**Technical Data**

Original Instructions

**AB** Allen-Bradley
by ROCKWELL AUTOMATION

# CompactLogix 5380, Compact GuardLogix 5380, and CompactLogix 5480 Controllers Specifications

Bulletin 5069

Rockwell Automation

# 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 |
|---|---|
| Revised I/O and message rate capacity specifications for CompactLogix 5380 controllers | 3 |
| Revised I/O and message rate capacity specifications for Compact GuardLogix 5380 SIL 2 controllers | 8 |

# Catalog Numbers

This publication is applicable to the following controllers.

| | |
|---|---|
| CompactLogix 5380 Controller Catalog Numbers | 5069-L306ER, 5069-L306ERM, 5069-L310ER, 5069-L310ERM, 5069-L310ER-NSE, 5069-L320ER, 5069-L320ERM, 5069-L320ERP, 5069-L330ER, 5069-L330ERM, 5069-L340ER, 5069-L340ERM, 5069-L340ERP, 5069-L350ERM, 5069-L380ERM, 5069-L3100ERM |
| CompactLogix 5380 Conformal Coated Catalog Numbers | 5069-L310ERMK, 5069-L320ERMK, 5069-L330ERMK, 5069-L350ERMK |
| CompactLogix 5380 Process Controller Catalog Numbers | 5069-L320ERP, 5069-L340ERP |
| Compact GuardLogix 5380 SIL 2 Controller Catalog Numbers | 5069-L306ERS2, 5069-L306ERMS2, 5069-L310ERS2, 5069-L310ERMS2, 5069-L320ERS2, 5069-L320ERMS2, 5069-L330ERS2, 5069-L330ERMS2, 5069-L340ERS2, 5069-L340ERMS2, 5069-L350ERS2, 5069-L350ERMS2, 5069-L380ERS2, 5069-L380ERMS2, 5069-L3100ERS2, 5069-L3100ERMS2 |
| Compact GuardLogix 5380 SIL 2 Conformal Coated Catalog Numbers | 5069-L310ERS2K, 5069-L310ERMS2K, 5069-L320ERS2K, 5069-L320ERMS2K, 5069-L330ERS2K, 5069-L330ERMS2K, 5069-L350ERS2K, 5069-L350ERMS2K |
| Compact GuardLogix 5380 SIL 3 Controller Catalog Numbers | 5069-L306ERMS3, 5069-L310ERMS3, 5069-L320ERMS3, 5069-L330ERMS3, 5069-L340ERMS3, 5069-L350ERMS3, 5069-L380ERMS3, 5069-L3100ERMS3 |
| Compact GuardLogix 5380 SIL 3 Conformal Coated Catalog Numbers | 5069-L310ERMS3K, 5069-L320ERMS3K, 5069-L330ERMS3K, 5069-L350ERMS3K |
| CompactLogix 5480 Controller Catalog Numbers | 5069-L430ERMW, 5069-L450ERMW, 5069-4100ERMW, 5069-L4200ERMW |

# CompactLogix 5380 Controllers

CompactLogix 5380 controllers are part of the Logix 5000™ family of controllers. The controllers provide a scalable controller solution to address a wide variety of applications. The applications range from standalone systems to more complex systems with devices that are connected to the controller via an EtherNet/IP™ network.

The controllers are mounted on a DIN rail. They can monitor and control local and remote I/O modules, and other devices connected to an EtherNet/IP network. The CompactLogix 5380 controllers support this functionality:

- Use of Compact 5000™ I/O module as local I/O and remote I/O modules.
- Use Compact 5000 I/O modules, and other I/O modules, as remote I/O modules.
- Support for Integrated Motion over an EtherNet/IP network (not all controllers).
- Use of Dual-IP mode or Linear/DLR mode.
- Use of two Ethernet ports that let the controller connect to EtherNet/IP device-level and enterprise-level networks.
- Use of 1784-SD1, 1784-SD2, 1784-SDHC8, 1784-SDHC32, 9509-CMSDCD4 Secure Digital (SD) card for nonvolatile memory.
- USB programming port for temporary connection.
- CompactLogix 5380 Process controllers (5069-L320ERP, 5069-L340ERP) support PlantPAx® 5.0, and are conformal coated to add a layer of protection when exposed to harsh, corrosive environments. For more information, see the PlantPAx DCS Configuration and Implementation User Manual, publication [PROCES-UM100](PROCES-UM100).

**Features - CompactLogix 5380 Controllers**

| Feature | 5069-L306ER, 5069-L306ERM | 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L310ERMK | 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP | 5069-L330ER, 5069-L330ERM, 5069-L330ERMK | 5069-L340ER, 5069-L340ERM, 5069-L340ERP | 5069-L350ERM, 5069-L350ERMK | 5069-L380ERM | 5069-L3100ERM |
|---|---|---|---|---|---|---|---|---|
| Controller tasks Continuous Periodic Event | 32 tasks 1000 programs/task All event triggers | | | | | | | |
| Built-in communication ports | 1 - USB port 2 - Ethernet ports **IMPORTANT**: Consider the following: When the controller operates in Dual-IP mode, each Ethernet port requires a unique IP address. When the controller operates in Linear/DLR mode, the controller uses only one IP address. | | | | | | | |
| USB port communication | USB 2.0, Type B Full speed (12 Mbps) Programming, configuration, firmware update, and online edits only | | | | | | | |
| Ethernet performance | 10 Mbps, 100 Mbps, 1 Gbps Full-duplex only | | | | | | | |
| I/O Capacity (Class 0/1)[1] | • 128,000 without CIP Security • 40,000 with integrity • 20,000 with integrity and confidentiality | | | | | | | |
| Message Rate Capacity HMI/MSG (Class 3)[1] | • 2000 without CIP Security • 1500 with integrity • 900 with integrity and confidentiality | | | | | | | |
| EtherNet/IP modes supported | Dual-IP mode (Available with the Studio 5000 Logix Designer® application, version 29.00.00 or later) Linear/DLR mode | | | | | | | |
| EtherNet/IP network topologies supported | DLR Star Linear | | | | | | | |
| EtherNet/IP nodes supported, max[2] | 16 | 24 | 40 | 60 | 90 | 120 | 150 | 180 |
| Socket interfaces supported, max | 32 | | | | | | | |
| Integrated motion[3] | 5069-L306ERM | 5069-L310ERM, 5069-L310ERMK | 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP | 5069-L330ERM, 5069-L330ERMK | 5069-L340ERM, 5069-L340ERP | 5069-L350ERM, 5069-L350ERMK | 5069-L380ERM | 5069-L3100ERM |

## Features - CompactLogix 5380 Controllers (Continued)

| Feature | 5069-L306ER, 5069-L306ERM | 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L310ERMK | 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP | 5069-L330ER, 5069-L330ERM, 5069-L330ERMK | 5069-L340ER, 5069-L340ERM, 5069-L340ERP | 5069-L350ERM, 5069-L350ERMK | 5069-L380ERM | 5069-L3100ERM |
|---|---|---|---|---|---|---|---|---|
| Number of axes supported, max[4] | 256 | | | | | | | |
| Number of CIP™ Drive axes (Position loop-configured) supported, max[5] | 5069-L306ERM: 2 | 5069-L310ERM: 4 | 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP: 8 | 5069-L330ERM, 5069-L330ERMK: 16 | 5069-L340ERM, 5069-L340ERP: 20 | 24 | 28 | 32 |
| Programming languages | Ladder Diagram (LD)<br>Structured Text (ST)<br>Function Block Diagram (FBD)<br>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. Maximums assume the processor is target, not originator. 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)   The maximum number of nodes that are listed represents when the controller is used with the Logix Designer application, version 31 or later. Some controllers can be used with earlier Logix Designer application versions. The maximum number of nodes that a controller supports can be fewer in Logix Designer application, versions 30 or earlier.

(3)   Only CompactLogix 5380 controllers that have an M or P in their catalog number support Integrated Motion on EtherNet/IP networks.

(4)   Any combination of CIP Drive, Virtual, Consumed, Regenerative AC/DC Converter and Non-Regenerative AC/DC Converter axis types.

(5)   The maximum number of CIP Drive axes (configured for Position Loop) that can be included in the total integrated motion axes count for a controller.

## Technical Specifications - CompactLogix 5380 Controllers

| Attribute | 5069-L306ER, 5069-L306ERM | 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L310ERMK | 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP | 5069-L330ER, 5069-L330ERM, 5069-L330ERMK | 5069-L340ER, 5069-L340ERM, 5069-L340ERP | 5069-L350ERM, 5069-L350ERMK | 5069-L380ERM | 5069-L3100ERM |
|---|---|---|---|---|---|---|---|---|
| User memory | 0.6 MB | 1 MB | 2 MB | 3 MB | 4 MB | 5 MB | 8 MB | 10 MB |
| Optional nonvolatile memory | • 1784-SD1 (1 GB)<br>• 1784-SD2 (2 GB), ships with controller<br>• 1784-SDHC8 (8 GB)<br>• 1784-SDHC32 (32 GB)<br>• 9509-CMSDCD4 (4 GB) CodeMeter CmCard card | | | | | | | |
| Local I/O modules, max | 8 | 8 | 16 | 31[1] | 31 | 31 | 31 | 31 |
| Number of power cycles | 80,000 | | | | | | | |
| MOD Power voltage range | 18...32V DC | | | | | | | |
| MOD Power current, max | 450 mA | | | | | | | |
| MOD Power inrush | 850 mA for 125 ms | | | | | | | |
| MOD Power passthrough[2] | 9.55 A @ 18...32V DC | | | | | | | |
| MOD Power current rating, max | 10 A<br>Do not exceed 10 A current draw at the MOD Power RTB. | | | | | | | |
| SA Power voltage ranges[3] | 0...32V DC<br>0...240V AC, 47...63 Hz<br>EX, 125V AC max | | | | | | | |
| SA Power current, max[3] | 10 mA (DC power)<br>25 mA (AC power) | | | | | | | |
| SA Power passthrough[3], [4] | 9.95 A @ 0...32V DC<br>9.975 A @ 0...240V AC, 47...63 Hz<br>EX, 125V AC max | | | | | | | |
| SA Power current rating, max [3] | 10 A (AC or DC power)<br>Do not exceed 10 A current draw at the SA Power RTB. | | | | | | | |
| Power dissipation, max | 8.5 W | | | | | | | |
| Thermal dissipation, max | 29 BTU/hr | | | | | | | |
| Isolation voltage | 300V (continuous), Basic Insulation Type, SA, and MOD Power to Backplane<br>300V (continuous), Basic Insulation Type, SA to MOD Power<br>300V (continuous), Basic Insulation Type, Ethernet to Backplane<br>300V (continuous), Double Insulation Type, Ethernet to MOD Power<br>300V (continuous), Double Insulation Type, Ethernet to SA Power<br>50V (continuous), Functional Insulation Type, Ethernet to USB<br>300V (continuous), Basic Insulation Type, USB to Backplane<br>300V (continuous), Double Insulation Type, USB to MOD Power<br>300V (continuous), Double Insulation Type, USB to SA Power<br>No isolation between Ethernet ports<br>Type tested at 1500V AC for 60 s | | | | | | | |
| Weight, approx | 0.768 kg (1.693 lb) | | | | | | | |
| Dimensions (HxWxD), approx | 143.97 x 98.10 x 136.81 mm (5.67 x 3.86 x 5.39 in.) | | | | | | | |
| Location | DIN rail mount (horizontal mount only) | | | | | | | |
| DIN rail | Compatible zinc-plated, chromate steel DIN rail.<br>EN50022 - 35 x 7.5 mm (1.38 x 0.30 in.) | | | | | | | |

