Summary of Changes

This publication revision includes information about the following CompactLogix 5380 controllers:

- 5069-L350ERM
- 5069-L380ERM
- 5069-L3100ERM

Features - CompactLogix 5380 Controllers

Feature	5069-L306ER, 5069-L306ERM	5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM	5069-L320ER, 5069-L320ERM	5069-L330ER, 5069-L330ERM	5069-L340ER, 5069-L340ERM	5069-L350ERM	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/IP 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 flash, and on-line edits only							
Ethernet performance	10 Mbps, 100 Mbps, 1 Gbps Full Duplex only							
EtherNet/IP modes supported	Dual-IP mode (Available with the 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	16	24	40	50	55	60	70	80
Socket interfaces supported, max	32							
Integrated motion	5069-L306ERM controller only – As many as 2 axes	5069-L310ERM controller only – As many as 4 axes	5069-L320ERM controller only – As many as 8 axes	5069-L330ERM controller only – As many as 16 axes	5069-L340ERM controller only – As many as 20 axes	As many as 24 axes	As many as 28 axes	As many as 32 axes
Programming languages	Ladder Diagram (LD) Structured Text (ST) Function Block Diagram (FBD) Sequential Function Chart (SFC)							
Integrated safety	N/A							

Technical Specifications - CompactLogix 5380 Controllers

Attribute	5069-L306ER, 5069-L306ERM	5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM	5069-L320ER, 5069-L320ERM	5069-L330ER, 5069-L330ERM	5069-L340ER, 5069-L340ERM	5069-L350ERM	5069-L380ERM	5069-L3100ERM
Controller capacity	0.6 MB	1 MB	2 MB	3 MB	4 MB	5 MB	8 MB	10 MB
Optional nonvolatile memory	1784-SD1 card 1784-SD2 card (shipped with the controller)							
Local I/O modules, max	8	8	16	31[4]	31	31	31	31
Module Power bus (MOD Power) voltage range	18…32V DC							
Module Power bus (MOD Power) current, max	450 mA							
Module Power bus (MOD Power) inrush	850 mA for 125 ms							
Module Power bus (MOD Power) Passthrough voltage range	18…32V DC							
Module Power bus (MOD Power) current rating, max[1]	9.55 A							
Sensor Actuator (SA) Field Power voltage ranges	0…32V DC 0…240V AC, 47…63 Hz ATEX/IECEX, 125V AC max							
Sensor Actuator (SA) Field Power current, max	10 mA (DC power) 25 mA (AC power)							
Sensor Actuator Power bus (SA Power) Passthrough voltage ranges	0…32V DC 0…240V AC, 47…63 Hz ATEX/IECEX, 125V AC max							
Sensor Actuator Power bus (SA Power) current rating, max[2]	9.95 A (DC power) 9.975 A (AC power)							
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 300V (continuous), Basic Insulation Type, SA to MOD Power 300V (continuous), Basic Insulation Type, Ethernet to Backplane 300V (continuous), Double Insulation Type, Ethernet to MOD Power 300V (continuous), Double Insulation Type, Ethernet to SA Power 50V (continuous), Functional Insulation Type, Ethernet to USB 300V (continuous), Basic Insulation Type, USB to Backplane 300V (continuous), Double Insulation Type, USB to MOD Power 300V (continuous), Double Insulation Type, USB to SA Power No isolation between Ethernet ports Type tested at 1500V AC for 60 s							

Technical Specifications - CompactLogix 5380 Controllers

Attribute	5069-L306ER, 5069-L306ERM	5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM	5069-L320ER, 5069-L320ERM	5069-L330ER, 5069-L330ERM	5069-L340ER, 5069-L340ERM	5069-L350ERM	5069-L380ERM	5069-L3100ERM
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. 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: • Kit catalog number 5069-RTB64-SCREW contains RTB catalog numbers 5069-RTB6-SCREW and 5069-RTB4-SCREW • 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) 5069-RTB4-SPRING & 5069-RTB6-SPRING: N/A							
Wire size	5069-RTB4-SCREW, 5069-RTB6-SCREW connections: 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 5069-RTB4-SPRING, 5069-RTB6-SPRING connections: 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 Ethernet connections: 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.) 5069-RTB4-SPRING, 5069-RTB6-SPRING connections: 10 mm (0.39 in.)							
Wire category(3)	3 - on USB port 1 - on power ports 2 - on Ethernet ports							
Enclosure	None (open-style)							
North American temperature code	T4							
ATEX temperature code	T4							
IECEx temperature code	T4							

(1) Maximum level of MOD Power current that the module can pass through to the next module in the system. The specific level of current passed through varies based on system configuration. You must limit the external power supply that provides MOD power to 10 A, max, at 18…32V DC.

(2) Maximum level of SA Power current that the module can pass through to the next module in the system. The specific level of current passed through varies based on system configuration. You must limit the external power supply that provides SA power to 10 A, max at 18…32V DC in DC applications and to 10 A, max at 18…240V AC in AC applications.

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

(4) 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 V29 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 as many as 31 local I/O modules.

