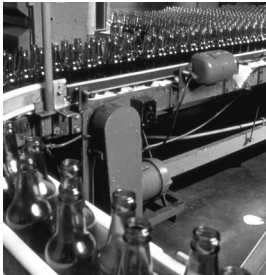


CompactLogix Selection Guide



[1769 Compact I/O Modules](#)

[1768 CompactLogix Integrated Motion](#)

[1769 CompactLogix Communication Modules](#)

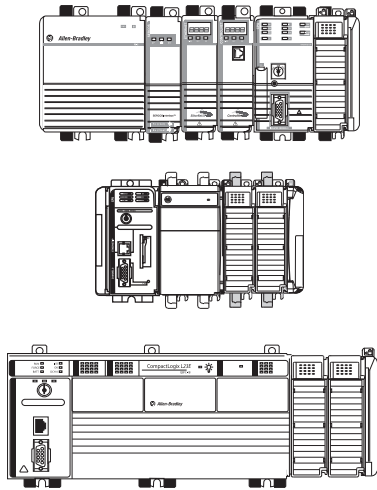
[1768 and 1769 CompactLogix Controllers](#)

[1768 and 1769 CompactLogix Power Supplies](#)

Logix Controllers Comparison

Characteristic	1756 ControlLogix	1756 GuardLogix	1768 CompactLogix	1768 Compact GuardLogix	1769-L3x CompactLogix	1769-L23x CompactLogix	1789 SoftLogix5800
Controller tasks: • Continuous • Periodic • Event	<ul style="list-style-type: none"> • 32 tasks • 100 programs/task • Event tasks: all event triggers 	<ul style="list-style-type: none"> • 32 tasks • 100 programs/task • Event tasks: all event triggers 	<ul style="list-style-type: none"> • 16 tasks • Event tasks: consumed tag, EVENT instruction, axis, and motion event triggers 	<ul style="list-style-type: none"> • 16 tasks • Event tasks: consumed tag, EVENT instruction, axis, and motion event triggers 	<ul style="list-style-type: none"> • 1769-L35x: 8 tasks • 1769-L32x: 6 tasks • 1769-L31: 4 tasks • Event tasks: consumed tag and EVENT instruction triggers 	<ul style="list-style-type: none"> • 3 tasks • 16 programs/task • Event tasks: consumed tag and EVENT instruction triggers 	<ul style="list-style-type: none"> • 32 tasks • 100 programs/task • Event tasks: all event triggers, plus outbound and Windows events
User memory	1756-L61: 2 MB 1756-L62: 4 MB 1756-L63: 8 MB 1756-L64: 16 MB 1756-L65: 32 MB	1756-L61S: 2 MB Standard 1 MB Safety 1756-L62S: 4 MB Standard 1 MB Safety 1756-L63S: 8 MB Standard 3.75 MB Safety	1768-L43: 2 MB 1768-L45: 3 MB	1768-L43S: 2 MB Standard 0.5 MB Safety 1768-L45S: 3 MB Standard 1 MB Safety	1769-L31: 512 KB 1769-L32x: 750 KB 1769-L35x: 1.5 MB	512 KB	1789-L10: 2 MB; 1 controller; no motion 1789-L30: 64 MB; 3 controllers 1789-L60: 64 MB; 6 controllers
Nonvolatile user memory	CompactFlash	CompactFlash	CompactFlash	CompactFlash	CompactFlash	None	None
Built-in communication ports	1 port RS-232 serial	1 port RS-232 serial	1 port RS-232 serial	1 port RS-232 serial	<ul style="list-style-type: none"> • 1769-L31: 2 RS-232 ports • 1769-L32C, 1769-L35CR: 1 ControlNet port and 1 RS-232 serial port • 1769-L32E, 1769-L35E: 1 EtherNet/IP port and 1 RS-232 serial port 	<ul style="list-style-type: none"> • 1769-L23E-QB1B: 1 EtherNet/IP port and 1 RS-232 serial port • 1769-L23E-QBFC1B: 1 EtherNet/IP port and 1 RS-232 serial port • 1769-L23-QBFC1B: 2 RS-232 serial ports 	Depends on personal computer
Communication options	<ul style="list-style-type: none"> • EtherNet/IP • ControlNet • DeviceNet • Data Highway Plus • Remote I/O • SynchLink 	<ul style="list-style-type: none"> • EtherNet/IP (standard and safety) • ControlNet (standard and safety) • DeviceNet (standard and safety) • Data Highway Plus • Remote I/O • SynchLink 	<ul style="list-style-type: none"> • EtherNet/IP • ControlNet • DeviceNet 	<ul style="list-style-type: none"> • EtherNet/IP (standard and safety) • ControlNet (standard and safety) • DeviceNet (standard) 	<ul style="list-style-type: none"> • EtherNet/IP • ControlNet • DeviceNet 	<ul style="list-style-type: none"> • EtherNet/IP • DeviceNet 	<ul style="list-style-type: none"> • EtherNet/IP • ControlNet • DeviceNet
Serial port communication	<ul style="list-style-type: none"> • ASCII • DF1 • full/half-duplex • DF1 radio modem • DH-485 • Modbus via logic 	<ul style="list-style-type: none"> • ASCII • DF1 • full/half-duplex • DF1 radio modem • DH-485 • Modbus via logic 	<ul style="list-style-type: none"> • ASCII • DF1 • full/half-duplex • DF1 radio modem • DH-485 • Modbus via logic 	<ul style="list-style-type: none"> • ASCII • DF1 • full/half-duplex • DF1 radio modem • DH-485 • Modbus via logic 	<ul style="list-style-type: none"> • ASCII • DF1 • full/half-duplex • DF1 radio modem • DH-485 • Modbus via logic 	<ul style="list-style-type: none"> • ASCII • DF1 full/half-duplex • DF1 radio modem • DH-485 • Modbus via logic 	<ul style="list-style-type: none"> • ASCII • DF1 • full/half-duplex • DH-485 • Modbus via logic