**Technical Specifications - CompactLogix 5380 Controllers (Continued)**

| Attribute | 5069-L306ER, 5069-L306ERM | 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L310ERMK | 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP | 5069-L330ER, 5069-L330ERM, 5069-L330ERMK | 5069-L340ER, 5069-L340ERM, 5069-L340ERP | 5069-L350ERM, 5069-L350ERMK | 5069-L380ERM | 5069-L3100ERM |
|---|---|---|---|---|---|---|---|---|
| Removable terminal block | RTBs are available in separately ordered 5069 RTB kits. The MOD power connection uses a 4-point RTB, and the SA power connection uses a 6-point RTB. The following kits are available: <br>• Kit catalog number 5069-RTB64-SCREW contains RTB catalog numbers 5069-RTB6-SCREW and 5069-RTB4-SCREW. <br>• Kit catalog number 5069-RTB64-SPRING contains RTB catalog numbers 5069-RTB6-SPRING and 5069-RTB4-SPRING. | | | | | | | |
| Terminal block torque | 5069-RTB4-SCREW & 5069-RTB6-SCREW: 0.4 N•m (3.5 lb•in) <br>5069-RTB4-SPRING & 5069-RTB6-SPRING: Torque does not apply | | | | | | | |
| Wire size | 5069-RTB4-SCREW, 5069-RTB6-SCREW connections: <br>0.5…1.5 mm$^2$ (22…16 AWG) solid or stranded copper wire that is rated at 105 °C (221 °F), or greater, 3.5 mm (0.14 in.) max diameter including insulation, single wire connection only <br>5069-RTB4-SPRING, 5069-RTB6-SPRING connections: <br>0.5…1.5 mm$^2$ (22…16 AWG) solid or stranded copper wire that is rated at 105 °C (221 °F), or greater, 2.9 mm (0.11 in.) max diameter including insulation, single wire connection only <br>Ethernet connections: <br>Ethernet Cabling and Installation according to IEC 61918 and IEC 61784-5-2 | | | | | | | |
| Insulation stripping length | 5069-RTB4-SCREW, 5069-RTB6-SCREW connections: 12 mm (0.47 in.) <br>5069-RTB4-SPRING, 5069-RTB6-SPRING connections: 10 mm (0.39 in.) | | | | | | | |
| Wire category[5] | 3 - on USB port <br>1 - on power ports <br>2 - on Ethernet ports | | | | | | | |
| Enclosure | None (open-style) | | | | | | | |
| North American temperature code | T4 | | | | | | | |
| UKEX/ATEX temperature code | T4 | | | | | | | |
| IECEx temperature code | T4 | | | | | | | |

(1) When you use these controllers with the Studio 5000 Logix Designer application, version 29.00.00, the application limits the number of local I/O modules in the project to 16. For more information, see the Rockwell Automation Knowledgebase article #942580, '5380 CompactLogix controllers limited to 16 local 5069 modules in version 29 of Studio 5000© environment.The document is available at http://www.rockwellautomation.com/knowledgebase.

With the Logix Designer application, version 30.00.00 or later, the controllers support as many as 31 local I/O modules.

(2) Maximum level of MOD Power current that the controller can pass through to the next module in the system. The specific level of current passed through varies based on system configuration.

(3) SA power specifications are based on the number and type of Compact 5000 I/O modules that are used in the system. If the set of I/O modules that are used in the system require AC and DC voltage, you must install a 5069-FPD field potential distributor to separate the module types.

(4) Maximum level of SA Power current that the controller can pass through to the next module in the system. The specific level of current passed through varies based on system configuration.

(5) Use this Conductor Category information for planning conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

**Environmental Specifications - CompactLogix 5380 Controllers**

| Attribute | 5069-L306ER, 5069-L306ERM, 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L310ERMK, 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP, 5069-L330ER, 5069-L330ERM, 5069-L330ERMK, 5069-L340ER, 5069-L340ERM, 5069-L340ERP, 5069-L350ERM, 5069-L350ERMK, 5069-L380ERM, 5069-L3100ERM |
|---|---|
| Temperature, operating <br>IEC 60068-2-1 (Test Ad, Operating Cold), <br>IEC 60068-2-2 (Test Bd, Operating Dry Heat), <br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock) | 0 °C < Ta < +60 °C (+32 °F <Ta < +140 °F) |
| Temperature, nonoperating <br>IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), <br>IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), <br>IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock) | -40…+85 °C <br>(-40…+185 °F) |
| Temperature, surrounding air, max | 60 °C (140 °F) |
| Relative humidity <br>IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) | 5…95% noncondensing |
| Vibration <br>IEC 60068-2-6 (Test Fc, Operating) | 5 g @ 10…500 Hz |
| Shock, operating <br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 30 g |
| Shock, nonoperating <br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 50 g |
| Emissions | IEC 61000-6-4 |
| ESD immunity <br>IEC 61000-4-2 | 6 kV contact discharges <br>8 kV air discharges |
| Radiated RF immunity <br>IEC 61000-4-3 | 10V/m with 1 kHz sine-wave 80% AM from 80…6000 MHz |
| EFT/B immunity <br>IEC 61000-4-4 | ± 4 kV at 5 kHz on power ports <br>± 2 kV at 5 kHz on Ethernet ports |

## Environmental Specifications - CompactLogix 5380 Controllers (Continued)

| Attribute | 5069-L306ER, 5069-L306ERM, 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L310ERMK, 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP, 5069-L330ER, 5069-L330ERM, 5069-L330ERMK, 5069-L340ER, 5069-L340ERM, 5069-L340ERP, 5069-L350ERM, 5069-L350ERMK, 5069-L380ERM, 5069-L3100ERM |
|---|---|
| Surge transient immunity<br>IEC 61000-4-5 | ± 1 kV line-line (DM) and ± 2 kV line-earth (CM) on power ports<br>± 2 kV line-earth (CM) on Ethernet ports |
| Conducted RF immunity<br>IEC 61000-4-6 | 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz |
| Voltage variation<br>IEC 61000-4-29 | 10 ms interruption on MOD Power port |

## Certifications - CompactLogix 5380 Controllers

| Certification[1] | 5069-L306ER, 5069-L306ERM, 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L310ERMK, 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP, 5069-L330ER, 5069-L330ERM, 5069-L330ERMK, 5069-L340ER, 5069-L340ERM, 5069-L340ERP, 5069-L350ERM, 5069-L350ERMK, 5069-L380ERM, 5069-L3100ERM |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584.<br>UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810. |
| UK and CE | UK Statutory Instrument 2016 No. 1091 and European Union 2014/30/EU EMC Directive, compliant with:<br>• EN 61326-1; Meas./Control/Lab., Industrial Requirements<br>• EN 61000-6-2; Industrial Immunity<br>• EN 61131-2; Programmable Controllers<br>• EN 61000-6-4; Industrial Emissions<br>• EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)<br>UK Statutory Instrument 2016 No. 1101 and European Union 2014/35/EU LVD, compliant with:<br>• EN 61010-2-201; Control Equipment Safety Requirements<br>UK Statutory Instrument 2012 No. 3032 and European Union 2011/65/EU RoHS, compliant with:<br>• EN IEC 63000; Technical documentation |
| RCM | Australian Radiocommunications Act, compliant with:<br>• EN 61000-6-4; Industrial Emissions |
| Ex | UK Statutory Instrument 2016 No. 1107 and European Union 2014/34/EU ATEX Directive, compliant with:<br>• EN IEC 60079-0; General Requirements<br>• EN IEC 60079-7; Explosive Atmospheres, Protection "e"<br>• II 3 G Ex ec IIC T4 Gc<br>• DEMKO15ATEX1455X and UL22UKEX2307X<br>when used at or below 125 VAC |
| IECEx | IECEx System, compliant with:<br>• IEC 600079-0; General Requirements<br>• IEC 60079-7; Explosive Atmospheres, Protection "e"<br>• II 3 G Ex ec IIC T4 Gc<br>• IECEx UL 15.0007X<br>when used at or below 125V AC |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with:<br>• Article 58-2 of Radio Waves Act, Clause 3<br>**IMPORTANT:** This certification does not apply to the following catalog numbers: 5069-L320ERMK, 5069-L330ERMK, 5069-L350ERMK |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation<br>Russian Customs Union TR CU 004/2011 LV Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 1 er muharram 1437<br>Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| CCC | CNCA-C23-01:2019 强制性产品认证实施规则 防爆电气，符合<br>CNCA-C23-01:2019 CCC Implementation Rule  Explosion-Proof Electrical Products, compliant with:<br>• GB 3836.1-2010  爆炸性环境 第1部分：设备 通用要求<br>• GB 3836.1-2010 Explosive atmospheres — Part 1: Equipment — General requirements<br>• GB 3836.8-2014  爆炸性环境 第8部分：由"n"型保护的设备<br>• GB 3836.8-2014 Explosive atmospheres - Part 8: Equipment protection by type of protection "n" |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations<br>2016 No. 1101 – Electrical Equipment (Safety) Regulations<br>2016 No. 1107 – Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations<br>2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |
| EtherNet/IP | ODVA conformance tested to EtherNet/IP specifications |
| CIP Security | ODVA conformance tested to CIP Security specifications |

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

# Compact GuardLogix 5380 Controllers

Compact GuardLogix 5380 controllers are part of the Logix 5000 family of controllers. The controllers provide a scalable controller solution to address a wide variety of applications. The applications range from standalone systems to more complex systems with devices that are connected to the controller via an EtherNet/IP network.

The controllers can function in the same way as CompactLogix 5380 controllers and also provide the functionality to perform safety functions. A major benefit of this system is that it is still one project, safety and standard together.

The Compact GuardLogix SIL 2 Controllers can achieve up to SIL 2/PLd (Category 3) with the use of the safety task and safety I/O.

The Compact GuardLogix SIL 3 Controllers, based on a 1oo2 design, and can achieve up to SIL 3/PLe (Category 4) with 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 a safety integrity of up to SIL 2 for Compact GuardLogix SIL 2 controllers, and up to SIL 3 for Compact GuardLogix SIL 3 controllers.

The controllers are mounted on a DIN rail. They can monitor and control local and remote I/O modules, and other devices connected to an EtherNet/IP network. The controllers support this functionality:

- Use of Compact 5000 I/O standard and safety modules as local I/O and remote I/O modules.
- Use Compact 5000 I/O modules, and other I/O modules, as remote I/O modules.
- Support for Integrated Motion over an EtherNet/IP network (not all controllers).
- Use of Dual-IP mode or Linear/DLR mode.
- Use of two Ethernet ports that let the controller connect to EtherNet/IP device-level and enterprise-level networks.
- Use of 1784-SD1, 1784-SD2, 1784-SDHC8, 1784-SDHC32, 9509-CMSDCD4 Secure Digital (SD) card for nonvolatile memory.
- USB programming port for temporary connection.

Compact GuardLogix 5380 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.

# Compact GuardLogix SIL 2 Controllers

## Features - Compact GuardLogix 5380 SIL 2 Controllers

| Feature | 5069-L306ERS2 5069-L306ERMS2 | 5069-L310ERS2 5069-L310ERS2K 5069-L310ERMS2 5069-L310ERMS2K | 5069-L320ERS2 5069-L320ERMS2 5069-L320ERS2K 5069-L320ERMS2K | 5069-L330ERS2 5069-L330ERMS2 5069-L330ERS2K 5069-L330ERMS2K | 5069-L340ERS2 5069-L340ERMS2 | 5069-L350ERS2 5069-L350ERMS2 5069-L350ERS2K 5069-L350ERMS2K | 5069-L380ERS2 5069-L380ERMS2 | 5069-L3100ERS2 5069-L3100ERMS2 |
|---|---|---|---|---|---|---|---|---|
| Controller tasks<br>• Continuous<br>• Periodic<br>• Event | 31 standard tasks, 1 safety task<br>1000 programs/task<br>All event triggers | | | | | | | |
| Built-in communication ports | 1 USB port<br>2 Ethernet ports<br>**IMPORTANT**: Consider the following:<br>– When the controller operates in Dual-IP mode, each Ethernet port requires a unique IP address.<br>– When the controller operates in Linear/DLR mode, the controller uses only one IP address. | | | | | | | |
| USB port communication | USB 2.0, Type B<br>Full speed (12 Mbps)<br>Programming, configuration, firmware update, and online edits only | | | | | | | |
| Ethernet performance | 10 Mbps, 100 Mbps, 1 Gbps<br>Full-duplex only | | | | | | | |
| I/O Capacity (Class 0/1)[1] | • 128,000 without CIP Security<br>• 40,000 with integrity<br>• 20,000 with integrity and confidentiality | | | | | | | |
| Message Rate Capacity HMI/MSG (Class 3)[1] | • 2000 without CIP Security<br>• 1500 with integrity<br>• 900 with integrity and confidentiality | | | | | | | |
| EtherNet/IP modes supported | Dual-IP mode<br>Linear/DLR mode | | | | | | | |
| EtherNet/IP network topologies supported | DLR<br>Star<br>Linear | | | | | | | |
| EtherNet/IP nodes supported, max | 16 | 24 | 40 | 60 | 90 | 120 | 150 | 180 |
| Socket interfaces supported, max | 32 | | | | | | | |
| Integrated motion[2] | | | | | | | | |
| Number of axes supported, max[3] | 256 | | | | | | | |
| Number of CIP Drive axes (Position loop-configured) supported, max[4] | 5069-L306ERMS2: 2 | 5069-L310ERMS2, 5069-L310ERMS2K: 4 | 5069-L320ERMS2: 8 | 5069-L330ERMS2, 5069-L330ERMS2K: 16 | 5069-L340ERMS2: 20 | 5069-L350ERMS2, 5069-L350ERMS2K: 24 | 5069-L380ERMS2: 28 | 5069-L3100ERMS2: 32 |
| Programming languages | Ladder Diagram (LD)<br>Structured Text (ST)<br>Function Block Diagram (FBD)<br>Sequential Function Chart (SFC)<br>Safety Task supports only RLL and the additional safety application instructions | | | | | | | |

(1)  I/O numbers are maximums; they assume no HMI/MSG. HMI/MSG numbers are maximums, they assume no I/O. Maximums assume the processor is target, not originator. 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)  Only controllers that have an M in their catalog number support Integrated Motion on EtherNet/IP networks.
(3)  Any combination of CIP Drive, Virtual, Consumed, Regenerative AC/DC Converter and Non-Regenerative AC/DC Converter axis types.
(4)  The maximum number of CIP Drive axes (configured for Position Loop) that can be included in the total integrated motion axes count for a controller.

