.

Summary of Changes

This manual contains new and updated information as indicated in the following table.

Topic	Page
Added Plug Attention Statement	6
Specifications	8

ATTENTION: Read this document and the documents listed in the Additional Resources section about installation, configuration and operation of this equipment before you install, configure, operate or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to

requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice. If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Product Advisories

ATTENTION:

- In case of malfunction or damage, no attempts at repair should be made. The module should be returned to the manufacturer for repair. Do not dismantle the module.
- The USB port is intended for temporary local programming purposes only and not intended for permanent connection. The USB cable is not to exceed 3.0 m (9.84 ft) and must not contain hubs.
- Use only a soft dry anti-static cloth to wipe down equipment. Do not use any cleaning agents.
- When ControlLogix 5580 Standard and ControlLogix 5580 NSE controllers are installed in a 1756 Series B Chassis, this equipment is certified for use only within the surrounding air temperature range of 0…50 °C (32… 122 °F). The equipment must not be used outside of this range.
- When ControlLogix 5580 Standard and ControlLogix 5580 NSE controllers are installed in a 1756 Series C Chassis, this equipment is certified for use only within the surrounding air temperature range of 0…60 °C (32… 140 °F). The equipment must not be used outside of this range.
- When ControlLogix-XT 5580 Controllers and ControlLogix 5580 Process controllers are installed in a 1756 Series B Chassis, this equipment is certified for use only within the surrounding air temperature range of -25… +50 °C (-13…+122 °F). The equipment must not be used outside of this range.
- When ControlLogix-XT 5580 Controllers and ControlLogix 5580 Process controllers are installed in a 1756 Series C Chassis, this equipment is certified for use only within the surrounding air temperature range of -25… +60 °C (-13…+140 °F). The equipment must not be used outside of this range.
- When ControlLogix-XT 5580 Controllers and ControlLogix 5580 Process controllers are installed in a ControlLogix-XT Series C Chassis, this equipment is certified for use only within the surrounding air temperature range of -25…+70 °C (-13…+158 °F). The equipment must not be used outside of this range.

WARNING:

- When you press the reset button while power is on, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.
- Do not use the USB port in hazardous locations.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.

Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.

WARNING: Explosion Hazard –

- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.
- Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
- Substitution of components may impair suitability for Class I, Division 2.
- If this product contains batteries, they must only be changed in an area known to be nonhazardous.

European Hazardous Location Approval

The following applies to products marked

- Are Equipment Group II, Equipment Category 3, and comply with the Essential Health and Safety Requirements relating to the design and construction of such equipment given in Annex II to Directive 94/9/EC. See the EC Declaration of Conformity at rok.auto/certifications for details.
- The type of protection is for Ex nA IIC T4 Gc according to EN 60079-15.
- Comply to standards: EN 60079-0:2012+A11:2013, EN60079-15:2010, reference certificate number DEMKO13ATEX1325026X.
- Are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification according to ATEX directive 1999/92/EC.
- Can have catalog numbers followed by a "K" to indicate a conformal coating option.

IEC Hazardous Location Approval

The following applies to products with IECEx certification:

- Are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification to IEC 60079-0.
- The type of protection is Ex nA IIC T4 Gc according to IEC 60079-15.
- Such modules comply to Standards IEC 60079-0:6th Edition, IEC 60079-15:4th Edition, reference IECEx certificate number IECExUL14.0008X.
- Can have catalog numbers followed by a "K" to indicate a conformal coating option.

Special Conditions for Safe Use

WARNING:

- This equipment is not resistant to sunlight or other sources of UV radiation.
- This equipment shall be mounted in an ATEX/IECEx Zone 2 certified enclosure with a minimum ingress protection rating of at least IP54 (as defined in EN/IEC 60529) and used in an environment of not more than Pollution Degree 2 (as defined in EN/IEC 60664-1) when applied in Zone 2 environments.
- The enclosure must be accessible only by the use of a tool.

