# H&L instruments

The Fiberoptic
Communications
Specialists

**Model 570-16**

The Model 570-16 offers 16 high-speed serial ports to meet the challenging needs of distribution automation, secondary networks, corporate LAN, Ethernet to SCADA master, substation networks and protection relay systems.

## Model 570-16 Features

- **Up to 127 high-speed virtual channels**
- **16 high-speed serial ports**
- **SLIC, INCOM, RS-422/Ardax (options)**
- **Transceiver and controller features available in a single, powerful unit**
- **Highly reliable, fault-tolerant, redundant, self-healing ring and radial network designs**
- **Vastly superior noise immunity and electrical isolation**
- **Supports all byte protocols (e.g. DNP, UCA)**
- **Point-to-Point communication**
- **Two 10/100 802.3 compliant Ethernet ports (option)**
- **LED status indicators, non-volatile flash memory, and optical power meter**
- **8 character alphanumeric LED display for diagnostics and port information**

### Overview

The FiberLoop III™ System includes the hardware and software you need to deliver the highest customer service and the most reliable communications. The Model 570-16 Fiberoptic Transceiver combines the capabilities of a transceiver and a controller into a single unit. This means you can perform SCADA master, slave, and point-to-point communications within the same device, making it a highly flexible solution.

### Multiple Network Channels

The Model 570-16 Transceiver offers up to 127 high-speed independent virtual network communication channels. You can assign a transceiver serial port to any virtual channel, which allows you to group Remote Terminal Units (RTUs) with common protocols, segregate different applications, allocate network bandwidth, and connect backup master stations. The FiberLoop III supports multiple RTUs, Intelligent Electronic Devices (IEDs), Programmable Logic Controllers (PLCs).

### Multiple Network Topologies

FiberLoop III permits both redundant ring and radial network designs with the same transceivers.

### Self-healing

Model 570-16 transceivers automatically correct for network failures, rerouting SCADA information within 8ms, without any noticeable change in communications. In fact, the self-healing network converts dynamically to a radial network if units fail, not just when fibers are severed.

### Protocol Transparent

FiberLoop III carries all byte protocols, such as DNP, UCA, and MODBUS transparently and can group RTUs with common protocols into common virtual communication channels without resorting to hard-coded serial port assignments.

### Multiple SCADA Masters

The design of the FiberLoop III transceivers enables them to act as SCADA masters on some channels, while simultaneously acting as slave channels on other ports. FiberLoop III networks can consist of many SCADA master stations in multiple locations, which work optimally for water, electric, and gas utilities.

### Paired Point-to-Point

FiberLoop III allows you to pair any transceiver port with another transceiver's port while continuing to use the remaining non-paired channels for conventional master/slave SCADA. The system accommodates up to 127 protective relay pairs, supports the use of SEL Mirrored Bits and RS-422 64K synchronous communications.

### Ethernet Ports option E

The Model 570-16 offers two optional 10/100Mbps ports compliant with 802.3 Ethernet and 802.3u Fast Ethernet standards. You can use auto-negotiation to select 10BASE-T or 100BASE-TX in full or half-duplex mode. The Model 570-16 also uses MAC address learning to provide an L2 switched circuit for transporting Ethernet frames over the FiberLoop III backbone.

**Model 570-16**

**Remote Monitoring with Network Software**

Differentiating itself from competitors, H&L also includes the FiberPanel™ Network Management Software with every FiberLoop III system. FiberPanel is specifically designed to work with the Model 570-16 Transceivers. It allows you to configure and view the system with graphical, easy-to-use windows and to access real-time information about its condition.
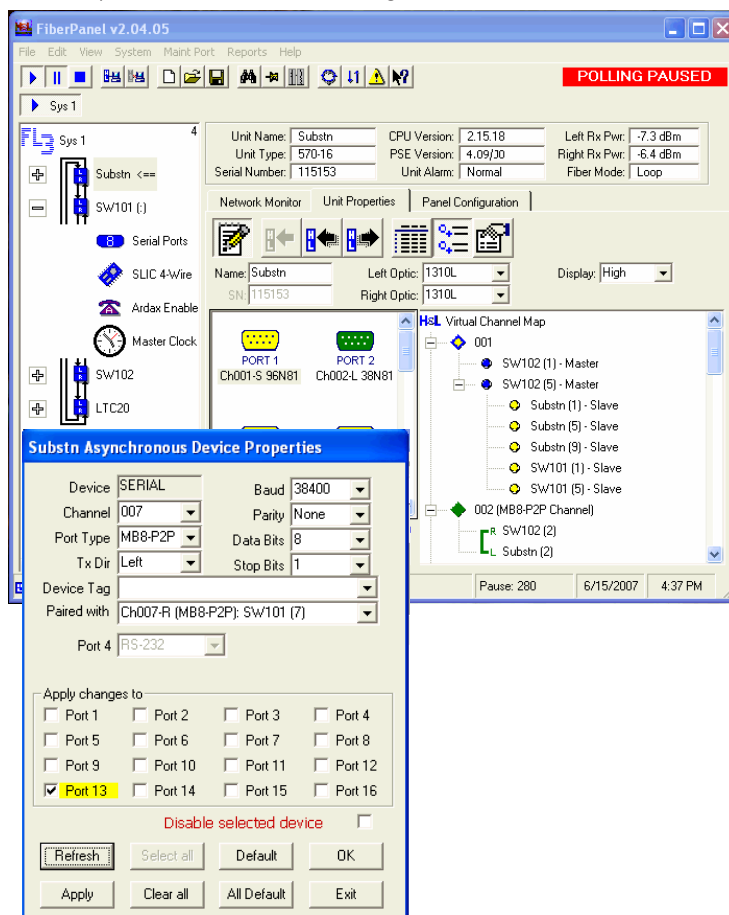
The software supports remote connections to the fiberoptic network via a standard modem. Additionally, through TCP/IP connectivity, you can monitor and configure the FiberLoop III system via your Intranet or the Internet. Up to four users can monitor an active session.