## Technical Specifications - Compact GuardLogix 5380 SIL 2 Controllers

| Attribute | 5069-L306ERS2 5069-L306ERMS2 | 5069-L310ERS2 5069-L310ERS2K 5069-L310ERMS2 5069-L310ERMS2K | 5069-L320ERS2 5069-L320ERMS2 5069-L320ERS2K 5069-L320ERMS2K | 5069-L330ERS2 5069-L330ERMS2 5069-L330ERS2K 5069-L330ERMS2K | 5069-L340ERS2 5069-L340ERMS2 | 5069-L350ERS2 5069-L350ERMS2 5069-L350ERS2K 5069-L350ERMS2K | 5069-L380ERS2 5069-L380ERMS2 | 5069-L3100ERS2 5069-L3100ERMS2 |
|---|---|---|---|---|---|---|---|---|
| User memory | 0.6 MB | 1 MB | 2 MB | 3 MB | 4 MB | 5 MB | 8 MB | 10 MB |
| Safety memory | 0.3 MB | 0.5 MB | 1 MB | 1.5 MB | 2 MB | 2.5 MB | 4 MB | 5 MB |
| Optional nonvolatile memory | • 1784-SD1 (1 GB)<br>• 1784-SD2 (2 GB), ships with controller<br>• 1784-SDHC8 (8 GB)<br>• 1784-SDHC32 (32 GB)<br>9509-CMSDCD4 (4 GB) CodeMeter CmCard card | | | | | | | |
| Local I/O modules, max | 8 | 8 | 16 | 31 | 31 | 31 | 31 | 31 |
| Number of power cycles | 80,000 | | | | | | | |
| MOD Power voltage range | 18...32V DC SELV/PELV[(1)] | | | | | | | |
| MOD Power current, max | 475 mA | | | | | | | |
| MOD Power inrush | 1200 mA for 125 ms | | | | | | | |
| MOD Power passthrough voltage range [(2)] | 18...32V DC @ 4.525 A | | | | | | | |
| MOD Power current rating, max | 5 A<br>Do not exceed 5 A current draw at the MOD Power RTB. | | | | | | | |
| SA Power voltage ranges[(3)] | 0...32V DC SELV/PELV[(1)] | | | | | | | |
| SA Power current, max[(3)] | 10 mA (DC power) | | | | | | | |
| SA Power passthrough voltage ranges[(3), (4)] | 0...32V DC @ 9.99 A | | | | | | | |
| SA Power current rating, max[(3)] | 10 A (DC power)<br>Do not exceed 10 A current draw at the SA Power RTB. | | | | | | | |
| Power dissipation, max | 9.0 W | | | | | | | |
| Thermal dissipation, max | 30.9 BTU/hr | | | | | | | |
| Isolation voltage | 300V (continuous), Basic Insulation Type, SA and MOD Power to Backplane<br>300V (continuous), Basic Insulation Type, SA to MOD Power<br>300V (continuous), Basic Insulation Type, Ethernet to Backplane<br>300V (continuous), Double Insulation Type, Ethernet to MOD Power<br>300V (continuous), Double Insulation Type, Ethernet to SA Power<br>50V (continuous), Functional Insulation Type, Ethernet to USB<br>300V (continuous), Basic Insulation Type, USB to Backplane<br>300V (continuous), Double Insulation Type, USB to MOD Power<br>300V (continuous), Double Insulation Type, USB to SA Power<br>No isolation between Ethernet ports<br>Type tested at 1500V AC for 60 seconds | | | | | | | |
| Weight, approx | 0.768 kg (1.693 lb) | | | | | | | |
| Dimensions (HxWxD), approx | 143.97 x 98.10 x 136.81 mm (5.67 x 3.86 x 5.39 in.) | | | | | | | |
| Location | DIN rail mount (horizontal mount only) | | | | | | | |
| DIN rail | Compatible zinc-plated, chromate steel DIN rail.<br>EN50022 - 35 x 7.5 mm (1.38 x 0.30 in.) | | | | | | | |
| Removable terminal block | RTBs are available in separately ordered 5069 RTB kits. The MOD power connection uses a 4-point RTB, and the SA power connection uses a 6-point RTB. The following kits are available:<br>• Kit catalog number 5069-RTB64-SCREW contains RTB catalog numbers 5069-RTB6-SCREW and 5069-RTB4-SCREW<br>• Kit catalog number 5069-RTB64-SPRING contains RTB catalog numbers 5069-RTB6-SPRING and 5069-RTB4-SPRING | | | | | | | |
| Terminal block torque | 5069-RTB4-SCREW & 5069-RTB6-SCREW: 0.4 N•m (3.5 lb•in)<br>5069-RTB4-SPRING & 5069-RTB6-SPRING: Torque does not apply | | | | | | | |
| Wire size | 5069-RTB4-SCREW, 5069-RTB6-SCREW connections:<br>0.5...1.5 mm$^2$ (22...16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 3.5 mm (0.14 in.) max diameter including insulation, single wire connection only<br>5069-RTB4-SPRING, 5069-RTB6-SPRING connections:<br>0.5...1.5 mm$^2$ (22...16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 2.9 mm (0.11 in.) max diameter including insulation, single wire connection only<br>Ethernet connections:<br>Ethernet Cabling and Installation according to IEC 61918 and IEC 61784-5-2 | | | | | | | |
| Insulation stripping length | 5069-RTB4-SCREW, 5069-RTB6-SCREW connections: 12 mm (0.47 in.)<br>5069-RTB4-SPRING, 5069-RTB6-SPRING connections: 10 mm (0.39 in.) | | | | | | | |

## Technical Specifications - Compact GuardLogix 5380 SIL 2 Controllers (Continued)

| Attribute | 5069-L306ERS2<br>5069-L306ERMS2 | 5069-L310ERS2<br>5069-L310ERS2K<br>5069-L310ERMS2<br>5069-L310ERMS2K | 5069-L320ERS2<br>5069-L320ERMS2<br>5069-L320ERS2K<br>5069-L320ERMS2K | 5069-L330ERS2<br>5069-L330ERMS2<br>5069-L330ERS2K<br>5069-L330ERMS2K | 5069-L340ERS2<br>5069-L340ERMS2 | 5069-L350ERS2<br>5069-L350ERMS2<br>5069-L350ERS2K<br>5069-L350ERMS2K | 5069-L380ERS2<br>5069-L380ERMS2 | 5069-L3100ERS2<br>5069-L3100ERMS2 |
|---|---|---|---|---|---|---|---|---|
| Wire category[5] | 3 - on USB port<br>1 - on power ports<br>2 - on Ethernet ports | | | | | | | |
| Enclosure | None (open-style) | | | | | | | |
| North American temperature code | T4 | | | | | | | |
| ATEX temperature code | T4 | | | | | | | |
| IECEx temperature code | T4 | | | | | | | |

(1) For Functional Safety applications, SELV/PELV power supplies are required for both MOD power and SA power.

(2) Maximum level of MOD Power current that the controller can pass through to the next module in the system. The specific level of current passed through varies based on system configuration.

(3) SA power specifications are based on the number and type of Compact 5000 I/O modules that are used in the system. For example, if the set of I/O modules that are used in a Compact GuardLogix 5380 controller system includes modules that use AC SA power, you must include a 5069-FPD field potential distributor in the system. In a Compact GuardLogix 5380 controller system, modules that use AC SA power must be installed to the right of a 5069-FPD field potential distributor.

(4) Maximum level of SA Power current that the controller can pass through to the next module in the system. The specific level of current passed through varies based on system configuration.

(5) Use this Conductor Category information for planning conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

## Environmental Specifications - Compact GuardLogix 5380 SIL 2 Controllers

| Attribute | 5069-L306ERS2, 5069-L306ERMS2, 5069-L310ERS2, 5069-L310ERS2K, 5069-L310ERMS2, 5069-L310ERMS2K, 5069-L320ERS2, 5069-L320ERMS2, 5069-L330ERS2, 5069-L330ERMS2, 5069-L340ERS2, 5069-L340ERMS2, 5069-L350ERS2, 5069-L350ERMS2, 5069-L380ERS2, 5069-L380ERMS2, 5069-L3100ERS2, 5069-L3100ERMS2, 5069-L320ERS2K, 5069-L320ERMS2K, 5069-L330ERS2K, 5069-L330ERMS2K, 5069-L350ERS2K, 5069-L350ERMS2K |
|---|---|
| Temperature, operating<br>IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock) | 0 °C < Ta < +60 °C (+32 °F < Ta < +140 °F)<br>For specific controller details, see Controller Minimum Spacing Requirements on page 20. |
| Temperature, nonoperating<br>IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold),<br>IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat),<br>IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock) | -40...+85 °C<br>(-40...+185 °F) |
| Temperature, surrounding air, max | 60 °C (140 °F) |
| Relative humidity<br>IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) | 5...95% noncondensing |
| Vibration<br>IEC 60068-2-6 (Test Fc, Operating) | 5 g @ 10...500 Hz |
| Shock, operating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 30 g |
| Shock, nonoperating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 50 g |
| Emissions | IEC 61000-6-4 |
| ESD immunity<br>IEC 61000-4-2 | 6 kV contact discharges<br>8 kV air discharges |
| Radiated RF immunity<br>IEC 61000-4-3 | 10V/m with 1 kHz sine-wave 80% AM from 80...2000 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2000...2700 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2700...6000 MHz |
| EFT/B immunity<br>IEC 61000-4-4 | ± 4 kV at 5 kHz on power ports<br>± 2 kV at 5 kHz on Ethernet ports |
| Surge transient immunity<br>IEC 61000-4-5 | ± 1 kV line-line (DM) and ± 2 kV line-earth (CM) on power ports<br>± 2 kV line-earth (CM) on Ethernet ports |
| Conducted RF immunity<br>IEC 61000-4-6 | 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz |
| Voltage variation<br>IEC 61000-4-29 | 10 ms interruption on MOD Power port |

## Certifications - Compact GuardLogix 5380 SIL 2 Controllers

| Certification[1] | 5069-L306ERS2, 5069-L306ERMS2, 5069-L310ERS2, 5069-L310ERS2K, 5069-L310ERMS2, 5069-L310ERMS2K, 5069-L320ERS2, 5069-L320ERMS2, 5069-L330ERS2, 5069-L330ERMS2, 5069-L340ERS2, 5069-L340ERMS2, 5069-L350ERS2, 5069-L350ERMS2, 5069-L380ERS2, 5069-L380ERMS2, 5069-L3100ERS2, 5069-L3100ERMS2, 5069-L320ERS2K, 5069-L320ERMS2K, 5069-L330ERS2K, 5069-L330ERMS2K, 5069-L350ERS2K, 5069-L350ERMS2K |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584.<br>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 2014/30/EU EMC Directive, compliant with:<br>• EN 61326-1; Meas./Control/Lab., Industrial Requirements<br>• EN 61000-6-2; Industrial Immunity<br>• EN 61000-6-4; Industrial Emissions<br>• EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)<br>European Union 2014/35/EU LVD, compliant with:<br>• EN 61010-2-201; Control Equipment Safety Requirements<br>European Union 2006/42/EC MD, compliant with:<br>• EN 60204-1; Electrical equipment of machines<br>• EN ISO 13849-1; Safety-related parts of control systems<br>• EN 62061; Functional safety of safety-related control systems<br>• Cat. 3/PL d according to EN ISO 13849-1, and SIL 2 according to EN 62061/IEC 61508<br>• TÜV 01/205/5632<br>European Union 2011/65/EU RoHS, compliant with:<br>• EN IEC 63000; Technical documentation |
| RCM | Australian Radiocommunications Act, compliant with:<br>• EN 61000-6-4; Industrial Emissions |
| Ex | European Union 2014/34/EU ATEX Directive, compliant with:<br>• EN 60079-0; General Requirements<br>• EN 60079-15; Potentially Explosive Atmospheres, Protection "n"<br>• II 3 G Ex nA IIC T4 Gc<br>• DEMK017ATEX1976X |
| IECEx | IECEx System, compliant with:<br>• IEC 600079-0: General Requirements<br>• IEC 60079-15; Potentially Explosive Atmospheres, Protection "n"<br>• II 3 G Ex nA IIC T4 Gc<br>• IECEx UL 17.0122X |
| TÜV | TÜV Certified for Functional Safety[2]:<br>• Capable of SIL 2, CAT. 3/PL d |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with:<br>• Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation<br>Russian Customs Union TR CU 004/2011 LV Technical Regulation |
| CCC | CNCA-C23-01:2019 强制性产品认证实施规则 防爆电气，符合<br>CNCA-C23-01:2019 CCC Implementation Rule Explosion-Proof Electrical Products, compliant with:<br>• GB 3836.1-2010 爆炸性环境 第1部分：设备 通用要求<br>• GB 3836.1-2010 Explosive atmospheres — Part 1: Equipment — General requirements<br>• GB 3836.8-2014 爆炸性环境 第8部分：由"n"型保护的设备<br>• GB 3836.8-2014 Explosive atmospheres - Part 8: Equipment protection by type of protection "n" |
| Morocco | Arrêté ministériel n° 6404-15 du 1 er muharram 1437<br>Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| EtherNet/IP | ODVA conformance tested to EtherNet/IP specifications |
| CIP Security | ODVA conformance tested to CIP Security specifications |

(1)   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 http://www.rockwellautomation.com/global/certification/overview.page for a full list of safety-related certifications.

