



# Logix Controllers Comparison

| Characteristic         | ControlLogix® 5570 Controllers<br>GuardLogix® 5570 Controllers<br>Armor™ ControlLogix 5570 Controllers<br>Armor GuardLogix 5570 Controllers   | CompactLogix™ 5370 L3 Controllers<br>Compact GuardLogix 5370 L3 Controllers<br>Armor CompactLogix 5370 L3 Controllers<br>Armor Compact GuardLogix 5370 Controllers   | CompactLogix 5370 L2<br>Controllers  | CompactLogix 5370 L1<br>Controllers   |
|------------------------|---|--|--|---|
| Controller tasks:      | <ul style="list-style-type: none"> <li>• 32</li> <li>• 1000 programs/task</li> </ul>  | <ul style="list-style-type: none"> <li>• 32</li> <li>• 1000 programs/task</li> </ul>   | <ul style="list-style-type: none"> <li>• 32</li> <li>• 1000 programs/task</li> </ul>   | <ul style="list-style-type: none"> <li>• 32</li> <li>• 1000 programs/task</li> </ul>  |
| Event tasks            | Consumed tag, EVENT instruction triggers, Module Input Data changes, and motion events  | Consumed tag, EVENT instruction triggers and motion events   | Consumed tag, EVENT instruction triggers and motion events   | Consumed tag, EVENT instruction triggers and motion events  |
| User memory            | <ul style="list-style-type: none"> <li>• 1756-L71: 2 MB</li> <li>• 1756-L71EROM: 2 MB</li> <li>• 1756-L71EROMS: 4 MB + 1 MB safety</li> <li>• 1756-L72: 4 MB</li> <li>• 1756-L72EROM: 4 MB</li> <li>• 1756-L72EROMS: 4 MB + 2 MB safety</li> <li>• 1756-L73: 8 MB 1756-L73XT: 8 MB</li> <li>• 1756-L73ERMO: 8 MB</li> <li>• 1756-L73ERMOS: 8 MB + 4 MB safety</li> <li>• 1756-L74: 16 MB</li> <li>• 1756-L75: 32 MB</li> <li>• 1756-L71S: 2 MB + 1 MB safety</li> <li>• 1756-L72S: 4 MB + 2 MB safety</li> <li>• 1756-L73S: 8 MB + 4 MB safety</li> </ul> | <ul style="list-style-type: none"> <li>• 1769-L30ER, 1769-L30ER-NSE, 1769-L30ERM: 1 MB</li> <li>• 1769-L33ER, 1769-L33ERM, 1769-L33ERMO: 2 MB</li> <li>• 1769-L36ERM, 1769-L36ERMO, 1769-L37ERMO: 3 MB</li> <li>• 1769-L30ERMS: 1 MB + 0.5 MB safety</li> <li>• 1769-L33ERMS, 1769-L33ERMOS: 2 MB + 1 MB safety</li> <li>• 1769-L36ERMS, 1769-L36ERMOS, 1769-L37ERMOS: 3 MB + 1.5 MB safety</li> </ul> | <ul style="list-style-type: none"> <li>• 1769-L24ER: 750 KB</li> <li>• 1769-L27ERM: 1 MB</li> </ul>  | <ul style="list-style-type: none"> <li>• 1769-L16ER: 384 KB</li> <li>• 1769-L18ER, 1769-L18ERM: 512 KB</li> <li>• 1769-L19ER-BB1B: 1 MB</li> </ul>                                      |
| Built-in ports         | <ul style="list-style-type: none"> <li>• 1756-L71, 1756-L72, 1756-L73, 1756-L73XT, 1756-L74, 1756-L75, 1756-L71S, 1756-L72S, 1756-L73S: 1 port USB Client</li> <li>• 1756-L71EROM, 1756-L71EROMS, 1756-L72EROM, 1756-L72EROMS, 1756-L73ERMO, 1756-L73ERMOS: 1 port USB client, dual-port EtherNet/IP</li> </ul>   | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP</li> <li>• 1 port USB Client</li> </ul>   | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP</li> <li>• 1 port USB Client</li> </ul>   | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP</li> <li>• 1 port USB Client</li> </ul>  |
| Communication options  | <ul style="list-style-type: none"> <li>• EtherNet/IP™</li> <li>• ControlNet™</li> <li>• DeviceNet™</li> <li>• Data Highway Plus™</li> <li>• Remote I/O</li> <li>• SynchLink™</li> <li>• USB Client</li> </ul>   | <ul style="list-style-type: none"> <li>• EtherNet/IP <ul style="list-style-type: none"> <li>– Embedded switch</li> <li>– Single IP address</li> </ul> </li> <li>• DeviceNet</li> <li>• USB Client</li> </ul>   | <ul style="list-style-type: none"> <li>• EtherNet/IP <ul style="list-style-type: none"> <li>– Embedded switch</li> <li>– Single IP address</li> </ul> </li> <li>• DeviceNet</li> <li>• USB Client</li> </ul> | <ul style="list-style-type: none"> <li>• EtherNet/IP <ul style="list-style-type: none"> <li>– Embedded switch</li> <li>– Single IP address</li> </ul> </li> <li>• USB Client</li> </ul> |
| Controller connections | 500 connections   | 256 connections  | 256 connections  | 256 connections   |
| Network nodes          | –   | <ul style="list-style-type: none"> <li>• 1769-L30ER, 1769-L30ER-NSE, 1769-L30ERM, 1769-L30ERMS: 8 nodes</li> <li>• 1769-L33ER, 1769-L33ERM, 1769-L33ERMS, 1769-L33ERMO. 1769-L33ERMOS: 16 nodes</li> <li>• 1769-L36ERM, 1769-L36ERMS, 1769-L36ERMO, 1769-L36ERMOS: 48 nodes</li> <li>• 1769-L37ERMO, 1769-L37ERMOS: 64 nodes</li> </ul>  | <ul style="list-style-type: none"> <li>• 1769-L24ER: 8 nodes</li> <li>• 1769-L27ERM: 16 nodes</li> </ul>   | <ul style="list-style-type: none"> <li>• 1769-L16ER: 4 nodes</li> <li>• 1769-L18ER, 1769-L18ERM, 1769-L19ER-BB1B: 8 nodes</li> </ul>  |
| Controller redundancy  | Full support - 1756-L71, 1756-L72, 1756-L73, 1756-L73XT, 1756-L74, and 1756-L75 controllers only  | Backup via DeviceNet   | Backup via DeviceNet   | None  |
| Integrated motion      | EtherNet/IP   | EtherNet/IP  | EtherNet/IP  | EtherNet/IP   |
| Conformal coating      | Standard <sup>(1)</sup>   | Custom <sup>(2)</sup>  | Custom <sup>(2)</sup>  | Custom <sup>(2)</sup>   |

(1) Available when you select the K version of the controller.

(2) Contact the Rockwell Automation specialty products group for availability.

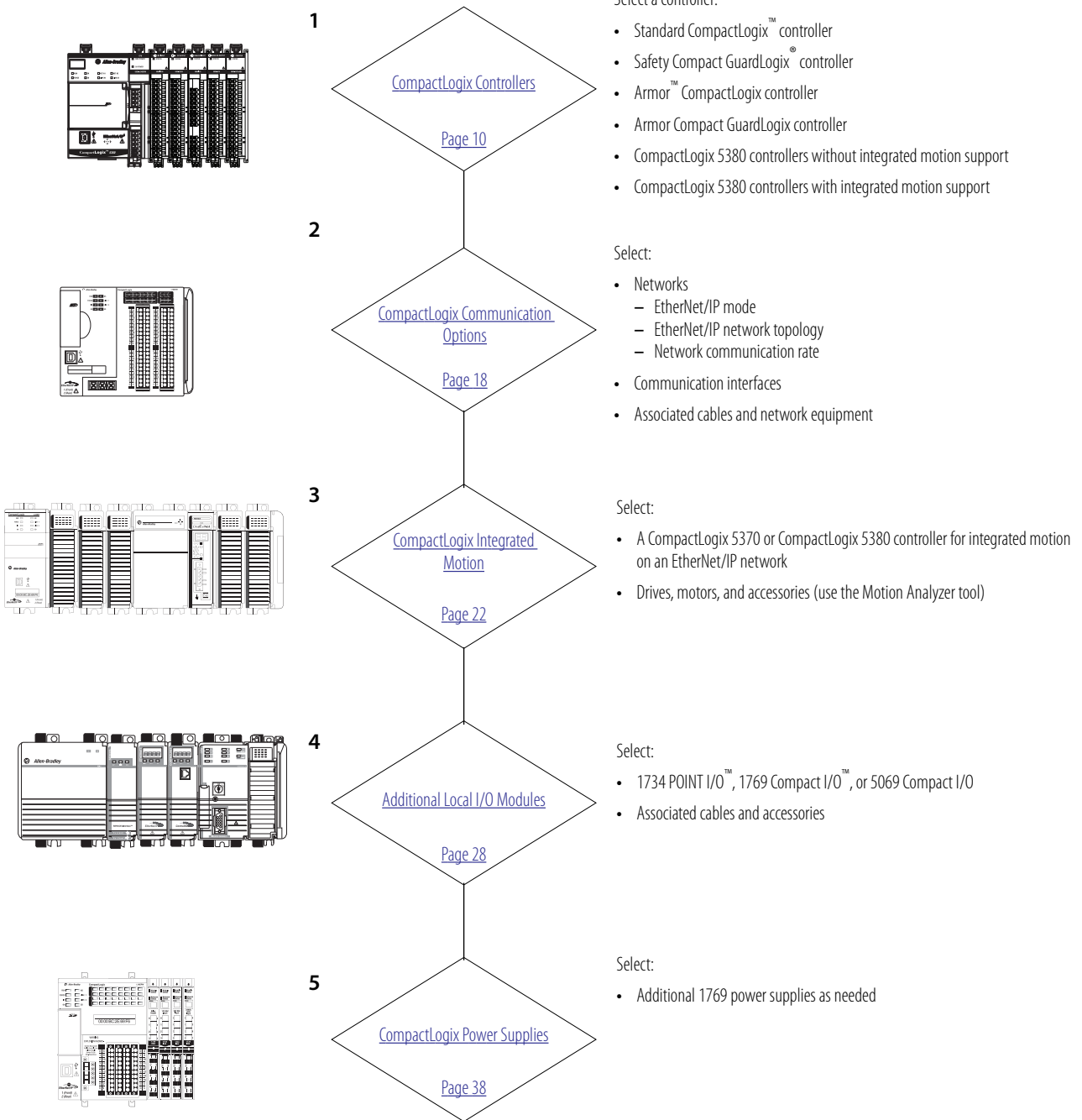
| Characteristic  | ControlLogix 5580 Controllers  | CompactLogix 5380 Controllers   |
|---|--|---|
| Controller tasks: <ul style="list-style-type: none"> <li>Continuous</li> <li>Periodic</li> <li>Event</li> </ul> | <ul style="list-style-type: none"> <li>32</li> <li>1000 programs/task</li> </ul>   | <ul style="list-style-type: none"> <li>32</li> <li>1000 programs/task</li> </ul>  |
| Event tasks   | Consumed tag, EVENT instruction triggers, Module Input Data changes, and motion events   | Consumed tag, EVENT instruction triggers, Module Input Data changes, and motion events  |
| User memory   | <ul style="list-style-type: none"> <li>1756-L81E: 3 MB</li> <li>1756-L82E: 5 MB</li> <li>1756-L83E: 10 MB</li> <li>1756-L84E: 20 MB</li> <li>1756-L85E: 40 MB</li> </ul>   | <ul style="list-style-type: none"> <li>5069-L306ER, 5069-L306ERM: 0.6 MB</li> <li>5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM: 1 MB</li> <li>5069-L320ER, 5069-L320ERM: 2 MB</li> <li>5069-L330ER, 5069-L330ERM: 3 MB</li> <li>5069-L340ER, 5069-L340ERM: 4 MB</li> <li>5069-L350ERM: 5 MB</li> <li>5069-L380ERM: 8 MB</li> <li>5069-L3100ERM: 10 MB</li> </ul>  |
| Built-in ports  | <ul style="list-style-type: none"> <li>Single-port EtherNet/IP ports, 10 Mbps/100 Mbps/1 Gbps</li> <li>1 port USB client</li> </ul>  | <ul style="list-style-type: none"> <li>2 - EtherNet/IP ports, 10 Mbps/100 Mbps/1 Gbps</li> <li>1 port USB client</li> </ul>   |
| Communication options   | <ul style="list-style-type: none"> <li>EtherNet/IP</li> <li>ControlNet</li> <li>DeviceNet</li> <li>Data Highway Plus</li> <li>Remote I/O</li> <li>SynchLink</li> <li>USB Client</li> </ul>   | <ul style="list-style-type: none"> <li>EtherNet/IP</li> <li>USB Client</li> </ul>   |
| Network nodes   | <p>Logix Designer application, version 28:</p> <ul style="list-style-type: none"> <li>1756-L83E: 100</li> <li>1756-L85E: 300</li> </ul> <p>Logix Designer application, version 29:</p> <ul style="list-style-type: none"> <li>1756-L81E: 60</li> <li>1756-L82E: 80</li> <li>1756-L83E: 100</li> <li>1756-L84E: 150</li> <li>1756-L85E: 300</li> </ul> <p>Logix Designer application, version 30 or later:</p> <ul style="list-style-type: none"> <li>1756-L81E: 100</li> <li>1756-L82E: 175</li> <li>1756-L83E: 250</li> <li>1756-L84E: 250</li> <li>1756-L85E: 300</li> </ul> | <p>Logix Designer application, version 28:</p> <ul style="list-style-type: none"> <li>5069-L320ER: 40</li> <li>5069-L340ERM: 55</li> </ul> <p>Logix Designer application, version 29:</p> <ul style="list-style-type: none"> <li>5069-L306ER, 5069-L306ERM: 16</li> <li>5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM: 24</li> <li>5069-L320ER, 5069-L320ERM: 40</li> <li>5069-L330ER, 5069-L330ERM: 50</li> <li>5069-L340ER, 5069-L340ERM: 55</li> </ul> <p>Logix Designer application, version 30:</p> <ul style="list-style-type: none"> <li>5069-L306ER, 5069-L306ERM: 16</li> <li>5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM: 24</li> <li>5069-L320ER, 5069-L320ERM: 40</li> <li>5069-L330ER, 5069-L330ERM: 50</li> <li>5069-L340ER, 5069-L340ERM: 55</li> <li>5069-L350ERM: 60</li> <li>5069-L380ERM: 70</li> <li>5069-L3100ERM: 80</li> </ul> |
| Controller redundancy   | Future   | None  |
| Integrated motion   | EtherNet/IP  | EtherNet/IP   |
| Conformal coating   | Standard <sup>(1)</sup>  | Custom <sup>(2)</sup>   |

(1) Available when you select the K version of the controller.