Other fiberoptic solutions only allow you to catch problems after there is a break in the system. FiberPanel displays alarms and records a history of all network events in a log file. If problems with the fibers occur, you can quickly identify and correct any issues. The complete FiberLoop III solution helps you proactively maintain control over your network and streamline your maintenance tasks.

Using FiberPanel, from the convenience of your office, you can:

* View a System Map of your entire set-up.
* Check fibers, locations, unit names, and serial numbers.
* Assign unit names and location tags.
* Configure parameters for your units.
* Allocate channels and decide channel speed.
* Selectively turn on ports to communicate with remote devices, such as relay maintenance ports (which do not have SCADA addresses) to download event data or upload new settings.
* Measure optical power.

* Isolate faults, turn off serial ports, and re-route signals.
* Print reports on system activity, including diagnostic reports showing mis-wired fibers, telemetry of unit voltages and temperature and malfunctioning units.



## Model 570-16 Specifications

**Model 570-16:**
16-DB-9F RS-232 serial ports, one port per connector

**SLIC, INCOM, RS-422/Ardax (options):**
1 SLIC, 1 INCOM, 2 RS-422/Ardax ports

**Ethernet PORTS:**
Two 10/100 802.3 compliant RJ-45 Ethernet ports

**Maintenance PORT:**
RS-232 via PC-AT DB-9F port

**Virtual Channels:**
Model 570s support 127 virtual channels. Any port can be assigned to any channel. Point-to-Point channels available.

**RS-485:**
Opto-isolated transient-protected port

**Data Rates:**
600, 1200, 2400, 4800, 9600, 19.2kb/s 38.4kb/s, 57.6 kb/s, 115.2 kb/s

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

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

**Push-to-Talk:**
Form 1A (N.O.) opto-isolated solid-state relay; PTT contacts on pins 1 & 9 of DB-9 Serial 3 (option)

**Environmental/Mechanical Specs:**
Operating Temperature: -40°C to +85°C
5% to 95% RH
Net Weight: 3.25lbs
9"L X 6"W X 3.3"H

**Fiberoptic Connectors:**
ST

**Optical Output:**
Laser> -8dBm @ 1310nm singlemode
Laser> -7dBm @ 1550nm singlemode
Class 1 (eye-safe) devices, ST fiberoptic

