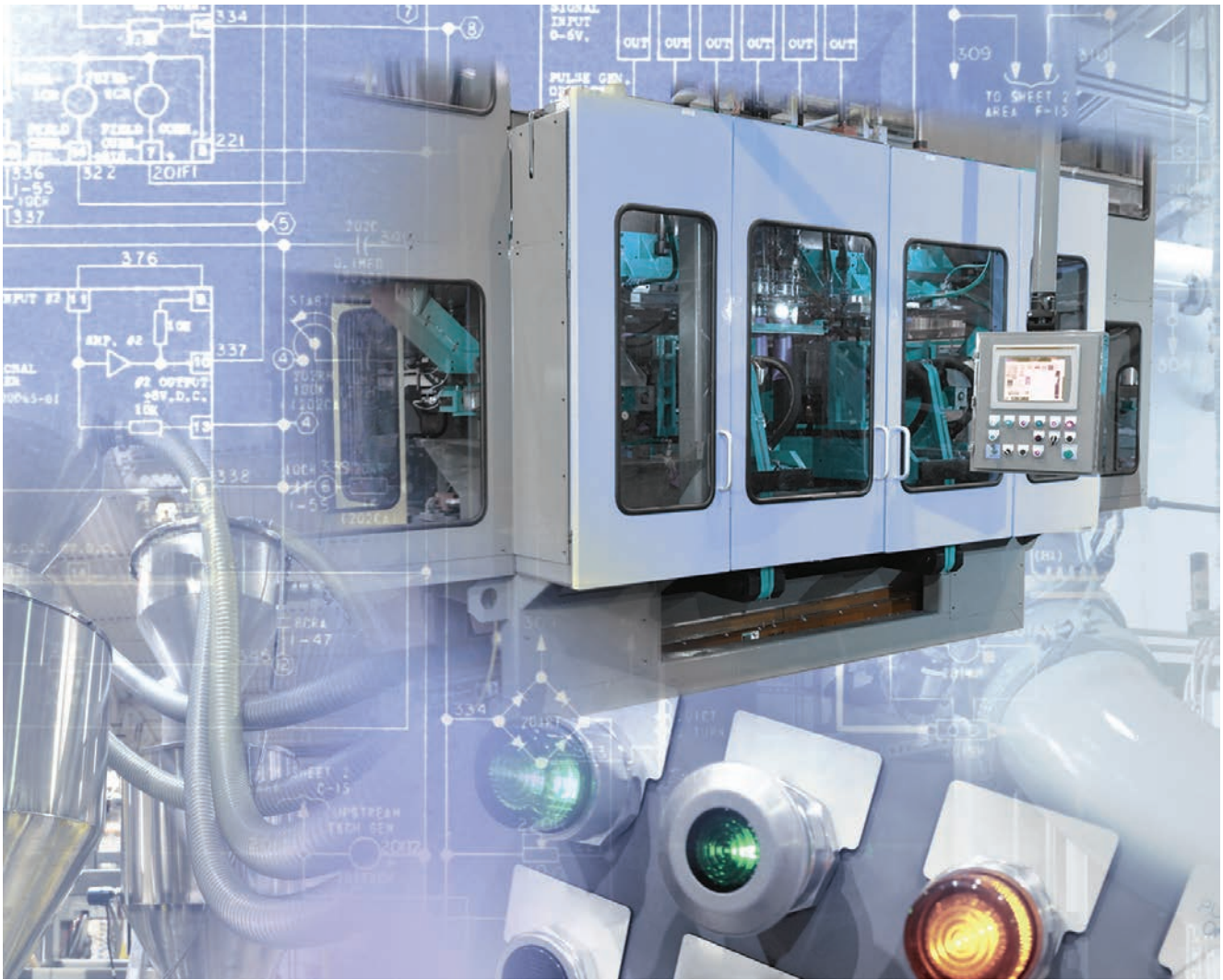


# CompactLogix System

Catalog Numbers:

- Armor Compact GuardLogix 5370
- Armor CompactLogix 5370
- Compact GuardLogix 5370
- CompactLogix 5370
- CompactLogix 5380



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# Logix Controllers Comparison

Characteristic	ControlLogix® 5580 Controllers		ControlLogix 5570 Controllers GuardLogix® 5570 Controllers Armor™ ControlLogix 5570 Controllers Armor GuardLogix 5570 Controllers	
Controller tasks: • Continuous • Periodic • Event	<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	1756-L81E	3MB	1756-L71, 1756-L71EROM	2 MB
	1756-L82E	5 MB	1756-L72, 1756-L72EROM	4 MB
	1756-L83E	10 MB	1756-L73, 1756-L73XT, 1756-L73EROM	8 MB
	1756-L84E	20 MB	1756-L74	16 MB
	1756-L85E	40 MB	1756-L75	32 MB
			1756-L71S, 1756-L71EROMS	2 MB + 1 MB safety
			1756-L72S, 1756-L72EROMS	4 MB + 2 MB safety
		1756-L73S, 1756-L73EROMS	8 MB + 4 MB safety	
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>		1756-L71, 1756-L72, 1756-L73, 1756-L73XT, 1756-L74, 1756-L75, 1756-L71S, 1756-L72S, 1756-L73S	1 port USB Client
			1756-L71EROM, 1756-L71EROMS, 1756-L72EROM, 1756-L72EROMS, 1756-L73EROM, 1756-L73EROMS	1 port USB client, dual-port EtherNet/IP
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>• ControlNet</li> <li>• DeviceNet</li> <li>• Data Highway Plus™</li> <li>• Remote I/O</li> <li>• SynchLink™</li> <li>• USB Client</li> </ul>	
Controller connections	—		500 connections	
Network nodes	Studio 5000 Logix Designer® application, version 30 or later		—	
	1756-L81E	100		
	1756-L82E	175		
	1756-L83E, 1756-L84E	250		
	1756-L85E	300		
Controller redundancy	Future		1756-L71, 1756-L72, 1756-L73, 1756-L73XT, 1756-L74, and 1756-L75 controllers only	Full support
Integrated motion	EtherNet/IP		EtherNet/IP	
Conformal coating	Standard <sup>(1)</sup>		Standard <sup>(1)</sup>	

