

# SPH-4

## SFP Patching Hub



## Converting Ethernet copper ports to SFP sockets

- Converts four Fast Ethernet or Gigabit Ethernet copper ports to SFP sockets
- Complies with any third-party standard SFP device
- Eliminates store and forward delays by using fully transparent Layer-1 wire-speed conversion
- Propagates SFP faults to LAN link
- Supports SNMP management with I<sup>2</sup>C interface to standard SFP devices

SPH-4 is a simple, smart and powerful patching hub that converts Ethernet copper ports to SFP sockets.

The device connects to any RJ-45 compatible switch and interoperates with RAD's System on an SFP family of products, MiRiCi and MiTOP. SPH-4 complies with standard SFP devices from any other vendor.

SPH-4 can also be used as an Ethernet copper-to-fiber converter, with various fiber optic media, to extend the distance of Fast Ethernet and Gigabit Ethernet networks.

The device supports hot-swappable SFPs working at 100 Mbps and 1000 Mbps, as well as Ethernet copper ports working at 100 Mbps and 1000 Mbps with auto-discovery.

SPH-4 provides a flexible lower-cost alternative to expensive dedicated SFPs.



# SPH-4

## SFP Patching Hub

### FAULT PROPAGATION

If a failure is detected on the SFP port, the fault propagation mechanism deactivates the Ethernet copper port.

### FLEXIBILITY

The SPH-4 ports are used for any combination of 100 Mbps or 1000 Mbps fiber optic SFPs and RAD's System on an SFP family of products, MiRiCi and MiTOP.

### MANAGEMENT

The unit can be managed via:

- ASCII terminal, for configuration and status
- PC running a WEB browser
- Telnet host
- SNMP-based network management station.

### SECURITY

SPH-4 supports the following security protocols, to provide a high level of communication security:

- SNMPv3
- RADIUS authentication
- SSL for Web-based management
- SSH for Secure Shell communication.

### DIAGNOSTICS

Comprehensive diagnostic capabilities include real-time major and minor alarms to alert the user to fault conditions.

### COMPACT SIZE

The unit is supplied in a compact 8.5-inch 1U high enclosure.