**Optical Receiver Sensitivity:**
> -28dBm

**Optical Budget:**
20dB singlemode

**System Requirements for FiberPanel:**
Microsoft® Windows NT4/2000/XP/Vista
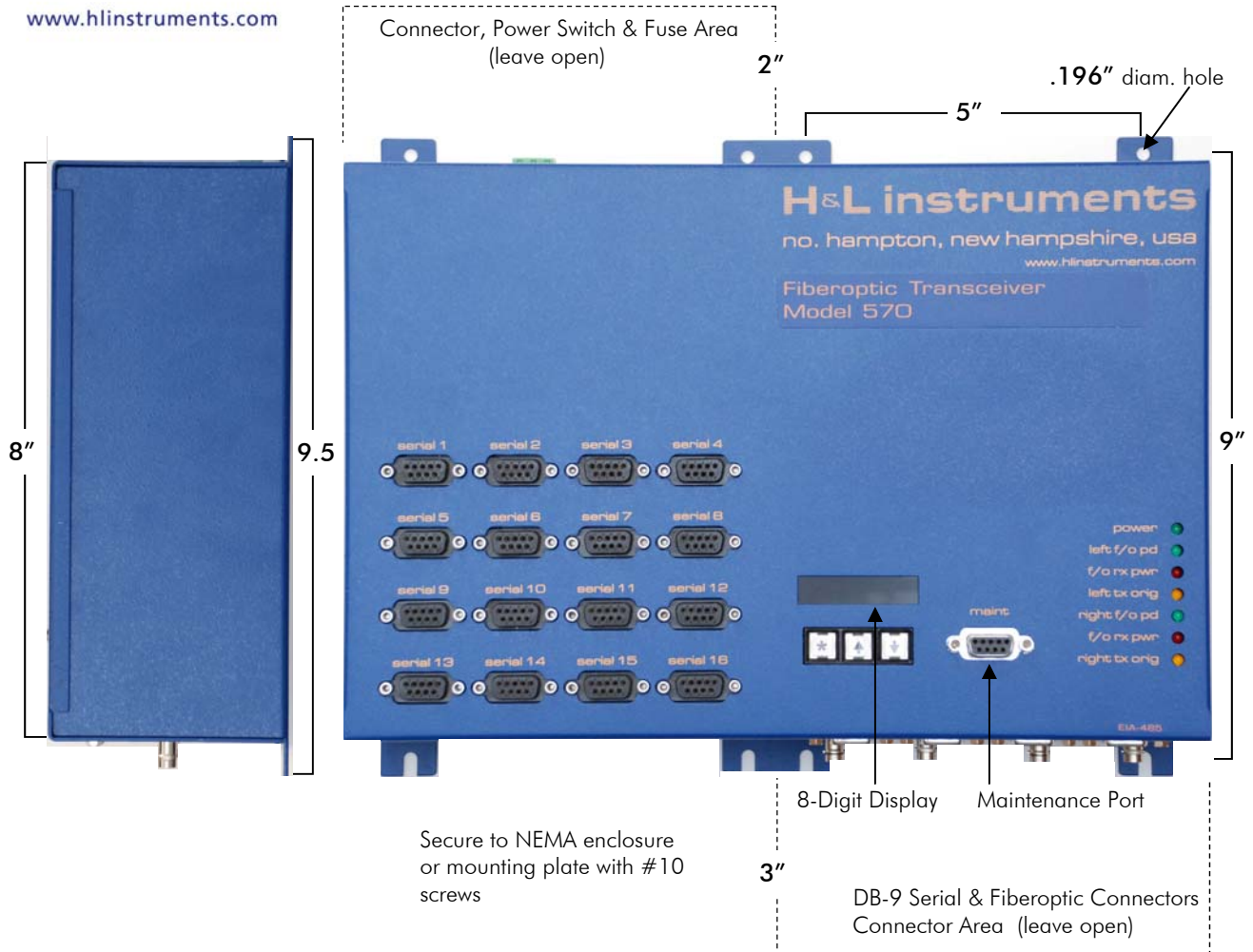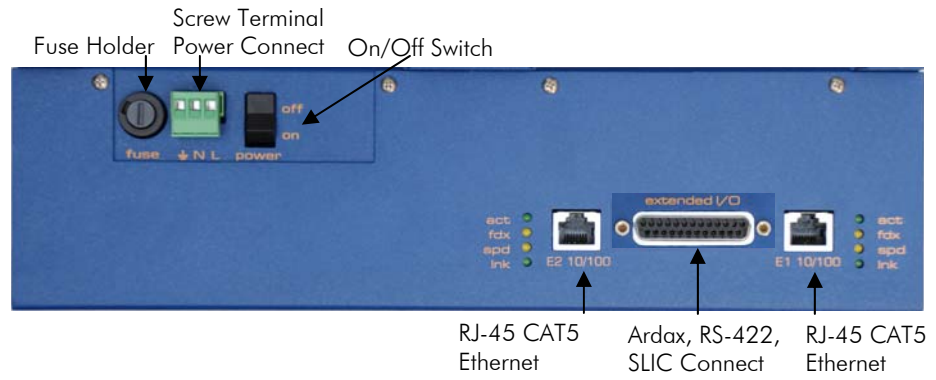


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Fuse Holder

Screw Terminal
Power Connect

On/Off Switch

off
on
fuse ⏚ N L power

extended I/O

act
fdx
spd
lnk

E2 10/100

act
fdx
spd
lnk

E1 10/100

RJ-45 CAT5
Ethernet

Ardax, RS-422,
SLIC Connect

RJ-45 CAT5
Ethernet

Connector, Power Switch & Fuse Area
(leave open)

2"

.196" diam. hole

5"

8"

9.5

9"

**H&L instruments**

no. hampton, new hampshire, usa

www.hlinstruments.com

Fiberoptic Transceiver
Model 570

serial 1   serial 2   serial 3   serial 4

serial 5   serial 6   serial 7   serial 8

serial 9   serial 10  serial 11  serial 12

serial 13  serial 14  serial 15  serial 16

power
left f/o pd
f/o rx pwr
left tx orig
right f/o pd
f/o rx pwr
right tx orig

maint

EIA-485

8-Digit Display

Maintenance Port

Secure to NEMA enclosure
or mounting plate with #10
screws

3"

DB-9 Serial & Fiberoptic Connectors
Connector Area  (leave open)

serial 1   serial 2   serial 3   serial 4

3.3"

tx      left      rx      tx     right    rx

12"

## Model 570-16 Fiberoptic Transceiver Dimensions