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

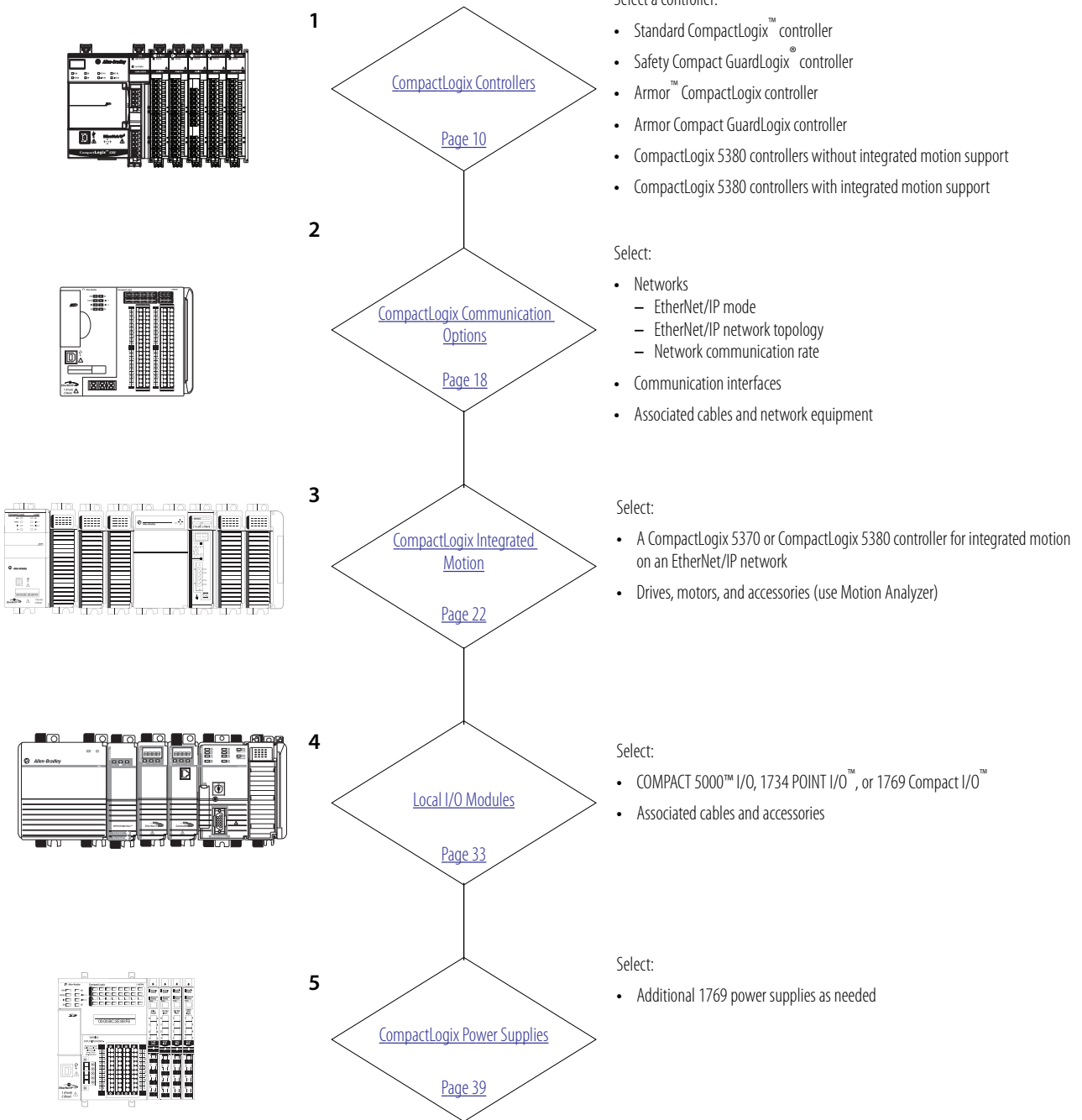
Characteristic	CompactLogix™ 5380 Controllers		CompactLogix 5370 L3 Controllers Compact GuardLogix 5370 L3 Controllers Armor CompactLogix 5370 L3 Controllers Armor Compact GuardLogix 5370 Controllers	
Controller tasks:	<ul style="list-style-type: none"> <li>• 32</li> <li>• 1000 programs/task</li> </ul>		<ul style="list-style-type: none"> <li>• 32</li> <li>• 1000 programs/task</li> </ul>	
Event tasks	Consumed tag, EVENT instruction triggers, Module Input Data changes, and motion events		Consumed tag, EVENT instruction triggers and motion events	
User memory	5069-L306ER, 5069-L306ERM	0.6 MB	1769-L30ER, 1769-L30ER-NSE, 1769-L30ERM	1 MB
	5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM	1 MB	1769-L33ER, 1769-L33ERM, 1769-L33ERMO	2 MB
	5069-L320ER, 5069-L320ERM	2 MB	1769-L36ERM, 1769-L36ERMO, 1769-L37ERMO	3 MB
	5069-L330ER, 5069-L330ERM	3 MB	1769-L30ERMS	1 MB + 0.5 MB safety
	5069-L340ER, 5069-L340ERM	4 MB	1769-L33ERMS, 1769-L33ERMOS	2 MB + 1 MB safety
	5069-L350ERM	5 MB	1769-L36ERMS, 1769-L36ERMOS, 1769-L37ERMOS	3 MB + 1.5 MB safety
	5069-L380ERM	8 MB		
	5069-L3100ERM	10 MB		
Built-in 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>		<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>• 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>	
Controller connections	—		256 connections	
Network nodes	Studio 5000 Logix Designer application, version 30 or later			
	5069-L306ER, 5069-L306ERM	16	1769-L30ER, 1769-L30ER-NSE, 1769-L30ERM, 1769-L30ERMS	8
	5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM	24	1769-L33ER, 1769-L33ERM, 1769-L33ERMS, 1769-L33ERMO, 1769-L33ERMOS	16
	5069-L320ER, 5069-L320ERM	40	1769-L36ERM, 1769-L36ERMS, 1769-L36ERMO, 1769-L36ERMOS	48
	5069-L330ER, 5069-L330ERM	50	1769-L37ERMO, 1769-L37ERMOS	64
	5069-L340ER, 5069-L340ERM	55		
	5069-L350ERM	60		
	5069-L380ERM	70		
	5069-L3100ERM	80		
Controller redundancy	None		Backup via DeviceNet - CompactLogix 5370 L3 Controllers and Compact GuardLogix 5370 L3 controllers only	
Integrated motion	EtherNet/IP		EtherNet/IP	
Conformal coating	Custom <sup>(1)</sup>		Custom <sup>(1)</sup>	

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

Characteristic	CompactLogix 5370 L2 Controllers		CompactLogix 5370 L1 Controllers	
Controller tasks: • Continuous • Periodic • Event	<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 and motion events		Consumed tag, EVENT instruction triggers and motion events	
User memory	1769-L24ER-QB18, 1769-L24ER-QBFC1B	750 KB	1769-L16ER	384 KB
	1769-L27ERM	1 MB	1769-L18ER, 1769-L18ERM	512 KB
			1769-L19ER-BB1B	1 MB
Built-in ports	<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                             <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	256 connections		256 connections	
Network nodes	1769-L24ER-QB18, 1769-L24ER-QBFC1B	8	1769-L16ER	4
	1769-L27ERM	16	1769-L18ER, 1769-L18ERM, 1769-L19ER-BB1B	8
Controller redundancy	Backup via DeviceNet		None	
Integrated motion	EtherNet/IP		EtherNet/IP	
Conformal coating	Custom <sup>(1)</sup>		Custom <sup>(1)</sup>	

