

Allen-Bradley 1769 Series Service Manual

1769-L23E-QBFC1B

1. Description

The Allen-Bradley 1769-L23E-QBFC1B is a CompactLogix Packaged controller. This controller features One (1) Ethernet interface and One (1) RS232 ports supporting DF1 and ASCII protocol. This controller comes with embedded Sixteen (16) 24 VDC discrete inputs; Sixteen (16) 24VDC Discrete outputs; Four (4) Analog inputs; Two (2) Analog inputs and Four (4) High-speed counters. This Technical specifications for 1769-L23E-QBFC1B

2. Specifications

Specification	Value
Brand	Allen-Bradley / Rockwell Automation
Series	CompactLogix
Manufacturer	Rockwell Automation
Part	Number 1769-L23E-QBFC1B
Brand	Allen-Bradley
Type	of component Programmable Logic Controller
Series	CompactLogix Packaged controller
Number	of Digital Inputs 16
Product	Type Programmable Automation Controller (PAC)
Number	of Digital Outputs 16
User	Memory 512 KB
Number	of Analog Inputs 4
Non-volatile	memory Not supported
Number	of Analog Outputs 2
No.	of embedded I/Os Sixteen (16) 24 VDC discrete inputs; Sixteen (16) 24VDC Discrete outputs; Four (4) Analog inputs; Two (2) Analog inputs; Four (4) High-speed counters.
High-speed	Counter available? Yes
Built-in	communication 1 Serial port; One (1) Ethernet port
EtherNet/IP	compatibility? Yes, via built-in RJ45 socket
Supported	protocols Serial: DF1; ASCII Ethernet: TCP I/P; CIP
DeviceNet	compatibility? Yes (Additional 1769-SDN DeviceNet scanner module needed)
Ethernet	data rate 10/100 Mbps
UPC	10612598350756
No.	of expansion modules Up to Tw

3. Product Information

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Series CompactLogix

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No. of embedded I/Os Sixteen (16) 24 VDC discrete inputs; Sixteen (16) 24VDC Discrete outputs; Four (4) Analog inputs; Two (2) Analog inputs; Four (4) High-speed counters.

High-speed Counter available? Yes

Built-in communication 1 Serial port; One (1) Ethernet port

EtherNet/IP compatibility? Yes, via built-in RJ45 socket

Supported protocols Serial: DF1; ASCII Ethernet: TCP I/P; CIP

DeviceNet compatibility? Yes (Additional 1769-SDN DeviceNet scanner module needed)

Ethernet data rate 10/100 mbps

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No. of expansion modules Up to Two (2) 1769 I/O modules

No. of I/O Banks supported None

Power supply 24 VDC Description

The 1769-L23E-QBFC1B is a CompactLogix packaged controller that is manufactured by Allen-Bradley. This controller is ideally used for small applications, able to control industrial machines or processes. This module comes with embedded I/O channels such as Sixteen (16) 24 VDC discrete inputs; Sixteen (16) 24VDC Discrete outputs; Four (4) Analog inputs; Two (2) Analog inputs and Four (4) High-speed counters. The 1769-L23E-QBFC1B also supports I/O expansion wherein up to 1769 Compact I/O modules may be installed. To communicate with Human Machine Interfaces (HMI), Supervisory Control and Data Acquisition (SCADA), and other visualization systems, the 1769-L23E-QBFC1B is provided with a single Ethernet I/P interface and One (1) RS232 serial port. The ethernet port supports 10/10 Mbps data transmission speed and is designed for networked topology while the RS232 port supports DF1 and ASCII protocol, ideal for point-to-point communication at a maximum speed of 19200 Kbaud rates. This controller comes with 512KB user memory which is non-expandable. This controller utilizes battery-backed RAM. A 1769-BA battery unit is installed to retain the data within the user memory. Located on the right side of the controller, this battery can be replaced with the unit and must be executed only when the controller is under power. The controller's IP address can be assigned using the BOOTP-DHCP tool and by downloading the initial configuration through the serial port. When utilizing the serial port, recommended cable for use is the 1756-CP3 communication cable. This controller supports panel mounting with the use of a standard DIN rail or by fastening the device with screws through the provided mounting tabs.