- This equipment shall be used within its specified ratings defined by Rockwell Automation.
- Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 140% of the rated voltage when applied in Zone 2 environments.
- The instructions in the user manual shall be observed.
- This equipment must be used only with ATEX/IECEx certified Rockwell Automation backplanes.
- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.
- 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.

Environment and Enclosure

ATTENTION: This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in EN 60664-1), at altitudes up to 2000 m (6562 ft) without derating.
This equipment is not intended for use in residential environments and may not provide adequate protection to radio communication services in such environments.
This equipment is supplied as open-type equipment for indoor use. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA or be approved for the application if non-metallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain more information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.
In addition to this publication, see the following:

- Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for more installation requirements.
- NEMA Standard 250 and EN/IEC 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure.

IMPORTANT Any illustrations, charts, sample programs, and layout examples that are shown in this publication are intended solely for the purposes of example. Since there are many variables and requirements that are associated with any particular installation, Rockwell Automation does not assume responsibility or liability for actual use based on the examples that are shown in this publication.

Parts List

The controller ships with these parts:

- A key for the mode switch
- 2 GB Secure Digital Card (1784-SD2), pre-installed in the controller

Required System Components

To use the controller, a chassis and power supply are required. For controller and chassis operating specifications, see the 1756 ControlLogix Controller Specifications Technical Data, publication 1756-TD001.

Component	Catalog Number
ControlLogix Standard Chassis, series C and series B	1756-A4, 1756-A4K, 1756-A7, 1756-A7K, 1756-A10, 1756-A10K, 1756-A13, 1756-A13K, 1756-A17, 1756-A17K
Power supply, standard	1756-PA72, 1756-PA72K, 1756-PA75, 1756-PA75K, 1756-PB72, 1756-PB72K,1756-PB75, 1756-PB75K,1756-PC75, 1756-PH75
Power supply, standard slim	1756-PA50, 1756-PA50K, 1756-PB50, 1756-PB50K
Power supply, redundant	1756-PA75R, 1756-PA75RK,1756-PB75R, 1756-PB75RK, 1756-PSCA2, 1756-PSCA2K
ControlLogix-XT Chassis, series C	1756-A7XT, 1756-A10XT
ControlLogix-XT Power supply	1756-PAXT, 1756-PBXT
ControlLogix-XT Slim Power supply	1756-PA30XT, 1756-PB30XT
ControlLogix-XT Redundant Power supply	1756-PAXTR, 1756-PBXTR