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

# Select a CompactLogix System



# CompactLogix Controllers Overview

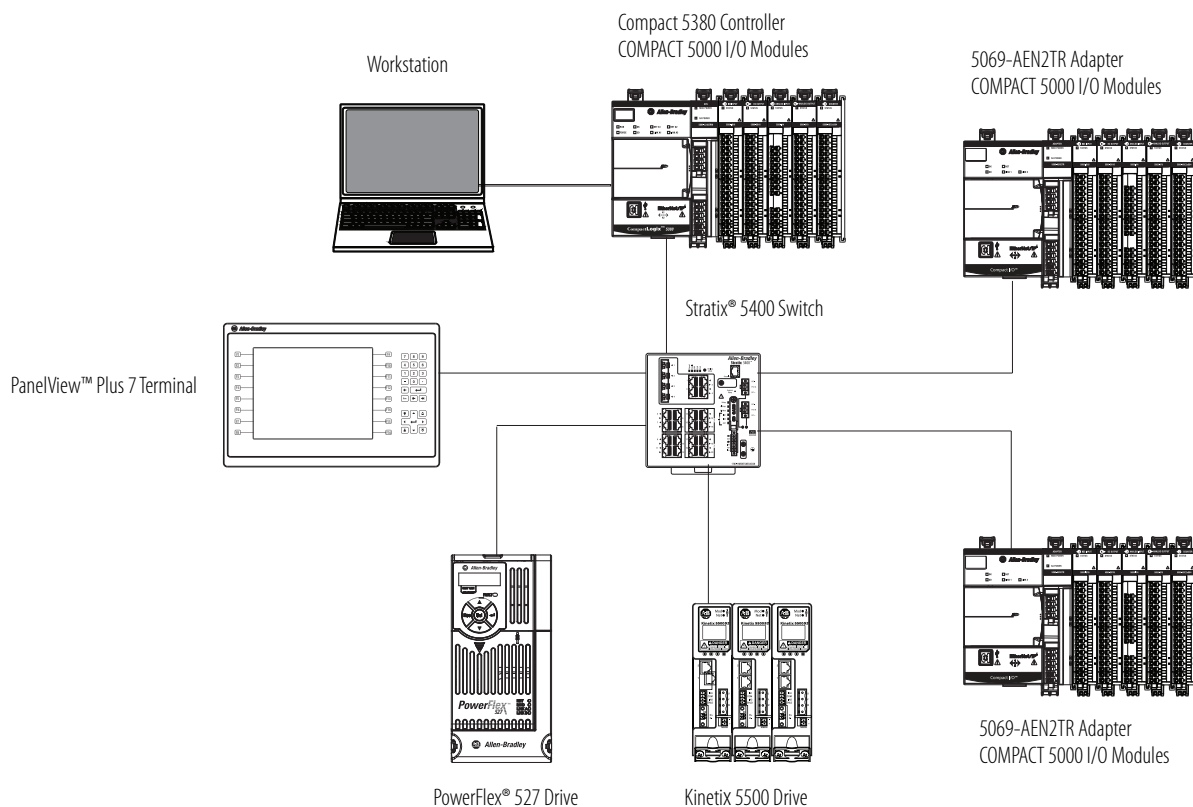
The CompactLogix system is designed to provide a Logix solution for small and mid-size applications. Typically, these applications are machine-level control applications. A simple system can consist of a standalone controller with one bank of I/O modules and DeviceNet communication. In a more complex 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 LOGIX 5000™ controllers. This system provides a common development environment for all control disciplines.

## 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

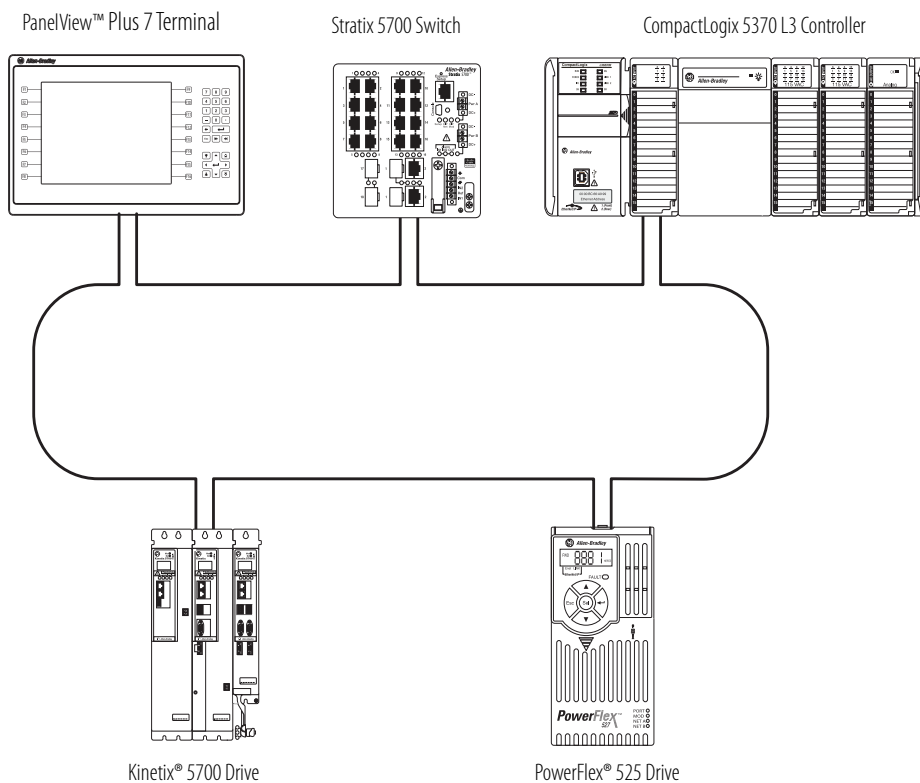


## CompactLogix 5370 Controllers Overview

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 1769 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 1734 POINT I/O modules. Ideal for small to mid-size machines, these controllers offer value to customers who need the benefits of an Integrated Architecture® system in a lower-cost system.

