

Allen-Bradley 1769 Series Service Manual

1769-L18ER-BB1B

1. Description

The Allen-Bradley 1769-L18ER-BB1B is a CompactLogix 5370 L1 controller. It is part of the CompactLogix Programmable Automation Controller (PAC) product family which features built-in Two (2) Ethernet communication ports and 512Kbytes embedded user memory. Up to Eight (8) 1734 Point I/O modules may be installed with this controller. Technical specifications for 1769-L18ER-BB1B

2. Specifications

Specification	Value
Manufacturer	Rockwell Automation / Allen-Bradley
Product	Family: 5370 L1
Product	Type: CompactLogix Controller
Communication	ports: (1) USB; (2) Ethernet I/P
Ethernet	topologies: Linear, Star and Device level Ring (DLR)
Ethernet	nodes: 8 Nodes
Maximum	number of I/O modules supported: 8 Modules - Point I/O
Maximum	number of I/O banks supported: Not supported
No.	of Task: 32 Task
No.	of Program per Task: 100
No.	of Embedded Inputs: (16) 24 VDC
Programming	Language: Relay ladder (Safety Task only) • Structured Text • Function block • SFC
Mounting:	DIN Rail
Current	draw @ 5V DC: 1A
Brand	Allen-Bradley
Part	Number/Catalog No. 1769-L18ER-BB1B
Product	Line CompactLogix
Module	Type Processor Module
Communication	Ethernet
Input	Power 24 Volts DC
Memory	512KB
Communication	Cable 6 Point
Shipping	Weight 3 pounds
Shipping	Dimensions 11 x 8 x 6 inches
Series	A and B
Replacement	Terminal Block Part Number 1769-RTBN18
Wire	Type Copper-90 degrees Celsius
Wire	Size (Solid) 22 to 14 AWG
UPC	108856301012

3. Product Information

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Product Line CompactLogix

Module Type Processor Module

Communication Ethernet

Input Power 24 Volts DC

Memory 512KB

Communication Cable 6 Point

Shipping Weight 3 pounds

Shipping Dimensions 11 x 8 x 6 inches

Series A and B

Replacement Terminal Block Part Number 1769-RTBN18

Wire Type Copper-90 degrees Celsius

Wire Size (Solid) 22 to 14 AWG

UPC 10885630101221 Description

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The 1769-L18ER-BB1B is a CompactLogix series unit designed and engineered by Allen Bradley, a division of Rockwell Automation. The 1769-L18ER-BB1B features high-performance control with communication elements in a compact and cost-efficient package. The 1769-L18ER-BB1B is classified under the CompactLogix 5370 L1 programmable automation controllers. It supports up to 32 controllers tasks and features 100 continuous or periodic tasks. The 1769-L18ER-BB1B features two Ethernet ports that connect to the EtherNet/IP networks. the ports are used for carrying the same network traffic as the embedded switch of the controller. The controller uses one IP Address. The 1769-L18ER-BB1B also features a single USB port for temporary connections. Up to 4 Ethernet nodes is supported by this controller. The 1769-L18ER-BB1B supports up to 256 controller connections with integrated 16 DC digital inputs and 16 digital outputs. The DIN rail mounted 1769-L18ER-BB1B controller supports a maximum of 8 local POINT I/O modules and uses the 1734 backplane. Its embedded I/O module provides 16 sinking digital input points and 16 sourcing digital output points. It supports DLR network capability enhances resiliency in communication and connectivity. The maximum number of sockets is 32 and the unit also comes with an optional nonvolatile memory featuring 1784-SD1 card supporting up to 1GB of memory, and it is shipped with the unit. The unit also supports a 1784-SD2 card with about 2GB of available memory that is available.