Product Dimensions
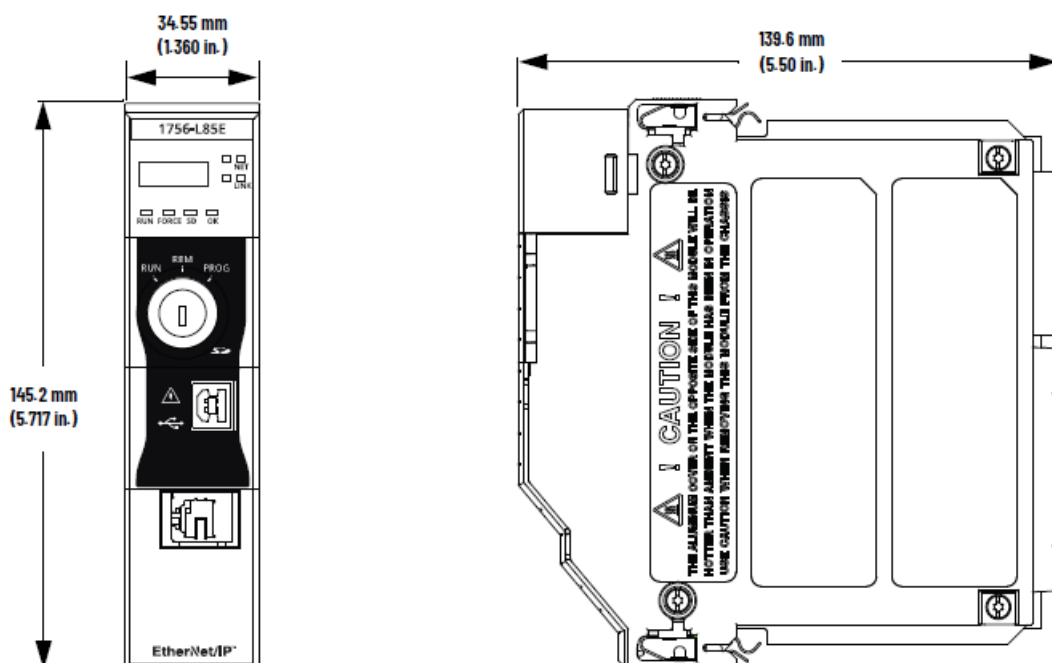
Connectors and Status Indicators
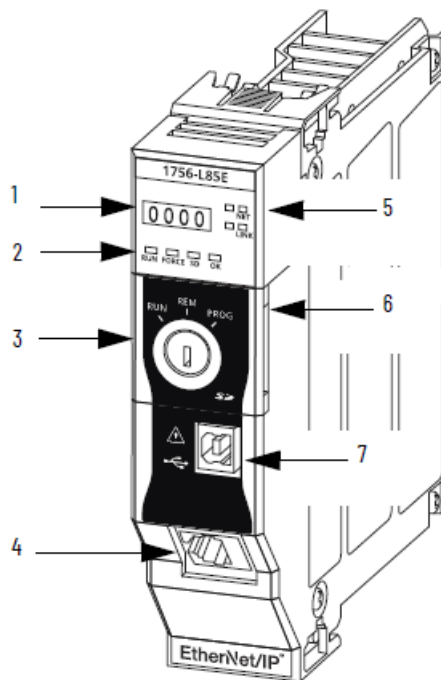
Item	Description
1	4-character display
2	Status Indicators
3	Mode switch (Remote, Run, Program)
4	Ethernet Port
5	Ethernet Status Indicators
6	SD card slot and Reset Button are behind the door.
7	USB Port

Install the Controller

ATTENTION: If you are using a ControlLogix 5580 Standard or NSE controller to the maximum temperature of 60 °C (140 °F), you must use a ControlLogix chassis, series C. If you are using a ControlLogix-XT 5580 or ControlLogix Process controller to the maximum temperature of 70 °C (158 °F), you must use a ControlLogix-XT chassis, series C.

WARNING: When you insert or remove the module while backplane power is on, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding. Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts can create electrical resistance that can affect module operation.

ATTENTION: The ControlLogix 5580 controllers that are listed on page 1 of this document that end with a 'K' or 'XT' are shipped with port protection plugs installed to provide a layer of protection from corrosive atmospheres. Port plugs must remain installed in unused ports at all times during storage and operation for the product to meet its corrosive atmosphere rating. If temporary access is required, plugs can be removed, and should be reinserted after temporary access is complete.

Before you install the controller, make sure to follow the instructions in the ControlLogix Chassis and Power Supply Installation Instructions, publication 1756-IN005.

When installing a ControlLogix controller, you can do the following:

- Place the controller in any slot.
- Use multiple controllers in the same chassis.

You can install or remove a ControlLogix controller while chassis power is on and the system is operating.
ATTENTION: This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation.
Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe packaging when not in use.

