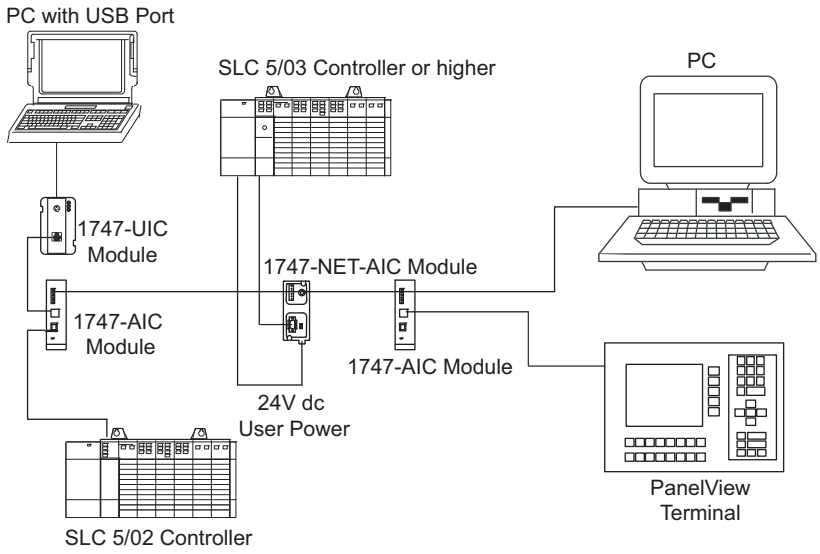
DH-485 Network

The DH-485 communication network allows devices on the plant floor to share information. Via the network, application programs can:

- monitor process and device parameters and status, including fault and alarm detection.
- perform data acquisition.
- perform supervisory control functions.
- upload/download PLC programs over the network.

The network offers connection to up to 32 nodes, token passing access control, and the ability to add or remove nodes without disrupting the network. DH-485 supports slave devices and features multiple-master capability.



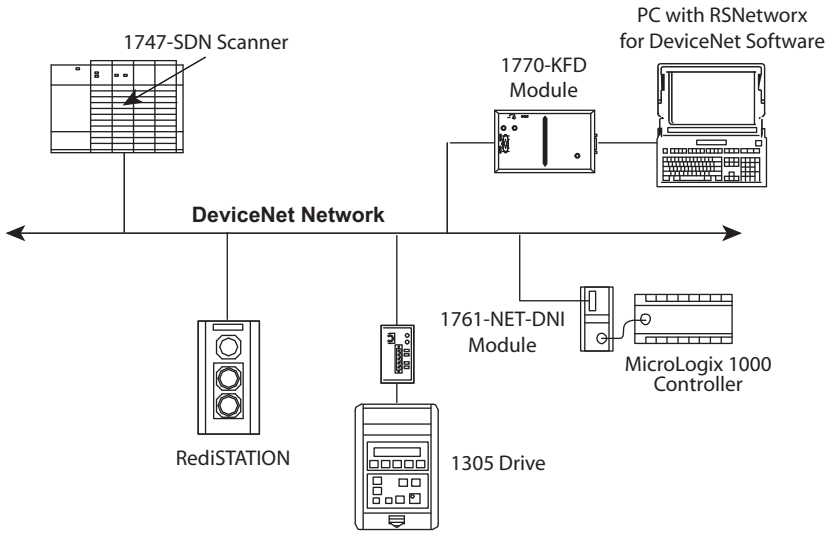
The SLC 500 family includes the following DH-485 devices:

- 1747-KE DH-485/RS-232C Interface Module
- 1761-NET-AIC Advanced Interface Converter
- 1747-AIC Isolated Link Coupler
- 1747-UIC USB to DH-485 Converter

DH-485/RS-232C Interface Module

The 1747-KE module is a communication interface that acts as a bridge between DH-485 networks and RS-232C devices using DF1 protocol. It allows you to access your SLC 500 processor through an RS-232C link. When used in an SLC 500 chassis with a modem, the 1747-KE module enables remote programming and troubleshooting of any single SLC 500 processor, remote communication to a DH-485 network of SLC 500 processors, and remote data collection from the data table of any SLC 500 processor. The interface module allows you to use the SLC 500 as a remote terminal unit.

- Cost-effective wiring – one wire supplies communications and 24V DC power.