(2) Contact the Rockwell Automation specialty products group for availability.

Notes:

# Select a CompactLogix System



# CompactLogix Controllers Overview

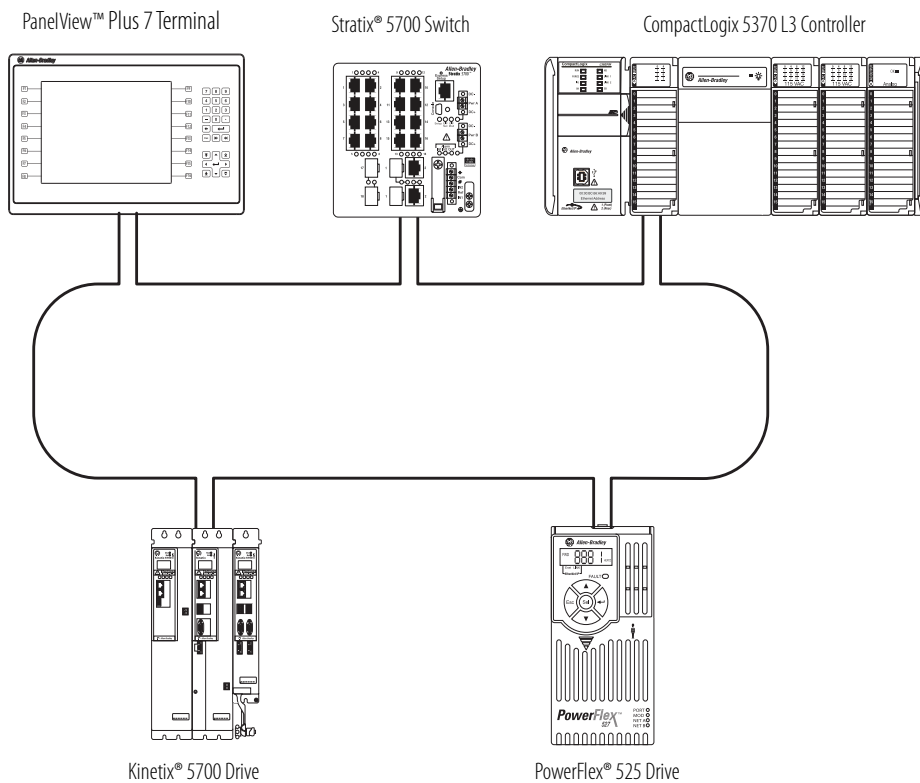
The CompactLogix system is designed to provide a Logix solution for small and mid-size applications. Typically, these applications are machine-level control applications. A simple system can consist of a standalone controller with one bank of I/O modules and DeviceNet communication. In a more complex system, add other networks, motion control, and safety control. As part of the Integrated Architecture® system, the CompactLogix controllers use the same programming software, network protocol, and information capabilities as all Logix5000™ controllers. This system provides a common development environment for all control disciplines.

## CompactLogix 5370 Controllers Overview

Consider the following:

- The CompactLogix 5370 L3 controllers deliver scalable, affordable control ideal for applications from small standalone equipment to high-performance indexing tables, process skids, case packers and erectors, and packaging. The CompactLogix 5370 L3 controllers also provide a truly integrated motion solution.
- The CompactLogix 5370 L2 controllers combine the power of the Logix architecture with the flexibility of Compact I/O modules. From small standalone equipment to higher performance applications, these controllers are ideal for assembly machines, hoisting systems, process skids, indexing tables, and packaging.
- The CompactLogix 5370 L1 controllers combine the power of the Logix architecture with the flexibility of POINT I/O modules. Ideal for small to mid-size machines, these controllers offer value to customers who need the benefits of Integrated Architecture in a lower-cost system.

### CompactLogix 5370 System on an EtherNet/IP Network



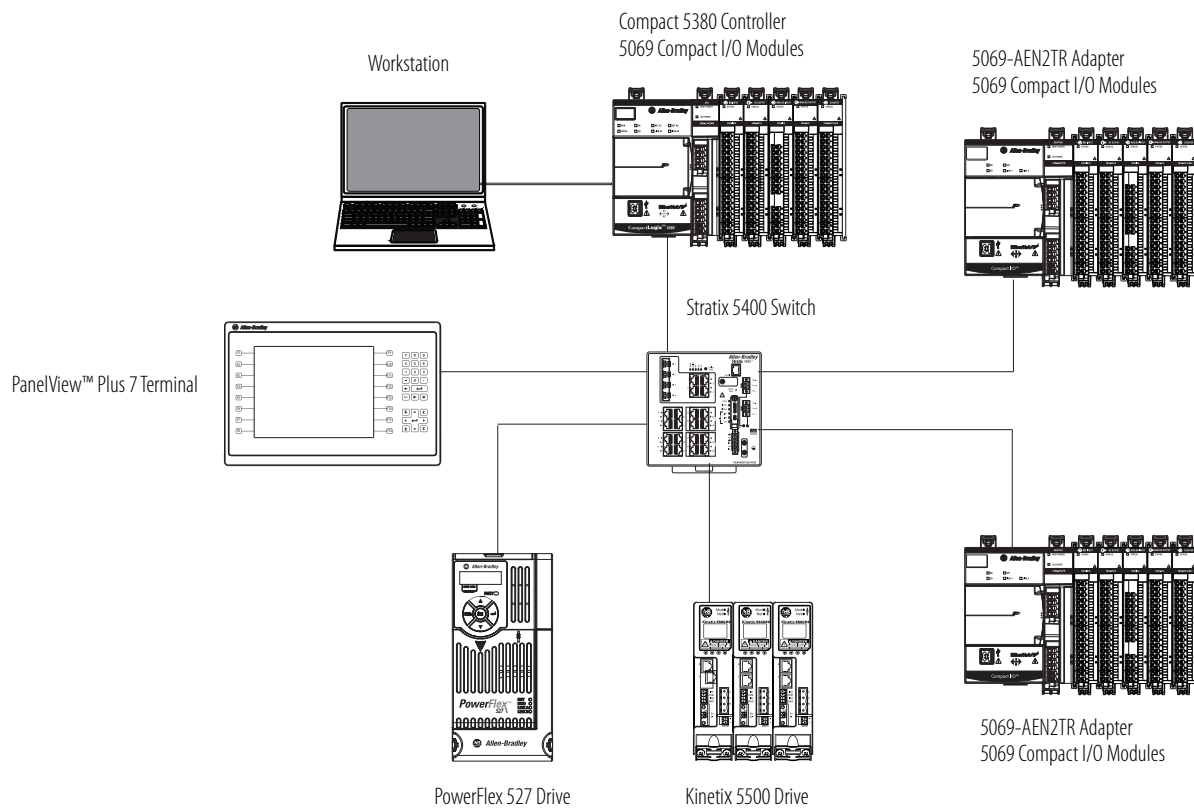
The CompactLogix 5370 L2 and L3 controllers support DeviceNet connectivity.

## CompactLogix 5380 Controllers Overview

The CompactLogix 5380 controllers are the first Logix controllers to offer configurable EtherNet/IP modes, that is, Dual-IP mode or Linear/DLR mode. With CompactLogix 5380 controller firmware revision 29.011 or later, you can configure the embedded Ethernet ports to connect to separate networks, an enterprise-level Ethernet network, and a device-level network. When the controller operates in Dual-IP mode, each port requires its own network configuration.

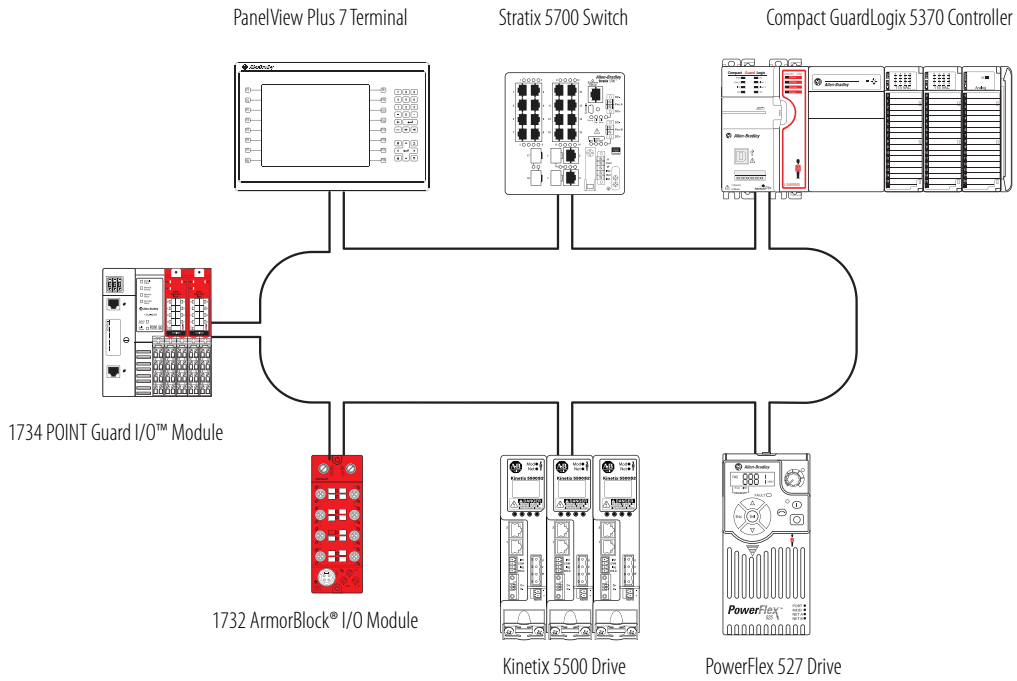
The CompactLogix 5380 controllers deliver scalable control that is ideal for applications from small standalone equipment to high-performance indexing tables, process skids, case packers and erectors, and packaging. The CompactLogix 5380 controllers also provide a truly integrated motion solution.

### Example CompactLogix 5380 System on an EtherNet/IP Network



## Compact GuardLogix Controllers Overview

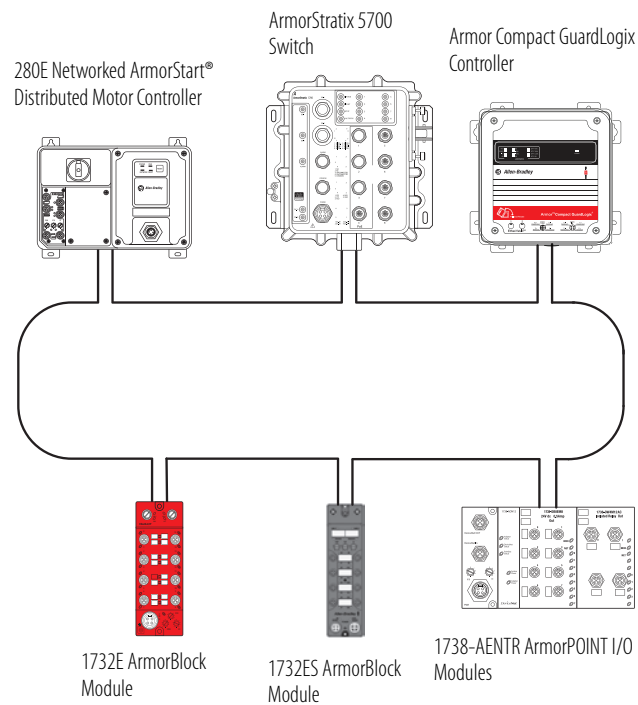
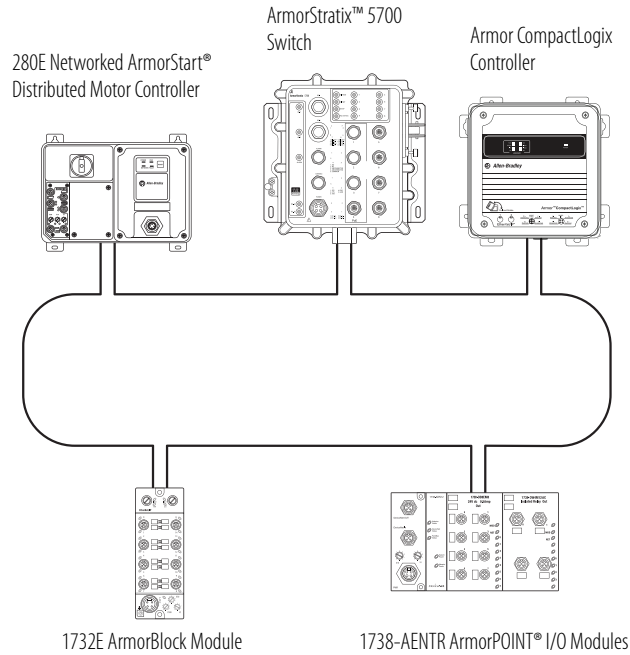
The Compact GuardLogix controller provides safety control at SIL CL3 according to EN62061 / EN 61511-1 / IEC 61508 and PLe according to EN ISO 13849-1.





## Armor CompactLogix and Armor Compact GuardLogix Controllers Overview

On-Machine™ standard and safety controllers support the same temperature range of CompactLogix controllers, while offering global certifications and ratings and Ingress Protection (IP67) for dust and wash-down protection for immersion between 15 cm...1 m (5.91...393.70 in.) in harsher environments.



# CompactLogix Controllers

The CompactLogix platform brings together the benefits of the Logix platform— common programming environment, common networks, common control engine—in a small footprint with high performance. Combined with Compact I/O or 5069 Compact I/O modules, the CompactLogix platform is perfect for tackling smaller, machine-level control applications, with or without simple motion, with unprecedented power and scalability. A CompactLogix platform is ideal for systems that require standalone and system-connected control over EtherNet/IP, ControlNet, or DeviceNet networks.



