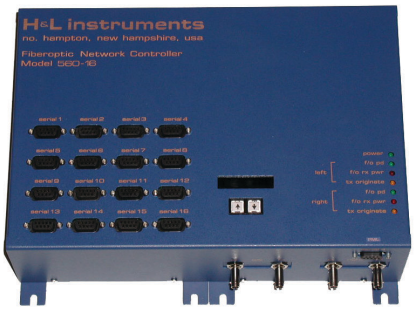
H&L instruments

The Fiberoptic Communications Specialists

Model 561-16 Fiberoptic Network Transceiver

Model 561-16



With 16 serial ports, the model 561-16 is capable of handling your most rigorous data communication requirements.

Model 561-16 Features

- **16 RS-232 compliant serial ports**
- **16 virtual channels (A-P)**
- **Up to 250 transceivers arranged in a loop or radial bus topology (scalable) permitting flexible future expansion of the system**
- **Highly reliable, fault-tolerant, redundant, self-healing loop technology**
- **Variety of plug-in optical modules for varying distances between stations (up to 53 miles)**
- **Vastly superior noise immunity and electrical isolation**
- **Supports all byte protocols (e.g. DNP, UCA)**
- **LED status indicators, non-volatile memory, and optical power meter**
- **8 character alphanumeric LED display for diagnostics and port information**
- **Integrated Network Management Software: FiberPanel**
- **Compatible with existing H&L Model 560/562 Fiberoptic Transceivers**

Overview

The H&L Instruments model 561-16 transceiver provides 16 RS-232 compliant serial ports for multi-drop, multi-channel, serial data communication used in master/slave supervisory control and data acquisition systems. Like the model 561, the 561-16 provides16 virtual channels and integrates with FiberPanel™ to provide the following benefits:

- Improves detection of electric system faults
- Ensures worker safety
- Manages data in a single accessible system
- Monitors and controls switchgear remotely
- Responds quickly to service outages and restores power

Flexible and Self-Healing

The Model 561-16 transceiver is used on a pair of multi-dropped fiber for all remote devices, such as RTUs, Programmable Logic Controllers (PLCs), IEDs, etc. You can arrange the transceivers in a loop or bus (radial) topology, which allows you the flexibility to greatly expand your system in the future.

The Model 561-16, used as a master unit, is the head end for the SCADA masters. All signals pass through the controller, which can automatically "self-heal" the system and re-route data in the event of fiber cuts or a transceiver failure anywhere in the system. The arrangement of transceivers in a loop configuration provides a highly reliable, fault-tolerant solution. In small systems, the model 561-16 can provide a dedicated channel for each RTU.

Fiber Network Flexibility

If a SCADA master needs to be at an additional location, such as a water plant master separate from the electric distribution control center, you can install serial port jumpers at the 561-16 network controller to bridge two virtual channels, and then remotely bridge the water plant master on one virtual channel to second virtual channel that broadcasts to all units.

In addition, you can place Model 561-16 transceivers in the system as standby controllers at any location connected to a standby SCADA master computer, which allows the standby transceivers to take over the fiber network operation in the event that the primary controller fails. You can add as many as 250 additional Model 561-16 transceivers to the system and, dependent on the model, connect up to 4, 8, or 16 RTUs or other IEDs to each transceiver (32 devices can be multi-dropped on the optional RS-485 port).

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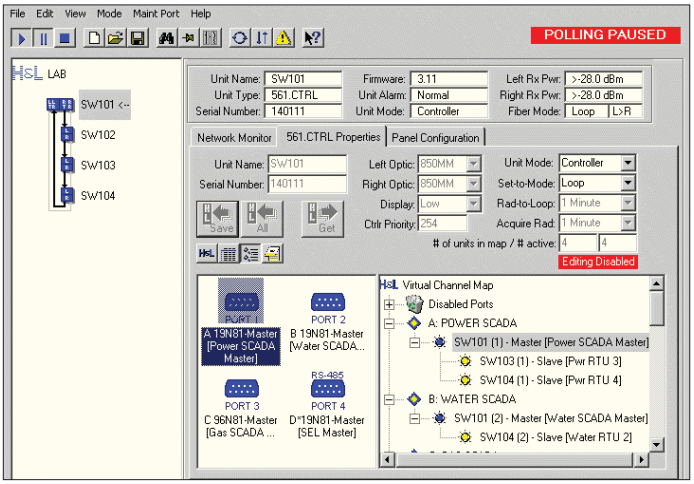
Integrated Network Management Software

Your purchase of the 561-16 includes FiberPanel, an extensive network management, configuration, and diagnostic software application. Other fiberoptic solutions only allow you to detect problems after there is a serious break in the system. FiberPanel helps you proactively maintain your system and streamline your maintenance tasks.

This Microsoft® Windows-based application allows you to view the system at all times with graphical, easy-to-use windows and to access real-time information about the network. The software supports remote connections to the fiberoptic network via a standard modem. Additionally, through TCP/IP connectivity, you can monitor and configure the fiber network over your Intranet or via the Internet. Up to four users can monitor an active session simultaneously.



A separate program, called SerialServer™, can connect a serial port on a remote PC to a TCP/IP socket. SerialServer installs on the PC that is physically connected to a 561-16 controller maintenance port. (A TCP/IP demonstration system is available at the H&L Instruments lab via the Internet.) A password provides additional security for TCP/IP connections. When companies secure the SerialServer port with a password, any connection request to that port requires the password in order to connect.

After installing your H&L transceivers, you can use FiberPanel to view a System Map of your entire network. This map represents the configuration and status of the fiberoptic network. The software also includes Unit Configuration tools to configure and monitor parameters within any transceiver, as well as fiber network configuration capabilities. The software records all network events in a log file and displays alarms.

If problems with the fibers occur, you can quickly identify and correct any issues. FiberPanel helps you stay informed and eliminates the guesswork often found in fiber network maintenance, which saves time and money. You no longer have to physically drive to individual transceiver locations to record their status. From the convenience of your office, you can:

- Check fibers, transceiver parameters, transceiver names and serial numbers.
- Assign unit names and location tags.
- Configure transceivers.
- Designate channels and set channel speed.
- Read optical signal strength.
- Turn off serial ports and re-route signals.
- Print reports on system activity, including diagnostic reports showing mis-wired fibers and malfunctioning units.

Model 561-16 Specifications

Serial Port:
600, 1200, 2400, 4800, 9600, 19.2kb/s max
system delay (250 units) 12.5ms, 16 DCE full duplex EIA-232 ports, 1 PML/EIA-485 opto-isolated (option)

Environmental/Mechanical:
Operating Temperature: -40°C to +85°C
5% to 95% RH
Net Weight: 4.5lbs
9"L X 12"W X 5.5"H

Fiberoptic Connector Options:
ST

Optical Output Power:
LED> -18dBm @ 850nm multimode (62/125 fiber)
LED> -24dBm @ 1310nm singlemode
Laser> -8dBm @ 1310nm singlemode

Optical Receiver Sensitivity:
> -38dBm multimode
> -42dBm singlemode @ 1310nm [1 X 10-9 BER]

Optical Budget:
20dB multimode LED @ 850nm (62/125 fiber) 16 dB singlemode LED @ 1310nm
32 dB singlemode Laser @ 1310nm

Power Options (10.4 watts max):
12Vdc, 24Vdc, 48Vdc, 125Vdc/120Vac 50/60Hz, 250Vdc/230Vac 50/60Hz

Alarm Output:
1A (N.O.) opto-isolated solid state relay

System Requirements for FiberPanel:
Microsoft® Windows 7/XP/Vista/2000/NT

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