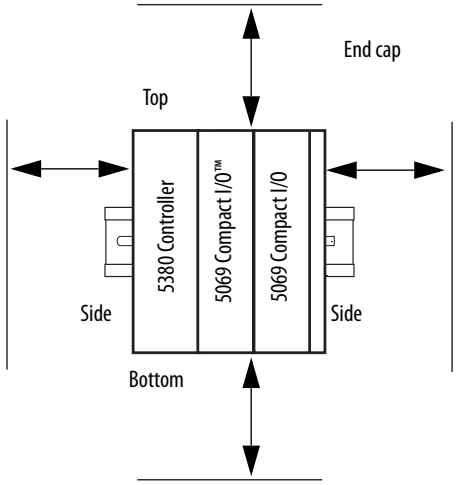
Environmental Specifications - CompactLogix 5380 Controllers

Attribute	5069-L306ER, 5069-L306ERM, 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L320ER, 5069-L320ERM, 5069-L330ER, 5069-L330ERM, 5069-L340ER, 5069-L340ERM, 5069-L350ERM, 5069-L380ERM, 5069-L3100ERM
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Na, Operating Thermal Shock)	0 °C < Ta < +60 °C (+32 °F <Ta < +140 °F)
Temperature, nonoperating IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock)	-40…+85 °C (-40…+185 °F)
Temperature, surrounding air, max	60 °C (140 °F)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)	5…95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	5 g @ 10…500 Hz
Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	30 g
Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	50 g
Emissions	IEC 61000-6-4
ESD immunity IEC 61000-4-2	6 kV contact discharges 8 kV air discharges
Radiated RF immunity IEC 61000-4-3	10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz
EFT/B immunity IEC 61000-4-4	± 4 kV at 5 kHz on power ports ± 2 kV at 5 kHz on Ethernet ports
Surge transient immunity IEC 61000-4-5	± 1 kV line-line (DM) and ± 2 kV line-earth (CM) on power ports ± 2 kV line-earth (CM) on Ethernet ports
Conducted RF immunity IEC 61000-4-6	10 Vrms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz
Voltage variation IEC 61000-4-29	10 ms interruption on MOD Power port

Controller Minimum Spacing Requirements

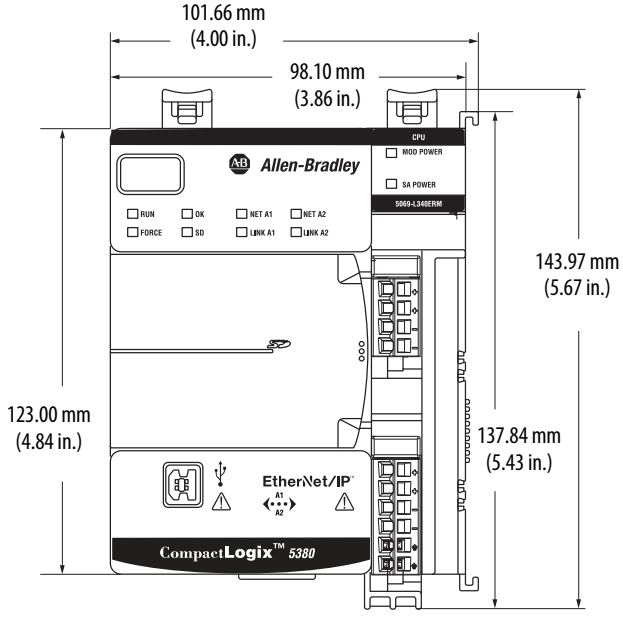
The minimum distance between the CompactLogix 5380 system and enclosure walls, wireways, and adjacent equipment varies based on the current operating temperature. The minimum distance on all sides of the system is as follows:

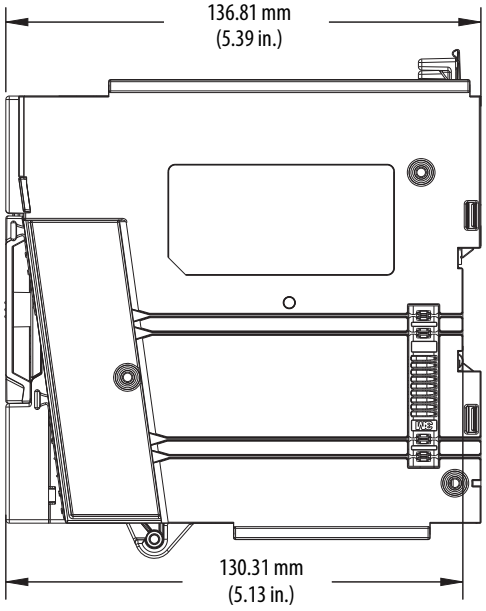
- 50.80 mm (2.00 in.) at 55 °C (131 °F)
- 101.60 mm (4.00 in) at 60 °C (140 °F)



IMPORTANT CompactLogix 5380 systems can only be mounted horizontally.

Controller Dimensions





Controller Use With Other Devices

Your controller can control and communicate with the following devices:

- Control I/O Modules
- Communicate with Display Devices
- Communicate with Other Controllers

Control I/O Modules

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

Local I/O Modules

A CompactLogix 5380 system uses 5069 Compact I/O modules as its local I/O modules. The number of local I/O modules that are supported in a CompactLogix 5380 system varies by controller catalog number.

Cat. No.	Local 5069 Compact I/O Modules Supported, Max
5069-L306ER, 5069-L306ERM	8
5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM	8
5069-L320ER, 5069-L320ERM	16
5069-L330ER, 5069-L330ERM(1)	31
5069-L340ER, 5069-L340ERM	31
5069-L350ERM	31
5069-L380ERM	31
5069-L3100ERM	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 V29 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.

Ethernet Node Limits

When you configure a CompactLogix 5380 control system, you must account for the number of Ethernet nodes that you include in the I/O configuration section in the Studio 5000 Logix Designer® application project.

Maximum Number of Ethernet Nodes

The number of nodes that are supported in a Logix Designer application project varies by CompactLogix 5380 controller.

Cat. No.	Ethernet Nodes Supported
5069-L306ER, 5069-L306ERM	16
5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM	24
5069-L320ER, 5069-L320ERM	40
5069-L330ER, 5069-L330ERM	50
5069-L340ER, 5069-L340ERM	55
5069-L350ERM	60
5069-L380ERM	70
5069-L3100ERM	80

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/IP 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