The 1769-L18ER-BB1B is specially designed to support the user needs ensuring high performance and a cost competitive motion solution. Before deployment of the module, it is important to check the controller memory estimator to make sure there is enough memory to execute the controller program for the application. The 1769-L18ER-BB1B features a 0.5 MB user memory. It has an internal energy storage that eliminates the need for an additional battery. In addition, the 1769-L18ER-BB1B can read Relay Ladder, Structured Text, Function block, and SFC programming languages. The operating temperature should be between -20 to 60 degrees Celsius (-4 to 140 degrees Fahrenheit) with an IEC 60068-2-30 non-condensing relative humidity between 5 and 95% for optimal controller performance and product life.

The 1769-L18ER-BB1B primary features an embedded user memory amounting to 0.5 MB and a 1GB non-volatile memory that is provided by the pre-installed 1784-SD1 Secure Digital (SD) card. This non-volatile memory may be replaced and upgraded to 2GB memory with the use of the 1784-SD2. Aside from the built-in memory areas. It also comes with 16 24VDC digital inputs and 16 24VDC digital output channels. Up to Eight (8) 1734 Point I/O modules may be installed to this compact controller to expand the built-in I/O capabilities. This controller can handle up to 32 controller tasks, whether continuous and periodic types, whether, up to 100 programs may be contained by each controller task.

For communication with programming devices, Supervisory Control and Data Acquisition (SCADA) systems, Human Machine Interface (HMI) devices, this controller is built with Two (2) Ethernet communication interface that may function as an embedded Ethernet switch with single IP address. These ports support Linear, Device Level Ring (DLR) and Traditional star topologies. Up to 32 sockets and 256 controller connections may be established with this device, allowing implementation of complex communication functions. Aside from the Ethernet ports, this controller has One (1) USB port that may be used for programming, hardware configuration and online-edits except industrial communication and data exchange.

The 1769-L18ER-BB1B is a CompactLogix controller that is manufactured by Allen-Bradley. This controller belongs to the 5370 CompactLogix product category, ideal for use in factory and process automation. The 1769-L18ER-BB1B is designed with Two (2) Ethernet switches, capable of implementing Device Level Ring (DLR), Linear and Traditional star. Device Level Ring is a single, fault tolerant network capable of automatic switching from primary to secondary communication highway for continuous communication should one of the Ethernet lines fail. Linear topology is a single line of non-fault tolerant communication. Star topology is a type of Ethernet communication topology that allows devices to connect to a central connection point, typically a hub. In modern automation applications, Linear and DLR are the most common topologies used. The 1769-L18ER-BB1B CompactLogix controller is

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provided with Sixteen (16) 24VDC inputs and Sixteen (16) 24VDC outputs. The input channels are compatible for interfacing 24VDC input signal sources such as mechanical switches, magnetic reed switches, pushbutton devices, auxiliary contacts, sensors, photoelectric sensors, and other similar operating binary devices. The output channels are compatible with 24VDC electrical loads such as pilot lamps, relay coils, solenoid actuated devices and other electrical devices. The integrated memory of the controller amounts to 512Kbytes of volatile memory which does not require a battery for retention of data. This is due to the internal energy storage solution built-in with the controller, batteries are not required. The controller is also provided with a Secure Digital (SD) card with catalog number 1784-SD1 with memory amounting to 1GB of non-volatile memory. The SD card is recommended to be remained installed in the controller even if the controller is not used. If the controller experiences a major-non recoverable fault, fault information is forwarded to the controller. If the controller is installed in a Hazardous location, the SD card is not recommended to be pulled-out when the controller is actively supplied with power as this action may produce an electrical arc which may cause explosion. The SD card is also provided with a notch to lock and unlock the memory card. If the notch is set to unlocked, the controller is capable of writing and reading data to and from the SD card. In the card is set to locked, only read operation is available. The 1769-L18ER-BB1B CompactLogix Controller supports installation of up to Eight (8) POINT I/O modules for expansion of I/O capability. When wiring signals to the embedded channels, recommended wires for use is 0.2051.31 mm² or 2416 AWG solid or stranded copper wire with insulation rating of 75 C or 167 F, or greater and maximum insulation thickness of 1.2 mm or 3/64 in. Only One (1) wire may be installed to the embedded channel terminals. These languages include Relay ladder, Structured Text, Function block and Sequential Function Chart (SFC).

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