For detailed specifications, see the following publications:

- CompactLogix Controllers Specifications Technical Data, publication [1769-TD005](#)
- CompactLogix 5380 Controllers Specifications Technical Data, publication [5069-TD002](#)

| Characteristic         | CompactLogix 5370 L1 Controllers  | CompactLogix 5370 L2 Controllers   | CompactLogix 5370 L3 Controllers  | CompactLogix 5380 Controllers  | Armor CompactLogix Controllers  | Armor Compact GuardLogix Controllers  |
|------------------------|---|--|---|--|---|---|
| Controller application | Small applications<br>Embedded 1734 I/O modules   | Small applications<br>Embedded 1769 I/O modules  | General-purpose   | High-performance applications<br>External 5069 I/O modules   | On-Machine  | On-Machine  |
| Controller tasks       | 32; 1000 programs/task  | 32; 1000 programs/task   | 32; 1000 programs/task  | 32; 1000 programs/task   | 32; 1000 programs/task  | 32; 1000 programs/task  |
| Event tasks            | Consumed tag, EVENT instruction, embedded inputs, axis, and motion event triggers   | Consumed tag, EVENT instruction, axis, and motion event triggers   | Consumed tag, EVENT instruction, axis, and motion event triggers  | Consumed tag, EVENT instruction triggers, Module Input Data changes, and motion events   | Consumed tag, EVENT instruction, axis, and motion event triggers  | Consumed tag, EVENT instruction, axis, and motion event triggers  |
| User memory            | <ul style="list-style-type: none"> <li>• 1769-L16ER-BB1B: 384 KB</li> <li>• 1769-L18ER-BB1B, 1769-L18ERM-BB1B: 512 KB</li> <li>• 1769-L19ER-BB1B: 1 MB</li> </ul> | <ul style="list-style-type: none"> <li>• 1769-L24ER-QB1B, 1769-L24ER-QBFC1B: 750 KB</li> <li>• 1769-L27ERM-QBFC1B: 1 MB</li> </ul> | <ul style="list-style-type: none"> <li>• 1769-L30ER, 1769-L30ERM, 1769-L30ER-NSE: 1 MB</li> <li>• 1769-L33ER, 1769-L33ERM: 2 MB</li> <li>• 1769-L36ERM: 3 MB</li> <li>• 1769-L30ERMS: 1 MB + 0.5 MB safety</li> <li>• 1769-L33ERMS: 2 MB + 1 MB safety</li> <li>• 1769-L36ERMS: 3 MB + 1.5 MB safety</li> </ul> | <ul style="list-style-type: none"> <li>• 5069-L306ER, 5069-L306ERM: 0.6 MB</li> <li>• 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM: 1 MB</li> <li>• 5069-L320ER, 5069-L320ERM: 2 MB</li> <li>• 5069-L330ER, 5069-L330ERM: 3 MB</li> <li>• 5069-L340ER, 5069-L340ERM: 4 MB</li> <li>• 5069-L350ERM: 5 MB</li> <li>• 5069-L380ERM: 8 MB</li> <li>• 5069-L3100ERM: 10 MB</li> </ul> | <ul style="list-style-type: none"> <li>• 1769-L33ERMO: 2 MB</li> <li>• 1769-L36ERMO, 1769-L37ERMO: 3 MB</li> </ul>              | <ul style="list-style-type: none"> <li>• 1769-L33ERMOS: 2 MB + 1 MB safety</li> <li>• 1769-L36ERMOS, 1769-L37ERMOS: 3 MB + 1.5 MB safety</li> </ul> |
| Built-in ports         | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP<sup>(1)</sup></li> <li>• 1 USB</li> </ul>  | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP<sup>(1)</sup></li> <li>• 1 USB</li> </ul>                                   | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP<sup>(1)</sup></li> <li>• 1 USB</li> </ul>  | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP<sup>(2)</sup></li> <li>• 1 USB</li> </ul>   | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP<sup>(1)</sup></li> <li>• 1 USB</li> </ul>                                | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP<sup>(1)</sup></li> <li>• 1 USB</li> </ul>  |
| Communication options  | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP</li> <li>• USB Client</li> </ul>   | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP</li> <li>• DeviceNet</li> <li>• USB Client</li> </ul>               | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP (standard and safety)</li> <li>• DeviceNet (standard)</li> <li>• USB Client</li> </ul>   | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP</li> <li>• USB Client</li> </ul>  | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP (standard and safety)</li> <li>• DeviceNet (standard)</li> </ul> | <ul style="list-style-type: none"> <li>• Dual-port EtherNet/IP (standard and safety)</li> <li>• DeviceNet (standard)</li> </ul>                     |

(1) CompactLogix 5370 controllers have two EtherNet/IP ports to connect to an EtherNet/IP network. The ports carry the same network traffic as part of the embedded switch of the controller. The controller uses only one IP address.

(2) CompactLogix 5380 controllers support Dual-IP mode and DLR/Linear mode. Mode use is user-configurable.

## CompactLogix 5370 L1 Controllers with Embedded I/O

The CompactLogix 5370 L1 controller comes with:

- A built-in, 24V DC isolated<sup>(1)</sup> Power Supply module.<sup>(2)</sup>
- Dual EtherNet/IP ports for linear and ring topologies.
- USB port for firmware updates and programming.
- Embedded digital I/O (16 DC inputs, 16 DC outputs).
- Support for 1734 POINT I/O.



| Characteristic  | 1769-L16ER-BB1B  | 1769-L18ER-BB1B  | 1769-L18ERM-BB1B   | 1769-L19ER-BB1B   |
|---|--|--|--|---|
| Available user memory   | 384 KB   | 512 KB   | 512 KB   | 1 MB  |
| Memory card   | <ul style="list-style-type: none"> <li>• 1784-SD1 (1 GB), shipped with controller</li> <li>• 1784-SD2 (2 GB)</li> </ul>  |  |  |   |
| Communication ports   | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP</li> <li>• 1 USB</li> </ul>   |  |  |   |
| Embedded I/O  | <ul style="list-style-type: none"> <li>• 16 sinking 24V DC digital input points</li> <li>• 16 sourcing 24V DC digital output points</li> </ul>   |  |  |   |
| EtherNet/IP connections   | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul>   | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul> | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul> |   |
| EtherNet/IP nodes in one Studio 5000 Logix Designer® application, max | 4  | 8  |  |   |
| Integrated motion on an EtherNet/IP network                           | —  |  | Supports up to 2 axes  | —   |
| Module expansion capacity   | 6 POINT I/O modules  | 8 POINT I/O modules  | 8 POINT I/O modules  |   |
| Battery   | None   |  |  |   |
| Embedded power supply   | 10...28.8V DC<br>24V DC nominal  |  |  |   |
| Programming software support  | <ul style="list-style-type: none"> <li>• Version 20 - For controllers that use firmware revision 20.</li> <li>• Version 21 or later - For controllers that use firmware revision 21 or later.</li> </ul> |  |  | Version 28 or later - For controllers that use firmware revision 28 or later. |

(1) Only series B Power Supply modules are isolated. Series A Power supply modules are non-isolated.

(2) For more information on how to connect a 24V DC power source to the 24V DC nonisolated power supply of the CompactLogix 5370 L1 controller, see the CompactLogix 5370 Controllers User Manual, publication [1769-UM021](#).

## CompactLogix 5370 L2 Controllers with Embedded I/O

The CompactLogix 5370 L2 controller comes with:

- A built-in, 24V DC Power Supply module.
- Dual EtherNet/IP ports for linear and ring topologies.
- USB port for firmware updates and programming.
- A combination of embedded digital, analog, and high-speed counter I/O.
- A 1769-ECR right-end cap.
- Support for 1769 Compact I/O.



| Characteristic   | 1769-L24ER-QB1B  | 1769-L24ER-QBFC1B   | 1769-L27ERM-QBFC1B   |
|--|--|---|--|
| Available user memory                                    | 0.75 MB  | 0.75 MB   | 1 MB   |
| Memory card  | <ul style="list-style-type: none"> <li>• 1784-SD1 (1 GB), shipped with controller</li> <li>• 1784-SD2 (2 GB)</li> </ul>  |   |  |
| Communication ports                                      | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP</li> <li>• 1 USB</li> </ul>   |   |  |
| Embedded I/O   | <ul style="list-style-type: none"> <li>• 16 sinking/sourcing 24V DC digital input points</li> <li>• 16 sourcing 24V DC digital output points</li> </ul>  | <ul style="list-style-type: none"> <li>• 16 sinking/sourcing 24V DC digital input points</li> <li>• 16 sourcing 24V DC digital output points</li> <li>• 4 universal analog input points</li> <li>• 2 analog output points</li> <li>• 4 high-speed counters</li> </ul> |  |
| EtherNet/IP connections                                  | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul>   | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul>  | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul> |
| EtherNet/IP nodes in one Logix Designer application, max | 8  |   | 16   |
| Integrated motion on an EtherNet/IP network              | —  | —   | Supports up to 4 axes  |
| Module expansion capacity                                | 4 1769 modules   |   |  |
| Battery  | None   |   |  |
| Embedded power supply                                    | 24V DC   |   |  |
| Programming software support                             | <ul style="list-style-type: none"> <li>• Version 20 - For controllers that use firmware revision 20.</li> <li>• Version 21 or later - For controllers that use firmware revision 21 or later.</li> </ul> |   |  |

These controllers replace previous catalog numbers.

| New Controller     | Replaces Previous Controller        | Differences  |
|--------------------|-------------------------------------|--|
| 1769-L24ER-QBFC1B  | 1769-L23-QBFC1B<br>1769-L23E-QBFC1B | <ul style="list-style-type: none"> <li>• Additional memory</li> <li>• Integrated motion on EtherNet/IP support (1769-L27ERM-QBFC1B)</li> <li>• USB port instead of RS-232 port</li> <li>• Dual-port EtherNet/IP support</li> <li>• SD card support addition</li> <li>• Support for additional expansion I/O modules</li> </ul> |
| 1769-L24ER-QB1B    | 1769-L23E-QB1B                      |  |
| 1769-L27ERM-QBFC1B | 1769-L23E-QBFC1B                    |  |

## CompactLogix 5370 L3 Controllers

In a CompactLogix 5370 L3 controller system, the 1769 I/O modules can be placed to the left and the right of the power supply. As many as eight modules can be placed on each side of the power supply. The CompactLogix 5370 L3 controller comes with:



- Dual EtherNet/IP ports for linear and ring topologies.
- USB port for firmware updates and programming.
- Support for 1769 Compact I/O.

Use the 1769-L30ER-NSE controller for mining applications. You can deplete the residual stored energy of the 1769-L30ER-NSE controller to 200  $\mu$ J or less before you transport it into or out of a mine. The 1769-L30ER-NSE controller does not maintain the real-time clock on power cycle.

| Characteristic   | 1769-L30ER   | 1769-L30ERM  | 1769-L30ER-NSE   | 1769-L33ER   | 1769-L33ERM  | 1769-L36ERM  |
|--|--|--|--|--|--|--|
| Available user memory                                    | 1 MB   | 1 MB   | 1 MB<br>No capacitor   | 2 MB   | 2 MB   | 3 MB   |
| Memory card  | 1784-SD1 (1 GB), shipped with controller<br>1784-SD2 (2 GB)  |  |  |  |  |  |
| Communication ports                                      | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP</li> <li>• 1 USB</li> </ul>   |  |  |  |  |  |
| EtherNet/IP connections                                  | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul>   | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul> | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul> | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul> | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul> | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul> |
| EtherNet/IP nodes in one Logix Designer application, max | 16   |  |  | 32   |  | 48   |
| Integrated motion on an EtherNet/IP network              | —  | Supports up to 4 axes  | —  | —  | Supports up to 8 axes  | Supports up to 16 axes   |
| Module expansion capacity                                | 8 1769 modules<br>1 bank of modules  |  |  | 16 1769 modules<br>2 banks of modules  |  | 30 1769 modules<br>3 banks of modules  |
| Battery  | None   |  |  |  |  |  |
| Power supply distance rating                             | 4 modules  |  |  | 4 modules  |  | 4 modules  |
| Programming software support                             | <ul style="list-style-type: none"> <li>• Version 20 - For controllers that use firmware revision 20.</li> <li>• Version 21 or later - For controllers that use firmware revision 21 or later.</li> </ul> |  |  |  |  |  |

These controllers replace previous catalog numbers.

| New Controller <sup>(1)</sup>               | Replaces Previous Controller                      | Differences   |
|---|---|---|
| 1769-L30ER<br>1769-L30ERM<br>1769-L30ER-NSE | 1769-L31<br>1769-L32C <sup>(2)</sup><br>1769-L32E | <ul style="list-style-type: none"> <li>• Additional memory</li> <li>• Integrated motion on EtherNet/IP support (1769-L30ERM, 1769-L33ERM, 1769-L36ERM)</li> <li>• USB port instead of RS-232 port</li> <li>• Dual-port EtherNet/IP support</li> <li>• SD card instead of CompactFlash card</li> </ul> |
| 1769-L33ER<br>1769-L33ERM                   | 1769-L35CR <sup>(2)</sup><br>1769-L35E            |   |
| 1769-L36ERM                                 | Any previous 1769-L3x controller                  |   |

(1) IMPORTANT: Typically, you can use any of the new controllers that are listed in each row as replacements for any of the previous controllers that are listed in the corresponding cell to the right. For example, you can replace a 1769-L32E with a 1769-L30ER, 1769-L30ERM, or 1769-L30ER-NSE controller.  
In some rare cases, system configuration helps to prevent controller replacement as shown in the previous table. For example, if your system uses a 1769-L32E controller with 12 expansion modules, you cannot replace that controller with a 1769-L30ER, 1769-L30ERM, or 1769-L30ER-NSE controller. Those controllers support no more than 8 expansion modules. You must replace the 1769-L32E controller with a 1769-L33ER, 1769-L33ERM, or 1769-L36ERM controller.