1. Align the circuit board with the top and bottom guides in the chassis.
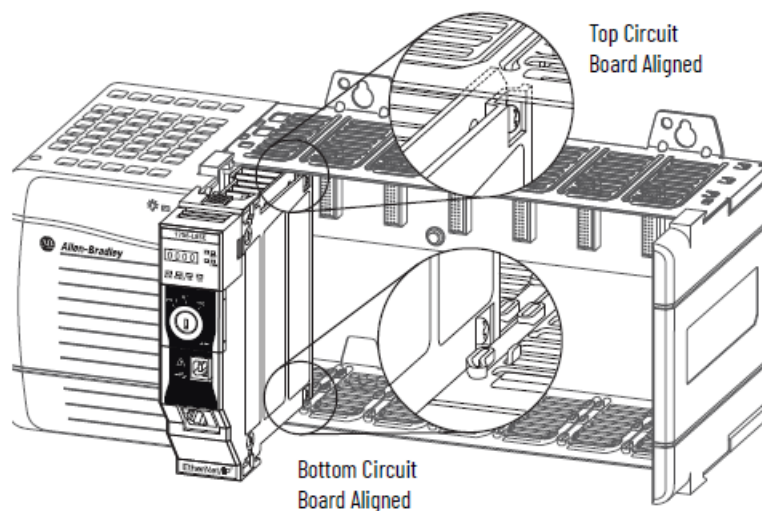
2. Slide the module into the chassis until it snaps into place.
3. Verify that the controller is flush with the power supply or other installed modules.
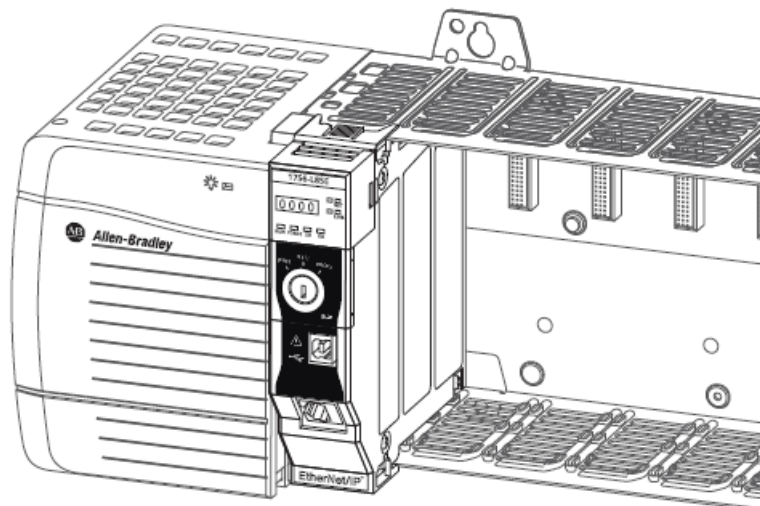

Install the SD Card

WARNING: When you insert or remove the SD memory card while power is on, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.
If the SD card is not already installed in the controller, then complete these steps to install the SD card.

1. Verify that the SD card is locked or unlocked according to your preference.
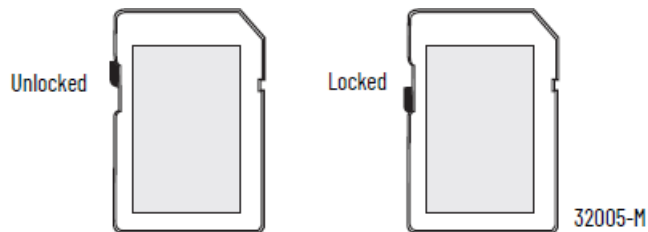

   For more information about the lock/unlock memory settings,

   see the ControlLogix 5580 Controllers User Manual, publication 1756-UM543.

