

Allen-Bradley 1769 Series Service Manual

1769-L30ER

1. Description

The Allen-Bradley 1769-L30ER is a CompactLogix packaged controller from the 5370 CompactLogix family. This controlled has embedded 1MB memory, Two (2) Ethernet communication ports, and One (1) USB port. It supports up to Eight (8) Compact I/O modules and supports Three (3) expansion banks. Technical specifications for 1769-L30ER

2. Specifications

Specification	Value
Manufacturer	Rockwell Automation / Allen-Bradley
Brand	Allen-Bradley
Part	Number/Catalog No. 1769-L30ER
Product	Line CompactLogix
Product	Type: Programmable Automation Controller
Module	Type Processor Module
Communication	Ethernet
Communication	ports: Two (2) Ethernet I/P; 1 USB
No.	of Ethernet Nodes: 16
Memory	1 MB
Maximum	number of I/O modules supported: 8 Modules
Maximum	number of I/O banks supported: 3 banks
Shipping	Weight 4 pounds
Power	supply distance rating: 4
Shipping	Dimensions 11 x 8 x 6 inches
Series	A and B
Programming	cable: RJ45 connector according to IEC 60603-7
Replacement	Terminal Block Part Number 1769-RTBN18
Battery:	1747-BA
Wire	Type Copper-90 degrees Celsius
Vibration:	Operating: 10 to 500 Hz, 5G, 0.030 in. peak-to-peak
Wire	Size (Solid) 22 to 14 AWG
Operating	Temperature: 0° to +60°C (-31° to +140°F)
Wire	Size (Stranded) 22 to 16 AWG
Mounting:	DIN Rail; Panel Mounting
Certification	cULH (Class I, Division 2)
UPC	10885630101276
Non-Volatile	memory: 1784-SD1 card w

3. Product Information

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Brand Allen-Bradley

Part Number/Catalog No. 1769-L30ER

Product Line CompactLogix

Product Type: Programmable Automation Controller

Module Type Processor Module

Communication Ethernet

Communication ports: Two (2) Ethernet I/P; 1 USB

No. of Ethernet Nodes: 16

Memory 1 MB

Maximum number of I/O modules supported: 8 Modules

Maximum number of I/O banks supported: 3 banks

Shipping Weight 4 pounds

Power supply distance rating: 4

Shipping Dimensions 11 x 8 x 6 inches

Series A and B

Programming cable: RJ45 connector according to IEC 60603-7

Replacement Terminal Block Part Number 1769-RTBN18

Battery: 1747-BA

Wire Type Copper-90 degrees Celsius

Vibration: Operating: 10 to 500 Hz, 5G, 0.030 in. peak-to-peak

Wire Size (Solid) 22 to 14 AWG

Operating Temperature: 0° to +60°C (+32° to +140°F)

Wire Size (Stranded) 22 to 16 AWG

Mounting: DIN Rail; Panel Mounting

Certification cULH (Class I, Division 2)

UPC 10885630101276

Non-Volatile memory: 1784-SD1 card with 1 Gb of available memory is shipped with controller. 1784-SD2 card with 2 Gb of available memory (available for separate ordering)

Programming Language: Relay ladder, Structured Text, Function block, SFC Description

The 1769-L30ER is a 5370 L3 CompactLogix controller that features 1MB user memory, Dual Ethernet Communication port and single USB port.

The integral communication ports support multi-node and point-to-point interface. Ethernet is the primary communication port used by this device for performing data exchange to a variety of devices. This port supports linear, ring, star topologies. Up to 16 nodes may be connected to this controller. These nodes may compose of Human Machine Interface (HMI), Supervisory Control and Data Acquisition (SCADA), databases, converters, gateways, controllers and other devices. These embedded ports also function as an embedded switch which means the same network traffic is experienced on the dual ports of the controller.

There are Two (2) ways to assign IP address to the controller. First, using a BOOTP-DHCP utility of Allen-Bradley. This tool searches for the unique IP address of the device and assigns it with the specified IP address.

The 1769-L30ER controller supports installation of up to Eight (8) 1769 Compact I/O modules. Additionally, up to Three (3) expansion banks may be installed to further expand and maximize the capability of the controller.

The controller is provided with status indicators such as RUN, FORCE, BAT, OK, I/O. These LED indicators are visible to the user and provides feedback to the controller's operation. The Allen-Bradley 1769-L30ER is a CompactLogix controller that belongs to the 5370 L3 CompactLogix Product family that functions as Programmable Automation Controllers (PAC). This controller is an essential component of the modular, compact and cost-effective CompactLogix platform that is capable of implementing small to medium automation applications with higher level of automation complexity. The 1769-L30ER features an integrated non-expandable 1 MB volatile memory that is coupled with an integrate 1GB memory via the Secure Digital (SD) card that ships with the controller. This SD card function as the non-volatile memory which may be upgraded or replaced by a 1769-SD2 card with 2GB memory. The SD card may be used to automatically load user data and program data to the controller which is a standard solution to prevent the controller from unwanted stoppage due to loss of program. Though the volatile memory area is maintained by an internal energy storage circuit, the loading of data from the SD card is the more secure method as data retention does not rely on presence of external energy. The 1769-L30ER may be mounted to a DIN rail or panel. Regardless of the installation method used, a 50 mm or 2 inches clearance must be followed to proper air flow on all sides of the controller. This prevents electronic components from overheating thus, contributes to the continuous and uninterrupted function of the controller. The 1769-L30ER must be installed within Four (4) modules from the CompactLogix power supply. This requirement is referred to as the Power Supply Distance rating. Compatible Power supplied for use with this controller are 1769-PA2, 1769-PB2, 1769-PA4, and 1769-PB4. This controller has One (1) USB communication port and Two (2) Ethernet communication port. The dual ethernet ports use a standard Cat5 or Cat6 cable with RJ45 on both ends. The ports support transmission speed of 10/100 Mbps with a maximum distance of 100 m. If extension is necessary, an additional Ethernet switch may boost the signal and distance. For longer communication distance, the Ethernet ports support conversion of the physical layer to wires and fiber optic communication. These Ethernet ports supports Device Level ring (DLR), Linear and traditional star topologies. Device Level ring is a fault-tolerant topology with a primary and secondary Ethernet paths. Failure of a single path automatically routes data to the active path with an unnoticeable switching time. Linear topology is basically a point-to-point connection wherein if the single communication path fails, the communication exchange drops. Traditional star is a connection of multiple devices to a central hub which handles the connections and where data is centralized.