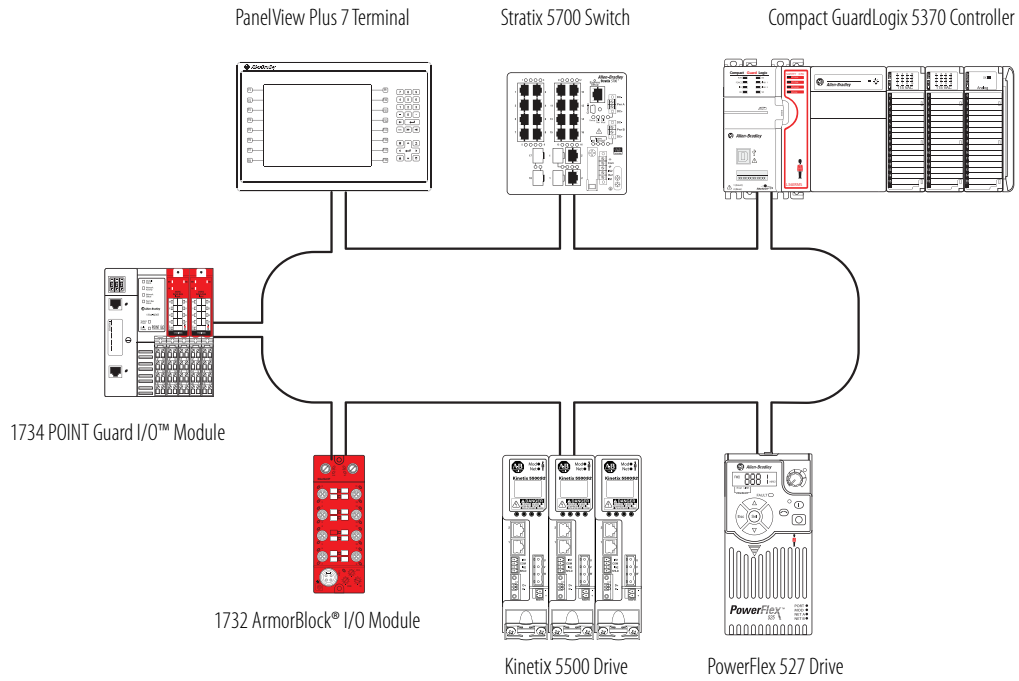
### CompactLogix 5370 System on an EtherNet/IP Network



The CompactLogix 5370 L2 and L3 controllers support DeviceNet connectivity.

# Compact GuardLogix 5370 Controllers Overview

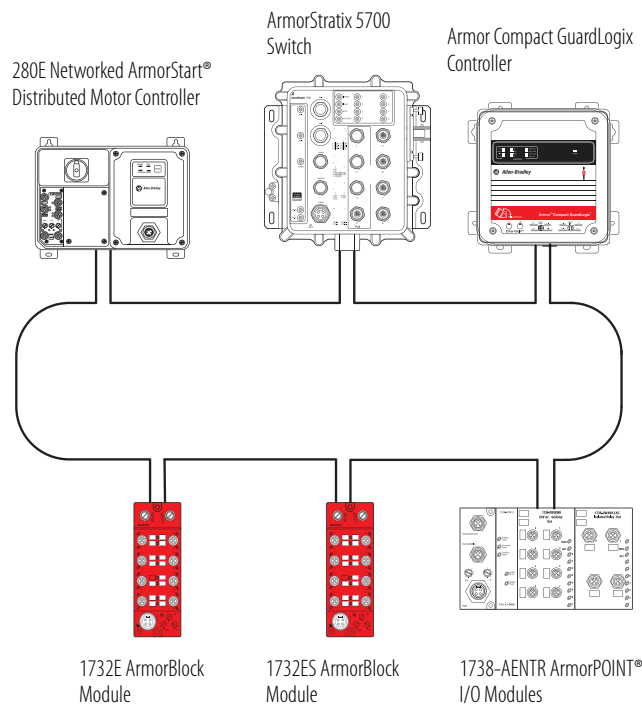
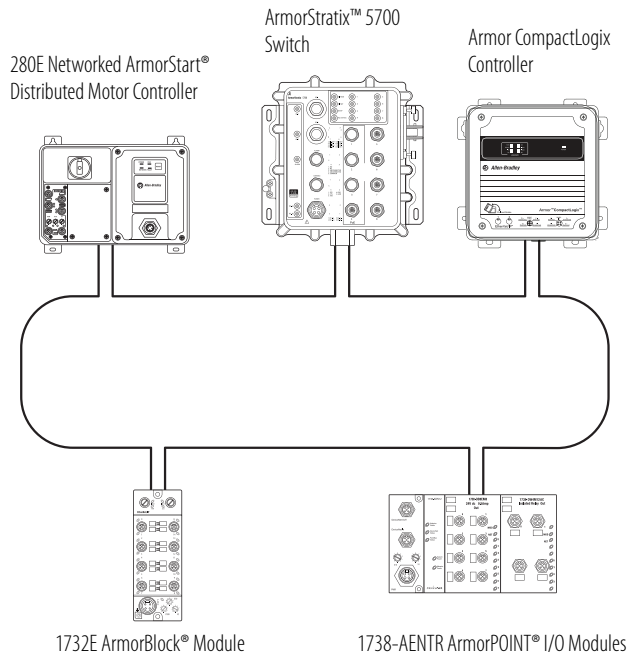
The Compact GuardLogix 5370 controller provides safety control at SIL CL3 according to EN62061 / EN 61511-1 / IEC 61508 and PLe according to EN ISO 13849-1.





## Armor CompactLogix and Armor Compact GuardLogix Controllers Overview

On-Machine™ standard and safety controllers support the same temperature range of CompactLogix controllers. These controllers also offer 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 a common programming environment, common networks, and common control engine in a small footprint with high performance. Combined with 1769 Compact I/O or COMPACT 5000 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 5380 Controllers Specifications Technical Data, publication [5069-TD002](#)
- CompactLogix Controllers Specifications Technical Data, publication [1769-TD005](#)

Characteristic	CompactLogix 5380 Controllers	CompactLogix 5370 L1 Controllers	CompactLogix 5370 L2 Controllers	CompactLogix 5370 L3 Controllers	Armor CompactLogix Controllers	Armor Compact GuardLogix Controllers
Controller application	High-performance applications Local COMPACT 5000 I/O modules	Small applications Embedded 1734 I/O modules	Small applications Embedded 1769 Compact I/O modules	General-purpose	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 triggers, Module Input Data changes, and motion events	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, axis, and motion event triggers	Consumed tag, EVENT instruction, axis, and motion event triggers
User memory	<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-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>• 1769-L33ERMOS: 2 MB</li> <li>• 1769-L36ERMOS, 1769-L37ERMOS: 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>(2)</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>(2)</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>(2)</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>• 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 (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 5380 controllers support Dual-IP mode and DLR/Linear mode. Mode use is user-configurable.

(2) 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.

## CompactLogix 5380 Controllers

In a CompactLogix 5380 controller system, COMPACT 5000 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  $\mu$ J or less in 2 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, 5069-L306ERM	5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM	5069-L320ER, 5069-L320ERM	5069-L330ER, 5069-L330ERM	5069-L340ER, 5069-L340ERM	5069-L350ERM	5069-L380ERM	5069-L3100ERM
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- 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 (5069-L306ERM only)	As many as two 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.

## 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 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 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 Compact 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 No capacitor	2 MB	2 MB	3 MB
Memory card	1784-SD1 (1 GB), shipped with controller 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 1 bank of modules			16 1769 modules 2 banks of modules		30 1769 modules 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 1769-L30ERM 1769-L30ER-NSE	1769-L31 1769-L32C <sup>(2)</sup> 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 1769-L33ERM	1769-L35CR <sup>(2)</sup> 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 controller 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.