Controller connections	250	250	250	250	100	100	250
Network connections	Per network module: <ul style="list-style-type: none"> • 100 ControlNet (CN2/A) • 40 ControlNet (CNB) • 256 EtherNet/IP; 128 TCP (EN2x) • 128 EtherNet/IP; 64 TCP (ENBT) 	Per network module: <ul style="list-style-type: none"> • 100 ControlNet (CN2/A) • 40 ControlNet (CNB) • 256 EtherNet/IP; 128 TCP (EN2x) • 128 EtherNet/IP; 64 TCP (ENBT) 	Per network module: <ul style="list-style-type: none"> • 48 ControlNet • 128 EtherNet/IP; 64 TCP 	Per network module: <ul style="list-style-type: none"> • 48 ControlNet • 128 EtherNet/IP; 64 TCP 	Per controller: <ul style="list-style-type: none"> • 32 ControlNet • 32 EtherNet/IP; 32 TCP 	Per controller: <ul style="list-style-type: none"> • 32 EtherNet/IP; 8 TCP 	Per network module: <ul style="list-style-type: none"> • 48 ControlNet • 128 EtherNet/IP; 64 TCP
Controller redundancy	Full support	None	Backup via DeviceNet	Backup via DeviceNet	Backup via DeviceNet	Backup via DeviceNet	N/A
Simple motion	<ul style="list-style-type: none"> • Stepper • Servo via DeviceNet • Analog or networked AC drive 	<ul style="list-style-type: none"> • Stepper • Servo via DeviceNet • Analog or networked AC drive 	<ul style="list-style-type: none"> • Stepper • Servo via DeviceNet • Analog or networked AC drive 	<ul style="list-style-type: none"> • Stepper • Servo via DeviceNet • Analog or networked AC drive 	<ul style="list-style-type: none"> • Stepper • Servo via DeviceNet • Analog or networked AC drive 	<ul style="list-style-type: none"> • Stepper • Servo via DeviceNet • Analog or networked AC drive 	<ul style="list-style-type: none"> • Stepper • Servo via DeviceNet • Analog or networked AC drive
Integrated motion	SERCOS interface Analog options: <ul style="list-style-type: none"> • Encoder input • LDT input • SSI input 	SERCOS interface Analog options: <ul style="list-style-type: none"> • Encoder input • LDT input • SSI input 	SERCOS interface	SERCOS interface	N/A	N/A	SERCOS interface Analog encoder input
Programming languages	<ul style="list-style-type: none"> • Relay ladder • Structured text • Function block • Sequential function chart 	<ul style="list-style-type: none"> • Standard task: all languages • Safety task: relay ladder, safety application instructions 	<ul style="list-style-type: none"> • Relay ladder • Structured text • Function block • Sequential function chart 	<ul style="list-style-type: none"> • Standard task: all languages • Safety task: relay ladder, safety application instructions 	<ul style="list-style-type: none"> • Relay ladder • Structured text • Function block • Sequential function chart 	<ul style="list-style-type: none"> • Relay ladder • Structured text • Function block • Sequential function chart 	<ul style="list-style-type: none"> • Relay ladder • Structured text • Function block • Sequential function chart • External routines (developed in C/C++)

CompactLogix System



Step 1
[CompactLogix Controllers](#)
 Page 9

Select:

- A controller with sufficient memory
- A CompactFlash card for 1769-L3x and 1768-L4x controllers
- Replacement batteries for 1769-L23x and 1769-L3x controllers (no battery needed for 1768-L4x controllers)

Step 2
[CompactLogix Communication Modules](#)
 Page 13

Select:

- Networks
- Communication interfaces
- Associated cables and network equipment

Step 3
[CompactLogix Integrated Motion](#)
 Page 22

Select:

- A 1768-L4x controller for integrated motion
- A SERCOS interface module
- Associated cables
- Drives, motors, and accessories (use the Motion Analyzer tool)

Step 4
[Compact GuardLogix Integrated Safety](#)
 Page 26

Select:

- A 1768-L4xS controller for integrated safety

Step 5
[Compact I/O Modules](#)
 Page 27

Select:

- I/O modules
- A remote terminal block (RTB) or wiring system for each I/O module
- Expansion cables for multiple banks of I/O modules

Step 6
[CompactLogix Power Supplies](#)
 Page 33

Select:

- One 1768 power supply for each 1768-L4x controller
- One 1769 power supply for each 1769-L3x controller
- Additional 1769 power supplies as needed

Optional
[Visualization Products](#)
 Page 34

Optional
[Programming Software](#)
 Page 35

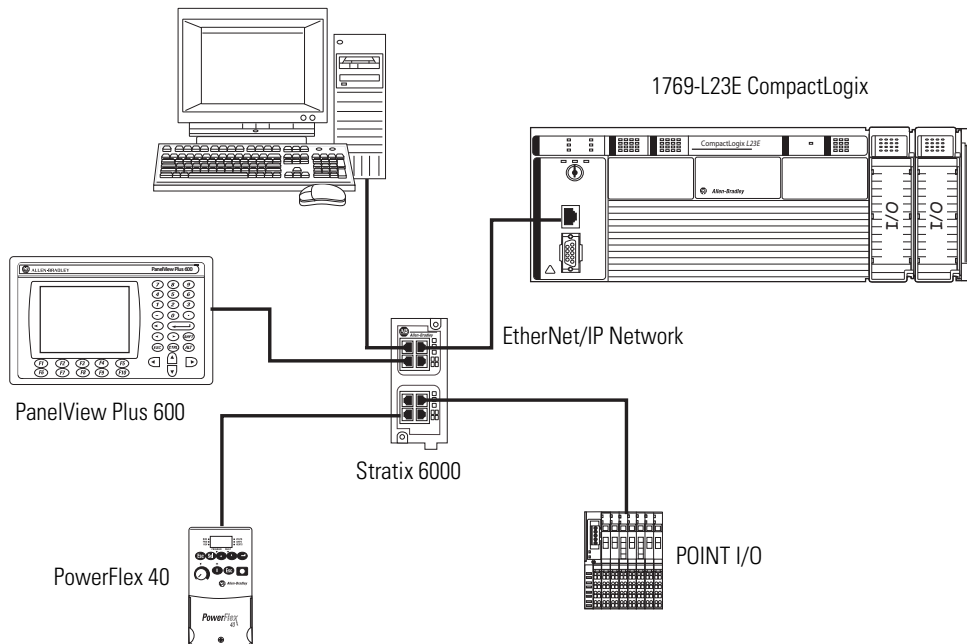
CompactLogix System Overview

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 a single bank of I/O modules and DeviceNet communication. In a more complex system, add other networks, motion control, and safety control.

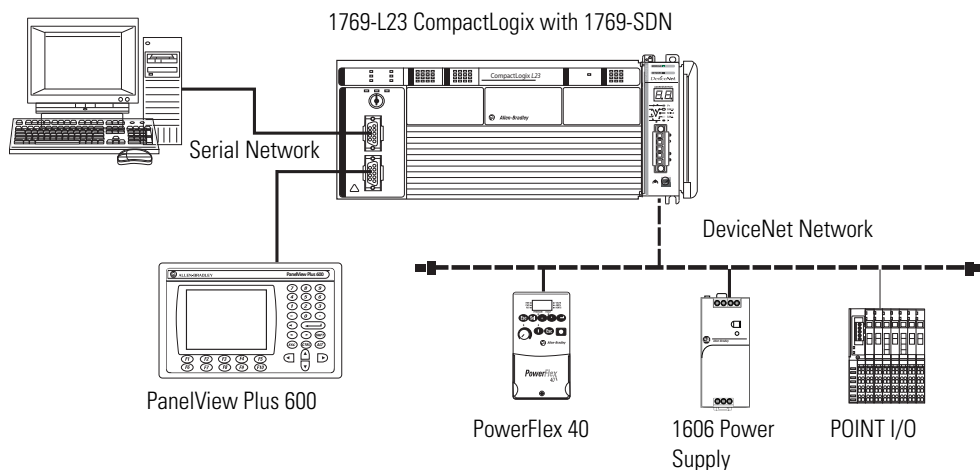
Example Configuration - 1769-L23x CompactLogix System

The 1769-L23x CompactLogix system is a packaged controller for smaller, machine-level control applications. The controller comes preconfigured with combinations for embedded digital, analog, and high-speed counter I/O.

