

Allen-Bradley 1785-L60L

The Allen-Bradley 1785-L60L processor is a processor and programmable controller from Allen-Bradley. It has been designed and manufactured as part of the Allen-Bradley PLC 5 series of controllers. The 1785-L60L processor and programmable controller can work with different memory modules like the Allen-Bradley 1785-ME16, 1785-ME32, 1785-ME64, and 1785-M100 memory. Technical specifications for 1785-L60L

Manufacturer Rockwell Automation

Brand Allen-Bradley

Part Number/Catalog No. 1785-L60L

Module Type Standard Processor

Processor PLC-5/60L

Max User Memory Words 64 Kilowords

Battery-Backed Static RAM Yes

EEPROM Program Backup Option (using 1785-ME16, -ME32, -ME64, and -M100) Yes

Protected Memory No

Max Total I/O 3072 (any mix) or 3072 in + 3072 out (complementary)

Max Analog I/O 3072

I/O Scan Time Per Rack 0.5 ms (ext. local), 10 ms at 57.6 kbits/s, 7 ms at 115.2 kbits/s, 3 ms at 230.4 mbits/s

Max I/O Chassis Total 81

Max I/O Chassis Extended Local 16

Max I/O Chassis Universal Remote 32 Max. Per I/O Link

RS-232-C/422-A/423-A Ports 1

Control Coprocessor Expansion Port Yes Description

The 1785-L60L is a member of the PLC-5 controller series. This programmable controller can function as a central part of any control system based on the Allen-Bradley PLC-5 series. The 1785-L60L is the central point that interconnects local, extended, and remote I/O modules on different types of communication interfaces, and which acts as the backbone of the control system. The 1785-L60L controller has three integrated communication interfaces marked as Channel 1A, Channel 1B, and Channel 2. Channel 1A and Channel 1B can function as remote I/O scanners, remote I/O adapters, or as DH+ communication interfaces. The third communication interface on the 1785-L60L, Channel 2, is an extended-local I/O port. The 1785-L60L controller has a 25-pin connector marked as Channel 0 on the front panel. Channel 0 is an optically-isolated EIA RS232C port, which supports ASCII and DF1 full-duplex and half-duplex master protocols as well as half-duplex slave protocols. Channel 0 has a green light for indicating the status of the communication interface. In addition, there is one 8-pin mini DIN connector marked as Channel 1A, which is a DH+ programming terminal connection parallel to Channel 1A. Two three-pin connectors are on a lower part of the front panel. These connectors are for Channels 1A and 1B, and these two communication ports can function as remote I/O scanners, remote I/O adapters,

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or as DH+ communication ports. On the 1785-L60L's front panel, there is special connector marked as Channel 2, which is for an extended local I/O contact.

Remote I/O Scanner Mode reads and writes I/O information between the controller and the remote I/O device. When used as an I/O scanner, the 1785-L60L is a supervisory controller for the other controllers in Adapter Mode and for the other remote I/O adapters. When either Channel 1A or Channel 1B is configured as a remote I/O adapter, the 1785-L60L controller manages the controller-resident I/O while communicating with the supervisory controller through a remote I/O link. A DH+ link can be configured on either Channel 1A or 1B on the 1785-L60L. DH+ communication is used for creating a peer-to-peer network with other PLC-5 controllers or other higher-level components of the control system. Programming of the 1785-L60L controller can be also done via a DH+ link. By using a DH+ link, multiple controllers can be programmed at the same time. The maximum cable length for a DH+ link depends on the transmission rate. It is important that all devices on the link are configured to communicate at the same rate. That length ranges from 3048m from a speed of 57.6 kilobits per second to 762m for a speed of 230.4 kilobits per second. An extended local I/O link is useful when more I/O than what can fit in single chassis is necessary, but it requires greater speed than a remote I/O link can provide. The 1785-L60L and extended local I/O adapter (the 1771-ALX) installed in the remote I/O chassis interconnected with the I/O link cable form an extended-local I/O link. The extended local I/O link is limited to 100 feet of cable. If the I/O chassis needs to be further from the controller, use the remote I/O link. The extended local I/O link is a parallel link that enables the 1785-L60L controller to scan a maximum of 16 extended I/O chassis. Scan time per rack on an extended - local I/O is 0.5 ms. The 1785-L60L has several indicators on the front panel to make user interface easy. The indicators display various controller statuses. The indicator marked BATT displays the battery status. The PROC indicator shows the current controller mode. For example, it is green when the controller is in RUN Mode, and red when something is wrong. The FORCE indicator is amber when the I/O forces are enabled. The COMM indicator is linked to the Channel 0 communication status. Communication Channels 1A and 1B both have dedicated status indicators. Channel 2, used for extended - local I/O connection, has a dedicated status indicator.

The 1785-L60L can work in three different modes. Mode selection is made via a three-position key-switch on the front plate of the controller. Each position corresponds to one processor mode. RUN Mode runs the controller program. In it, outputs are enabled, I/O can be forced, data table values can be edited, and programs can be saved. However, program and data files cannot be created or deleted. When the 1785-L60L is in Program Mode, the outputs are disabled, and ladder, SFC, or data files can be created, modified, and deleted. It is possible to download and upload transfers with the memory module in this mode. Programs can also be saved and restored. The third work mode for the 1785-L60L processor is Remote Mode. Remote Mode is selected by turning the key switch to the REM position. When the processor is in Remote Run Sub-Mode, outputs are enabled, and programs can be saved, restored, and edited while operating. Remote Program Sub-Mode is the same as Regular Program Mode. Remote Test Sub Mode is for testing

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programs. In this mode, ladder programs can be executed with outputs disabled, but ladder programs and data files cannot be created or deleted. The 1785-L60L has 64000 words of available memory. The controller RAM comes with battery backup. For program backup, the EEPROM module can be installed in a situated slot on the front panel. Various memory module capacities are available. The total number of I/O (including local and universal remote I/O) is 3072 inputs, outputs, or a mix of both, which means that to use this much I/O, pairs of modules must have duplicate addresses. The 1785-L60L can use a total of 81 I/O chassis, but only 32 per I/O link, and only 16 per extended local I/O link. The 1785-L60L's current backplane load is 3.3 Amps at 5 Volts.



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