We recommend that before you upgrade your controllers, consider your application requirements to verify that the replacements that are listed previously apply.

(2) Requires converting from ControlNet connections to EtherNet/IP connections.

## CompactLogix 5380 Controllers

In a CompactLogix 5380 controller system, 5069 Compact I/O modules are installed to the right of the controller as local I/O modules. As many as 31 modules can be installed in the system. The CompactLogix 5380 controllers come with:

- Dual embedded EtherNet/IP ports for use in star, linear, and DLR EtherNet/IP network topologies
- USB port for firmware updates and programming
- Support for Dual-IP mode.

Energy Depletion characteristics for the 5069-L310ER-NSE controller.

The residual stored energy of the 5069-L310ER-NSE controller depletes to 20  $\mu$  or less in two minutes with 0...32V DC of SA power applied. The 5069-L310ER-NSE controller does not maintain the real-time clock on power cycle.

**IMPORTANT** You can use the 5069-L310ER-NSE controller with DC Sensor Actuator (SA) power only.

| Characteristic   | 5069-L306ER,<br>5069-L306ERM   | 5069-L310ER,<br>5069-L310ER-NSE,<br>5069-L310ERM | 5069-L320ER,<br>5069-L320ERM     | 5069-L330ER,<br>5069-L330ERM      | 5069-L340ER,<br>5069-L340ERM      | 5069-L350ERM       | 5069-L380ERM       | 5069-L3100ERM      |
|--|--|--|----------------------------------|-----------------------------------|-----------------------------------|--------------------|--------------------|--------------------|
| Available user memory                                    | 0.6 MB   | 1 MB   | 2 MB                             | 3 MB                              | 4 MB                              | 5 MB               | 8 MB               | 10 MB              |
| Memory card  | <ul style="list-style-type: none"> <li>• 1784-SD1 (1 GB)</li> <li>• 1784-SD2 (2 GB), ships with controller</li> </ul>  |  |                                  |                                   |                                   |                    |                    |                    |
| Communication ports                                      | <ul style="list-style-type: none"> <li>• 2 - EtherNet/IP ports, 10 Mbps/100 Mbps/1 Gbps</li> <li>• 1 port USB client</li> </ul>  |  |                                  |                                   |                                   |                    |                    |                    |
| EtherNet/IP nodes in one Logix Designer application, max | 16   | 24   | 40                               | 50                                | 55                                | 60                 | 70                 | 80                 |
| Integrated motion on an EtherNet/IP network              | As many as 2 axes (5069-L306ERM only)  | As many as 4 axes (5069-L310ERM)                 | As many as 8 axes (5069-L320ERM) | As many as 16 axes (5069-L330ERM) | As many as 20 axes (5069-L340ERM) | As many as 24 axes | As many as 28 axes | As many as 32 axes |
| Local I/O modules, max                                   | 8  |  | 16                               | 31 <sup>(1)</sup>                 |                                   |                    |                    |                    |
| Battery  | None   |  |                                  |                                   |                                   |                    |                    |                    |
| Power supply terminals (sold separately)                 | <ul style="list-style-type: none"> <li>• 5069-RTB64-SCREW kit - Includes RTB catalog numbers 5069-RTB6-SCREW and 5069-RTB4-SCREW</li> <li>• 5069-RTB64-SPRING - Includes RTB catalog numbers 5069-RTB6-SPRING and 5069-RTB4-SPRING</li> </ul>  |  |                                  |                                   |                                   |                    |                    |                    |
| Programming software support                             | <ul style="list-style-type: none"> <li>• Version 28 or later - 5069-L320ER, 5069-L340ERM only</li> <li>• Version 29 or later - 5069-L306ER, 5069-L306ERM, 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L320ERM, 5069-L330ER, 5069-L330ERM, 5069-L340ER</li> <li>• Version 30 or later - 5069-L350ERM, 5069-L380ERM, 5069-L3100ERM</li> </ul> |  |                                  |                                   |                                   |                    |                    |                    |

(1) When you use a 5069-L330ER or 5069-L330ERM controller 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 controller supports as many as 31 local I/O modules.

## Compact GuardLogix 5370 Controllers

In a Compact GuardLogix 5370 controller system, the 1769 I/O modules can be placed to the left and the right of the power supply. As many as eight modules can be placed on each side of the power supply. The CompactLogix 5370 L3S controller comes with:

- Dual EtherNet/IP ports for ring and linear topologies.
- USB port for firmware updates and programming.
- Safety control to achieve SIL 3/PLe according to ISO 13849.
- Support for 1769 Compact I/O.



| Characteristic   | 1769-L30ERMS  | 1769-L33ERMS   | 1769-L36ERMS   |
|--|---|--|--|
| Available user memory                                    | <ul style="list-style-type: none"> <li>• 1 MB (standard)</li> <li>• 0.5 MB (safety)</li> </ul>                          | <ul style="list-style-type: none"> <li>• 2 MB (standard)</li> <li>• 1 MB (safety)</li> </ul> | <ul style="list-style-type: none"> <li>• 3 MB (standard)</li> <li>• 1.5 MB (safety)</li> </ul> |
| Memory card  | <ul style="list-style-type: none"> <li>• 1784-SD1 (1 GB), shipped with controller</li> <li>• 1784-SD2 (2 GB)</li> </ul> |  |  |
| Communication ports                                      | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP</li> <li>• 1 USB</li> </ul>                                      |  |  |
| EtherNet/IP connections                                  | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul>                                  |  |  |
| EtherNet/IP nodes in one Logix Designer application, max | 16  | 32   | 48   |
| Integrated motion on an EtherNet/IP network              | Supports up to 4 axes   | Supports up to 8 axes  | Supports up to 16 axes   |
| Module expansion capacity                                | 8 1769 modules<br>1 bank of modules   | 16 1769 modules<br>2 banks of modules  | 30 1769 modules<br>3 banks of modules  |
| Battery  | None  |  |  |
| Power supply distance rating                             | 4 modules   |  |  |
| Programming software support                             | Version 28 or later - For controllers that use firmware revision 28 or later.   |  |  |

## Armor CompactLogix and Armor Compact GuardLogix Controllers

You can connect 1732 ArmorBlock or 1738 ArmorPoint I/O modules to the controller via EtherNet/IP in an Armor CompactLogix or Armor Compact GuardLogix controller system. The controller comes with:

- An IP67-rated enclosure
- A built-in, 24V DC Power Supply module
- An SD card slot
- Connection to On-Machine I/O
- Dual EtherNet/IP ports for ring topologies
- USB port for firmware updates and programming
- Safety control to achieve SIL 3/PLe according to ISO 13849
- Support for 1769 Compact I/O via EtherNet/IP



| Characteristic   | 1769-L33ERMO  | 1769-L36ERMO | 1769-L37ERMO           | 1769-L33ERMOS  | 1769-L36ERMOS  | 1769-L37ERMOS |
|--|---|--------------|------------------------|--|--|---------------|
| Available user memory                                    | 2 MB  | 3 MB         |                        | <ul style="list-style-type: none"> <li>• 2 MB (standard)</li> <li>• 1 MB (safety)</li> </ul> | <ul style="list-style-type: none"> <li>• 3 MB (standard)</li> <li>• 1.5 MB (safety)</li> </ul> |               |
| Memory card  | <ul style="list-style-type: none"> <li>• 1784-SD1 (1 GB), shipped with controller</li> <li>• 1784-SD2 (2 GB)</li> </ul> |              |                        |  |  |               |
| Communication ports                                      | <ul style="list-style-type: none"> <li>• 2 EtherNet/IP</li> <li>• 1 USB</li> </ul>                                      |              |                        |  |  |               |
| EtherNet/IP connections                                  | <ul style="list-style-type: none"> <li>• 256 EtherNet/IP</li> <li>• 120 TCP</li> </ul>                                  |              |                        |  |  |               |
| EtherNet/IP nodes in one Logix Designer application, max | 32  | 48           | 64                     | 32   | 48   | 64            |
| Integrated motion on an EtherNet/IP network              | Supports up to 8 axes   |              | Supports up to 16 axes |  | Supports up to 16 axes   |               |
| Programming software support                             | Version 28 or later - For controllers that use firmware revision 28 or later.   |              |                        |  |  |               |



## Controller Memory Use

**IMPORTANT** This section does not apply to CompactLogix 5380 controllers.

These equations provide an estimate of the memory that is needed for a CompactLogix controller. These numbers are rough estimates.

|  |               |   |                              |
|--|---------------|---|------------------------------|
| <b>Controller Tasks</b>                    | _____ * 4000  | = | _____ bytes (minimum 1 task) |
| Digital I/O points                         | _____ * 400   | = | _____ bytes                  |
| Analog I/O points                          | _____ * 2600  | = | _____ bytes                  |
| DeviceNet modules <sup>(1)</sup>           | _____ * 7400  | = | _____ bytes                  |
| Other communication modules <sup>(2)</sup> | _____ * 2000  | = | _____ bytes                  |
| Motion axes                                | _____ * 8000  | = | _____ bytes                  |
| FactoryTalk® alarm instruction             | _____ * 1000  | = | _____ bytes (per alarm)      |
| FactoryTalk subscriber                     | _____ * 10000 | = | _____ bytes                  |

(1) The first DeviceNet module is 7400 bytes. Additional DeviceNet modules are 5800 bytes each.

(2) Count the communication modules in the system, not just those modules in the local chassis. This total includes device connection modules, adapters, and ports on PanelView terminals.

Reserve 20...30% of the controller memory for future expansion.<sup>(1)</sup>

(1) This requirement does not apply to CompactLogix 5380 controllers.

# CompactLogix Communication Options

You can configure your system for information exchange between a range of devices and computing platforms and operating systems. Select a CompactLogix controller with integrated communication or the appropriate communication module.

For detailed specifications, see:

- CompactLogix Controllers Specifications Technical Data, publication [1769-TD005](#).
- CompactLogix Communication Modules Specifications Technical Data, publication [1769-TD007](#).
- CompactLogix 5380 Controllers Specifications Technical Data, publication [5069-TD002](#)

## EtherNet/IP Communication Options

The Ethernet Industrial network protocol (EtherNet/IP) is an open industrial-networking standard that supports real time I/O messaging and message exchange. The EtherNet/IP network uses off-the-shelf Ethernet communication chips and physical media.

Dual-port EtherNet/IP support embeds switch technology directly in the controller to so the controller can operate on star, linear, or ring EtherNet/IP topologies.

### CompactLogix Controller EtherNet/IP Communication Options

| Cat. No.  | Description   | Communication Rate | Logix Resources <sup>(2)</sup>          | TCP/IP Connections |
|---|---|--------------------|---|--------------------|
| 1769-L16ER-BB1B,  | CompactLogix 5370 L1 controller with embedded dual EtherNet/IP ports, POINT I/O form factor   | 10/100 Mbps        | 4 nodes<br>256 EtherNet/IP connections  | 120                |
| 1769-L18ER-BB1B,<br>1769-L18ERM-BB1B  |   |                    | 8 nodes<br>256 EtherNet/IP connections  |                    |
| 1769-L19ER-BB1B   |   |                    |   |                    |
| 1769-L24ER-BB1B,<br>1769-L24ER-QBFC1B                                       | CompactLogix 5370 L2 controller with embedded dual EtherNet/IP ports, Compact I/O form factor | 10/100 Mbps        | 8 nodes<br>256 EtherNet/IP connections  | 120                |
| 1769-L27ERM-QBFC1B  |   | 10/100 Mbps        | 16 nodes<br>256 EtherNet/IP connections |                    |
| 1769-L30ER, 1769-L30ERM,<br>1769-L30ERMS                                    | CompactLogix 5370 L3 controller with embedded dual EtherNet/IP ports                          | 10/100 Mbps        | 16 nodes<br>256 EtherNet/IP connections | 120                |
| 1769-L33ER, 1769-L33ERM,<br>1769-L33ERMO,<br>1769-L33ERMOS,<br>1769-L33ERMS |   |                    | 32 nodes<br>256 EtherNet/IP connections |                    |
| 1769-L36ERM,<br>1769-L33ERMO,<br>1769-L36ERMOS,<br>1769-L36ERMS             |   |                    | 48 nodes<br>256 EtherNet/IP connections |                    |
| 1769-L37ERMO,<br>1769-L37ERMOS  |   |                    | 64 nodes<br>256 EtherNet/IP connections |                    |

### CompactLogix Controller EtherNet/IP Communication Options

| Cat. No.                                   | Description   | Communication Rate                 | Logix Resources <sup>(2)</sup> | TCP/IP Connections |
|--|---|------------------------------------|--------------------------------|--------------------|
| 5069-L306ER, 5069-L306ERM                  | CompactLogix 5380 controller with embedded dual EtherNet/IP ports | 10/100 Mbps, 1 Gbps <sup>(1)</sup> | 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                             |                    |

(1) Network performance in a CompactLogix 5380 system is optimal if the 1 Gbps network communication rate is used. However, many Ethernet devices do not support the 1 Gbps network communication rate. You must consider how the different maximum network communication rates impact your CompactLogix 5380 control system when you design the system.