2. Remove the key.

3. To access the SD card slot, open the door on the controller key panel.
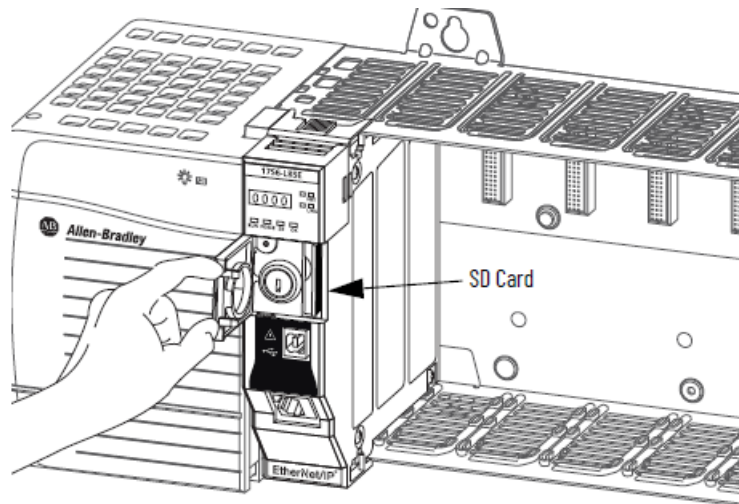
4. Position the SD card so that the contact end goes into the controller, with the contacts on the right and the label on the left. The beveled corner is on top.
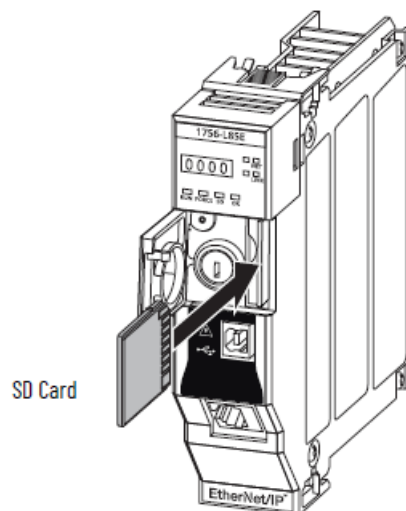
5. Insert the SD card into the card slot and gently press the card until it clicks into place.

6. The card slides in easily, if it is oriented correctly. You can insert the card only one way.
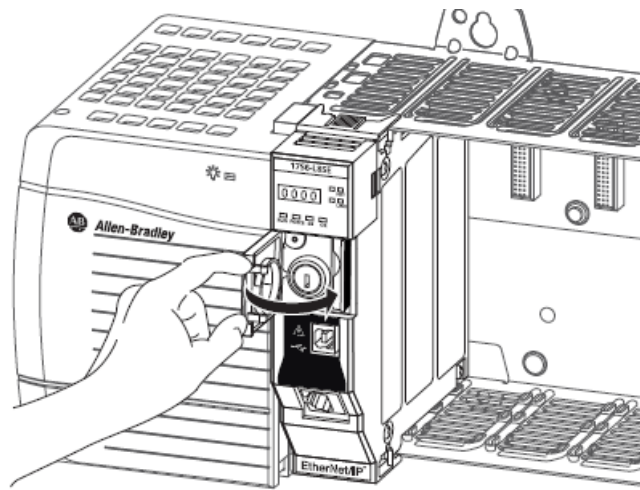
7. Close the door.

8. Reinsert the key, if desired.

Connect to an EtherNet/IP Network

WARNING: If you connect or disconnect the communications cable with power applied to this module or any device on the network, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

If you are connecting the controller directly to an EtherNet/IP network, then connect an RJ45 cable to the Ethernet port on the controller.

ATTENTION: 10 Mbps Ethernet automatic negotiations are functional. However, 10 Mbps Ethernet connections are not fully supported or intended for normal use. Use 10 Mbps Ethernet connections only if necessary during temporary setup.

Confirm Installation

After you have inserted the controller into the chassis and applied power, the 4-character display and status indicators display status information for the controller. See the ControlLogix 5580 and GuardLogix® 5580 Controllers User Manual, publication 1756-UM543, for information on how to interpret the 4-character display messages and the status indicators.

