



With 16 virtual channels, the Model 561-16 is flexible enough to meet your most rigorous data communication needs.

## Model 561-16 Features

- **16 virtual serial 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**

## Fiberoptic Network Transceiver The FiberLoop II™ System

### Overview

Another option within H&L's FiberLoop II™ system is the Model 561-16 Fiberoptic Transceiver. Providing multi-drop, multi-channel, serial data communications for master/slave supervisory control and data acquisition systems, the Model 561-16 makes it possible for you to expand existing four channel systems into 16 virtual channels. Integrated with FiberPanel™, a Windows®-based network management software application, Model 561-16:

- 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. FiberLoop II, in small systems, can provide a dedicated channel for each RTU.

### FiberLoop II at Work

In the FiberLoop II system, if a SCADA master needs to be at another location (e.g., a water plant master is typically in a different location than the electric department control center), then you can install serial port jumpers at the 561-16 network controller to bridge two virtual channels and remotely bridge that remote master on one virtual channel to another virtual channel that broadcasts to all units.

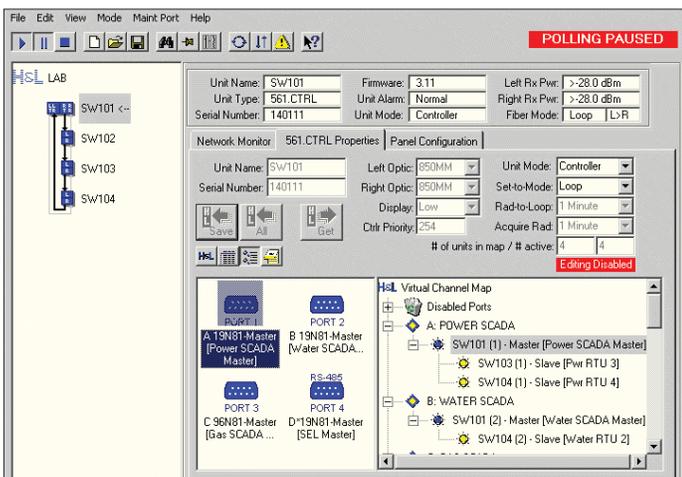
You can place Model 561-16 transceivers in the system as standby controllers at any location connected to a standby SCADA master computer, which allows them to take over the FiberLoop II operation in case the primary controller fails. You can add as many as 250 additional Model 561-16 transceivers to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

# Model 561-16

## Integrated Network Management Software

Your purchase of FiberLoop II includes FiberPanel, an extensive network management, configuration, and diagnostic software application. Other fiberoptic solutions only allow you to catch 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 its condition. The software supports remote connections to the fiberoptic network via a standard modem. Additionally, through TCP/IP connectivity, you can monitor and configure the FiberLoop II system via your Intranet or the Internet. Up to four users can monitor an active session.



A separate program, called SerialServer™, connects a serial port on the remote PC to a TCP/IP socket. You install this program on the PC that is physically connected to a FiberLoop II 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 must “know” the password in order to connect.

After installing your H&L transceivers, you can use FiberPanel to view a System Map of your entire set-up. 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 unit, as well as Panel Configuration capabilities. The system 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 fiberoptic maintenance, saving time and money. You no longer have to physically drive to individual units to record their status. From the convenience of your office, you can:

- Check fibers, locations, unit names, and serial numbers.
- Assign unit names and location tags.
- Configure your units.
- Designate channels and decide 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<sup>-9</sup> 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  
50-60 Hz, 250Vdc/230Vac 50-60 Hz

### 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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