IPIswitch OPTICAL PROTECTION SWITCH
IPISW-OPSW

**IPITEK** OPTICAL PROTECTION SWITCH

FEATURES & BENEFITS

- 1RU chassis that fits in 19" or 23" racks

- One unit will accommodate up to two hot-swappable optical protection switch modules.

- Each protection switch module contains a 50/50 splitter and a 1x2 switch to enable full 1+1 protection of a bidirectional point-to-point system.

- Complete path protection switching in < 10ms.

- Remotely and locally configurable and fully managed through SNMP and TL1.

- Full optical power monitoring of both client side, working path and protection path.

- Ultra-wide dynamic range (-35dBm to +17dBm).

- For applications in both 1310nm as well as 1550nm range (1460-1620nm).

- Revertive, non-revertive, forced and manual switch modes supported.

- Latching switch mechanism ensures that last position is fixed in case of power failure.

Description

IPITEK's IPIswitch platform offers a feature-rich, versatile, fully managed system for optical protection switching. A wide input power range (-35dBm to +17dBm) as well as wavelength range (1310nm & 1460-1620nm) makes it an ideal fit for both digital and CATV applications. Moreover, the IPIswitch platform can be used for optical path protection of both single wavelength as well as multi-wavelength systems, and is bit rate independent.

The 1RU high IPIswitch chassis accommodates up to two optical protection switch (OPSW) modules. As seen in the figure below, each single OPSW, denoted OPSW1, contains a 50/50 splitter and 2x1 switch as well as three monitor photodiodes. A single OPSW1 module in an IPIswitch chassis at each site is all that is needed to enable full 1+1 optical path protection of a bidirectional point-to-point system. The monitor photodiode at the input of the 50/50 splitter monitors the client side power level, and sends out an alarm if the power falls below a user-defined threshold. This will inform network

IPIswitch platforms with OPSW1 configured for full 1+1 bidirectional linear path protection
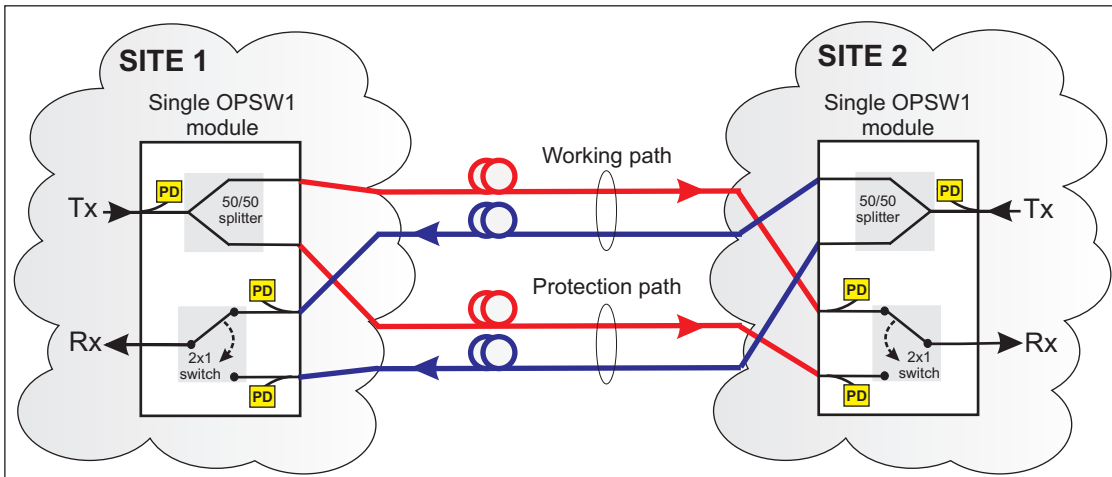
management if, e.g., a laser in one of the transmitters fail. Additionally, two photodiodes on the input of the 2x1 switch monitor the power from the working and protection paths. An alarm will be sent out if the power falls below a user-defined level. Moreover, protection switching will be automatically performed within 10 ms if the power level falls below another user-defined threshold as a result of, e.g., a fiber break on the working path. The switching mode can be set to revertive, non-revertive, forced and manual, allowing for complete operational flexibility.