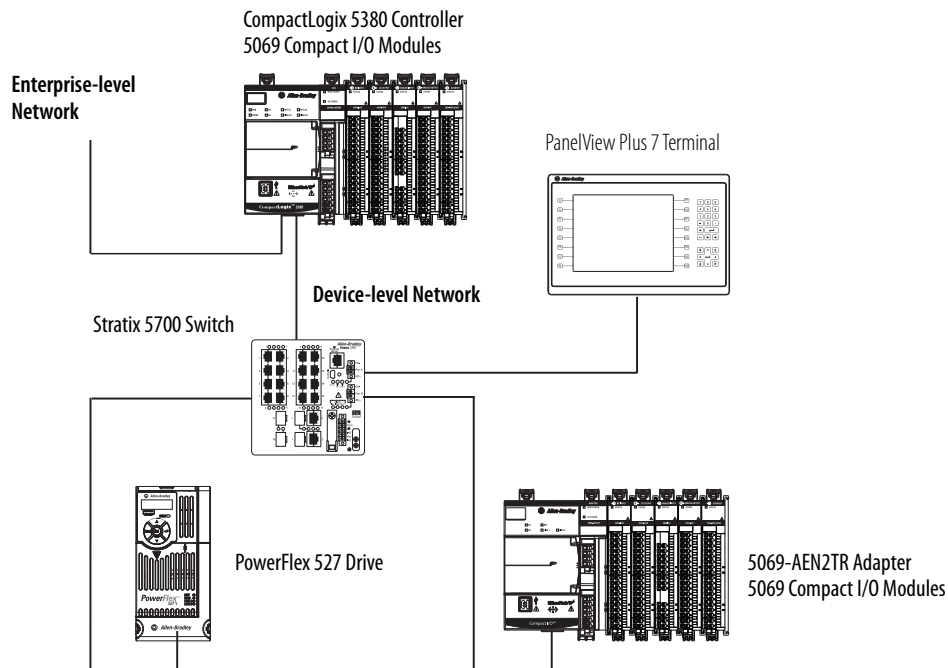
(2) The number of nodes that are listed for CompactLogix 5370 and CompactLogix 5380 controllers represents the maximum number of EtherNet/IP nodes you can include in a controller project for those controllers. For example, in a controller project that uses a 1769-L18ERM-BB1B controller, you can add as many as eight EtherNet/IP nodes to the project.

## CompactLogix 5380 Controllers EtherNet/IP Modes

The CompactLogix 5380 controllers are the first Logix controllers to offer multiple EtherNet/IP modes. With CompactLogix 5380 controller firmware revision 29.011 or later, you can use Dual-IP mode or Linear/DLR mode.

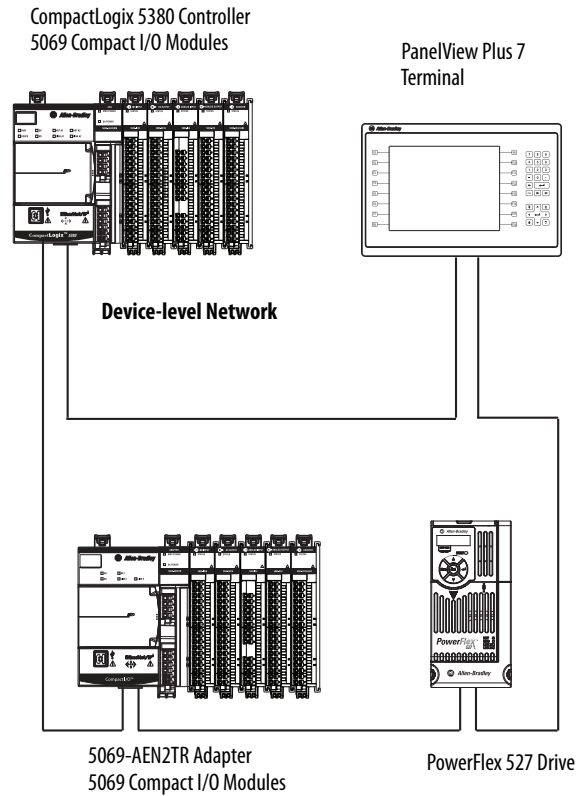
### Dual-IP Mode

Dual-IP mode lets you configure the controller embedded Ethernet ports to connect to separate EtherNet/IP networks, that is, an enterprise-level network and a device-level network. In this mode, each port requires its own network configurations that include some restrictions. For example, when you set IP addresses in Dual-IP mode, you cannot overlap IP addresses between the ports.



## Linear/DLR Mode

When CompactLogix 5380 controllers operate in Linear/DLR mode, they connect to only one network. That is, there is only one network configuration. When used in Linear/DLR mode, CompactLogix 5380 controllers can connect to any EtherNet/IP network topology—linear, DLR, or star.



For more information on EtherNet/IP modes with a CompactLogix 5380 controller, see the following:

- CompactLogix 5380 Controllers User Manual, publication [5069-UM001](#)
- CompactLogix 5380 Controllers Specifications Technical Data, publication [5069-TD002](#)

## DeviceNet Communication Options

The DeviceNet network is an open, low-level network that provides connections between simple industrial devices (such as sensors and actuators) and higher-level devices (such as controllers and computers).

| Cat. No. | Description                   | Communication Rate    | Number of Nodes |
|----------|-------------------------------|-----------------------|-----------------|
| 1769-SDN | Compact I/O DeviceNet scanner | 125 Kbps (500 m, max) | 64              |
| 1769-ADN | Compact I/O DeviceNet adapter | 250 Kbps (250 m, max) |                 |
|          |                               | 500 Kbps (100 m, max) |                 |

## Serial Communication Options

These CompactLogix controllers support serial communication.

| Cat. No.  | Serial Options  |
|---|---|
| 1769-L16ER-BB1B, 1769-L18ER-BB1B, 1769-L18ERM-BB1B, 1769-L19ERM-BB1B                | 1734-232ASC module for an RS-232 serial interface<br>1734-485 ASC module for an RS-422 and RS-485 serial device |
| 1769-L24ER-BB1B, 1769-L24ER-QBFC1B  | 1769-ASCII module for an ASCII interface to RS-232, RS-422, and RS-485 devices                                  |
| 1769-L27ERM-QBFC1B  | 1769-SM2 module for a Modbus RTU interface  |
| 1769-L30ER, 1769-L30ERM, 1769-L30ERMS   |   |
| 1769-L33ER, 1769-L33ERM, 1769-L33ERMO, 1769-L33ERMOS, 1769-L33ERMS                  |   |
| 1769-L36ERM, 1769-L36ERMO, 1769-L36ERMOS, 1769-L36ERMS, 1769-L37ERMO, 1769-L37ERMOS |   |

## Modbus Support

To access a Modbus TCP network, connect through the embedded Ethernet port of the CompactLogix 5370 or CompactLogix 5380 controllers and execute a ladder-logic routine. For more information, see Knowledgebase document 470365 at <http://www.rockwellautomation.com/knowledgebase/>.

To access a Modbus RTU network, connect through a 1769-SM2 module, or Encompass partner, Prosoft ModuBus module, or Gateway and execute a ladder-logic routine. For more information, see Using Logix5000 Controllers as Masters or Slaves on Modbus Application Solution, publication [CIG-AP129](#).

# CompactLogix Integrated Motion

The Logix architecture supports motion control components that work in a wide variety of machine architectures.

- Integrated motion on EtherNet/IP supports a connection to Ethernet drives.
- The Kinetix integrated-motion solution uses a SERCOS interface module to perform multi-axis, synchronized motion.
- Logix integrated motion supports the analog family of servo modules for controlling drives/actuators.
- Networked motion lets you connect via the DeviceNet network to one axis drive to perform point-to-point indexing.
- Not all CompactLogix 5370 and CompactLogix 5380 controllers support Integration motion on EtherNet/IP.
- All CompactLogix 5380 controllers support single-axis motor control with PowerFlex variable frequency drives over an EtherNet/IP network. This functionality is available on CompactLogix 5380 controllers that do not support other aspects of Integrated Motion over an EtherNet/IP network.

| Motion Feature   | 1769-L18ERM-BB1B   | 1769-L27ERM-QBFC1B                                | 1769-L30ERM, 1769-L30ERMS, 1769-L33ERM, 1769-L33ERMO, 1769-L33ERMOS, 1769-L33ERMS, 1769-L36ERM, 1769-L36ERMO, 1769-L36ERMOS, 1769-L36ERMS, 1769-L37ERMO, 1769-L37ERMOS | 5069-L306ERM, 5069-L310ERM, 5069-L320ERM, 5069-L330ERM, 5069-L340ERM, 5069-L350ERM, 5069-L380ERM, 5069-L3100ERM  |
|--|--|---|--|--|
| EtherNet/IP sequence of events for software registration | Yes  |   |  |  |
| Kinematics   | Yes  |   |  |  |
| Integrated motion on an EtherNet/IP network              | Yes  |   |  |  |
| Indexing   | Yes with one of these pulse-train output modules:<br>• AMCI 1734-3401<br>• AMCI 1734-3401L | Yes with AMCI 1769-3602 pulse-train output module |  | Yes  |
| Load observer (with only Kinetix 6500 drives)            | Yes  |   |  |  |
| Total axis count   | 100  |   |  |  |
| Virtual axis, max  | 100  |   |  |  |
| Position-loop axis, max                                  | 2  | 4   | 16   | <ul style="list-style-type: none"> <li>• 5069-L306ERM: 2</li> <li>• 5069-L310ERM: 4</li> <li>• 5069-L320ERM: 8</li> <li>• 5069-L330ERM: 16</li> <li>• 5069-L340ERM: 20</li> <li>• 5069-L350ERM: 24</li> <li>• 5069-L380ERM: 28</li> <li>• 5069-L3100ERM: 32</li> </ul> |
| Axis/ms, max   | 2  |   |  | 32   |
| EtherNet/IP feedback, VHz, torque, or velocity axis, max | 8  | 16  | 48   | 80   |

For more information, see the:

- CompactLogix 5380 Controllers User Manual, publication [5069-UM001](#).
- Integrated Motion on the EtherNet/IP network Configuration and Startup User Manual, publication [MOTION-UM003](#).
- Integrated Motion on the EtherNet/IP network Reference Manual, Publication [MOTION-RM003](#).
- Motion Analyzer CD to size your motion application and to make final component selection. Download the software from <http://www.ab.com/motion/software/analyzer.html>.
- Kinetix Motion Control Selection Guide, publication [GMC-SG001](#), to verify drive, motor, and accessory specifications.

# Compact GuardLogix Integrated Safety

The Compact GuardLogix controller provides safety control to achieve SIL 3/PLe according to ISO 13849. A major benefit of this system is that it is still one project, safety and standard together.

| Application | Description   |
|-------------|---|
| SIL 1, 2, 3 | <p>The Compact GuardLogix controller system is type-approved and certified for use in safety applications up to and including SIL 3 according to IEC 61508, and applications up to and including PLe/Cat.4 according to ISO 13849-1. For more information, see:</p> <ul style="list-style-type: none"> <li>GuardLogix Controllers User Manual, publication <a href="#">1769-UM022</a>.</li> <li>GuardLogix 5570 and Compact GuardLogix 5370 Controller Safety Systems Safety Reference Manual, publication <a href="#">1756-RM099</a>.</li> <li>Compact GuardLogix Controllers User Manual, publication <a href="#">1768-UM002</a>.</li> <li>GuardLogix Safety Application Instruction Set Reference Manual, publication <a href="#">1756-RM095</a>.</li> </ul> |

During development, safety and standard have the same rules, multiple programmers, online editing, and forcing are all possible. Once the project is tested and ready for final validation, you apply the safety application signature and safety-lock the application to set the safety task to a SIL 3 integrity level. The GuardLogix controller enforces the SIL 3 integrity level. When safety memory is locked and protected, the safety logic cannot be modified and all safety functions operate with SIL 3 integrity. On the standard side of the GuardLogix controller, all functions operate like a regular Logix controller. Thus online editing, forcing, and other activities are all possible.

With this level of integration, standard logic and external devices, like HMIs or other controllers, can read safety memory, avoiding the need to condition safety memory for use elsewhere. The result is easy system-wide integration and the ability to display safety status on displays or marquees. Use Guard I/O™ modules for field device connectivity. For safety interlocking between GuardLogix controllers use Ethernet or ControlNet networks. Multiple GuardLogix controllers can share safety data for zone to zone interlocking, or one GuardLogix controller can use remote distributed safety I/O between cells/areas.

The Compact GuardLogix controller has these safety-related features and the standard features of a CompactLogix controller.

| Characteristic        | 1769-L30ERMS   | 1769-L33ERMS                 | 1769-L36ERMS                   | 1768-L43S   | 1768-L45S   |
|-----------------------|--|------------------------------|--------------------------------|---|---|
| Available user memory | 1 MB standard<br>0.5 MB safety   | 2 MB standard<br>1 MB safety | 3 MB standard<br>1.5 MB safety | 2 MB standard<br>0.5 MB safety  | 3 MB standard<br>1 MB safety  |
| Communication options | <ul style="list-style-type: none"> <li>Dual-port EtherNet/IP (standard and safety)</li> <li>DeviceNet (standard)</li> </ul>                        |                              |                                | <ul style="list-style-type: none"> <li>EtherNet/IP (standard and safety)</li> <li>ControlNet (standard and safety)</li> <li>DeviceNet (standard)</li> </ul> | <ul style="list-style-type: none"> <li>EtherNet/IP (standard and safety)</li> <li>ControlNet (standard and safety)</li> <li>DeviceNet (standard)</li> </ul> |
| Programming languages | <ul style="list-style-type: none"> <li>Standard task: all languages</li> <li>Safety task: relay ladder, safety application instructions</li> </ul> |                              |                                |   |   |

# Armor CompactLogix and Armor Compact GuardLogix Integrated Safety

The Armor CompactLogix and Armor Compact GuardLogix controllers extend the features of the CompactLogix 5370 and Compact GuardLogix 5370 controllers to On-Machine space. The Armor Compact GuardLogix controllers deliver integrated safety control up to and including SIL 3, according to IEC 61508 and Ple/CAT. 4, according to ISO 13849-1.

| Application | Description   |
|-------------|---|
| SIL 1, 2, 3 | <p>The Compact GuardLogix controller system is type-approved and certified for use in safety applications up to and including SIL 3 according to IEC 61508, and applications up to and including Ple/Cat.4 according to ISO 13849-1. For more information, see:</p> <ul style="list-style-type: none"> <li>GuardLogix Controllers User Manual, publication <a href="#">1769-UM022</a>.</li> <li>GuardLogix 5570 and Compact GuardLogix 5370 Controller Safety Systems Safety Reference Manual, publication <a href="#">1756-RM099</a>.</li> <li>Compact GuardLogix Controllers User Manual, publication <a href="#">1768-UM002</a>.</li> <li>GuardLogix Safety Application Instruction Set Reference Manual, publication <a href="#">1756-RM095</a>.</li> </ul> |

During development, safety and standard have the same rules, multiple programmers, online editing, and forcing are all possible. Once the project is tested and ready for final validation, you apply the safety application signature and safety-lock the application to set the safety task to a SIL 3 integrity level. The Armor Compact GuardLogix controller enforces the SIL 3 integrity level. When safety memory is locked and protected, the safety logic cannot be modified and all safety functions operate with SIL 3 integrity. On the standard side of the Armor Compact GuardLogix controller, all functions operate like a regular Logix controller. Thus online editing, forcing, and other activities are all possible.