## Compact GuardLogix 5370 Controllers

In a Compact GuardLogix 5370 controller system, the 1769 Compact 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	Eight 1769 modules 1 bank of modules	Sixteen 1769 modules 2 banks of modules	Thirty 1769 modules 3 banks of modules
Battery	None		
Power supply distance rating	Four 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 8 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 5380 Controllers Specifications Technical Data, publication [5069-TD002](#)
- COMPACT 5000 I/O Modules and EtherNet/IP Adapters Specifications Technical Data, publication [5069-TD001](#)
- CompactLogix Controllers Specifications Technical Data, publication [1769-TD005](#).
- CompactLogix Communication Modules Specifications Technical Data, publication [1769-TD007](#).

## 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
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	
1769-L16ER-BB1B,			CompactLogix 5370 L1 controller with embedded dual EtherNet/IP ports, POINT I/O form factor	
1769-L18ER-BB1B, 1769-L18ERM-BB1B	8 nodes 256 EtherNet/IP connections			
1769-L19ER-BB1B				
1769-L24ER-BB1B, 1769-L24ER-QBFC1B	CompactLogix 5370 L2 controller with embedded dual EtherNet/IP ports, 1769 Compact I/O form factor	10/100 Mbps	8 nodes 256 EtherNet/IP connections	120
1769-L27ERM-QBFC1B		10/100 Mbps	16 nodes 256 EtherNet/IP connections	

## CompactLogix Controller EtherNet/IP Communication Options

Cat. No.	Description	Communication Rate	Logix Resources <sup>(2)</sup>	TCP/IP Connections
1769-L30ER, 1769-L30ERM, 1769-L30ERMOS	CompactLogix 5370 L3 controller with embedded dual EtherNet/IP ports	10/100 Mbps	16 nodes 256 EtherNet/IP connections	120
1769-L33ER, 1769-L33ERM, 1769-L33ERMO, 1769-L33ERMOS, 1769-L33ERMOS			32 nodes 256 EtherNet/IP connections	
1769-L36ERM, 1769-L33ERMO, 1769-L36ERMOS, 1769-L36ERMOS			48 nodes 256 EtherNet/IP connections	
1769-L37ERMO, 1769-L37ERMOS			64 nodes 256 EtherNet/IP connections	

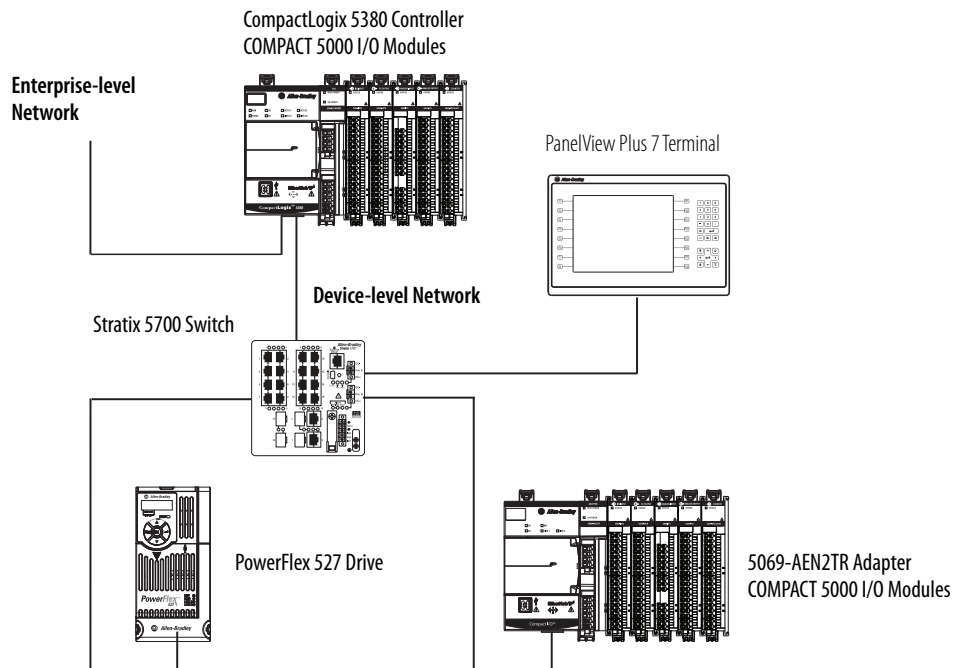
- (1) Network performance in a CompactLogix 5380 system is optimal if the 1 Gbps network communication rate is used. However, many Ethernet devices do not support the 1 Gbps network communication rate. You must consider how the different maximum network communication rates impact your CompactLogix 5380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

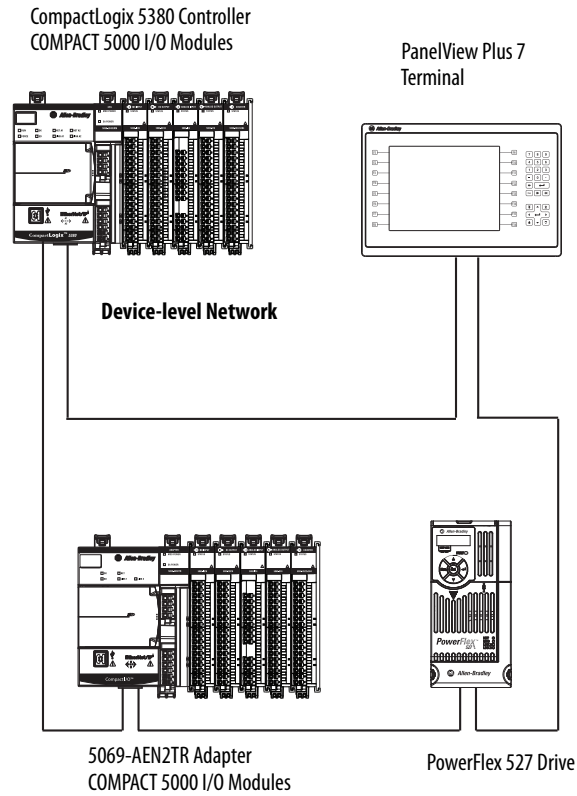
### Dual-IP Mode

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	1769 Compact I/O DeviceNet scanner	125 Kbps (500 m, max)	64
1769-ADN	1769 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 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: <ul style="list-style-type: none"> <li>• AMCI 1734-3401</li> <li>• AMCI 1734-3401L</li> </ul>	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>GuardLogix Safety Application Instruction Set Reference Manual, publication <a href="#">1756-RM095</a>.</li> </ul> <p>For more information on safety application requirements for 1768 Compact GuardLogix controllers, see:</p> <ul style="list-style-type: none"> <li>Compact GuardLogix Controllers User Manual, publication <a href="#">1768-UM002</a>.</li> <li>GuardLogix Controller Systems Safety Reference Manual, publication <a href="#">1756-RM093</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 0.5 MB safety	2 MB standard 1 MB safety	3 MB standard 1.5 MB safety	2 MB standard 0.5 MB safety	3 MB standard 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, 1769-L37ERMO	1769-L36ERMOS, 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>			



# Local I/O Modules

These CompactLogix controllers support local I/O modules. The local I/O modules that are supported is different based on controller type.