# Compact GuardLogix SIL 3 Controllers

**Features - Compact GuardLogix 5380 SIL 3 Controllers**

| Feature | 5069-L306ERMS3 | 5069-L310ERMS3 5069-L310ERMS3K | 5069-L320ERMS3 5069-L320ERMS3K | 5069-L330ERMS3 5069-L330ERMS3K | 5069-L340ERMS3 | 5069-L350ERMS3 5069-L350ERMS3K | 5069-L380ERMS3 | 5069-L3100ERMS3 |
|---|---|---|---|---|---|---|---|---|
| Controller tasks<br>• Continuous<br>• Periodic<br>• Event | 31 standard tasks, 1 safety task<br>1000 programs/task<br>All event triggers | | | | | | | |
| Built-in communication ports | 1 USB port<br>2 Ethernet ports<br>**IMPORTANT**: Consider the following:<br>– When the controller operates in Dual-IP mode, each Ethernet port requires a unique IP address.<br>– When the controller operates in Linear/DLR mode, the controller uses only one IP address. | | | | | | | |
| USB port communication | USB 2.0, Type B<br>Full speed (12 Mbps)<br>Programming, configuration, firmware update, and online edits only | | | | | | | |
| Ethernet performance | 10 Mbps, 100 Mbps, 1 Gbps<br>Full-duplex only | | | | | | | |
| I/O Capacity (Class 0/1) - packets/second [1] [2] | • 128,000 without CIP Security<br>• 40,000 with integrity<br>• 20,000 with integrity and confidentiality | | | | | | | |
| Message Rate Capacity HMI/MSG (Class 3) - messages/second [1] [3] | • 1000 without CIP Security<br>• 750 with integrity<br>• 450 with integrity and confidentiality | | | | | | | |
| EtherNet/IP network topologies supported | DLR<br>Star<br>Linear | | | | | | | |
| EtherNet/IP nodes supported, max | 16 | 24 | 40 | 60 | 90 | 120 | 150 | 180 |
| Socket interfaces supported, max | 32 | | | | | | | |
| Integrated motion [3] | | | | | | | | |
| Number of axes supported, max [4] | 256 | | | | | | | |
| Number of CIP Drive axes (Position loop-configured) supported, max [5] | 2 | 4 | 8 | 16 | 20 | 24 | 28 | 32 |
| Programming languages | Ladder Diagram (LD)<br>Structured Text (ST)<br>Function Block Diagram (FBD)<br>Sequential Function Chart (SFC)<br>Safety Task supports only RLL and the additional safety application instructions | | | | | | | |

(1)    I/O numbers are maximums; they assume no HMI/MSG. HMI/MSG numbers are maximums, they assume no I/O. Maximums assume the processor is the target, not the originator. 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)    For information on integrity and confidentiality, see the CIP Security with Rockwell Automation Products Application Technique, publication SECURE-AT001.

(3)    Only controllers that have an M in their catalog number support Integrated Motion on EtherNet/IP networks.

(4)    Any combination of CIP Drive, Virtual, Consumed, Regenerative AC/DC Converter and Non-Regenerative AC/DC Converter axis types.

(5)    The maximum number of CIP Drive axes (configured for Position Loop) that can be included in the total integrated motion axes count for a controller.

**Technical Specifications - Compact GuardLogix 5380 SIL 3 Controllers**

| Attribute | 5069-L306ERMS3 | 5069-L310ERMS3<br>5069-L310ERMS3K | 5069-L320ERMS3<br>5069-L320ERMS3K | 5069-L330ERMS3<br>5069-L330ERMS3K | 5069-L340ERMS3 | 5069-L350ERMS3<br>5069-L350ERMS3K | 5069-L380ERMS3 | 5069-L3100ERMS3 |
|---|---|---|---|---|---|---|---|---|
| User memory | 0.6 MB | 1 MB | 2 MB | 3 MB | 4 MB | 5 MB | 8 MB | 10 MB |
| Safety memory | 0.3 MB | 0.5 MB | 1 MB | 1.5 MB | 2 MB | 2.5 MB | 4 MB | 5 MB |
| Optional nonvolatile memory | <table><tr><td>• 1784-SD1 (1 GB)<br>• 1784-SD2 (2 GB), ships with controller<br>• 1784-SDHC8 (8 GB)<br>• 1784-SDHC32 (32 GB)<br>• 9509-CMSDCD4 (4 GB) CodeMeter CmCard card</td></tr></table> | | | | | | | |
| Local I/O modules, max | 8 | 8 | 16 | 31 | 31 | 31 | 31 | 31 |
| Number of power cycles | 80,000 | | | | | | | |
| MOD Power voltage range | 18…32V DC SELV/PELV[1] | | | | | | | |
| MOD Power current, max | 950 mA | | | | | | | |
| MOD Power inrush | 2.375 A | | | | | | | |
| MOD Power passthrough voltage range [2] | 18…32V DC @ 4.05 A | | | | | | | |
| MOD Power current rating, max | 5 A<br>Do not exceed 5 A current draw at the MOD Power RTB. | | | | | | | |
| SA Power voltage ranges[3] | 0…32V DC SELV/PELV[1] | | | | | | | |
| SA Power current, max[3] | 10 mA (DC power) | | | | | | | |
| SA Power passthrough voltage ranges[3], [4] | 0…32V DC @ 9.99 A | | | | | | | |
| SA Power current rating, max[3] | 10 A (DC power)<br>Do not exceed 10 A current draw at the SA Power RTB. | | | | | | | |
| Power dissipation, max | 18.0 W | | | | | | | |
| Thermal dissipation, max | 18.0 W | | | | | | | |
| Isolation voltage | 300V (continuous), Basic Insulation Type, SA and MOD Power to Backplane<br>300V (continuous), Basic Insulation Type, SA to MOD Power<br>300V (continuous), Basic Insulation Type, Ethernet to Backplane<br>300V (continuous), Double Insulation Type, Ethernet to MOD Power<br>300V (continuous), Double Insulation Type, Ethernet to SA Power<br>50V (continuous), Functional Insulation Type, Ethernet to USB<br>300V (continuous), Basic Insulation Type, USB to Backplane<br>300V (continuous), Double Insulation Type, USB to MOD Power<br>300V (continuous), Double Insulation Type, USB to SA Power<br>No isolation between Ethernet ports<br>Type tested at 1500V AC for 60 seconds | | | | | | | |
| Weight, approx | 1.2 kg (2.645 lb) | | | | | | | |
| Dimensions (HxWxD), approx | 143.71 x 153.5 x 136.81 mm (5.65 x 6.04 x 5.39 in.) | | | | | | | |
| Location | DIN rail mount (horizontal mount only) | | | | | | | |
| DIN rail | Compatible zinc-plated, chromate steel DIN rail.<br>EN50022 - 35 x 7.5 mm (1.38 x 0.30 in.) | | | | | | | |
| Removable terminal block | RTBs are available in separately ordered 5069 RTB kits. The MOD power connection uses a 4-point RTB, and the SA power connection uses a 6-point RTB. The following kits are available:<br>• Kit catalog number 5069-RTB64-SCREW contains RTB catalog numbers 5069-RTB6-SCREW and 5069-RTB4-SCREW<br>• Kit catalog number 5069-RTB64-SPRING contains RTB catalog numbers 5069-RTB6-SPRING and 5069-RTB4-SPRING | | | | | | | |
| Terminal block torque | 5069-RTB4-SCREW & 5069-RTB6-SCREW: 0.4 N•m (3.5 lb•in)<br>5069-RTB4-SPRING & 5069-RTB6-SPRING: Torque does not apply | | | | | | | |
| Wire size | 5069-RTB4-SCREW, 5069-RTB6-SCREW connections:<br>0.5…1.5 mm$^2$ (22…16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 3.5 mm (0.14 in.) max diameter including insulation, single wire connection only<br>5069-RTB4-SPRING, 5069-RTB6-SPRING connections:<br>0.5…1.5 mm$^2$ (22…16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 2.9 mm (0.11 in.) max diameter including insulation, single wire connection only<br>Ethernet connections:<br>Ethernet Cabling and Installation according to IEC 61918 and IEC 61784-5-2 | | | | | | | |
| Insulation stripping length | 5069-RTB4-SCREW, 5069-RTB6-SCREW connections: 12 mm (0.47 in.)<br>5069-RTB4-SPRING, 5069-RTB6-SPRING connections: 10 mm (0.39 in.) | | | | | | | |

### Technical Specifications - Compact GuardLogix 5380 SIL 3 Controllers (Continued)

| Attribute | 5069-L306ERMS3 | 5069-L310ERMS3<br>5069-L310ERMS3K | 5069-L320ERMS3<br>5069-L320ERMS3K | 5069-L330ERMS3<br>5069-L330ERMS3K | 5069-L340ERMS3 | 5069-L350ERMS3<br>5069-L350ERMS3K | 5069-L380ERMS3 | 5069-L3100ERMS3 |
|---|---|---|---|---|---|---|---|---|
| Wire category[5] | 3 - on USB port<br>1 - on power ports<br>2 - on Ethernet ports | | | | | | | |
| Enclosure | None (open-style) | | | | | | | |
| North American temperature code | T4 | | | | | | | |
| ATEX temperature code | T4 | | | | | | | |
| IECEx temperature code | T4 | | | | | | | |

(1)   For Functional Safety applications, SELV/PELV power supplies are required for both MOD power and SA power.

(2)   Maximum level of MOD Power current that the controller can pass through to the next module in the system. The specific level of current passed through varies based on system configuration.

(3)   SA power specifications are based on the number and type of Compact 5000 I/O modules that are used in the system. For example, if the set of I/O modules that are used in a Compact GuardLogix 5380 controller system includes modules that use AC SA power, you must include a 5069-FPD field potential distributor in the system. In a Compact GuardLogix 5380 controller system, modules that use AC SA power must be installed to the right of a 5069-FPD field potential distributor.

(4)   Maximum level of SA Power current that the controller can pass through to the next module in the system. The specific level of current passed through varies based on system configuration.