Provisioning

All IPIswitch chassis and OPSW module provisioning is performed via interfaces to the Control & Management module (CM-PS). Provisioning can be done via CLI using the TL1 command set. This is performed locally using the RS-232 craft interface on the CM-PS module or remotely using TELNET and one of the two network management ports. Moreover, device-level centralized provisioning and management are offered using SNMP via the full-featured MIBs. Both TL1 as well as SNMP can be used to get inventory information and module performance and set module parameters.

Monitoring

System monitoring is enabled through TL1 as well as SNMP. TL1 notifications are sent to the CM-PS module and from there on to the host computer when module parameters are modified. When, e.g., power levels fall below the user-defined levels or protection switching is performed, alarms will be sent via the TL1 and SNMP interface to the host computer . This also triggers SNMP to provide asynchronous traps and event notification to a Network Management System (NMS).

SPECIFICATIONS

System specifications

Capacity: Two pluggable OPSW modules
Service pluggable modules:
Control & Mgmt (CM-PS) module, OPSW module

Power

Power consumption:	35 watts max
Power supply:	-48VDC (-43 to -57VDC)

Environmental

Operating temperature:	0° to 50°C
Storage temperature:	-40° to +70°C
Relative humidity:	5 to 95%

Physical dimensions

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Chassis dimensions:	17" (W) x 11" (D) x 1.75" (H) (43.1 cm x 27.9 cm x 4.4 cm)
OPSW module dimensions:	4.52'' (W) x 8'' (D) x 1.58'' (H) (11.5 cm x 20.3 cm x 4.0 cm)
Rack mount requirements:	19" or 23" EIA cabinet or open-frame rack.

Weight

Chassis (empty):	8 lbs.
Control & Mgmt module:	2 lbs.
OPSW module:	1 lb.

Provisioning

Craft interface:	DB9 RS-232C
Network management:	2x 10/100BASE-T
Protocol:	CLI, TL1, SNMPv1c, SNMPv2c
Software download:	Flash bank and FTP

OPSW module optical specifications

Optical connector:	LC/PC
Wavelength range:	1310nm, 1460-1620nm
Input power range:	-30dBm to +10dBm (1310nm) -35dBm to +17dBm (1460-1620nm)
Monitoring accuracy:	±2dBm (1310nm) ±2dBm (1460-1620nm, -35 to -30dBm) ±1dBm (1460-1620nm, -30 to +17dBm)
Power monitoring resolution:	0.1dB
Insertion loss:	4dB (Client Tx to Working/Protect Tx) 1.5dB (Working/Protect Rx to Client Rx) 5.5dB (Client Tx to Client Rx)
Switching time:	Less than 10ms
Switch type:	Latching

Schematic diagram of OPSW1 module
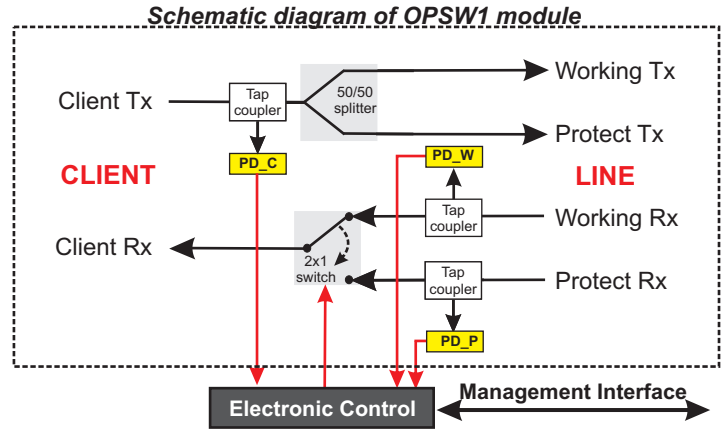
ORDERING INFORMATION

IPISW-OPSW-CH-SET-DC	IPIswitch chassis with control & management module (CM-PS) and filter module
IPISW-OPSW1-MODULE	OPSW1 module (with single optical protection switch)
IPISW-OPSW2-MODULE	OPSW2 module (with dual optical protection switch)- *Call factory for availability*
PWR SPLY DC CONV 48V	Power adapter for conversion from 110VAC to -48VDC

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