1769-L23E Packaged Controller with an EtherNet/IP Network



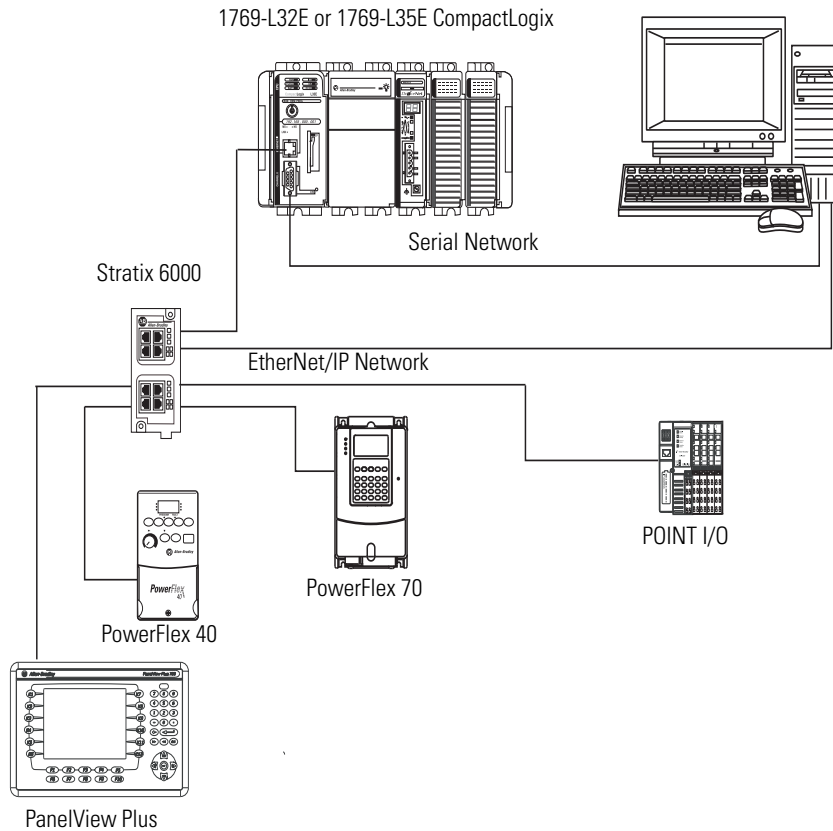
1769-L23-QBFC1B Packaged Controller with Serial and DeviceNet Networks



Example Configuration - 1769-L3x CompactLogix System

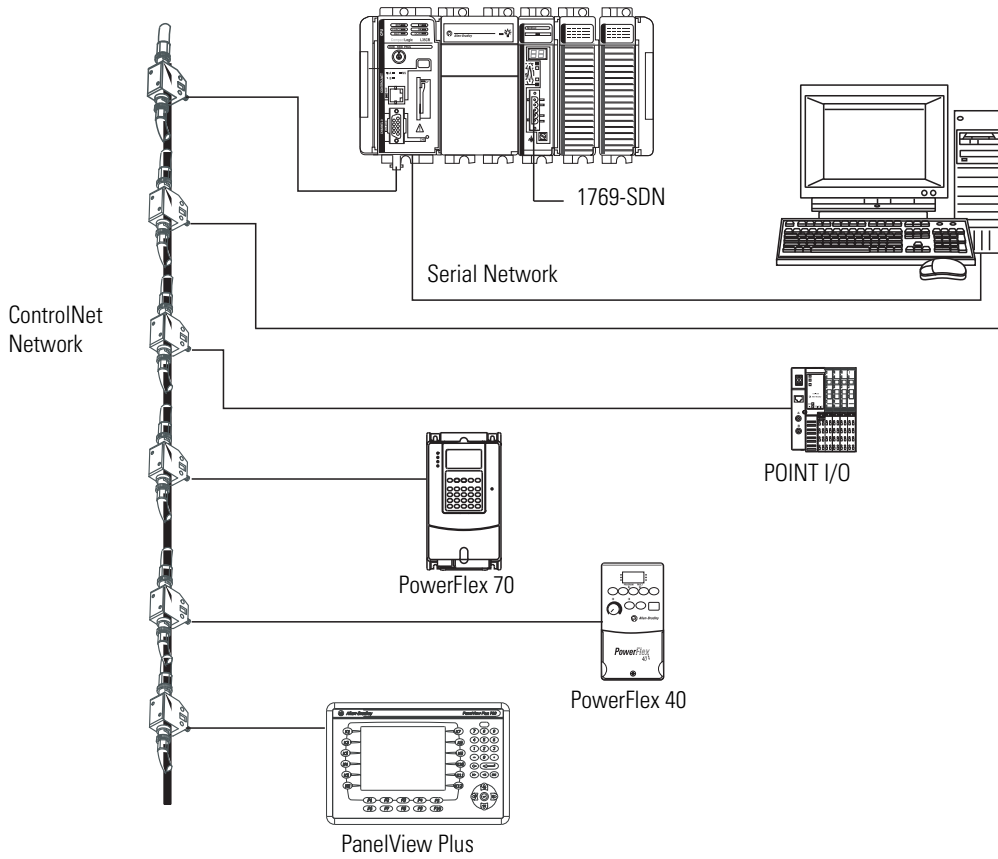
The 1769-L3x CompactLogix system provides a Logix solution for low-end to medium applications. Typically, these applications are machine-level control applications that require limited I/O quantities and limited communication capabilities. The 1769-L31 controller offers two serial ports. The 1769-L32C and 1769-L35CR controllers offer an integrated ControlNet port. The 1769-L32E and 1769-L35E controllers offer an integrated EtherNet/IP port.