Specifications

Attribute	1756-L81E, 1756-L81EK, 1756-L82E, 1756-L82EK, 1756-L83E, 1756-L83EK, 1756-L84E, 1756-L84EK, 1756-L85E, 1756-L85EK	1756-L81E-NSE, 1756-L82E-NSE, 1756-L83E-NSE, 1756-L84E-NSE, 1756-L85E-NSE	1756-L81EXT, 1756-L82EXT, 1756-L83EXT, 1756-L84EXT, 1756-L85EXT	1756-L81EP, 1756-L83EP, 1756-L85EP

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) for Standard Chassis, Series C 0 °C < Ta < +50 °C (+32 °F < Ta < +122 °F) for Standard Chassis, Series B	-25 °C < Ta < +70 °C (-13°F < Ta < +158 °F) for XT Chassis, Series C -25 °C < Ta < +60 °C (-13 °F < Ta < +140 °F) for Standard Chassis, Series C -25 °C < Ta < +50 °C (-13 °F < Ta < +122 °F) for Standard Chassis, Series B
Temperature, Surrounding Air max	60 °C (140 °F) for Standard Chassis, Series C 50 °C (122 °F) for Standard Chassis, Series B	70 °C (158 °F) for XT Chassis, Series C 60 °C (140 °F) for Standard Chassis, Series C 50 °C (122 °F) for Standard Chassis, Series B
Corrosive Atmosphere(1) • ASTM B845-97 Method H Accelerated Test (20-Day Exposure)	Severity Level G3(2) per ANSI/ISA 71.04–2013, Airborne Contaminants—Gases Severity Level CX(2)(3) per IEC 60721-3-3:2019, Chemically Active Substances	
Enclosure type rating	None (open-style)	
Voltage and current ratings	1200 mA @ 5.1V DC 5.0 mA @ 1.2V DC	
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	394 g (0.868 lb)	
Wire size	Ethernet cabling and installation according to IEC 61918 and IEC 61784-5-2	

North American temp code	T4
ATEX Temp Code	T4
IECEx Temp Code	T4

1. Only applicable to modules that end with a 'K' or 'XT'.
2. Port Plugs must remain installed in unused ports at all times during storage and operation for the product to meet it's corrosive atmosphere rating.
3. Up to 9.6 microns per year, corrosion rate of copper.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
1756 ControlLogix Controller Specifications Technical Data, publication <u>1756-TD001</u>	Provides controller specifications, including communication options, memory use, compatibilities, redundancy, and available accessories.
1756 ControlLogix Power Supplies Specifications Technical Data, publication <u>1756-TD005</u>	Provides technical specifications for ControlLogix power supplies.
1756 ControlLogix Chassis Specifications Technical Data, publication <u>1756-TD006</u>	Provides chassis specifications, including spacing requirements, mounting dimensions, and available accessories.
ControlLogix Chassis Installation Instructions, publication <u>1756-IN621</u>	Provides information on how to install ControlLogix chassis.
ControlLogix Power Supply Installation Instructions, publication <u>1756-IN619</u>	Provides information on how to install ControlLogix standard power supplies.
ControlLogix Redundant Power Supply Installation Instructions, publication <u>1756-IN620</u>	Provides information on how to install ControlLogix redundant power supplies.
ControlLogix 5580 and GuardLogix® 5580 Controllers User Manual, publication <u>1756-UM543</u>	Provides information on how to configure, select I/O modules, manage communication, develop applications, and troubleshoot the ControlLogix 5580 controllers.
Replacement Guidelines: Logix 5000™ Controllers Reference Manual, publication <u>1756-RM100</u>	Compares ControlLogix 5580 controllers to ControlLogix 5560/5570 controllers, and provides guidelines on the features, functions, instruction updates, and differences between controllers.
Industrial Automation Wiring and Grounding Guidelines, publication <u>1770-4.1</u>	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, <u>rok.auto/certifications</u>	Provides declarations of conformity, certificates, and other certification details.

Documents / Resources

Allen-Bradley 5580 ControlLogix Controllers [pdf] Instructions
5580 ControlLogix Controllers, 5580, ControlLogix Controllers