The Allen-Bradley 1769-L23E-QBFC1B Packaged Controller is a high-performance, rugged, stand-alone programmable logic controller or PLC that can be used in any type of industrial measurement, control, or monitoring application. It is designed with 16 digital inputs, 16 digital outputs, a 9-pin isolated RS-232 Serial port, 4 differential or single-ended analog inputs and 2 single-ended analog outputs, high-speed counters (similar to the Allen Bradley 1769-HSC module), and an Ethernet connection via an RJ45 socket. Up to 2 Expansion 1769 Series CompactLogix modules can be added to the 1769-L23E-QB1B Programmable Logic Controller. Several types of peripheral devices can be added to the Allen-Bradley 1769-L23E-QBFC1B Packaged Controller such as Allen-Bradley Point I/O modules, PowerFlex 40 Variable Frequency Drives, or PanelView Plus 600 Terminals. Using the built-in EtherNet/IP port of the Allen Bradley 1769-L23E-QBFC1B packaged controller makes it possible to leverage the power of the Ethernet/IP network for providing fast and reliable connectivity of the device with most of the current industrial control platforms. This is made possible by layering the Common Industrial Protocol (CIP) over the standard internet protocols, such as the TCP/IP and UDP. By using standard, unshielded, Category 5 RJ45 twisted-pair cable, it is possible to leverage an Ethernet high-speed platform for half/full-duplex 10 Mbps or 100 Mbps operation. The Allen-Bradley 1769-L23E-QBFC1B packaged controller brings any small machine or industrial process a wide range of control and monitoring functions that were formerly only available for the biggest systems. The Allen-Bradley 1769-L23E-QBFC1B is a CompactLogix packaged controller that is a member of the 5370 L2 CompactLogix product family. This controller has embedded functionalities which make the controller able to control automation requirements out of the box. CompactLogix packaged controllers are composed of an embedded power supply, embedded Sixteen (16) 24VDC sinking input channels, Sixteen (16) 24VDC Sourcing output channels, Four (4) Single ended or Differential analog input channels, Two (2) Single ended analog output channels and Four (4) High-Speed Counter (HS) channels. It also has One (1) RS232 communication port for Point-to-Point connection and One (1) Ethernet communication which allow the controller to connect to an Ethernet network for simultaneous and multiple connectivity. The integral memory of the 1769-L23E-QBFC1B amounts to 512 Kbytes of volatile memory. This memory is maintained by the embedded 1769-BA battery. The controller is also provided with an end cap for terminating the local I/O bus. This controller is has LED status indicators for each of the output channels as well as operating mode and battery status indicators. The 1769-L23E-QBFC1Bs compact design allows the controller to be installed in limited enclosure space as it only requires 50mm or 1.97 inches clearance. This spacing requirement allows adequate air flow for natural ventilation of the controller. Following this requirement contributes to the controllers continuous, uninterrupted operation. The 1769-L23E-QBFC1Bs Ethernet communication port allows the controller to connect to ethernet network, using standard RJ45 connectors installed at both ends of a Cat5 or Cat6 communication cable. This ethernet communication port support Eight (8) TCP connections, Thirty-Two (32) CIP connections and Four (4) Virtual axis limit. This communication port supports connection to programming workstation for upload and download of program as well as commission the device by utilizing the built-in commissioning and maintenance tools.

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It may also be used to communicate with visualization systems such as a Human Machine Interface (HMI), Supervisory Control and Data Acquisition (SCADA) and Distributed Control Systems (DCS). It may also be used for integration to data collection platforms such as databases, analysis tools as well as OPC servers, Protocol converters and Gateways. This communication port supports 10/100 Mbps transmission speed and compatible for linear topology. Alternatively, the controller is also built with a fully isolated RS232 communication port that is designed for point-point interface covering a distance of 15 meters. This RS232 port supports up to 38.4 Kbps baud rate. It may be configured for system protocols such as DF1 Full and Half duplex, DF1 master and slave and DH485 protocols. It also supports ASCII communication which allow the controller to connect to ASCII devices that reads barcode readers. This protocol is typically used in the manufacturing and batching industry, used to implement product control, quality control and quality assurance. Similar to ethernet communication, the integral RS232 may be used for programming and communication to visualization, data collection and other devices.

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