(5)   Use this Conductor Category information for planning conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

### Environmental Specifications - Compact GuardLogix 5380 SIL 3 Controllers

| Attribute | 5069-L306ERMS3, 5069-L310ERMS3, 5069-L310ERMS3K, 5069-L320ERMS3, 5069-L320ERMS3K, 5069-L330ERMS3, 5069-L330ERMS3K, 5069-L340ERMS3, 5069-L350ERMS3, 5069-L350ERMS3K, 5069-L380ERMS3, 5069-L3100ERMS3 |
|---|---|
| Temperature, operating<br>IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock) | 0 °C < Ta < +60 °C (+32 °F < Ta < +140 °F)<br>For specific controller details, see [Controller Minimum Spacing Requirements on page 20](#). |
| Temperature, nonoperating<br>IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold),<br>IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat),<br>IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock) | -40...+85 °C<br>(-40...+185 °F) |
| Temperature, surrounding air, max | 60 °C (140 °F) |
| Relative humidity<br>IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) | 5...95% noncondensing |
| Vibration<br>IEC 60068-2-6 (Test Fc, Operating) | 5 g @ 10...500 Hz |
| Shock, operating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 30 g |
| Shock, nonoperating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 50 g |
| Emissions | IEC 61000-6-4 |
| ESD immunity<br>IEC 61000-4-2 | 6 kV contact discharges<br>8 kV air discharges |
| Radiated RF immunity<br>IEC 61000-4-3 | 10V/m with 1 kHz sine-wave 80% AM from 80...2000 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2000...2700 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2700...6000 MHz |
| EFT/B immunity<br>IEC 61000-4-4 | ± 4 kV at 5 kHz on power ports<br>± 2 kV at 5 kHz on Ethernet ports |
| Surge transient immunity<br>IEC 61000-4-5 | ± 1 kV line-line (DM) and ± 2 kV line-earth (CM) on power ports<br>± 2 kV line-earth (CM) on Ethernet ports |
| Conducted RF immunity<br>IEC 61000-4-6 | 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz |
| Voltage variation<br>IEC 61000-4-29 | 10 ms interruption on MOD Power port |

**Certifications - Compact GuardLogix 5380 SIL 3 Controllers**

| Certification[1] | 5069-L306ERMS3, 5069-L310ERMS3, 5069-L310ERMS3K, 5069-L320ERMS3, 5069-L320ERMS3K, 5069-L330ERMS3, 5069-L330ERMS3K, 5069-L340ERMS3, 5069-L350ERMS3, 5069-L350ERMS3K, 5069-L380ERMS3, 5069-L3100ERMS3 |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584.<br>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 2014/30/EU EMC Directive, compliant with:<br>• EN 61326-1; Meas./Control/Lab., Industrial Requirements<br>• EN 61000-6-2; Industrial Immunity<br>• EN 61000-6-4; Industrial Emissions<br>• EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)<br>European Union 2014/35/EU LVD, compliant with:<br>• EN 61010-2-201; Control Equipment Safety Requirements<br>European Union 2006/42/EC MD, compliant with:<br>• EN 60204-1; Electrical equipment of machines<br>• EN ISO 13849-1; Safety-related parts of control systems<br>• EN 62061; Functional safety of safety-related control systems<br>• Cat. 3/PL d according to EN ISO 13849-1, and SIL 2 according to EN 62061/IEC 61508<br>• TÜV 01/205/5632<br>European Union 2011/65/EU RoHS, compliant with:<br>• EN IEC 63000; Technical documentation |
| RCM | Australian Radiocommunications Act, compliant with:<br>• EN 61000-6-4; Industrial Emissions |
| Ex | European Union 2014/34/EU ATEX Directive, compliant with:<br>• EN 60079-0; General Requirements<br>• EN 60079-15; Potentially Explosive Atmospheres, Protection "n"<br>• II 3 G Ex nA IIC T4 Gc<br>• DEMK017ATEX1976X |
| IECEx | IECEx System, compliant with:<br>• IEC 600079-0: General Requirements<br>• IEC 60079-15; Potentially Explosive Atmospheres, Protection "n"<br>• II 3 G Ex nA IIC T4 Gc<br>• IECEx UL 17.0122X |
| TÜV | TÜV Certified for Functional Safety[2]:<br>• Capable of SIL 2, CAT. 3/PL d |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with:<br>• Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation<br>Russian Customs Union TR CU 004/2011 LV Technical Regulation |
| CCC | CNCA-C23-01:2019 强制性产品认证实施规则 防爆电气，符合<br>CNCA-C23-01:2019 CCC Implementation Rule  Explosion-Proof Electrical Products, compliant with:<br>• GB 3836.1-2010  爆炸性环境 第1部分：设备 通用要求<br>• GB 3836.1-2010 Explosive atmospheres — Part 1: Equipment — General requirements<br>• GB 3836.8-2014  爆炸性环境 第8部分：由"n"型保护的设备<br>• GB 3836.8-2014 Explosive atmospheres - Part 8: Equipment protection by type of protection "n" |
| Morocco | Arrêté ministériel n° 6404-15 du 1 er muharram 1437<br>Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| EtherNet/IP | ODVA conformance tested to EtherNet/IP specifications |
| CIP Security | ODVA conformance tested to CIP Security specifications |

(1)   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 http://www.rockwellautomation.com/global/certification/overview.page for a full list of safety-related certifications.

# CompactLogix 5480 Controllers

The CompactLogix 5480 controllers are part of the Logix 5000 family of controllers. The controllers are real-time controllers with Windows 10 IoT Enterprise commercial operating system (COS) running in parallel to the Logix control engine.

The CompactLogix 5480 controllers deliver scalable control that is ideal for mid-size to large applications that require high-performance control and data throughput. The CompactLogix 5480 controllers also provide a truly integrated motion solution.

The controllers are mounted on a DIN rail. They can monitor and control local and remote I/O modules, and other devices connected to an EtherNet/IP network. The CompactLogix 5480 controllers support the following functionality for use with the control engine:

- Use of Compact 5000 I/O module as local I/O modules.
- Use Compact 5000 I/O modules, and other I/O modules, as remote I/O modules.
- Support for Integrated Motion over an EtherNet/IP network.
- Use of three Ethernet ports that can connect to enterprise-level and device-level EtherNet/IP networks, including star, linear, and DLR EtherNet/IP network topologies.
- Support for Linear/DLR and Dual-IP mode.
- Use of USB port for firmware updates and programming.
- Use of 1784-SD1, 1784-SD2, 1784-SDHC8, 1784-SDHC32, 9509-CMSDCD4 Secure Digital (SD) card for nonvolatile memory.

The COS lets you perform tasks on the controller that must be performed on an external workstation in other Logix 5000 control systems. The CompactLogix 5480 controllers come with following for use in Windows-based applications:

- Embedded Ethernet port to connect the COS to an EtherNet/IP network or Enterprise network.
- Two USB 3.0 ports to connect peripherals such as a keyboard and mouse.
- DisplayPort to connect a monitor.
- Support for the installation and use of Rockwell Automation® applications, such as FactoryTalk® View Site Edition.

**Features - CompactLogix 5480 Controllers**

| Feature | 5069-L430ERMW | 5069-L450ERMW | 5069-4100ERMW | 5069-L4200ERMW |
|---|---|---|---|---|
| Controller tasks<br>• Continuous<br>• Periodic<br>• Event | 32 tasks<br>1000 programs/task<br>All event triggers | | | |
| Built-in communication ports | Logix control engine use:<br>• 3 - Ethernet, 10 Mbps/100 Mbps/1 Gbps<br>• 1- USB client<br>**IMPORTANT**: Consider the following:<br>• When the controller operates in Dual-IP mode, each Ethernet port requires a unique IP address.<br>• When the controller operates in Linear/DLR mode, the controller DLR pair uses only one IP address.<br>Windows 10 use:<br>• 1 - Ethernet, 10 Mbps/100 Mbps/1 Gbps | | | |
| USB port communication | Logix control engine use:<br>• USB 2.0, Type B<br>• Full speed (480 Mbps)<br>• Programming, configuration, firmware update, and online edits only<br>Windows 10 use:<br>• 2 - USB 3.0 ports to connect peripherals such as a keyboard and mouse | | | |
| Ethernet performance | 10 Mbps, 100 Mbps, 1 Gbps<br>Full-duplex only | | | |
| I/O Capacity (Class 0/1) [1] | 128,000 packets/second | | | |
| Message Rate Capacity HMI/MSG (Class 3) [1] | 2000 messages/second | | | |
| EtherNet/IP modes supported | Dual-IP mode<br>Linear/DLR mode | | | |
| EtherNet/IP network topologies supported | DLR<br>Star<br>Linear | | | |
| EtherNet/IP nodes supported, max | 60 | 120 | 180 | 250 |
| Socket interfaces supported, max | 32 | | | |

## Features - CompactLogix 5480 Controllers (Continued)

| Feature | 5069-L430ERMW | 5069-L450ERMW | 5069-4100ERMW | 5069-L4200ERMW |
|---|---|---|---|---|
| Integrated motion | | | | |
| Number of axes supported, max[2] | 512 | | | |
| Number of CIP Drive axes (Position loop-configured) supported, max[3] | 16 | 24 | 32 | 150 |
| Programming languages | Ladder Diagram (LD)<br>Structured Text (ST)<br>Function Block Diagram (FBD)<br>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. Maximums assume the processor is target, not originator. 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)     Any combination of CIP Drive, Virtual, Consumed, Regenerative AC/DC Converter and Non-Regenerative AC/DC Converter axis types.

(3)     The maximum number of CIP Drive axes (configured for Position Loop) that can be included in the total integrated motion axes count for a controller.

## Technical Specifications - CompactLogix 5480 Controller

| Attribute | 5069-L430ERMW | 5069-L450ERMW | 5069-L4100ERMW | 5069-L4200ERMW |
|---|---|---|---|---|
| User memory | | | | |
| Windows 10 (COS on controller) | • RAM - 6 GB<br>• SSD: 64 GB | | | |
| Logix control engine | 3 MB | 5 MB | 10 MB | 20 MB |
| Optional nonvolatile memory | 1784-SD1 (1 GB)<br>1784-SD2 (2 GB), ships with controller<br>1784-SDHC8 (8 GB)<br>1784-SDHC32 (32 GB)<br>9509-CMSDCD4 (4 GB) CodeMeter CmCard card | | | |
| Local I/O modules, max | 31 | | | |
| MOD Power voltage range | 18...32V DC | | | |
| MOD Power power, max | 72 W | | | |
| MOD Power current, typical | 4 A | | | |
| MOD Power inrush | 4 A for 15 ms | | | |
| MOD Power passthrough[1] | 6 A @ 18...32V DC | | | |
| MOD Power current rating, max | 10 A<br>Do not exceed 10 A current draw at the MOD power RTB.[2] | | | |
| SA Power voltage ranges[3] | 0...32V DC<br>0...240V AC, 47...63 Hz | | | |
| SA Power current, max[3] | 10 mA (DC power)<br>25 mA (AC power) | | | |
| SA Power passthrough[3], [4] | 9.99 A @ 0...32V DC<br>9.975 A @ 0...240V AC, 47...63 Hz | | | |
| SA Power current rating, max [3] | Do not exceed 10 A current draw at the SA power RTB. | | | |
| Power dissipation, max | 72 W | | | |
| Thermal dissipation, max | 245.7 BTU/hr | | | |
| Isolation voltage | 300V (continuous), Basic Insulation Type, SA, and MOD Power to Backplane<br>300V (continuous), Basic Insulation Type, SA to MOD Power<br>300V (continuous), Basic Insulation Type, Ethernet to Backplane<br>300V (continuous), Double Insulation Type, Ethernet to MOD Power<br>300V (continuous), Double Insulation Type, Ethernet to SA Power<br>50V (continuous), Functional Insulation Type, Ethernet to USB ports and DisplayPort<br>300V (continuous), Basic Insulation Type, USB ports, and DisplayPort to Backplane<br>300V (continuous), Double Insulation Type, USB ports, and DisplayPort to MOD Power<br>300V (continuous), Double Insulation Type, USB ports, and DisplayPort to SA Power<br>No isolation between Ethernet ports<br>Type tested at 1500V AC for 60 s | | | |
| Weight, approx | 1.754 kg (3.868 lb) | | | |
| Dimensions (HxWxD), approx | 166.20 x 130.21 x 126.54 mm (6.54 x 5.13 x 4.98 in.) | | | |

## Technical Specifications - CompactLogix 5480 Controller (Continued)

| Attribute | 5069-L430ERMW | 5069-L450ERMW | 5069-L4100ERMW | 5069-L4200ERMW |
|---|---|---|---|---|
| Location | DIN rail mount (horizontal mount only) | | | |
| DIN rail | Compatible zinc-plated, chromate steel DIN rail.<br>• EN50022 - 35 x 7.5 mm (1.38 x 0.30 in.)<br>• EN50022 - 35 x 15 mm (1.38 x 0.60 in.) | | | |
| Removable terminal blocks | RTBs ship with the controller:<br>• 5069-RTB64-SCREW kit: Includes 5069-RTB6-SCREW and 5069-RTB4-SCREW RTBs<br>• 5069-L4UPSRTB | | | |
| Terminal block torque | 5069-RTB4-SCREW, 5069-RTB6-SCREW, and 5069-L4UPSRTB connections: 0.4 N•m (3.5 lb•in)<br>**ATTENTION**: Do not wire more than two conductors on one RTB terminal. | | | |
| Wire size | 5069-RTB4-SCREW, 5069-RTB6-SCREW connections:<br>0.5...1.5 mm$^2$ (22...16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 3.5 mm (0.14 in.) max diameter including insulation, single wire connection only<br>5069-L4UPSRTB connections:<br>0.5...1.5 mm$^2$ (22...16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 2.9 mm (0.11 in.) max diameter including insulation, single wire connection only<br>Ethernet connections:<br>Ethernet Cabling and Installation according to IEC 61918 and IEC 61784-5-2 | | | |
| Insulation stripping length | 5069-RTB4-SCREW, 5069-RTB6-SCREW, and 5069-L4UPSRTB connections: 12 mm (0.47 in.) | | | |
| Wire category[5] | 3 - on USB ports and DisplayPort<br>2 - on power ports<br>2 - on Ethernet ports | | | |
| Enclosure | None (open-style) | | | |

(1)    Maximum level of MOD Power current that the controller can pass through to the next module in the system. The specific level of current passed through varies based on system configuration.