With this level of integration, standard logic and external devices, like HMIs or other controllers, can read safety memory, avoiding the need to condition safety memory for use elsewhere. The result is easy system-wide integration and the ability to display safety status on displays or marquees. Use Guard I/O modules for field device connectivity. For safety interlocking between Armor Compact GuardLogix controllers use Ethernet or ControlNet networks. Multiple Armor Compact GuardLogix controllers can share safety data for zone to zone interlocking, or one GuardLogix controller can use remote distributed safety I/O between cells/areas.

The Armor CompactLogix and Armor Compact GuardLogix controllers have these safety-related features and the standard features of a CompactLogix controller.

| Characteristic        | 1769-L33ERMO  | 1769-L33ERMOS  | 1769-L36ERMO,<br>1769-L37ERMO | 1769-L36ERMOS,<br>1769-L37ERMOS  |
|-----------------------|---|--|-------------------------------|--|
| Available user memory | 2 MB  | <ul style="list-style-type: none"> <li>2 MB standard</li> <li>1 MB safety</li> </ul> | 3 MB                          | <ul style="list-style-type: none"> <li>3 MB standard</li> <li>1.5 MB safety</li> </ul> |
| Communication options | <ul style="list-style-type: none"> <li>Dual-port EtherNet/IP (standard and safety)</li> <li>DLR</li> </ul>        |  |                               |  |
| Programming languages | <ul style="list-style-type: none"> <li>Standard task: all languages</li> <li>Safety task: relay ladder</li> </ul> |  |                               |  |

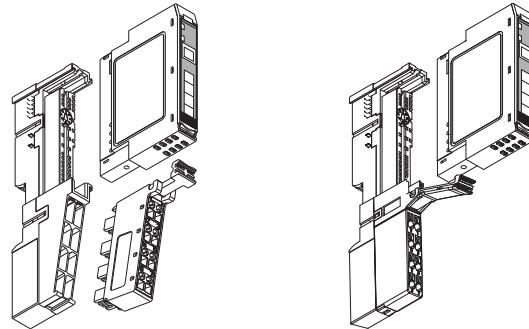


# Additional Local I/O Modules

## 1734 POINT I/O Modules

Additional 1734 POINT I/O modules can be installed on a CompactLogix 5370 L1 controller. The POINT I/O family is ideal for applications where flexibility and low cost of ownership are key for successful control system design and operation.

The base (A) mounts onto the DIN rail and provides the backplane. The POINT I/O module (B) snaps into the base. The removable terminal block (C) also snaps into the base and provides the wiring and terminations for field-side connections, and system power for the backplane.



## 1734 AC Digital Modules

| Cat. No. | Inputs/Outputs                 | Voltage Category | Wiring Base                            | POINTBus™ Current @ 5V DC |
|----------|--------------------------------|------------------|--|---------------------------|
| 1734-IA2 | 2 inputs, nonisolated, sink    | 120V AC          | 1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS | 75 mA                     |
| 1734-IA4 | 4 inputs, nonisolated, sink    |                  |  |                           |
| 1734-IM2 | 2 inputs, nonisolated, sink    | 220V AC          | 1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS | 75 mA                     |
| 1734-IM4 | 4 inputs, nonisolated, sink    |                  |  |                           |
| 1734-OA2 | 2 outputs, nonisolated, source | 120/220V AC      | 1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS | 75 mA                     |
| 1734-OA4 | 4 outputs, nonisolated, source |                  |  |                           |

## 1734 DC Digital Modules

| Cat. No.  | Inputs/Outputs             | Voltage Category | Wiring Base                            | POINTBus Current @ 5V DC |
|-----------|----------------------------|------------------|--|--------------------------|
| 1743-IB2  | 2 inputs, sink             | 24V DC           | 1734-TB, 1734-TBS                      | 75 mA                    |
| 1734-IB4  | 4 inputs, sink             |                  |  |                          |
| 1734-IB4D | 4 inputs, sink, diagnostic | 24V DC           | 1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS | 50 mA                    |
| 1734-IB8  | 8 inputs, sink             | 24V DC           | 1734-TB, 1734-TBS                      | 75 mA                    |
| 1734-IB8S | 8 inputs, sink, safety     | 24V DC           | 1734-TB, 1734-TOP                      | 175 mA                   |
| 1734-IV2  | 2 inputs, source           | 24V DC           | 1734-TB, 1734-TBS                      | 75 mA                    |
| 1734-IV4  | 4 inputs, source           |                  |  |                          |
| 1734-IV8  | 8 inputs, source           |                  |  |                          |

| Cat. No.  | Inputs/Outputs                           | Voltage Category | Wiring Base       | POINTBus Current @ 5V DC |
|-----------|--|------------------|-------------------|--------------------------|
| 1734-OB2  | 2 outputs, nonisolated, source           | 12/24V DC        | 1734-TB, 1734-TBS | 75 mA                    |
| 1734-OB2E | 2 outputs, nonisolated protected, source |                  |                   |                          |
| 1734-OB4  | 4 outputs, nonisolated, source           |                  |                   |                          |
| 1734-OB4E | 4 outputs, nonisolated protected, source |                  |                   |                          |
| 1734-OB8  | 8 outputs, nonisolated, source           |                  |                   |                          |
| 1734-OB8E | 8 outputs, nonisolated protected, source |                  |                   |                          |
| 1734-OB8S | 8 outputs, safety                        | 24V DC           | 1734-TB, 1734-TOP | 190 mA                   |
| 1734-OV2E | 2 outputs, nonisolated protected, sink   | 12/24V DC        | 1734-TB, 1734-TBS | 75 mA                    |
| 1734-OV4E | 4 outputs, nonisolated protected, sink   |                  |                   |                          |
| 1734-OV8E | 8 outputs, nonisolated protected, sink   |                  |                   |                          |

### 1734 Relay Contact Output Modules

| Cat. No. | Inputs/Outputs  | Voltage Range  | Wiring Base       | POINTBus Current @ 5V DC |
|----------|---|--|-------------------|--------------------------|
| 1734-OW2 | 2 Form A (normally open) relays   | 5...28.8V DC @ 2.0 A<br>48V DC @ 0.5 A<br>125V DC @ 0.25 A<br>125V DC @ 2.0 A<br>240V AC @ 2.0 A | 1734-TB, 1734-TBS | 80 mA                    |
| 1734-OW4 | 4 Form A (normally open) relays   |  |                   |                          |
| 1734-OX2 | 2 Form C isolated (normally open; normally closed) electromechanical relays |  |                   | 100 mA                   |

### 1734 Analog and Temperature Modules

| Cat. No.  | Inputs/Outputs                         | Range  | Resolution  | Wiring Base   | POINTBus Current @ 5V DC |
|-----------|--|--|---|---|--------------------------|
| 1734-IE2C | 2 single-ended, nonisolated, current   | 4...20 mA<br>0...20 mA   | 16 bits over 0...21 mA<br>0.32 $\mu$ A/cnt  | 1734-TB, 1734-TBS   | 75 mA                    |
| 1734-IE2V | 2 single-ended, nonisolated, voltage   | 0...10V (-0.0V under, +0.5V over)<br>$\pm$ 10V (-0.5V under, +0.5V over) | 15 bits plus sign<br>320 $\mu$ V/cnt in unipolar or bipolar mode  |   |                          |
| 1734-IE4C | 4 single-ended, nonisolated, current   | 4...20 mA<br>0...20 mA   | 16 bits - over 0...21 mA<br>0.32 $\mu$ A/cnt  |   |                          |
| 1734-IE4S | 4 inputs, single-ended, safety rated   | 0...20 mA, 4...20 mA<br>$\pm$ 5V, 0...5V, $\pm$ 10V, 0...10V             | 12 bits   | 1734-TB, 1734-TBS,<br>1734-TOP, 1734-TOPS,<br>1734-TOP3, 1734-TOP3S | 110 mA                   |
| 1734-IE8C | 8 single-ended, nonisolated, current   | 4...20 mA<br>0...20 mA   | 16 bits - over 0...21 mA<br>0.32 $\mu$ A/cnt  | 1734-TB, 1734-TBS   | 75 mA                    |
| 1734-IR2  | 2 single-ended, nonisolated            | 0...600 $\Omega$   | 16 bits<br>9.5 m $\Omega$ /cnt<br>0.03 $^{\circ}$ C/cnt (Pt385 @ 25 $^{\circ}$ C)<br>[0.05 $^{\circ}$ F/cnt (Pt385 @ 77 $^{\circ}$ F)]    | 1734-TB, 1734-TBS,<br>1734-TOP, 1734-TOPS                           | 220 mA                   |
| 1734-IR2E | 2 single-ended, nonisolated, protected | 0...220 $\Omega$   | 16 bits<br>2.4 m $\Omega$ /cnt<br>0.006 $^{\circ}$ C/cnt (Pt385 @ 25 $^{\circ}$ C)<br>[0.0114 $^{\circ}$ F/cnt (Pt385 @ 77 $^{\circ}$ F)] |   |                          |

| Cat. No.  | Inputs/Outputs                        | Range  | Resolution  | Wiring Base                               | POINTBus Current @ 5V DC |
|-----------|---------------------------------------|--|---|---|--------------------------|
| 1734-IT2I | 2 differential, individually isolated | Sensors B, C, E, J, K, N, R, S, T  | 15 bits plus sign<br>2.5 $\mu$ V/cnt  | 1734-TBCJC                                | 175 mA                   |
| 1734-OE2C | 2 single-ended, nonisolated, current  | 4...20 mA<br>0...20 mA   | 13 bits over 0...21mA<br>2.5 $\mu$ A/cnt (average)<br>3...2.7 $\mu$ A/cnt (typical range) | 1734-TB, 1734-TBS,<br>1734-TB3, 1734-TB3S | 75 mA                    |
| 1734-OE2V | 2 single-ended, nonisolated, voltage  | 0...10V (-0.0V under, +0.5V over)<br>$\pm$ 10V (-0.5V under, +0.5V over) | 14 bits (13 plus sign)<br>1.28 mV/cnt in unipolar or bipolar mode                         |   |                          |
| 1734-OE4C | 4 single-ended, nonisolated, current  | 4...20 mA<br>0...20 mA   | 16 bits over 0...21 mA<br>0.32 $\mu$ A/cnt)   |   |                          |

## 1734 Counter Modules

| Cat. No.    | Inputs/Outputs                                    | Range       | Frequency  | Wiring Base                               | POINTBus Current @ 5V DC |
|-------------|---|-------------|--|---|--------------------------|
| 1734-IJ     | 1 - 1 group of A/Areturn, B/Breturn and Z/Zreturn | 5V DC       | 1.0 MHz counter and encoder X1<br>500 kHz encoder X2 (no filter)<br>250 kHz encoder X4 (no filter) | 1734-TB, 1734-TBS,<br>1734-TB3, 1734-TB3S | 160 mA                   |
| 1734-IK     | 1 - 1 group of A/Areturn, B/Breturn and Z/Zreturn | 15...24V DC |  |   | 160 mA                   |
| 1734-VHSC24 | 1 - 1 group of A/Areturn, B/Breturn and Z/Zreturn | 15...24V DC |  |   | 180 mA                   |
| 1734-VHSC5  | 1 - 1 group of A/Areturn, B/Breturn and Z/Zreturn | 5V DC       |  |   | 180 mA                   |

## 1734 Self-configurable Modules

| Cat. No.  | Inputs/Outputs      | Voltage Category | Wiring Base                            | POINTBus Current @ 5V DC |
|-----------|---------------------|------------------|--|--------------------------|
| 1734-8CFG | 8 self-configurable | 24V DC           | 1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS | 100 mA                   |

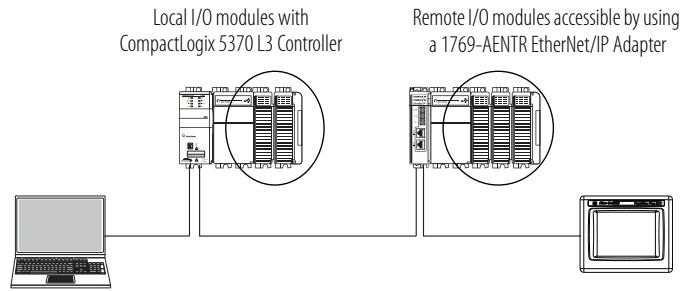
## 1734 Communication and Specialty Modules

| Cat. No.                   | Description   | Wiring Base                               | POINTBus Current |
|----------------------------|---|---|------------------|
| 1734-AENT                  | The single port adapter connects POINT I/O modules to the Ethernet network.   | —   |                  |
| 1734-AENTR                 | The adapter connects POINT I/O modules to a linear or DLR network and uses two copper network ports to connect to the network.  | —   |                  |
| 1734-232ASC<br>1734-485ASC | The 1734-232ASC and 1734-485ASC serial interface modules offer a serial-link communication interface solution for peripheral products with RS-232 (only 1734-232ASC), RS-485, and RS-422 ports (only 1734-485ASC.)  | 1734-TB, 1734-TBS                         | 75 mA            |
| 1734-ARM                   | The 1734-ARM address reserve module reserves address and slot numbers to maintain a numbering scheme of a system. The 1734-ARM has no module configuration and does not communicate I/O data.                       | 1734-TB, 1734-TBS                         | 75 mA            |
| 1734-CTM<br>1734-VTM       | The common terminal module (1734-CTM) and voltage terminal module (1734-VTM) expand the termination capabilities of POINT I/O modules. Install the modules to support higher density (8 channel) POINT I/O modules. | 1734-TB, 1734-TBS,<br>1734-TOP, 1734-TOPS | 75 mA            |
| 1734-SSI                   | The 1734-SSI module collects serial data from absolute-position, encoding sensors that use standard serial synchronous interface (SSI) protocol.  | 1734-TB, 1734-TBS                         | 110 mA           |

## 1769 Compact I/O Modules

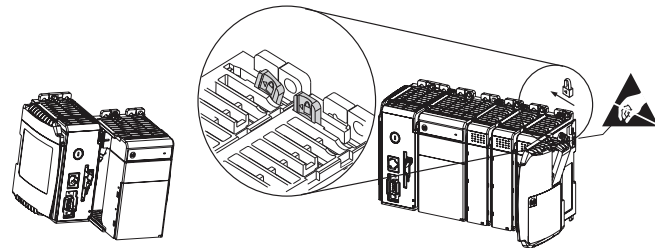
The 1769 Compact I/O modules can be used with the CompactLogix 5370 L2 and L3 controllers and 1768 CompactLogix controllers as follows:

- Local I/O modules
- Remote I/O modules accessible by using a 1769-AENTR EtherNet/IP adapter



The modules mechanically lock together with a tongue-and-groove design and have an integrated communication bus that is connected from module to module by a moveable bus connector.