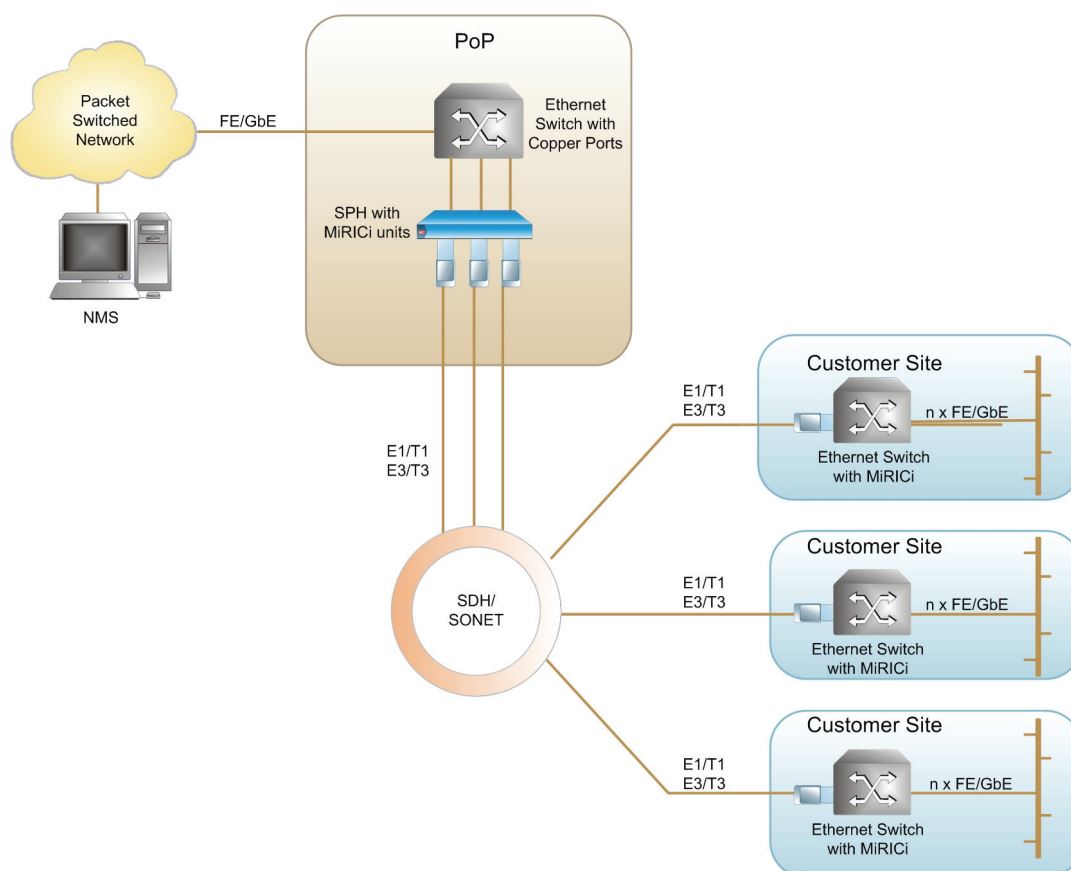


Figure 1. LAN over PDH via System on an SFP

## Specifications

### ETHERNET USER INTERFACE

#### Number of Ports

4

#### Compliance

IEEE 802.3

#### Type

100/1000 Mbps, autonegotiation, full duplex, MDI/MDX crossover

#### Maximum Frame Size

Up to 10 kBytes

#### Line Impedance

100Ω

#### Connector

RJ-45, shielded

### SFP USER INTERFACE

#### Number of Ports

4

#### Data rate

100/1000 Mbps

#### Maximum Frame Size

Up to 10 kBytes

#### Interface Type

Giga SERDES or 100BaseFX

#### Connector

SFP-based, MSA compliant

### MANAGEMENT PORTS

#### Out-of-Band Ethernet Management Port

Compliance: IEEE 802.3

Type: 10/100 Mbps, MDI/MDX crossover

Maximum frame size: 1522

Connector: RJ-45, shielded

#### Control Port

Interface: RS-232 DCE

Connector: DB-9, female

Data rate: 9.6, 19.2, or 115.2 kbps

### INDICATORS

#### Ethernet Copper User (per port)

LINK/ACT (yellow) – LAN link and data activity status

On: Ethernet link is up

Off: Ethernet link is down

Flashing: Ethernet link is up and Rx and/or Tx frames are being transmitted

100/1000 (green) – 100 or 1000 Mbps

On: 1000 Mbps mode

Off: 100 Mbps mode

#### SFP User (per port)

LINK/ACT (yellow) – Ethernet link integrity and data activity status

On: Ethernet link is up

Off: Ethernet link is down

Flashing: Ethernet link is up and Rx and/or Tx frames are being transmitted

### Ethernet Management

LINK/ACT (yellow) – LAN link and data activity status

On: Ethernet link is up

Off: Ethernet link is down

Flashing: Ethernet link is up and Rx and/or Tx frames are being transmitted

10/100 (green) – 10 Mbps or 100 Mbps

On: 100 Mbps mode

Off: 10 Mbps mode

### GENERAL

#### Power

AC power supply:

100–240 VAC ±10%, 50/60 Hz

#### Power Consumption

Fully Occupied *(with fiber optic Gigabit Ethernet SFP and Gigabit Ethernet traffic passing on fiber and copper sides)*

AC: 40 VA

Chassis only *(without SFPs and copper cables)*

24 VA

#### Physical

Height: 43.7 mm (1.7 in) 1U

Width: 215 mm (8.4 in)

Depth: 300 mm (11.8 in)

Weight: 2.1 kg (4.6 lb)

#### Environment

Temperature: 0–50°C (32–122°F)

Humidity: Up to 90%, non-condensing

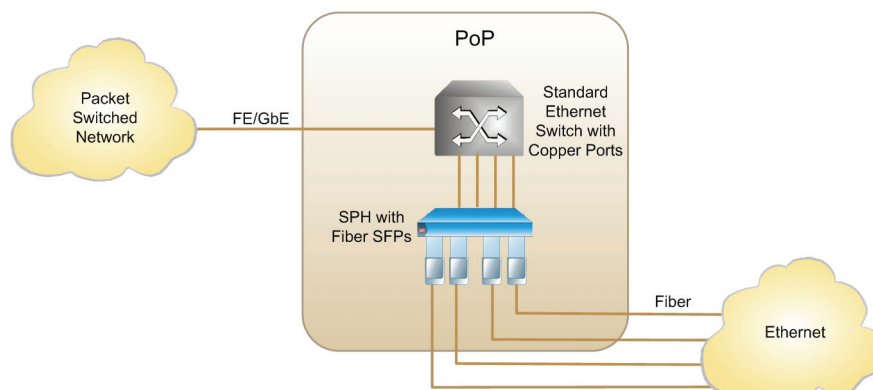


Figure 2. Ethernet Copper to Fiber

## SPH-4

## SFP Patching Hub

## Ordering

## SPH-4

## SUPPLIED ACCESSORIES

AC power cord

## OPTIONAL ACCESSORIES

## RM-35/+

Hardware kit for mounting one or two  
SPH-4 units in a 19-inch rack

- + Rack mount kit (Default=Both kits):
  - P1 Kit for mounting one unit
  - P2 Kit for mounting two units

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**International Headquarters**  
24 Raoul Wallenberg Street  
Tel Aviv 69719, Israel  
Tel. 972-3-6458181  
Fax 972-3-6498250, 6474436  
E-mail market@rad.com

**North America Headquarters**  
900 Corporate Drive  
Mahwah, NJ 07430, USA  
Tel. 201-5291100  
Toll free 1-800-4447234  
Fax 201-5295777  
E-mail market@rad.com

**www.rad.com**

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