1769-L32E, 1769-L35E Controller with an EtherNet/IP Network



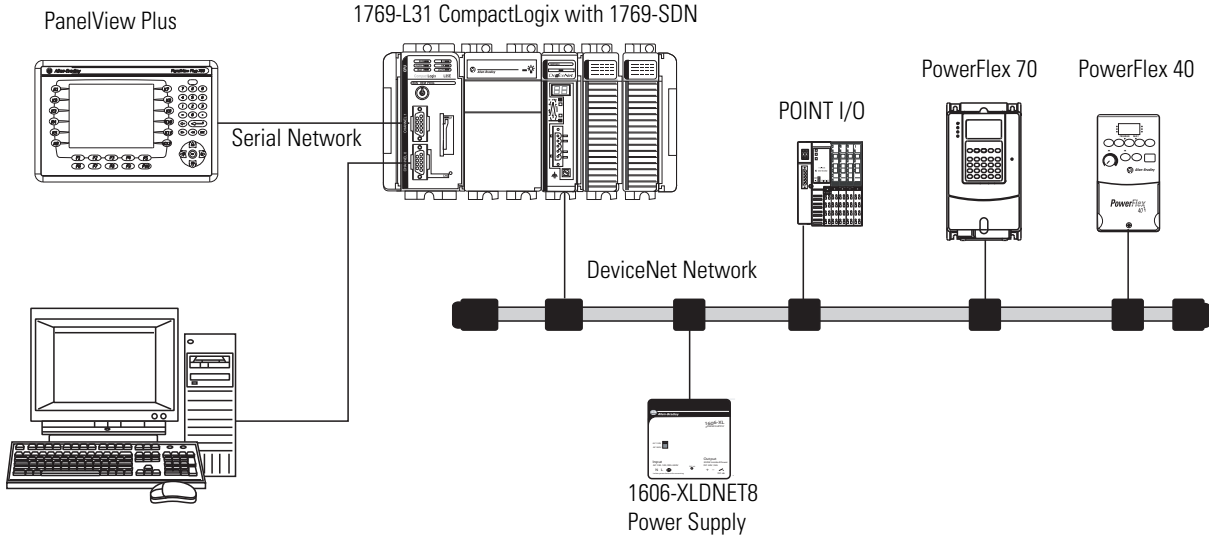
1769-L32C, 1769-L35CR CompactLogix Controller with a ControlNet Network