Each I/O module includes a built-in removable terminal block with fingersafe cover for connections to I/O sensors and actuators. The terminal block is behind a door at the front of the module. I/O wiring can be routed from beneath the module to the I/O terminals.



For detailed specifications, see 1769 Compact I/O Modules Specifications Technical Data, publication [1769-TD006](#).

### Power Supply Distance Ratings

Check the specification table of each module for the power supply distance rating. This rating indicates how many slot positions the module can be from the power supply.

### 1769 AC Digital Modules

| Cat. No.  | Inputs/Outputs                  | Voltage Category | Operating Voltage Range      | Backplane Current           | Power Supply Distance Rating |
|-----------|---------------------------------|------------------|------------------------------|-----------------------------|------------------------------|
| 1769-IA8I | 8 inputs, individually isolated | 100/120V AC      | 79...132V AC,<br>47...63 Hz  | 90 mA @ 5.1V <sup>(1)</sup> | 8                            |
| 1769-IA16 | 16 inputs                       | 100/120V AC      | 79...132V AC,<br>47...63 Hz  | 115 mA @ 5.1V               | 8                            |
| 1769-IM12 | 12 inputs                       | 200/240V AC      | 159...265V AC,<br>47...63 Hz | 100 mA @ 5.1V               | 8                            |
| 1769-OA8  | 8 outputs                       | 100/240V AC      | 85...265V AC<br>47...63 Hz   | 145 mA @ 5.1V               | 8                            |
| 1769-OA16 | 16 outputs                      | 100/240V AC      | 85...265V AC<br>47...63 Hz   | 225 mA @ 5.1V               | 8                            |

(1) Maximum is 190 mA.

## 1769 DC Digital Modules

| Cat. No.     | Inputs/Outputs        | Voltage Category   | Operating Voltage Range                                       | Backplane Current            | Power Supply Distance Rating |
|--------------|-----------------------|--|---|------------------------------|------------------------------|
| 1769-IG16    | 16 inputs             | 5V DC TTL  | 4.5...5.5V DC   | 120 mA @ 5.1V                | 8                            |
| 1769-IQ16    | 16 inputs             | 24V DC sink/source   | 10...30V DC @ 30 °C (86 °F)<br>10...26.4V DC @ 60 °C (140 °F) | 115 mA @ 5.1V                | 8                            |
| 1769-IQ16F   | 16 inputs, high speed | 24V DC sink/source   | 10...30V DC @ 30 °C (86 °F)<br>10...26.4V DC @ 60 °C (140 °F) | 100 mA @ 5.1V                | 8                            |
| 1769-IQ32    | 32 inputs             | 24V DC sink/source   | 10...30V DC @ 30 °C (86 °F)<br>10...26.4V DC @ 60 °C (140 °F) | 170 mA @ 5.1V                | 8                            |
| 1769-IQ32T   | 32 inputs             | 24V DC sink/source   | 20.4...26.4V DC @ 60 °C (140 °F)                              | 170 mA @ 5.1V                | 8                            |
| 1769-IQ6XOW4 | 6 inputs<br>4 outputs | 24V DC sink/source input<br>AC/DC normally open relay<br>contact outputs | 10...30V DC @ 30 °C (86 °F)<br>10...26.4V DC @ 60 °C (140 °F) | 105 mA @ 5.1V<br>50 mA @ 24V | 8                            |
| 1769-OB8     | 8 outputs             | 24V DC source  | 20.4...26.4V DC   | 145 mA @ 5.1V                | 8                            |
| 1769-OB16    | 16 outputs            | 24V DC source  | 20.4...26.4V DC   | 200 mA @ 5.1V                | 8                            |
| 1769-OB16P   | 16 outputs, protected | 24V DC source  | 20.4...26.4V DC   | 160 mA @ 5.1V                | 8                            |
| 1769-OB32    | 32 outputs            | 24V DC source  | 20.4...26.4V DC   | 300 mA @ 5.1V                | 6                            |
| 1769-OB32T   | 32 outputs            | 24V DC source  | 10.2...26.4V DC   | 220 mA @ 5.1V                | 8                            |
| 1769-OG16    | 16 outputs            | 5V DC TTL  | 4.5...5.5V DC   | 200 mA @ 5.1V                | 8                            |
| 1769-OV16    | 16 outputs            | 24V DC sink  | 20.4...26.4V DC   | 200 mA @ 5.1V                | 8                            |
| 1769-OV32T   | 32 outputs            | 24V DC sink  | 10.2...26.4V DC   | 300 mA @ 5.1V                | 8                            |

## 1769 Contact Output Modules

| Cat. No.  | Inputs/Outputs                   | Operating Voltage Range    | Backplane Current             | Power Supply Distance Rating |
|-----------|----------------------------------|----------------------------|-------------------------------|------------------------------|
| 1769-OW8  | 8 outputs                        | 5...265V AC<br>5...125V DC | 125 mA @ 5.1V<br>100 mA @ 24V | 8                            |
| 1769-OW8I | 8 outputs, individually isolated | 5...265V AC<br>5...125V DC | 125 mA @ 5.1V<br>100 mA @ 24V | 8                            |
| 1769-OW16 | 16 outputs                       | 5...265V AC<br>5...125V DC | 205 mA @ 5.1V<br>180 mA @ 24V | 8                            |

## 1769 Analog Modules

| Cat. No.       | Inputs/Outputs  | Range   | Resolution  | Backplane Current             | Power Supply Distance Rating |
|----------------|---|---|---|-------------------------------|------------------------------|
| 1769-IF4       | 4 inputs, differential or single-ended                                      | ±10V<br>0...10V<br>0...5V<br>1...5V<br>0...20 mA<br>4...20 mA | 14 bits (unipolar)<br>14 bits plus sign (bipolar)   | 120 mA @ 5.1V<br>60 mA @ 24V  | 8                            |
| 1769-IF4I      | 4 inputs, differential or single-ended, individually isolated               | ±10V<br>0...10V<br>0...5V<br>1...5V<br>0...20 mA<br>4...20 mA | 16 bits (unipolar)<br>15 bits plus sign (bipolar)   | 145 mA @ 5.1V<br>125 mA @ 24V | 8                            |
| 1769-IF8       | 8 inputs, differential or single-ended                                      | ±10V<br>0...10V<br>0...5V<br>1...5V<br>0...20 mA<br>4...20 mA | 16 bits (unipolar)<br>15 bits plus sign (bipolar)   | 120 mA @ 5.1V<br>70 mA @ 24V  | 8                            |
| 1769-IF16C     | 16 inputs, single-ended   | 0...20 mA<br>4...20 mA  | 16 bits (unipolar)<br>15 bits plus sign (bipolar)   | 190 mA @ 5.1V<br>70 mA @ 24V  | 8                            |
| 1769-IF16V     | 16 inputs, single-ended   | ±10V<br>0...10V<br>0...5V<br>1...5V                           | 16 bits (unipolar)<br>15 bits plus sign (bipolar)   | 190 mA @ 5.1V<br>70 mA @ 24V  | 8                            |
| 1769-IF4XOF2   | 4 inputs, differential or single-ended<br>2 outputs, single-ended           | 0...10V<br>0...20 mA  | Input: 8 bits plus sign<br>Output: 8 bits plus sign   | 120 mA @ 5.1V<br>160 mA @ 24V | 8                            |
| 1769-IF4FXOF2F | 4 inputs, fast differential or single-ended<br>2 outputs, fast single-ended | ±10V<br>0...10V<br>0...5V<br>1...5V<br>0...20 mA<br>4...20 mA | Input: 14 bits (unipolar)<br>14 bits plus sign (bipolar)<br>Output: 13 bits (unipolar)<br>13 bits plus sign (bipolar) | 220 mA @ 5.1V<br>120 mA @ 24V | 8                            |
| 1769-OF2       | 2 outputs, single-ended   | ±10V<br>0...10V<br>0...5V<br>1...5V<br>0...20 mA<br>4...20 mA | 14 bits (unipolar)<br>14 bits plus sign (bipolar)   | 120 mA @ 5.1V<br>120 mA @ 24V | 8                            |
| 1769-OF4       | 4 outputs, single-ended   | ±10V<br>0...10V<br>0...5V<br>1...5V<br>0...20 mA<br>4...20 mA | 15 bits plus sign unipolar and bipolar  | 120 mA @ 5.1V<br>170 mA @ 24V | 8                            |
| 1769-OF4CI     | 4 outputs, differential, individually isolated                              | 0...20 mA<br>4...20 mA  | 16 bits (unipolar)  | 165 mA @ 5V<br>110 mA @ 24V   | 8                            |

| Cat. No.   | Inputs/Outputs                                 | Range                               | Resolution                  | Backplane Current             | Power Supply Distance Rating |
|------------|--|-------------------------------------|-----------------------------|-------------------------------|------------------------------|
| 1769-OF4VI | 4 outputs, differential, individually isolated | ±10V<br>0...10V<br>0...5V<br>1...5V | 15 bits plus sign (bipolar) | 145 mA @ 5.1V<br>75 mA @ 24V  | 8                            |
| 1769-OF8C  | 8 outputs, single-ended                        | 0...20 mA<br>4...20 mA              | 16 bits (unipolar)          | 140 mA @ 5.1V<br>145 mA @ 24V | 8                            |
| 1769-OF8V  | 8 outputs, single-ended                        | ±10V<br>0...10V<br>0...5V<br>1...5V | 16 bits plus sign (bipolar) | 145 mA @ 5.1V<br>125 mA @ 24V | 8                            |

## 1769 Analog RTD and Thermocouple Modules

| Cat. No. | Inputs/Outputs        | Sensors Supported   | Backplane Current            | Power Supply Distance Rating |
|----------|-----------------------|---|------------------------------|------------------------------|
| 1769-IR6 | 6 RTD inputs          | 100, 200, 500, 1000 Ω Platinum 385<br>100, 200, 500, 1000 Ω Platinum 3916<br>120 Ω Nickel 618<br>120 Ω Nickel 672<br>10 Ω Nickel-iron 518<br>0...150 Ω<br>0...500 Ω<br>0...1000 Ω<br>0...3000 Ω | 100 mA @ 5.1V<br>45 mA @ 24V | 8                            |
| 1769-IT6 | 6 thermocouple inputs | Thermocouple types B, C, E, J, K, N, R, S, T<br>±50V<br>±100V   | 100 mA @ 5.1V<br>45 mA @ 24V | 8 <sup>(1)</sup>             |

(1) To reduce the effects of electrical noise, install the 1769-IT6 module at least two slots away from the AC power supplies.

## 1769 Communication and Specialty Modules

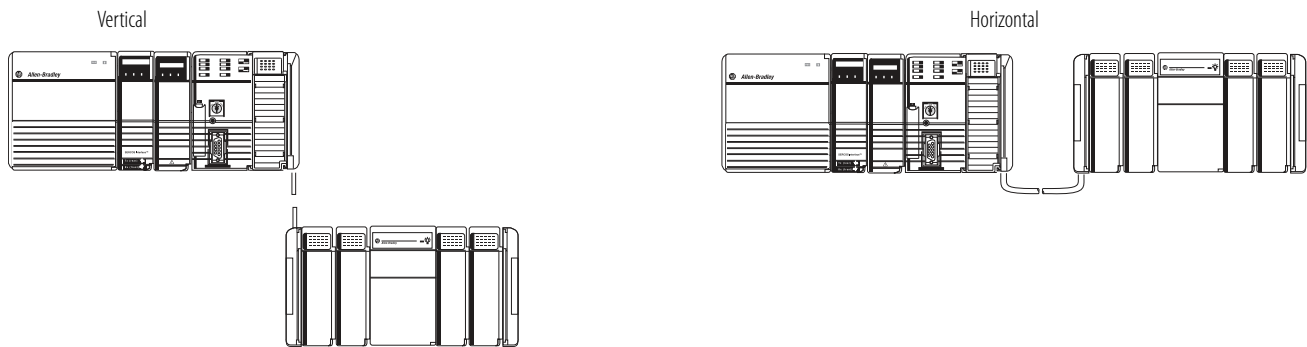
| Cat. No.     | Description   | Backplane Current | Power Supply Distance Rating |
|--------------|---|-------------------|------------------------------|
| 1769-AENTR   | The adapter connects 1769 I/O modules to a linear or DLR network and uses two copper network ports to connect to the network.   | 500 mA @ 5V       | 5                            |
| 1769-ARM     | Use a 1769-ARM address reserve module to reserve module slots. After creating an I/O configuration and user program, you can remove and replace any I/O module in the system with a 1769-ARM module. You must first inhibit the removed module in the Logix Designer application.   | 60 mA @ 5.1V      | 8                            |
| 1769-ASCII   | The 1769-ASCII module, a general-purpose two-channel ASCII interface, provides a flexible network interface to a wide variety of RS-232, RS-485, and RS-422 ASCII devices. The module provides the communication connections to the ASCII device.   | 425 mA @ 5.1V     | 4                            |
| 1769-BOOLEAN | Use the 1769-BOOLEAN module in applications that require repeatability, such as material handling and packaging, when there is a requirement to activate an output that is based on the transition of an input. If the Boolean expression is true, the output is directed to the ON state. If the Boolean expression is false, the output channel is directed to the OFF state. There are four operators that you can configure as OR, AND, XOR, or none. | 220 mA @ 5.1V     | 8                            |

| Cat. No. | Description  | Backplane Current | Power Supply Distance Rating |
|----------|--|-------------------|------------------------------|
| 1769-HSC | Use the 1769-HSC when you need: <ul style="list-style-type: none"> <li>• A counter module that can react to high-speed input signals.</li> <li>• To generate rate and time-between-pulses (pulse interval) data.</li> <li>• As many as two channels of quadrature or four channels of pulse/count inputs.</li> </ul> | 245 mA @ 5.1V     | 4                            |
| 1769-SM1 | The Compact I/O to DPI™ or SCANport™ module connects to PowerFlex 7-class drives, other DPI-based host devices, and SCANport-based host devices such as 1305 and 1336 PLUS™ II drives.   | 280 mA @ 5.1V     | 6                            |
| 1769-SM2 | The Compact I/O to DSI/Modbus module connects to PowerFlex 4-class drives and to other Modbus RTU slave devices, such as PowerFlex 7-class drives with 20-COMM-H RS-485 HVAC adapters.   | 350 mA @ 5.1V     | 4                            |

## 1769 Expansion Cables

If you divide 1769 modules into multiple banks, make sure:

- Each bank needs its own power supply.
- To use expansion cables to connect the banks.
- The last I/O bank requires an end cap.