Cat. No.	Local I/O Options
5069-L306ER, 5069-L306ERM, 5069-L310ER, 5069-L310ER-NSE, 5069-L310ERM, 5069-L320ER, 5069-L320ERM, 5069-L330ER, 5069-L330ERM, 5069-L340ER, 5069-L340ERM, 5069-L350ERM, 5069-L380ERM, 5069-L3100ERM	COMPACT 5000 I/O modules
1769-L16ER-BB1B, 1769-L18ER-BB1B, 1769-L18ERM-BB1B, 1769-L19ERM-BB1B	Embedded I/O modules 1734 POINT I/O modules
1769-L24ER-BB1B, 1769-L24ER-QBFC1B, 1769-L27ERM-QBFC1B	Embedded I/O modules 1769 Compact I/O modules
1769-L30ER, 1769-L30ERM, 1769-L30ER-NSE, 1769-L33ER, 1769-L33ERM, 1769-L36ERM	1769 Compact I/O modules
1769-L30ERMS, 1769-L33ERMS, 1769-L36ERMS	1769 Compact I/O modules

## COMPACT 5000 I/O Modules

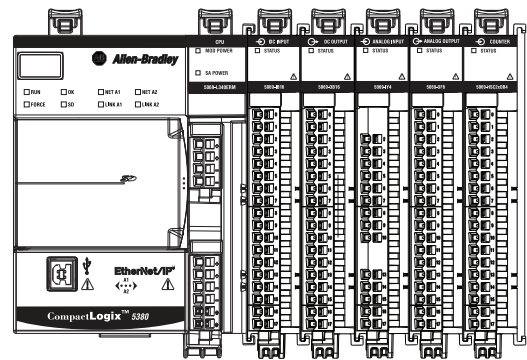
You can install COMPACT 5000 I/O modules as local I/O modules in a CompactLogix 5380 control system.

You cannot use COMPACT 5000 I/O modules with the other CompactLogix controllers.

The COMPACT 5000 I/O architecture provides a wide range of input and output modules to span many applications, from high-speed digital to process control. The architecture uses Producer/Consumer technology that allows input information and output status to be shared among multiple LOGIX 5000 controllers.

The COMPACT 5000 I/O modules are installed to the right of a CompactLogix 5380 controller and require a separately sold removable terminal block (RTB) to connect field-side wiring.

The modules draw system-side power, which is known as Module (MOD) power, and field-side power, which is known as Sensor Actuator (SA) power from the system backplane as needed. The modules then pass the remaining power to the next module in the system.



## COMPACT 5000 DC Digital I/O Modules

Cat. No.	Inputs/Outputs	Voltage Category	MOD Current, Max	SA Power Current, Max
5069-IB16	16 inputs, sink	24V DC	75 mA	200 mA
5069-IB16F				
5069-IB6F-3W	6 inputs, sink			150 mA per channel 900 mA module
5069-OB16	16 outputs, source			Local Actuator (LA) Power Current <sup>(1)</sup> 0.5 A per channel 8 A module
5069-OB16F				
5069-OB8	8 outputs (2 groups of 4)			LA Power Current <sup>(1)</sup> 2 A per channel 8 A per group 16 A per module

(1) The module does not draw current from the SA power bus that is internal to the system. Local Actuator (LA+ and LA-) connections are used to supply field-side power to the module.

## COMPACT 5000 AC Digital I/O Modules

Cat. No.	Inputs/Outputs	Voltage Category	MOD Current, Max	SA Power Current, Max
5069-IA16	16 inputs	120/240V AC	75 mA	240 mA
5069-OA16	16 outputs	120/240V AC	100 mA	SA Power - Series A modules only 4 A  LA Power - Series B or later 4 A

## COMPACT 5000 Relay Output Modules

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

## COMPACT 5000 Analog I/O, Resistance, and Temperature Modules

Cat. No.	Inputs/Outputs	Range	Resolution	Module Power Current, Max	Sensor Actuator Power Current, Max
5069-IF8	8 differential	Voltage ±10V 0...10V 0...5V	±10.5V: <320 µV/count (15 bits plus sign bipolar) 0...10.5V: <160 µV/count (16 bits unipolar) 0...5.25V: <80 µV/count (16 bits unipolar)	75 mA	100 mA
		Current 0...20 mA 4...20 mA	0...21 mA: <0.32 µA/count (16 bits) 3.6...21 mA: <0.27 µA/count (16 bits)		
5069-IY4	4 differential	Voltage ±10V 0...10V 0...5V	±10.5V: <320 µV/count (15 bits plus sign bipolar) 0...10.5V: <160 µV/count (16 bits unipolar) 0...5.25V: <80 µV/count (16 bits unipolar)	75 mA	100 mA
		Current 0...20 mA 4...20 mA	0...21 mA: <0.32 µA/count (16 bits) 3.6...21 mA: <0.27 µA/count (16 bits)		
		RTD <sup>(1)</sup> (Input types PT 385, PT 3916, CU 427, NI 618, NI 672 available) 1...500 Ω 2...1000 Ω 4...2000 Ω 8...4000 Ω	< 7.9 mΩ/cnt in 1...500 Ω mode < 15.8 mΩ/cnt in 2...1000 Ω mode < 31.7 mΩ/cnt in 4...2000 Ω mode < 63.4 mΩ/cnt in 8...4000 Ω mode		
		Thermocouple (Input types B, C, D, E, J, K, N, R, S, T, TXK/XX (L) available) ±100 mV	< 3.1 µV/cnt in ±100 mV mode		
5069-OF4	4 current or voltage	Voltage ± 10V 0...10V 0...5V	16 bits across ± 10.5V - 320 µV/bit 16 bits across 10.5V - 160 µV/bit 16 bits across 5.25V - 80 µV/bit	75 mA	150 mA
		Current 0...20 mA 4...20 mA	16 bits across 21 mA - 320 nA/bit		
5069-OF8	8 current or voltage	Voltage ± 10V 0...10V 0...5V	16 bits across ± 10.5V - 320 µV/bit 16 bits across 10.5V - 160 µV/bit 16 bits across 5.25V - 80 µV/bit	75 mA	250 mA
		Current 0...20 mA 4...20 mA	16 bits across 21 mA - 320 nA/bit		

(1) Operating in 3-wire mode.

## COMPACT 5000 High-speed Counter Module

Cat. No.	Inputs/Outputs	Range	Frequency	Module Power Current, Max	Sensor Actuator Power Current, Max
5069-HSC2x0B4	2 quadrature (ABZ) differential inputs 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.