DeviceNet connectivity for SLC 500 is provided by the following:

- 1747-SDN DeviceNet Scanner Module
- 1761-NET-DNI DeviceNet Interface

DeviceNet Scanner Module

The 1747-SDN scanner module enables communication between an SLC 5/02 or higher processor and a maximum of 63 DeviceNet-compatible I/O devices. The scanner is the DeviceNet master, enabling data transfer between DeviceNet slave devices using the strobe and poll message mode. The SLC system supports multiple scanners in a single-processor chassis.

The 1747-SDN module supports:

- up to 150 words of input and 150 words of output data.
- all standard DeviceNet communication rates.
- the exchange of status and configuration data.

DeviceNet Scanner Specifications

Attributes	1747-SDN
Backplane current (mA) @ 5V	500 mA
Network power source requirement	125 Kbps 250 Kbps 500 Kbps
Isolation voltage	Tested @ 500V DC for 60 s

In system mode, the serial port also supports supervisory control and data acquisition (SCADA) applications. SCADA systems allow you to monitor and control remote functions and processes using serial communication links between master and slave locations.

When configured for user mode, the serial port supports ASCII devices. Use the SLC 500 ASCII instructions to send information to and receive information from these devices.

RS-232/DF1 Port Splitters

The 1747 Port Splitters let a single RS-232/DF1 full-duplex communication port on a controller split into two separate ports for simultaneous connection with two external devices. The Port Splitter supports the following: SLC 500, PLC-5, MicroLogix, ControlLogix, CompactLogix, and FlexLogix controllers.

The Port Splitter has three ports for Controller, Network and Programmer/HMI connections. It also has a connection for a +24V external power source and status LEDs.

- The Controller port connects to the RS-232/DF1 full-duplex port of a controller. The port configuration is set at DF1 full-duplex, 8 bits, no parity, 1 stop bit and CRC checksum on powerup. The port automatically sets the baud rate to 19.2 K or 38.4 K baud taking advantage of the controller's maximum baud rate and can also match the controller's CRC or BCC checksum.
- The Network port on the 1747-DPS1 connects to a 1761-NET-AIC, 1761-NET-DNI or 1761-NET-ENI module and receives any messages initiated from the controller. The network port can source power from the port splitter's external power supply to one of the above modules if a 1761-CBL-AM00 or 1761-CBL-HM02 cable is used.
- The Network port on the 1747-DPS2 provides similar functionality, but can be configured for communications with DH-485, DF1 half-duplex (master or slave), DF1 full-duplex, and DF1 radio modem networks. The port is programmed for DH-485 communication at the factory.
- The 1747-DPS2 port splitter has fully-isolated communication ports. Therefore, no external isolation is required.
- The Prog/HMI port connects to a programming station or HMI device (PanelView Standard, PanelView Plus, VersaView CE) for respond only operations.

The serial configuration for the Network and Programmer/HMI ports on the 1747-DPS1 port splitter must be set to DF1 full-duplex, 8 bits, no parity, 1 stop bit, 19.2 K baud and CRC checksum.

The Network port on the 1747-DPS2 port splitter can be configured forwonderduplex, and DF1 radio modem networks.

Step 5- Select:

- *one power supply for each chassis (Consider power supply loading of the entire system and capacity for system expansion.)*

Select SLC 500 Power Supplies

When configuring a modular system, you must have a power supply for each chassis. Careful system configuration will result in optimal system performance. Excessive loading of the power supply outputs can cause a power supply shutdown or premature failure.

See the power supply selection example in the next section and use the blank worksheet provided at the end of this guide to determine which power supply is appropriate for your system. You need one worksheet for each chassis.

TIP Consider future system expansion when choosing power supplies.

The SLC system features three AC power supplies and four DC power supplies. The power supply mounts on the left side of the chassis with two screws. For AC power supplies, 120/240 volt selection is made by placing the jumper to match the input voltage. SLC power supplies have an LED that illuminates when the power supply is functioning properly.