(2)    Remember, MOD power usage includes the total power that the controller and local Compact 5000 I/O modules use. If you connect external power to both sets of MOD power RTB terminals, however, the local Compact 5000 I/O modules can draw a maximum of 10 A in addition to the current that the controller draws.

(3)    SA power specifications are based on the number and type of Compact 5000 I/O modules that are used in the system. If the set of I/O modules that are used in the system require AC and DC voltage, you must install a 5069-FPD field potential distributor to separate the module types.

(4)    Maximum level of SA Power current that the controller can pass through to the next module in the system. The specific level of current passed through varies based on system configuration.

(5)    Use this Conductor Category information for planning conductor routing. See the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

## Environmental Specifications - CompactLogix 5480 Controllers

| Attribute | 5069-L430ERMW, 5069-L450ERMW, 5069-4100ERMW, 5069-L4200ERMW |
|---|---|
| Temperature, operating<br>IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock) | 0 °C < Ta < +60 °C (+32 °F < Ta < +140 °F) |
| Temperature, nonoperating<br>IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold),<br>IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat),<br>IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock) | -40...+85 °C<br>(-40...+185 °F) |
| Temperature, surrounding air, max | 60 °C (140 °F) |
| Relative humidity<br>IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) | 5...95% noncondensing |
| Vibration<br>IEC 60068-2-6 (Test Fc, Operating) | 2 g @ 10...500 Hz |
| Shock, nonoperating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 30 g |
| Emissions | IEC 61000-6-4 |
| ESD immunity<br>IEC 61000-4-2 | 4 kV contact discharges<br>8 kV air discharges |
| Radiated RF immunity<br>IEC 61000-4-3 | 10V/m with 1 kHz sine-wave 80% AM from 80...2000 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2000...2700 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2700...6000 MHz |
| EFT/B immunity<br>IEC 61000-4-4 | ± 2 kV at 5 kHz on power ports<br>± 1 kV at 5 kHz on Ethernet ports |
| Surge transient immunity<br>IEC 61000-4-5 | ± 500V line-line (DM) and ± 1 kV line-earth (CM) on power ports<br>± 1 kV line-earth (CM) on Ethernet ports |
| Conducted RF immunity<br>IEC 61000-4-6 | 10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz on power and Ethernet ports |
| Magnetic Field Immunity<br>IEC 61000-4-8 | 30 A/m long duration at 60 Hz |
| Voltage variation<br>IEC 61000-4-29 | 10 ms interruption on MOD Power port |

**Certifications – CompactLogix 5480 Controller**

| Certification[1] | 5069-L430ERMW, 5069-L450ERMW, 5069-4100ERMW, 5069-L4200ERMW |
|---|---|
| c-UL-us | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. |
| CE | European Union 2014/30/EU EMC Directive, compliant with:<br>• EN 61326-1; Meas./Control/Lab., Industrial Requirements<br>• EN 61000-6-2; Industrial Immunity<br>• EN 61000-6-4; Industrial Emissions<br>• EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)<br>European Union 2014/35/EU LVD, compliant with:<br>• EN 61010-2-201; Control Equipment Safety Requirements<br>European Union 2011/65/EU RoHS, compliant with:<br>• EN IEC 63000; Technical documentation |
| RCM | Australian Radiocommunications Act, compliant with:<br>• EN 61000-6-4; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with:<br>• Article 58-2 of Radio Waves Act, Clause 3 |
| EAC | Russian Customs Union TR CU 020/2011 EMC Technical Regulation<br>Russian Customs Union TR CU 004/2011 LV Technical Regulation |
| Morocco | Arrêté ministériel n° 6404-15 du 1 er muharram 1437<br>Arrêté ministériel n° 6404-15 du 29 ramadan 1436 |
| UKCA | 2016 No. 1091 – Electromagnetic Compatibility Regulations<br>2016 No. 1101 – Electrical Equipment (Safety) Regulations<br>2016 No. 1107 – Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations<br>2012 No. 3032 – Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations |
| 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.

# Controller Minimum Spacing Requirements

The minimum distance between the CompactLogix 5380 system or Compact GuardLogix 5380 system and enclosure walls, wireways, and adjacent equipment varies based on the current operating temperature.

The minimum distances on all sides of the system are as follows:

- **CompactLogix 5380 Standard and Process Controllers**
  - 50.80 mm (2.00 in.) at 55 °C (131 °F)
  - 101.60 mm (4.00 in) at 60 °C (140 °F)
- **Compact GuardLogix 5380 SIL 2 Controller**

  *Series A catalog numbers*:
  - 50.8 mm (2.00 in.) at 50 °C (122 °F)
  - 101.6 mm (4.00 in.) at 55 °C (131 °F)
  - 152.4 mm (6.00 in) at 60 °C (140 °F)

  *Series B catalog numbers*:
  - 50.8 mm (2.00 in.) at 55 °C (131 °F)
  - 101.6 mm (4.00 in.) at 60 °C (140 °F)
- **Compact GuardLogix 5380 SIL 3 Controller**
  - 50.8 mm (2.00 in.) at 55 °C (131 °F)
  - 101.6 mm (4.00 in.) at 60 °C (140 °F)
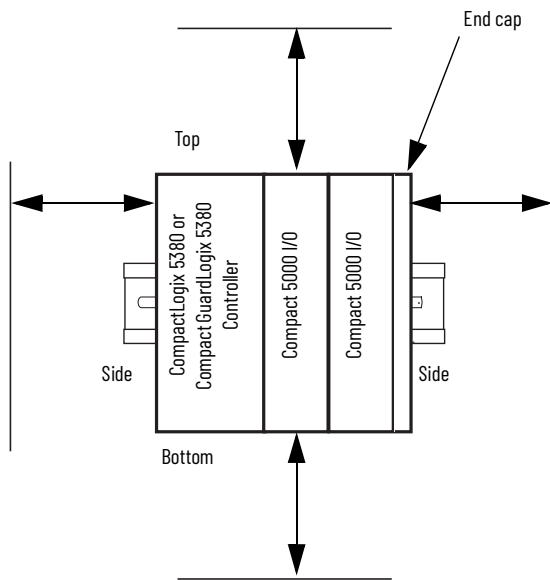
The minimum distance on of a system that includes only a CompactLogix 5480 controller is as follows:

- 25.00 mm (0.98 in.) between the sides and the cabinet
- 25.00 mm (0.98 in.) between the front of the controller and the cabinet
- 50.00 mm (1.96 in.) between the top and bottom and the cabinet
  We recommend that you install the controller near the bottom of the enclosure, where ambient temperature is lower.
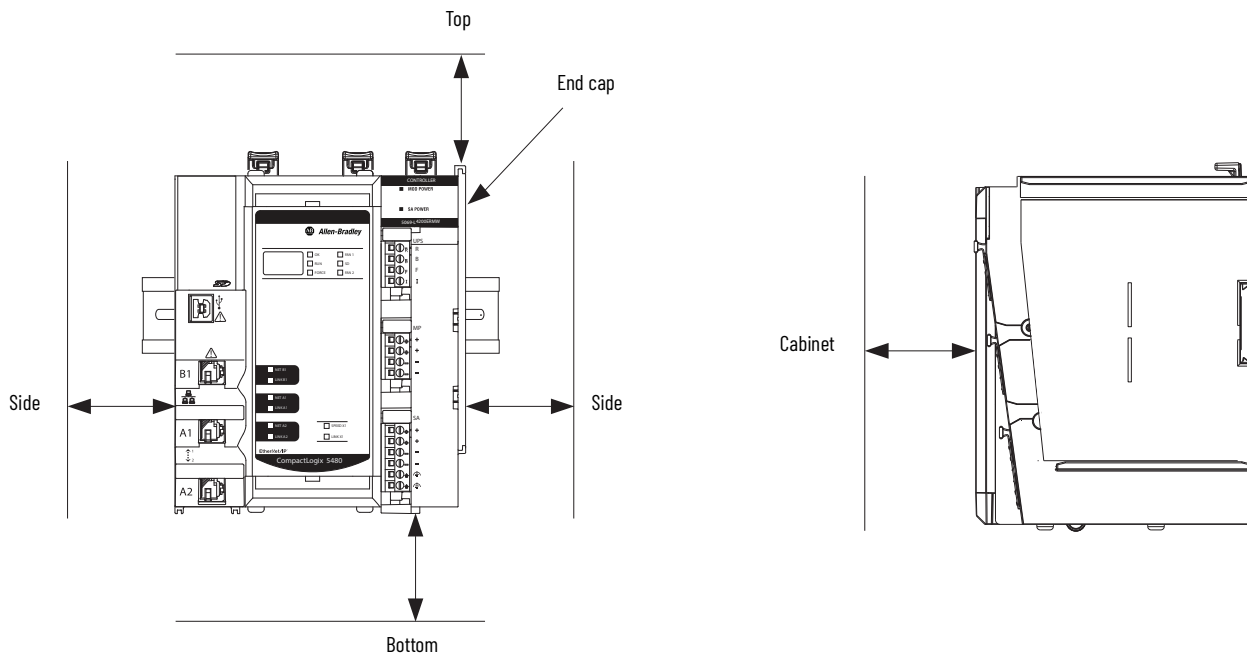
| | |
|---|---|
| **IMPORTANT** | If Compact 5000 I/O modules are installed next to a CompactLogix 5380, Compact GuardLogix 5380, or CompactLogix 5480 controller, you must mount the system horizontally. |
| | You mount CompactLogix 5480 controllers in any orientation if there are no Compact 5000 I/O modules installed next to the controller. |