## COMPACT 5000 I/O EtherNet/IP Adapters

Cat. No.	Description	Module Power Current, Max	Sensor Actuator Power Current, Max
5069-AENTR	The adapter connects remote COMPACT 5000 I/O modules, to star, linear, and DLR EtherNet/IP network topologies.	220 mA	5 mA (DC power) 2 mA (AC power)
5069-AEN2TR		450 mA	10 mA (DC power) 25 mA (AC power)

## COMPACT 5000 I/O Specialty Modules

Cat. No.	Description	Module Power Current, Max	Sensor Actuator Power Current, Max
5069-ARM	COMPACT 5000 I/O address reserve module	45 mA	–
5069-FPD	COMPACT 5000 I/O field potential distributor	–	10 mA (DC power) 25 mA (AC power)

For more information on how to use local COMPACT 5000 I/O modules, see the following:

- COMPACT 5000 Digital and Safety I/O Modules in LOGIX 5000 Control Systems User Manual, publication [5000-UM004](#)
- COMPACT 5000 Analog I/O Modules in LOGIX 5000 Control Systems User Manual, publication [5000-UM005](#)
- COMPACT 5000 High-speed Counter Modules in LOGIX 5000 Control Systems User Manual, publication [5000-UM006](#)

## COMPACT 5000 I/O End Caps

The right-most COMPACT 5000 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 and COMPACT 5000 I/O EtherNet/IP adapters. 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.

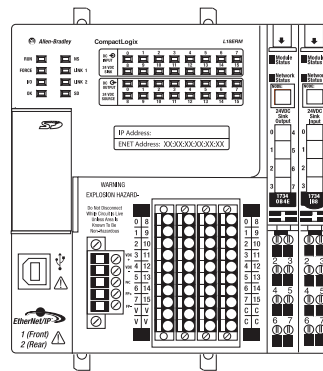
The kits contain 1 RTB. Make sure that you order enough to meet your application needs.

Cat. Nos.	Device Supported	Description
5069-RTB14CJC-SCREW	COMPACT 5000 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	CompactLogix 5380 controllers 5069-AEN2TR EtherNet/IP adapter	4 and 6-pin screw type terminal block
5069-RTB64-SPRING		4 and 6-pin spring type terminal block
5069-RTB5-SCREW	5069-AENTR EtherNet/IP adapter	5-pin screw type terminal block
5069-RTB5-SPRING		5-pin spring type terminal block

## 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.

An RTB 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-IM4	4 inputs, nonisolated, sink			
1734-OA2	2 outputs, nonisolated, source	120/220V AC		
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, 1734-TOP, 1734-TOPS	75 mA	
1734-IB4	4 inputs, sink				
1734-IB4D	4 inputs, sink, diagnostic	24V DC		50 mA	
1734-IB8	8 inputs, sink	24V DC		75 mA	
1734-IB8S	8 inputs, sink, safety	24V DC	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS, 1734-TOP3, 1734-TOP3S	175 mA	
1734-IV2	2 inputs, source	24V DC	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS	75 mA	
1734-IV4	4 inputs, source				
1734-IV8	8 inputs, source				
1734-OB2	2 outputs, nonisolated, source	12/24V DC			75 mA
1734-OB2E	2 outputs, nonisolated protected, source				
1734-OB2EP	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-TBS, 1734-TOP, 1734-TOPS, 1734-TOP3, 1734-TOP3S	190 mA	
1734-OV2E	2 outputs, nonisolated protected, sink	12/24V DC	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS	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 48V DC @ 0.5 A 125V DC @ 0.25 A 125V DC @ 2.0 A 240V AC @ 2.0 A	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS	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 0...20 mA	16 bits over 0...21 mA 0.32 $\mu$ A/cnt	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS	75 mA
1734-IE2V	2 single-ended, nonisolated, voltage	0...10V (-0.0V under, +0.5V over) $\pm$ 10V (-0.5V under, +0.5V over)	15 bits plus sign 320 $\mu$ V/cnt in unipolar or bipolar mode		
1734-IE4C	4 single-ended, nonisolated, current	4...20 mA 0...20 mA	16 bits - over 0...21 mA 0.32 $\mu$ A/cnt		
1734-IE4S	4 inputs, single-ended, Safety rated	0...20 mA, 4...20 mA $\pm$ 5V, 0...5V, $\pm$ 10V, 0...10V	12 bits	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS, 1734-TOP3, 1734-TOP3S	110 mA
1734-IE8C	8 single-ended, nonisolated, current	4...20 mA 0...20 mA	16 bits - over 0...21 mA 0.32 $\mu$ A/cnt	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS	75 mA
1734-IR2	2 single-ended, nonisolated	0...600 $\Omega$	16 bits 9.5 m $\Omega$ /cnt 0.03 $^{\circ}$ C/cnt (Pt385 @ 25 $^{\circ}$ C) [0.05 $^{\circ}$ F/cnt (Pt385 @ 77 $^{\circ}$ F)]		220 mA
1734-IR2E	2 single-ended, nonisolated, protected	0...220 $\Omega$	16 bits 2.4 m $\Omega$ /cnt 0.006 $^{\circ}$ C/cnt (Pt385 @ 25 $^{\circ}$ C) [0.0114 $^{\circ}$ F/cnt (Pt385 @ 77 $^{\circ}$ F)]		
1734-IT2I	2 differential, individually isolated	Sensors B, C, E, J, K, N, R, S, T	15 bits plus sign 2.5 $\mu$ V/cnt	1734-TBCJC	175 mA
1734-OE2C	2 single-ended, nonisolated, current	4...20 mA 0...20 mA	13 bits over 0...21mA 2.5 $\mu$ A/cnt (average) 3...2.7 $\mu$ A/cnt (typical range)	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS	75 mA
1734-OE2V	2 single-ended, nonisolated, voltage	0...10V (-0.0V under, +0.5V over) $\pm$ 10V (-0.5V under, +0.5V over)	14 bits (13 plus sign) 1.28 mV/cnt in unipolar or bipolar mode		
1734-OE4C	4 single-ended, nonisolated, current	4...20 mA 0...20 mA	16 bits over 0...21 mA 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 500 kHz encoder X2 (no filter) 250 kHz encoder X4 (no filter)	1734-TB, 1734-TBS, 1734-TB3, 1734-TB3S, 1734-TOP, 1734-TOPS	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

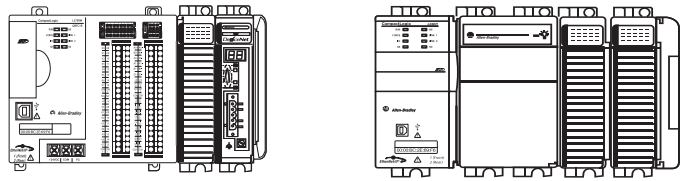
Cat. No.	Description	Wiring Base	POINTBus Current
1734-AENT	The single port adapter connects POINT I/O modules to the Ethernet network.	—	
1734-AENTR	The adapter connects POINT I/O modules to a linear or DLR network and uses two copper network ports to connect to the network.	—	
1734-232ASC 1734-485ASC	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, 1734-TOP, 1734-TOPS	75 mA
1734-ARM	The 1734-ARM address reserve module reserves the 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.		75 mA
1734-CTM 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.		75 mA
1734-SSI	The 1734-SSI module collects serial data from absolute-position, encoding sensors that use standard serial synchronous interface (SSI) protocol.		110 mA