1769-L32C or 1769-L35CR CompactLogix



1769-L31 CompactLogix Controller with Serial and DeviceNet Networks

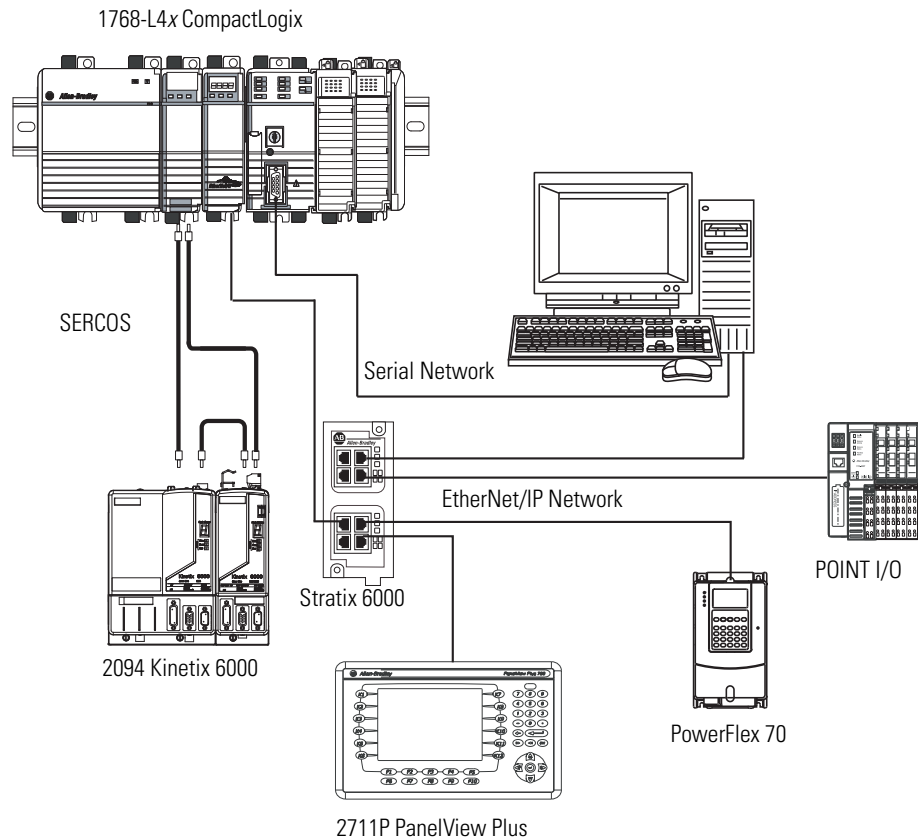
1769-L31 CompactLogix with 1769-SDN



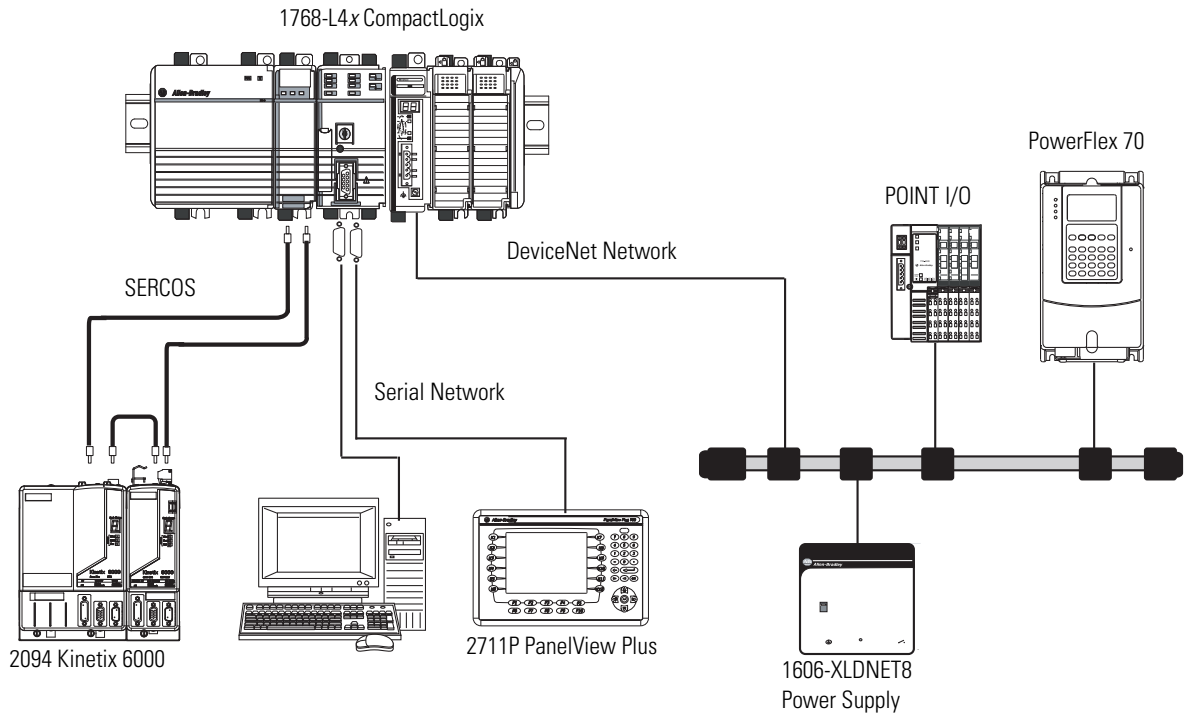
Example Configuration - 1768-L4x CompactLogix System

The 1768 CompactLogix system combines a 1768 backplane for communication and motion support and a 1769 backplane for I/O support. The 1768 controller is designed for integrated motion, integrated safety, and more complex communication requirements than the other CompactLogix controllers. The 1768 controller has one serial port. Add 1768 modules for motion control, EtherNet/IP communication, and ControlNet communication.

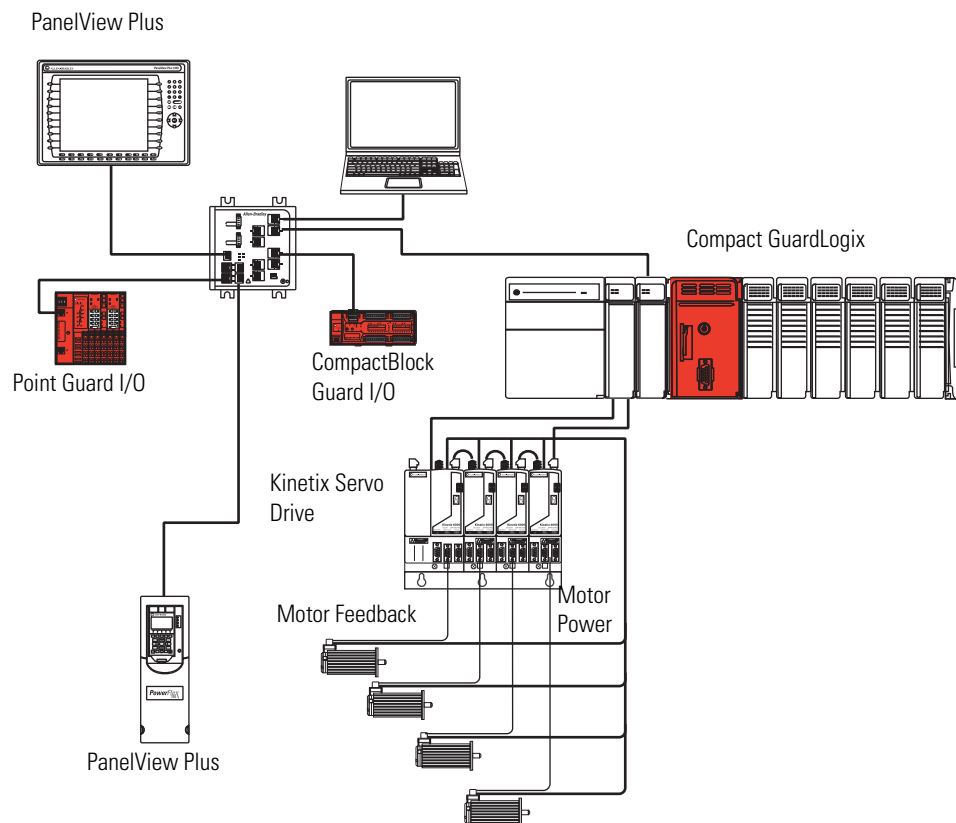
1768-L4x CompactLogix Controller with an EtherNet/IP Network