# Controller Dimensions

**CompactLogix 5380**
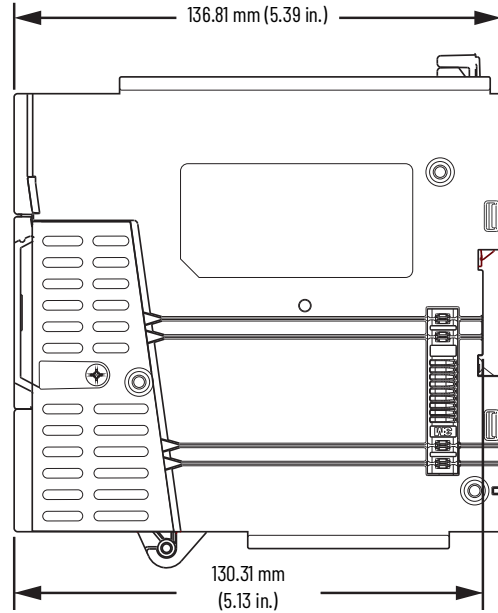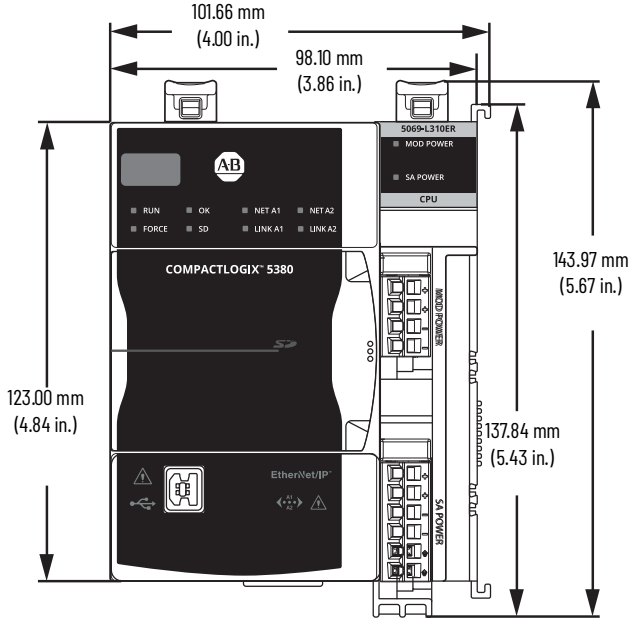


**Compact GuardLogix 5380 SIL 2 Controller**
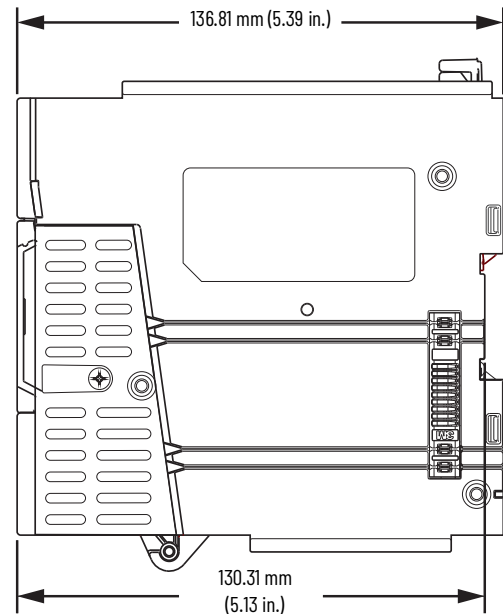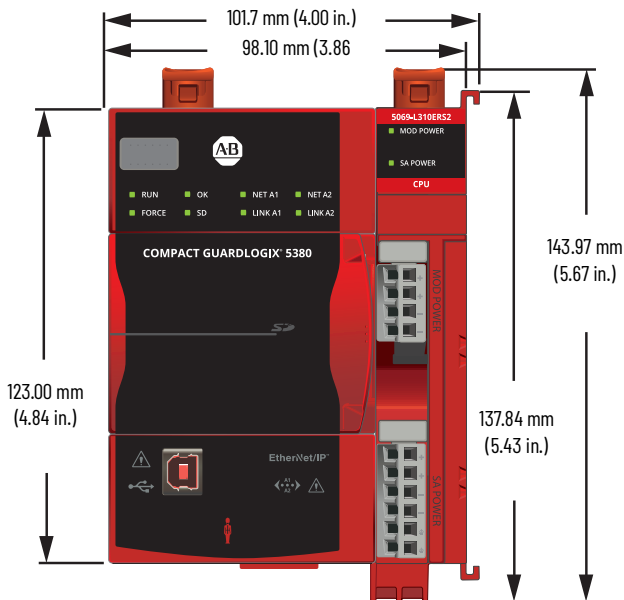
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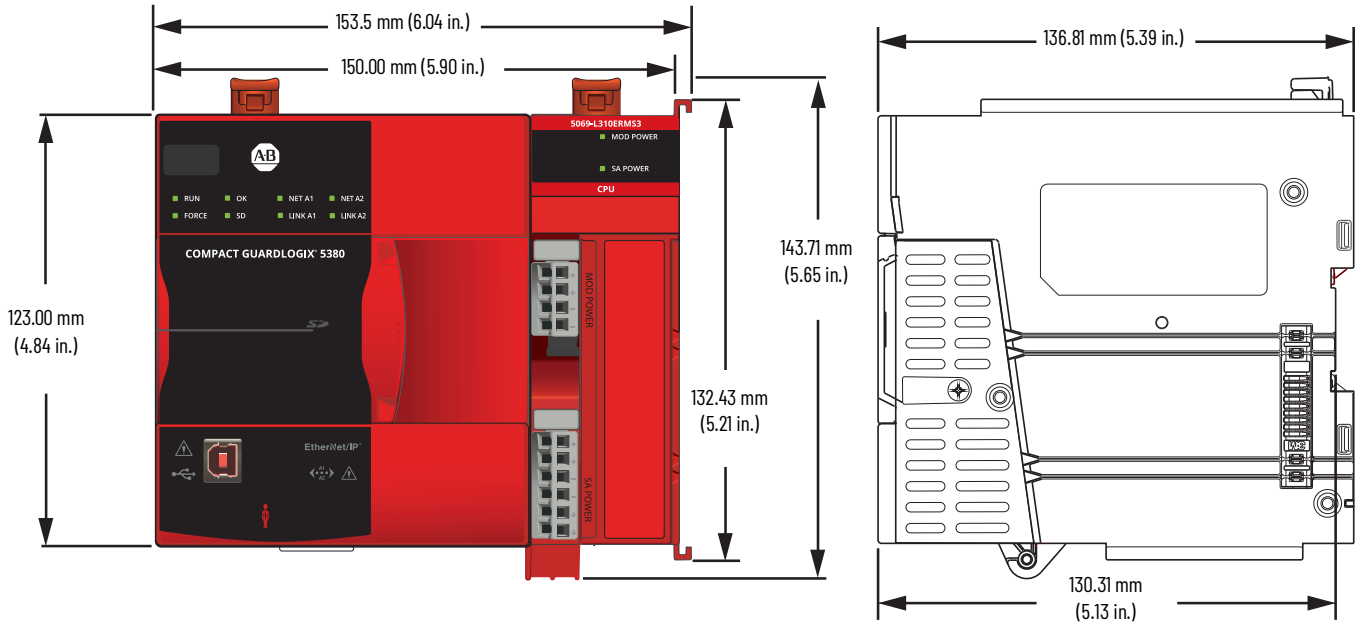


**CompactLogix 5480**
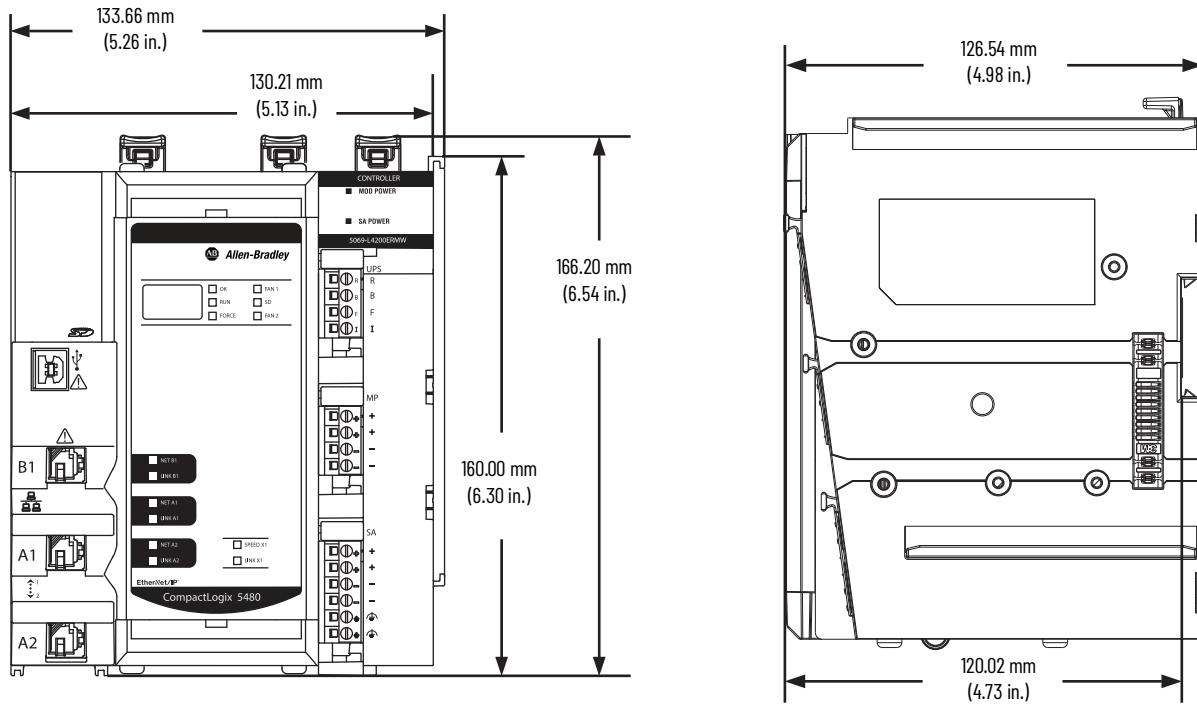
# Controller Use with Other Devices

Your controller can control and communicate with the following devices:

- Control I/O Modules
- Communicate with Other Controllers

## Control I/O Modules

The CompactLogix 5380 and Compact GuardLogix 5380 controllers can monitor and control local and remote I/O modules.

*Local I/O Modules*

- A CompactLogix 5380 and CompactLogix 5480 system supports Compact 5000 I/O standard modules as local I/O modules.
- A Compact GuardLogix 5380 system supports Compact 5000 I/O standard and safety modules as local modules.

The number of local I/O modules that are supported in a CompactLogix 5380 system or Compact GuardLogix 5380 system varies by controller catalog number.

| Cat. No. | Local Compact 5000 I/O Modules Supported, Max | |
|---|---|---|
| | **Standard I/O Modules** | **Any Combination of Standard and Safety I/O Modules** |
| 5069-L306ER, 5069-L306ERM | 8 | — |
| 5069-L306ERS2, 5069-L306ERMS2, 5069-L306ERMS3 | | 8 |
| 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM | 8 | — |
| 5069-L310ERS2, 5069-L310ERS2K, 5069-L310ERMS2, 5069-L310ERMS2K, 5069-L310ERMS3, 5069-L310ERMS3 | | 8 |
| 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP | 16 | — |
| 5069-L320ERS2, 5069-L320ERMS2, 5069-L320ERS2K, 5069-L320ERMS2K, 5069-L320ERMS3, 5069-L320ERMS3K | | 16 |
| 5069-L330ER, 5069-L330ERM[1], 5069-L330ERMK[1] | 31 | — |
| 5069-L330ERS2, 5069-L330ERMS2, 5069-L330ERS2K, 5069-L330ERMS2K, 5069-L330ERMS3, 5069-L330ERMS3K | | 31 |
| 5069-L340ER, 5069-L340ERM, 5069-L340ERP | 31 | — |
| 5069-L340ERS2, 5069-L340ERMS2, 5069-L340ERMS3 | | 31 |
| 5069-L350ERM, 5069-L350ERMK | 31 | — |
| 5069-L350ERS2, 5069-L350ERMS2, 5069-L350ERS2K, 5069-L350ERMS2K, 5069-L350ERMS3, 5069-L350ERMS3K | | 31 |
| 5069-L380ERM | 31 | — |
| 5069-L380ERS2, 5069-L380ERMS2, 5069-L380ERMS3 | | 31 |
| 5069-L3100ERM | 31 | — |
| 5069-L3100ERS2, 5069-L3100ERMS2, 5069-L3100ERMS3 | | 31 |
| 5069-L430ERMW, 5069-L450ERMW, 5069-4100ERMW, 5069-L4200ERMW | 31 | — |

(1) When you use these controllers with the Logix Designer application, version 29.00.00, the application limits the number of local I/O modules in the project to 16. For more information, see the Rockwell Automation Knowledgebase article #942580, '5380 CompactLogix controllers limited to 16 local 5069 modules in version 29 of Studio 5000®.' The document is available at http://www.rockwellautomation.com/knowledgebase. With the Logix Designer application, version 30.00.00 or later, the controllers support 31 local I/O modules.