Digital Combination Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1746-IO4	30 mA	25 mA	0.270 W per input point 0.133 W per output point	0.75 W	1.60 W
1746-IO8	60 mA	45 mA	0.270 W per input point 0.133 W per output point	1.38 W	3.00 W
1746-IO12	90 mA	70 mA	0.270 W per input point 0.133 W per output point	2.13 W	4.60 W
1746-IO12DC	80 mA	60 mA	0.200 W per input point 0.133 W per output point	1.84 W	3.90 W

Analog Input Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1746-NI4	25 mA	85 mA	N/A	2.17 W	2.20 W
1746-NI8	200 mA	100 mA	N/A	3.4 W	3.4 W
1746-NI16I	125 mA	75 mA	N/A	2.43 W	2.43 W
1746-NI16V	125 mA	75 mA	N/A	3.76 W	3.8 W

Analog Output Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1746-NO4I	55 mA	195 mA	N/A	4.96 W	5.00 W
1746-NO4V	55 mA	145 mA	N/A	3.04 W	3.80 W
1746-NO8I	120 mA	250 mA(1)	N/A	3.76 W	6.6 W
1746-NO8V	120 mA	160 mA(1)	N/A	3.04 W	4.44 W

(1) With jumper set to RACK, otherwise 0.000.

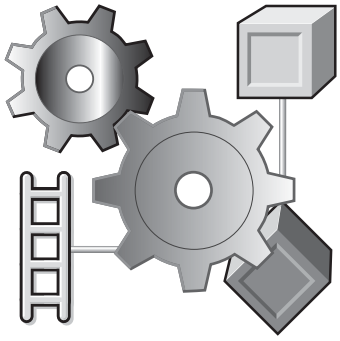
Analog Combination Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1746-FIO4I	55 mA	150 mA	N/A	3.76 W	3.80 W
1746-FIO4V	55 mA	120 mA	N/A	3.04 W	3.10 W
1746-NIO4I	55 mA	145 mA	N/A	3.76 W	3.80 W
1746-NIO4V	55 mA	115 mA	N/A	3.04 W	3.10 W

Step 6 - Select:

- *the appropriate RSLogix 500 package* for your application
- *other software packages, such as RSNetworx for ControlNet or RSNetworx for DeviceNet, if required*

RSLogix 500 Software

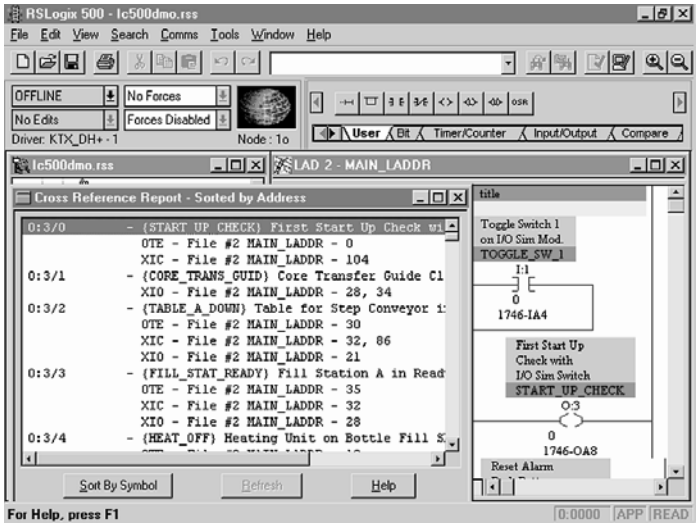


Select Programming Software

Familiar ladder diagram programming makes the SLC 500 family easy to program using a personal computer and RSLogix 500 Programming Software.

The RSLogix 500 ladder logic programming package was the first PLC programming software to offer unbeatable productivity with an industry-leading user interface. RSLogix 500 is compatible with programs created using Rockwell Software's DOSbased programming packages for the SLC 500 and MicroLogix families of processors, making program maintenance across hardware platforms convenient and easy.

RSLogix 500 may be used with Windows 98, Windows NT (4.0), Windows 2000, or Windows XP.



Flexible, Easy-to-use Editing Features

Create application programs without worrying about getting the syntax correct. A Project Verifier builds a list of errors that you can navigate through to make corrections at your convenience.

Powerful online editors allow you to modify your application program while the process is still operating. The Test Edits feature tests the operation of your modification before it becomes a permanent part of the application program. Online and offline editing sessions are limited only by the amount of available RAM.

Drag-and-drop editing lets you quickly move or copy instructions from rung to rung within a project, rungs from one subroutine or project to another, or data table elements from one data file to another.