1768-L4x CompactLogix Controller with a Serial Network



1768-L4xS Compact GuardLogix Safety System



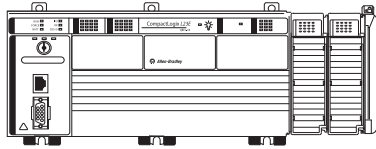
CompactLogix Controllers



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 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 CompactLogix Controllers Specifications, publication [1769-TD005](#).

	1769-L23x Controllers	1769-L3x Controllers	1768-L4x Controllers	1768-L4xS Controllers
Controller application	Small applications Embedded I/O modules	General purpose	Integrated motion	Integrated safety Integrated motion
Controller tasks	<ul style="list-style-type: none"> • 3 tasks • 16 programs/task • Only 1 continuous • Event tasks: consumed tag and EVENT instruction triggers 	<ul style="list-style-type: none"> • 1769-L35x: 8 tasks • 1769-L32x: 6 tasks • 1769-L31: 4 tasks • Only 1 continuous • Event tasks: consumed tag and EVENT instruction triggers 	<ul style="list-style-type: none"> • 16 tasks (only 1 continuous) • Event tasks: consumed tag, EVENT instruction, axis, and motion event triggers 	<ul style="list-style-type: none"> • 16 tasks (only 1 continuous) • Event tasks: consumed tag, EVENT instruction, axis, and motion event triggers
User memory	512 KB	1769-L31: 512 KB 1769-L32x: 750 KB 1769-L35x: 1.5 MB	1768-L43: 2 MB 1768-L45: 3 MB	1768-L43S: 2 MB standard 0.5 MB safety 1768-L45S: 3 MB standard 1 MB safety
Built-in communication ports	<ul style="list-style-type: none"> • 1769-L23E-QB1B: 1 EtherNet/IP port and 1 RS-232 serial port • 1769-L23E-QBFC1B: 1 EtherNet/IP port and 1 RS-232 serial port • 1769-L23-QBFC1B: 2 RS-232 serial ports 	<ul style="list-style-type: none"> • 1769-L31: 2 RS-232 ports (one DF1 only, other DF1 or ASCII) • 1769-L32C, 1769-L35CR: 1 ControlNet port and 1 RS-232 serial port (DF1 or ASCII) • 1769-L32E, 1769-L35E: 1 EtherNet/IP port and 1 RS-232 serial port (DF1 or ASCII) 	<ul style="list-style-type: none"> • 1 port RS-232 serial (DF1 or ASCII) 	<ul style="list-style-type: none"> • 1 port RS-232 serial (DF1 or ASCII)
Communication options	<ul style="list-style-type: none"> • EtherNet/IP • DeviceNet 	<ul style="list-style-type: none"> • EtherNet/IP • ControlNet • DeviceNet 	<ul style="list-style-type: none"> • EtherNet/IP • ControlNet • DeviceNet 	<ul style="list-style-type: none"> • EtherNet/IP (standard and safety) • ControlNet (standard and safety) • DeviceNet (standard)

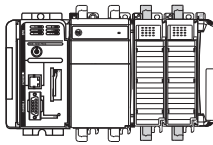


1769 Packaged CompactLogix Controllers with Embedded I/O

The 1769-L23x controller comes with:

- a built-in power supply.
- either two serial ports or one serial and one EtherNet/IP port.
- a combination of embedded digital, analog, and high-speed counter I/O.
- a 1769-ECR right-end cap.