How you orient I/O banks determines the expansion cables that you must connect the I/O banks.

| If you add a | And connect the chassis | Use this cable <sup>(1)</sup> |
|--------------|-------------------------|-------------------------------|
| Second bank  | Right to left           | 1769-CRLx                     |
|              | Right to right          | 1769-CRRx                     |
| Third bank   | Right to left           | 1769-CRLx                     |
|              | Right to right          | 1769-CRRx                     |
|              | Left to left            | 1769-CLLx                     |

(1) Where x = 1 for 1 ft (305 mm) or 3 for 3.28 ft (1 m).

## 1769 End Caps

The final 1769 Compact I/O bank requires an end cap on the end without the expansion cable. The CompactLogix 5370 L2 controller comes with a right-end cap, so you do not need to order one separately.

- Right end cap, catalog number 1769-ECR
- Left end cap, catalog number 1769-ECL



## 1769 Wiring Systems

As an alternative to buying removable terminal blocks (RTBs) and connecting the wires yourself, you can buy a wiring system of:

- Interface modules (IFMs) that provide the output terminal blocks for digital I/O modules. Use the pre-wired cables that match the I/O module to the IFM.
- Analog interface modules (AIFMs) that provide the output terminal blocks for analog I/O modules. Use the pre-wired cables that match the I/O module to the AIFM.
- I/O module-ready cables. One end of the cable assembly is an RTB that plugs into the front of the I/O module. The other end has individually color-coded conductors that connect to a standard terminal block.

## Removable Terminal Kits

You can order removable terminal kits with the CompactLogix 5370 L1 and L2 controllers separately. The kits are used to connect wiring to the controllers. The following table describes the kits.

| Cat. Nos.     | Controllers Supported                    | Description  |
|---------------|--|--|
| 1769-RTB45    | CompactLogix 5370 L1                     | <ul style="list-style-type: none"> <li>• Four 10-pin connectors that are used to connect wiring to the embedded digital I/O module of the controller.</li> <li>• One 5-pin connector that is used to connect an external 24V DC power source to the controller.</li> </ul> |
| 1769-RTB40DIO | CompactLogix 5370 L2                     | Four 10-pin connectors that are used to connect wiring to the embedded digital I/O module of the controller.   |
| 1769-RTB40AIO | 1769-L24ER-QBFC1B and 1769-L27ERM-QBFC1B | Four 10-pin connectors that are used to connect wiring to the embedded analog I/O module of the controller.  |



## 5069 Compact I/O Relay Output Modules

| Cat. No.  | Outputs                                   | Voltage Range              | Module Power Current, Max | Sensor Actuator Power Current, Max |
|-----------|---|----------------------------|---------------------------|------------------------------------|
| 5069-OW4I | 4 - Form A<br>(normally open)             | 5...125V DC<br>5...264V AC | 75 mA                     | –                                  |
| 5069-OW16 | 2 groups of 8 - Form A<br>(normally open) | 5...125V DC<br>5...264V AC |                           | 150 mA                             |
| 5069-OX4I | 4 - Form C (SPDT)                         | 5...125V DC<br>5...264V AC |                           | –                                  |

## 5069 Compact I/O Analog, Resistance, and Temperature Modules

| Cat. No. | Inputs/Outputs | Range  | Resolution   | Module Power Current, Max | Sensor Actuator Power Current, Max |
|----------|----------------|--|--|---------------------------|------------------------------------|
| 5069-IF8 | 8 differential | Voltage<br>±10V<br>0...10V<br>0...5V   | ±10.5V: <320 µV/count (15 bits plus sign bipolar)<br>0...10.5V: <160 µV/count (16 bits unipolar)<br>0...5.25V: <80 µV/count (16 bits unipolar) | 75 mA                     | 100 mA                             |
|          |                | Current<br>0...20 mA<br>4...20 mA  | 0...21 mA: <0.32 µA/count (16 bits)<br>3.6...21 mA: <0.27 µA/count (16 bits)   |                           |                                    |
| 5069-IY4 | 4 differential | Voltage<br>±10V<br>0...10V<br>0...5V   | ±10.5V: <320 µV/count (15 bits plus sign bipolar)<br>0...10.5V: <160 µV/count (16 bits unipolar)<br>0...5.25V: <80 µV/count (16 bits unipolar) | 75 mA                     | 100 mA                             |
|          |                | Current<br>0...20 mA<br>4...20 mA  | 0...21 mA: <0.32 µA/count (16 bits)<br>3.6...21 mA: <0.27 µA/count (16 bits)   |                           |                                    |
|          |                | RTD <sup>(1)</sup><br>(Input types PT 385, PT 3916, CU 427, NI 618, NI 672 available)<br>1...500 Ω<br>2...1000 Ω<br>4...2000 Ω<br>8...4000 Ω | < 7.9 mΩ/cnt in 1...500 Ω mode<br>< 15.8 mΩ/cnt in 2...1000 Ω mode<br>< 31.7 mΩ/cnt in 4...2000 Ω mode<br>< 63.4 mΩ/cnt in 8...4000 Ω mode     |                           |                                    |
|          |                | Thermocouple<br>(Input types B, C, D, E, J, K, N, R, S, T, TXK/XX (L) available)<br>±100 mV  | < 3.1 µV/cnt in ±100 mV mode   |                           |                                    |

## Select a CompactLogix System

| Cat. No. | Inputs/Outputs       | Range                                 | Resolution   | Module Power Current, Max | Sensor Actuator Power Current, Max |
|----------|----------------------|---------------------------------------|--|---------------------------|------------------------------------|
| 5069-OF4 | 4 current or voltage | Voltage<br>± 10V<br>0...10V<br>0...5V | 16 bits across ± 10.5V - 320 µV/bit<br>16 bits across 10.5V - 160 µV/bit<br>16 bits across 5.25V - 80 µV/bit | 75 mA                     | 150 mA                             |
|          |                      | Current<br>0...20 mA<br>4...20 mA     | 16 bits across 21 mA - 320 nA/bit  |                           |                                    |
| 5069-OF8 | 8 current or voltage | Voltage<br>± 10V<br>0...10V<br>0...5V | 16 bits across ± 10.5V - 320 µV/bit<br>16 bits across 10.5V - 160 µV/bit<br>16 bits across 5.25V - 80 µV/bit | 75 mA                     | 250 mA                             |
|          |                      | Current<br>0...20 mA<br>4...20 mA     | 16 bits across 21 mA - 320 nA/bit  |                           |                                    |

(1) Operating in 3-wire mode.

## 5069 Compact I/O Counter Module

| Cat. No.      | Inputs/Outputs  | Range       | Frequency                     | Module Power Current, Max | Sensor Actuator Power Current, Max |
|---------------|---|-------------|-------------------------------|---------------------------|------------------------------------|
| 5069-HSC2x0B4 | 2 quadrature (ABZ) differential inputs<br>4 channels (1 group of 4), sourcing outputs | 18...32V DC | 1 MHz, 125 ns pulse width min | 50 mA                     | 3 A <sup>(1)</sup>                 |

(1) SA power current is drawn only when the embedded output channels are used.

## 5069 Compact I/O EtherNet/IP Adapter

| Cat. No.    | Description  | Module Power Current, Max | Sensor Actuator Power Current, Max   |
|-------------|--|---------------------------|--------------------------------------|
| 5069-AENTR  | The adapter connects remote 5069 Compact I/O systems, to star, linear, and DLR EtherNet/IP network topologies. | 220 mA                    | 5 mA (DC power)<br>2 mA (AC power)   |
| 5069-AEN2TR |  | 450 mA                    | 10 mA (DC power)<br>25 mA (AC power) |

## 5069 Compact I/O Specialty Modules

| Cat. No. | Description                                  | Module Power Current, Max | Sensor Actuator Power Current, Max   |
|----------|--|---------------------------|--------------------------------------|
| 5069-ARM | 5069 Compact I/O address reserve module      | 45 mA                     | –                                    |
| 5069-FPD | 5069 Compact I/O field potential distributor | –                         | 10 mA (DC power)<br>25 mA (AC power) |

For more information on how to use local 5069 Compact I/O modules, see the following:

- 5000 Series Digital I/O Modules in Logix5000 Control Systems User Manual, publication [5000-UM004](#)
- 5000 Series High-speed Counter Modules in Logix5000 Control Systems User Manual, publication [5000-UM005](#)
- 5000 Series High-speed Counter Modules in Logix5000 Control Systems User Manual, publication [5000-UM006](#)

## 5069 End Caps

The right-most 5069 Compact I/O module in a CompactLogix 5380 control system requires an end cap. The end cap catalog number is 5069-ECR. An end cap ships with the CompactLogix 5380 controllers. You do not need to order one separately. However, you can order replacement 5069-ECR end caps.

## Removable Terminal Kits

You can order removable terminal kits with the CompactLogix 5380 controllers and 5069-FPD module separately. The kits are used to connect wiring to the controllers. The following table describes the kits.

| Cat. Nos. <sup>(1)</sup>         | Device Supported                | Description   |
|----------------------------------|---------------------------------|---|
| 5069-RTB14CJC-SCREW              | 5069 Compact I/O module         | 14-pin screw type terminal block with embedded CJC thermistors  |
| 5069-RTB14CJC-SPRING             |                                 | 14-pin spring type terminal block with embedded CJC thermistors |
| 5069-RTB18-SCREW                 |                                 | 18-pin screw type terminal block                                |
| 5069-RTB18-SPRING                |                                 | 18-pin spring type terminal block                               |
| 5069-RTB6-SCREW                  | 5069-FPD module                 | 6-pin screw type terminal block                                 |
| 5069-RTB6-SPRING                 |                                 | 6-pin spring type terminal block                                |
| 5069-RTB64-SCREW <sup>(2)</sup>  | CompactLogix 5380 controllers   | 4 and 6-pin screw type terminal block                           |
| 5069-RTB64-SPRING <sup>(2)</sup> | 5069-AEN2TR EtherNet/IP adapter | 4 and 6-pin spring type terminal block                          |
| 5069-RTB5-SCREW <sup>(3)</sup>   | 5069-AENTR EtherNet/IP adapter  | 5-pin screw type terminal block                                 |
| 5069-RTB5-SPRING <sup>(3)</sup>  |                                 | 5-pin spring type terminal block                                |

(1) All RTBs except for the 5069-RTB64-SCREW and 5069-RTB64-SPRING RTBs are sold in packs of 5 pieces.

(2) Sold in packs of 1 piece.

(3) Sold in packs of 2 pieces.

# CompactLogix Power Supplies

Select power supplies based on the controller and the number of additional I/O banks.

| For a                           | Select  |
|---------------------------------|---|
| CompactLogix 5370 L3 controller | <ul style="list-style-type: none"> <li>One 1769 power supply for the controller and local I/O modules.</li> <li>One 1769 power supply for each additional bank of I/O modules.</li> </ul>       |
| CompactLogix 5370 L2 controller | No power supply as it is integrated to the controller package.  |
| CompactLogix 5370 L1 controller | No power supply as it is integrated to the controller package.  |
| CompactLogix 5380 controller    | External power supplies to transfer MOD power and SA power to the system. The external power supplies are connected to a MOD power RTB and an SA power RTB that is installed on the controller. |

## Power Supplies

| Cat. No. | Description                             | Voltage Category | Operating Voltage Range   |
|----------|---|------------------|---|
| 1769-PA2 | 1769 Compact I/O expansion power supply | 120V/220V AC     | 85...265V AC  |
| 1769-PB2 |   | 24V DC           | 19.2...31.2V DC   |
| 1769-PA4 |   | 120V/220V AC     | 85...265V AC or 170...265V AC (switch selectable)<br>47...63 Hz |
| 1769-PB4 |   | 24V DC           | 19.2...31.2V DC   |

For detailed specifications, see Compact Power Supplies Specifications Technical Data, publication [1769-TD008](#).

Notes:

# Rockwell Automation Support

Use the following resources to access support information.

|   |   |  |
|---|---|--|
| <b>Technical Support Center</b>                         | Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.                     | <a href="http://www.rockwellautomation.com/knowledgebase">www.rockwellautomation.com/knowledgebase</a>   |
| <b>Local Technical Support Phone Numbers</b>            | Locate the phone number for your country.   | <a href="http://www.rockwellautomation.com/global/support/get-support-now.page">www.rockwellautomation.com/global/support/get-support-now.page</a> |
| <b>Direct Dial Codes</b>                                | Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer. | <a href="http://www.rockwellautomation.com/global/support/direct-dial.page">www.rockwellautomation.com/global/support/direct-dial.page</a>         |
| <b>Literature Library</b>                               | Installation Instructions, Manuals, Brochures, and Technical Data.  | <a href="http://www.rockwellautomation.com/literature">www.rockwellautomation.com/literature</a>   |
| <b>Product Compatibility and Download Center (PCDC)</b> | Get help determining how products interact, check features and capabilities, and find associated firmware.            | <a href="http://www.rockwellautomation.com/global/support/pcdc.page">www.rockwellautomation.com/global/support/pcdc.page</a>                       |

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