*Remote I/O Modules*

The controllers can connect to these remote I/O modules over an EtherNet/IP network.

| IMPORTANT | For maximum performance, we recommend that you use Compact 5000 I/O modules when you use remote I/O modules. |
|---|---|

CompactLogix 5380 controllers, Compact GuardLogix 5380, and CompactLogix 5480 controllers support the remote I/O modules in this table. The I/O modules that are listed are **standard I/O modules**.

| Module Type | I/O Module Family |
|---|---|
| Chassis-based I/O | 1746 SLC™ I/O |
| | 1756 ControlLogix® I/O |
| | 1769 Compact I/O™ |
| | Compact 5000 I/O standard modules |
| In-cabinet I/O | 1734 POINT I/O™ |
| | 1794 FLEX™ I/O |
| | FLEX 5000™ I/O |
| On-Machine™ I/O | 1732 ArmorBlock® I/O |
| | 1738 ArmorPOINT® I/O |

Only Compact GuardLogix 5380 controllers support the remote I/O modules in this table. The I/O modules that are listed are **safety I/O modules**.

| Module Type | I/O Module Family |
|---|---|
| Chassis-based I/O | Compact 5000 I/O Safety I/O |
| | 1756 ControlLogix Safety I/O |
| In-cabinet I/O | CompactBlock™ Guard I/O™ |
| | POINT Guard I/O™ |
| | FLEX 5000 Safety I/O |
| On-Machine™ I/O | 1732 ArmorBlock® Guard I/O™ |

# Communicate with Other Controllers

The controller can communicate with these programmable controllers.

| Controller Type | Controller Family |
|---|---|
| Programmable automation controller | CompactLogix 5370 |
| | CompactLogix 5380 |
| | CompactLogix 5480 |
| | Compact GuardLogix 5370 (safety) |
| | Compact GuardLogix 5380 (safety) |
| | ControlLogix 5570 |
| | ControlLogix 5580 |
| | GuardLogix 5570 (safety) |
| | GuardLogix 5580 (safety) |
| | 1756 Armor™ ContrlLogix (safety) |
| | 1756 Armor™ GuardLogix® (safety) |
| | 1768 Compact GuardLogix (safety) |
| | 1768 CompactLogix |
| | 1769 Modular CompactLogix |
| | 1769 Packaged CompactLogix |
| Programmable logic controllers | 1789 SoftLogix™ 5800 |
| | PowerFlex® with DriveLogix™ |
| | 1785 PLC-5®[1] |
| | 1747 SLC™[1] |
| | 1761 MicroLogix™[2] |
| | 1762 MicroLogix[2] |
| | 1763 MicroLogix |
| | 1764 MicroLogix[2] |
| | 1766 MicroLogix |

(1)  These controllers require a built-in Ethernet port or a 1761-NET-ENI, EtherNet/IP RS-232-C interface to communicate with a CompactLogix 5380 controller over an EtherNet/IP network.

(2)  These controllers require a 1761-NET-ENI, EtherNet/IP RS-232-C interface to communicate with a CompactLogix 5380 controller over an EtherNet/IP network.

# Ethernet Node Limits

When you configure a CompactLogix 5380, Compact GuardLogix 5380, or CompactLogix 5480 control system, consider the number of Ethernet nodes that are used. The number of Ethernet nodes that you can include in the I/O configuration section in the Logix Designer application project is limited.

## Maximum Number of Ethernet Nodes

The number of nodes that are supported in a Logix Designer application project varies by CompactLogix 5380, Compact GuardLogix 5380, and CompactLogix 5480 controller.

The maximum number of nodes that are listed represents when the controller is used with the Logix Designer application, version 31 or later. You can use CompactLogix 5380 controllers with earlier Logix Designer application versions. The maximum number of nodes that a controller supports can be fewer in Logix Designer application, versions 30 or earlier.

| Catalog Number | Ethernet Nodes Supported |
|---|---|
| 5069-L306ER, 5069-L306ERM, 5069-L306ERS2, 5069-L306ERMS2, 5069-L306ERMS3 | 16 |
| 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L310ERMK, 5069-L310ERS2, 5069-L310ERS2K, 5069-L310ERMS2, 5069-L310ERMS2K, 5069-L310ERMS3, 5069-L310ERMS3 | 24 |
| 5069-L320ER, 5069-L320ERM, 5069-L320ERMK, 5069-L320ERP, 5069-L320ERS2, 5069-L320ERMS2, 5069-L320ERS2K, 5069-L320ERMS2K, 5069-L320ERMS3, 5069-L320ERMS3K | 40 |
| 5069-L330ER, 5069-L330ERM, 5069-L330ERMK, 5069-L330ERS2, 5069-L330ERMS2, 5069-L330ERS2K, 5069-L330ERMS2K, 5069-L330ERMS3, 5069-L330ERMS3K | 60 |
| 5069-L340ER, 5069-L340ERM, 5069-L340ERP, 5069-L340ERS2, 5069-L340ERMS2, 5069-L340ERMS3 | 90 |
| 5069-L350ERM, 5069-L350ERMK, 5069-L350ERS2, 5069-L350ERMS2, 5069-L350ERS2K, 5069-L350ERMS2K | 120 |
| 5069-L380ERM, 5069-L380ERS2, 5069-L380ERMS2, 5069-L380ERMS3 | 150 |
| 5069-L3100ERM, 5069-L3100ERS2, 5069-L3100ERMS2, 5069-L3100ERMS3 | 180 |
| 5069-L430ERMW | 60 |
| 5069-L450ERMW | 120 |
| 5069-4100ERMW | 180 |
| 5069-L4200ERMW | 250 |

Any devices that you add directly to the I/O configuration section are counted toward the Ethernet node limit. The following are examples of devices that must be counted:

- Remote communication adapters
- Devices with an embedded Ethernet port, such as I/O modules, drives, and linking devices
- Remote controllers when a produce/consume connection is established between the two controllers
- HMI devices that are included in the I/O configuration tree
- Third-party devices that are directly connected to the EtherNet/IP network

# Accessories

The following accessories are used with a CompactLogix 5380, Compact GuardLogix 5380, or CompactLogix 5480 controller:

- End Cap
- Memory Cards
- Removable Terminal Kits - For CompactLogix 5380 and Compact GuardLogix 5380 controllers, Removable Terminal Blocks (RTB) are available in separately ordered 5069 RTB kits. For CompactLogix 5480 controllers, the required RTB kit ships with the controllers.

## End Cap

You must install an end cap, catalog number 5069-ECR, on the right side of the last module in a CompactLogix 5380, Compact GuardLogix 5380, or CompactLogix 5480 control system. The end cap is shipped with the controller.

| | |
|---|---|
| ⚠ | **SHOCK HAZARD:** The end cap covers the exposed interconnections on the last module in the system. If you do not install the end cap before powering the system, equipment damage or injury from electric shock can result. |

## Memory Cards

Memory cards, also known as Secure Digital (SD) cards, offer nonvolatile memory to store a user program and tag data on a controller. Through the Logix Designer application, 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.

A 1784-SD2 card ships with the controller. If you need additional SD cards, we recommend that you use one that is available from Rockwell Automation. The following SD cards are available to use with the controllers:

- 1784-SD1 (1 GB)
- 1784-SD2 (2 GB)
- 1784-SDHC8 (8GB)
- 1784-SDHC32 (32 GB)
- 9509-CMSDCD4 (4 GB)

We recommend that you use the SD cards available from Rockwell Automation.

**Technical Specifications - 1784-SD1, 1784-SD2, 1784-SDHC8, 1784-SDHC32, 9509-CMSDCD4**

| Attribute | 1784-SD1 | 1784-SD2 | 1784-SDHC8 | 1784-SDHC32 | 9509-CMSDCD4[1] |
|---|---|---|---|---|---|
| Memory | 1 GB | 2 GB | 8 GB | 32 GB | 4 GB |
| Supported controllers | CompactLogix 5380, Compact GuardLogix 5380, CompactLogix 5480 controllers | | | | |
| Weight, approx | 1.76 g (0.062 oz) | | | | 2 g (0.07 oz) |

(1)    This card is used when license-based source protection and execution protection features are enabled.

**Environmental Specifications - 1784-SD1, 1784-SD2, 1784-SDHC8, 1784-SDHC32**

| Attribute | 1784-SD1, 1784-SD2 |
|---|---|
| Temperature, operating<br>IEC 60068-2-1 (Test Ad, Operating Cold),<br>IEC 60068-2-2 (Test Bd, Operating Dry Heat),<br>IEC 60068-2-14 (Test Nb, Operating Thermal Shock) | -40...+85 °C (-13...+185 °F) |
| Temperature, storage<br>IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold),<br>IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat),<br>IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock) | -65...+150 °C (-85...+302 °F) |
| Relative humidity<br>IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) | 5...95% noncondensing |
| Vibration<br>IEC 60068-2-6 (Test Fc, Operating) | 15 g peak to peak |
| Shock, operating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 30 g |
| Shock, nonoperating<br>IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 50 g |
| Emissions | IEC 61000-6-4 |
| ESD immunity<br>IEC 61000-4-2 | 6 kV contact discharges<br>8 kV air discharges |
| Radiated RF immunity<br>IEC 61000-4-3 | 10V/m with 1 kHz sine-wave 80% AM from 80...2000 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz<br>10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz<br>3V/m with 1 kHz sine-wave 80% AM from 2000...2700 MHz |

**Certifications - 1784-SD1, 1784-SD2, 1784-SDHC8, 1784-SDHC32**

| Certification[1] | 1784-SD1, 1784-SD2 |
|---|---|
| CE | European Union 2014/30/EU EMC Directive, compliant with:<br>• EN 61000-6-4; Industrial Emissions<br>• EN 61326-1; Meas./Control/Lab., Industrial Requirements<br>• EN 61000-6-2; Industrial Immunity<br>• EN 61131-2; Programmable Controllers (Clause 8, Zone A & B) |
| RCM | Australian Radiocommunications Act, compliant with:<br>• AS/NZS CISPR 11; Industrial Emissions |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with:<br>• 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.

# Removable Terminal Kits

You can order RTBs to connect MOD power and SA power to CompactLogix 5380 and Compact GuardLogix 5380 controllers. The RTBs are used to connect wiring to the controllers. The MOD power connection uses a 4-point RTB, and the SA power connection uses a 6-point RTB.

**CompactLogix 5380 and Compact GuardLogix Controllers - RTBs**

| Cat. No. | Description |
|---|---|
| 5069-RTB64-SCREW | Contains the following:<br>• 5069-RTB6-SCREW - 6-point RTB that uses screw-type terminals<br>• 5069-RTB4-SCREW - 4-point RTB that uses screw-type terminals |
| 5069-RTB64-SPRING | Contains the following:<br>• 5069-RTB6-SPRING - 6-point RTB that uses spring-type terminals to connect SA power to the controller.<br>• 5069-RTB4-SPRING - 4-point RTB that uses spring-type terminals to connect MOD power to the controller. |

**Notes:**

# Additional Resources

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

| Resource | Description |
|---|---|
| CompactLogix Controllers Selection Guide, publication 1769-SG001 | Describes how to design and select components for your CompactLogix™ controller system. |
| CompactLogix 5380 and Compact GuardLogix Controllers User Manual, publication 5069-UM001 | Describes how to use CompactLogix 5380 and Compact GuardLogix® 5380 controllers. |
| CompactLogix 5480 Controllers User Manual, publication 5069-UM002 | Describes how to use CompactLogix 5480 controllers. |
| Compact 5000 I/O Modules and EtherNet/IP Adapters Specifications Technical Data, publication 5069-TD001 | Provides specifications, wiring diagrams, and functional block diagrams for Compact 5000™ I/O modules and EtherNet/IP™ adapters. |
| Compact 5000 I/O Digital Modules User Manual, publication 5069-UM004 | Describes how to configure and operate Compact 5000 I/O digital and safety modules. |
| Compact 5000 I/O Analog Modules User Manual, publication 5069-UM005 | Describes how to configure and operate Compact 5000 I/O analog modules. |
| Compact 5000 I/O High-speed Counter Module User Manual, publication 5069-UM006 | Describes how to configure and operate a Compact 5000 I/O high-speed counter module. |
| Replacement Guidelines: Logix 5000 Controllers Reference Manual, publication 1756-RM100 | Describes how to replace the following:<br>ControlLogix® 5560/5570 controller with a ControlLogix 5580 controller<br>CompactLogix 5370 L3 controllers with a CompactLogix 5380 controller |
| Compact 5000 EtherNet/IP Adapters User Manual, publication 5069-UM007 | Describes how to use Compact 5000 I/O and FLEX 5000 I/O EtherNet/IP communication modules. |
| Integrated Architecture and CIP Sync Configuration Application Technique, publication IA-AT003 | Provides information on CIP Sync™ and the IEEE 1588-2008 Precision Time Protocol. |
| Integrated Architecture Tools website, http://www.rockwellautomation.com/global/products-technologies/integrated-architecture/tools/overview.page | Provides information on tools that you can use in the selection, development, commissioning, and maintenance stages of the Integrated Architecture® lifecycle. |
| Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1 | Provides general guidelines for installing a Rockwell Automation industrial system. |
| Product Certifications website, rok.auto/certifications. | Provides declarations of conformity, certificates, and other certification details. |

You can view or download publications at rok.auto/literature.

# Rockwell Automation Support

Use these resources to access support information.

| Technical Support Center | Find help with how-to videos, FAQs, chat, user forums, and product notification updates. | rok.auto/support |
|---|---|---|
| Knowledgebase | Access Knowledgebase articles. | rok.auto/knowledgebase |
| Local Technical Support Phone Numbers | Locate the telephone number for your country. | rok.auto/phonesupport |
| Literature Library | Find installation instructions, manuals, brochures, and technical data publications. | rok.auto/literature |
| Product Compatibility and Download Center (PCDC) | Get help determining how products interact, check features and capabilities, and find associated firmware. | rok.auto/pcdc |

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