Characteristic	1769-L23-QBFC1B	1769-L23E-QB1B	1769-L23E-QBFC1B
Available user memory	512 KB	512 KB	512 KB
CompactFlash card	None	None	None
Communication ports	2 RS-232 ports (isolated DF1 or ASCII; nonisolated DF1 only)	1 EtherNet/IP port 1 RS-232 serial port (DF1 or ASCII)	1 EtherNet/IP port 1 RS-232 serial port (DF1 or ASCII)
Embedded I/O	<ul style="list-style-type: none"> • 16 DC inputs • 16 DC outputs • 4 analog inputs • 2 analog outputs • 4 high-speed counters 	<ul style="list-style-type: none"> • 16 DC inputs • 16 DC outputs 	<ul style="list-style-type: none"> • 16 DC inputs • 16 DC outputs • 4 analog inputs • 2 analog outputs • 4 high-speed counters
Module expansion capacity	Up to two additional 1769 modules	Up to three additional 1769 modules	Up to two additional 1769 modules
Embedded power supply	24V DC	24V DC	24V DC

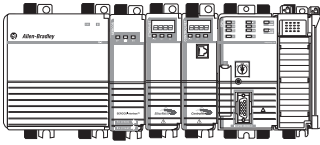


1769 Modular CompactLogix Controllers

In a 1769-L3x 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.

Characteristic	1769-L31	1769-L32C	1769-L32E	1769-L35CR	1769-L35E
Available user memory	512 KB	750 KB	750 KB	1.5 MB	1.5 MB
CompactFlash card	<ul style="list-style-type: none"> • 1784-CF64 • 1784-CF128 	<ul style="list-style-type: none"> • 1784-CF64 • 1784-CF128 	<ul style="list-style-type: none"> • 1784-CF64 • 1784-CF128 	<ul style="list-style-type: none"> • 1784-CF64 • 1784-CF128 	<ul style="list-style-type: none"> • 1784-CF64 • 1784-CF128
Communication ports	2 RS-232 ports (isolated DF1 or ASCII; non-isolated DF1 only)	1 ControlNet port 1 RS-232 port (DF1 or ASCII)	1 EtherNet/IP port 1 RS-232 port (DF1 or ASCII)	1 ControlNet port 1 RS-232 port (DF1 or ASCII)	1 EtherNet/IP port 1 RS-232 port (DF1 or ASCII)
Module expansion capacity	16 1769 modules	16 1769 modules	16 1769 modules	30 1769 modules	30 1769 modules
Power supply distance rating	4 modules	4 modules	4 modules	4 modules	4 modules

1768 CompactLogix Controllers



The 1768-L4x controller combines both a 1768 backplane and a 1769 backplane. The 1768 backplane supports the 1768 controller, the 1768 power supply, and a maximum of four 1768 modules. The 1769 backplane supports 1769 modules.

Characteristic	1768-L43	1768-L43S	1768-L45	1768-L45S
Available user memory	2 MB	2 MB standard 0.5 MB safety	3 MB	3 MB standard 1 MB safety
CompactFlash card	<ul style="list-style-type: none"> 1784-CF64 1784-CF128 		<ul style="list-style-type: none"> 1784-CF64 1784-CF128 	
Communication options	<ul style="list-style-type: none"> EtherNet/IP (standard and safety) ControlNet (standard and safety) DeviceNet (standard) 		<ul style="list-style-type: none"> EtherNet/IP (standard and safety) ControlNet (standard and safety) DeviceNet (standard) 	
Serial communication port	1 RS-232 port		1 RS-232 port	
Module expansion capacity	<ul style="list-style-type: none"> 2 1768 modules 16 1769 modules 		<ul style="list-style-type: none"> 4 1768 modules 30 1769 modules 	
Power supply distance rating	—		—	
Programming languages	<ul style="list-style-type: none"> Relay ladder Structured text Function block Sequential function chart 	<ul style="list-style-type: none"> Standard task: all languages Safety task: relay ladder, safety application instructions 	<ul style="list-style-type: none"> Relay ladder Structured text Function block Sequential function chart 	<ul style="list-style-type: none"> Standard task: all languages Safety task: relay ladder, safety application instructions

1784 Industrial CompactFlash Cards

CompactFlash cards offer nonvolatile memory (flash) to permanently store a user program and tag data. You install the 1784 CompactFlash card in a socket on the controller. You can manually trigger the controller to save to or load from nonvolatile memory or configure the controller to load from nonvolatile memory on powerup.

The CompactFlash card offers nonvolatile memory (flash) to permanently store a user program and tag data on a controller. The 1769-L3x and 1768-L4x controllers support a CompactFlash card.

Attribute	1784-CF64	1784-CF128
Memory	64 MB	128 MB
Weight, approx.	14.2 g (0.5 oz)	

1769 CompactLogix Batteries

The 1769-L23x and 1769-L3x controllers come with one 1769-BA lithium battery. The 1768 controller **does not** require a battery. The controller uses internal flash memory to store its program during shutdown. Energy stored in the 1768 power supply maintains controller power long enough to store the program to internal flash memory (not the external CompactFlash card).

Attribute	1769-BA
Description	Lithium battery (0.59 g)
CompactLogix controllers	1769-L23-QBFC1B, 1769-L23E-QB1B, 1769-L23E-QBFC1B 1769-L31 1769-L32C, 1769-L35CR 1769-L32E, 1769-L35E