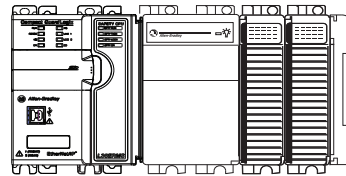
## 1769 Compact I/O Modules

The 1769 Compact I/O modules can be used as local I/O modules with these controllers:

- CompactLogix 5370 L2 controllers
- CompactLogix 5370 L3 controllers
- Compact GuardLogix 5370 controllers
- 1768 CompactLogix controllers



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, 47...63 Hz	90 mA @ 5.1V <sup>(1)</sup>	8
1769-IA16	16 inputs	100/120V AC	79...132V AC, 47...63 Hz	115 mA @ 5.1V	8
1769-IM12	12 inputs	200/240V AC	159...265V AC, 47...63 Hz	100 mA @ 5.1V	8
1769-OA8	8 outputs	100/240V AC	85...265V AC 47...63 Hz	145 mA @ 5.1V	8
1769-OA16	16 outputs	100/240V AC	85...265V AC 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 DCTTL	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) 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) 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) 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 4 outputs	24V DC sink/source input AC/DC normally open relay contact outputs	10...30V DC @ 30 °C (86 °F) 10...26.4V DC @ 60 °C (140 °F)	105 mA @ 5.1V 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 DCTTL	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 5...125V DC	125 mA @ 5.1V 100 mA @ 24V	8
1769-OW8I	8 outputs, individually isolated	5...265V AC 5...125V DC	125 mA @ 5.1V 100 mA @ 24V	8
1769-OW16	16 outputs	5...265V AC 5...125V DC	205 mA @ 5.1V 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 0...10V 0...5V 1...5V 0...20 mA 4...20 mA	14 bits (unipolar) 14 bits plus sign (bipolar)	120 mA @ 5.1V 60 mA @ 24V	8
1769-IF4I	4 inputs, differential or single-ended, individually isolated	±10V 0...10V 0...5V 1...5V 0...20 mA 4...20 mA	16 bits (unipolar) 15 bits plus sign (bipolar)	145 mA @ 5.1V 125 mA @ 24V	8
1769-IF8	8 inputs, differential or single-ended	±10V 0...10V 0...5V 1...5V 0...20 mA 4...20 mA	16 bits (unipolar) 15 bits plus sign (bipolar)	120 mA @ 5.1V 70 mA @ 24V	8
1769-IF16C	16 inputs, single-ended	0...20 mA 4...20 mA	16 bits (unipolar) 15 bits plus sign (bipolar)	190 mA @ 5.1V 70 mA @ 24V	8
1769-IF16V	16 inputs, single-ended	±10V 0...10V 0...5V 1...5V	16 bits (unipolar) 15 bits plus sign (bipolar)	190 mA @ 5.1V 70 mA @ 24V	8
1769-IF4XOF2	4 inputs, differential or single-ended 2 outputs, single-ended	0...10V 0...20 mA	Input: 8 bits plus sign Output: 8 bits plus sign	120 mA @ 5.1V 160 mA @ 24V	8
1769-IF4FXOF2F	4 inputs, fast differential or single-ended 2 outputs, fast single-ended	±10V 0...10V 0...5V 1...5V 0...20 mA 4...20 mA	Input: 14 bits (unipolar) 14 bits plus sign (bipolar) Output: 13 bits (unipolar) 13 bits plus sign (bipolar)	220 mA @ 5.1V 120 mA @ 24V	8
1769-OF2	2 outputs, single-ended	±10V 0...10V 0...5V 1...5V 0...20 mA 4...20 mA	14 bits (unipolar) 14 bits plus sign (bipolar)	120 mA @ 5.1V 120 mA @ 24V	8
1769-OF4	4 outputs, single-ended	±10V 0...10V 0...5V 1...5V 0...20 mA 4...20 mA	15 bits plus sign unipolar and bipolar	120 mA @ 5.1V 170 mA @ 24V	8
1769-OF4CI	4 outputs, differential, individually isolated	0...20 mA 4...20 mA	16 bits (unipolar)	165 mA @ 5V 110 mA @ 24V	8

Cat. No.	Inputs/Outputs	Range	Resolution	Backplane Current	Power Supply Distance Rating
1769-OF4VI	4 outputs, differential, individually isolated	±10V 0...10V 0...5V 1...5V	15 bits plus sign (bipolar)	145 mA @ 5.1V 75 mA @ 24V	8
1769-OF8C	8 outputs, single-ended	0...20 mA 4...20 mA	16 bits (unipolar)	140 mA @ 5.1V 145 mA @ 24V	8
1769-OF8V	8 outputs, single-ended	±10V 0...10V 0...5V 1...5V	16 bits plus sign (bipolar)	145 mA @ 5.1V 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 385 100, 200, 500, 1000 Ω Platinum 3916 120 Ω Nickel 618 120 Ω Nickel 672 10 Ω Nickel-iron 518 0...150 Ω 0...500 Ω 0...1000 Ω 0...3000 Ω	100 mA @ 5.1V 45 mA @ 24V	8
1769-IT6	6 thermocouple inputs	Thermocouple types B, C, E, J, K, N, R, S, T ±50V ±100V	100 mA @ 5.1V 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

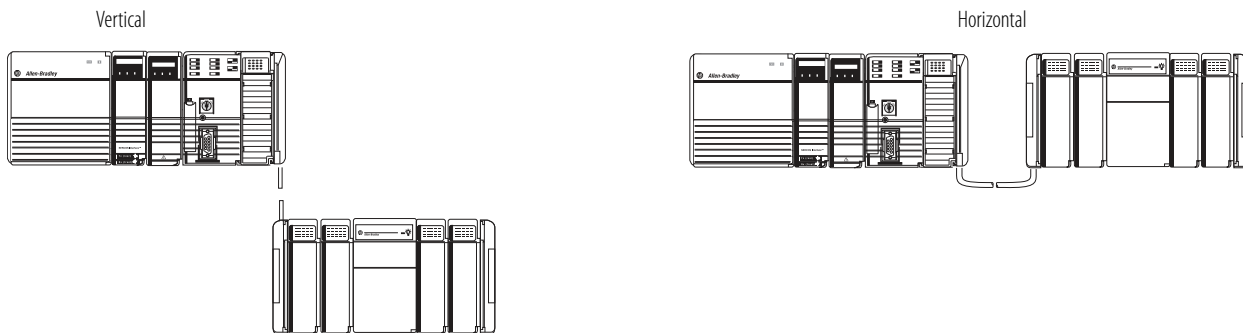
Cat. No.	Description	Backplane Current	Power Supply Distance Rating
1769-AENTR	The adapter connects 1769 Compact I/O modules to a linear or DLR network and uses two copper network ports to connect to the network.	500 mA @ 5V	5
1769-ARM	Use a 1769-ARM address reserve module to reserve module slots. After 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.

# 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) 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](#).



# 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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