OPS-1000

Optical protection system (Single fiber Two-way)

PRODUCT DESCRIPTION

OPS-1000 Optics Protection System product series, mainly applies to optical communication field of single fiber two-way for main, light path switching equipment. It makes up from light path switching unit, optical power monitoring unit and network management terminal. In optical communication networks, OPS-1000 real-time monitor the optical power of operating fibers and spare fibers, when monitor the optical light path′ s optical power is lower than setting switching threshold, it will alarming prompt and switch to the spare fiber to realize the line protection of optical transmission system.

OPS-1000 with two light path protection modes:

1. OPS-1051 (1+1 protection mode): receiving port 2x1 optical switch; transmitting port 50/50 splitter, splitter can choose other splitting ratio: 60/40、70/30、80/20、90/10

2. OPS-1011(1:1 protection mode): receiving port 2x1 optical switch; transmitting port 2x1 optical switchch; transmitting port 50/50 splitter, splitter can choose other splitting ratio: 60/40、70/30、80/20、90/10

OPS-1000′ s bi-direction operation wavelength can be appointed by user; there are three regular types as below:

1. OPS-1500：Bi-direction operation wavelength with 1528~1565nm C-Band;

2. OPS-1600：Bi-direction operation wavelength with C-Band & L-Band;

3. OPS-1400：Bi-direction operation wavelength with 1540~1610 & 1310/1490.

PRODUCT FEATURES

- ▶ Wide wavelength range
- ▶ High trend optical power monitoring range
- ▶ Ultra-low insertion loss
- ▶ Very fast switching speed
- ▶ Low polarization dependent loss (PDL)
- ▶ User-definable thresholds and hysteresis
- ▶ User-selectable revertive and non-revertive
- ▶ SNMP supporting remote management and monitoring
- ▶ 1+1 supply back-up, support hot plug
- ▶ Outage maintain
- ▶ Excellent cost performance

MAIN APPLICATION

▶Single fiber Two-way optical communication network protection and recover

▶Network detection and switch

TECHNICAL INDEX

Performance					Index			Supplement
					Min.	Typ.	Max.	
Optical feature	Operating wavelength range			(nm)	1528		1565	(C-Band) OPS-1500
					C-Band & L-Band			OPS-1600
					1540~1610 &1310/1490			OPS-1400
	Insertion loss	1+1 protection	Sending end	(dB)		3.6	4.0	50/50% splitter
			Receiving end				2.5	5% Tap
		1:1 protection (single-end)					2.5	5% Tap
	Return loss			(dB)	55	60		APC
	Switch cross talk			(dB)	55	60		
	Optical power monitoring range			(dBm)	-30		+10	A type
					-23		+23	B type
					-45		+23	C type
	Optical power resolution			(dB)			0.1	
	Optical power measure accuracy			(dB)			0.5	-40~+23dBm
							1.0	-40~+50dBm
	Wavelength dependent loss			(dB)			0.2	
	Polarization dependent loss			(dB)		0.06	0.1	
	Temperature dependent loss			(dB)			0.2	0~70 °C
	Switching time	1+1 protection		(ms)		3	10	
		1:1 protection					25	
	Fiber type				9/125			SMF-28
	Optical connector				SC/APC, LC/APC			Optional UPC
General feature	100M Ethernet interface				RJ45			
	Network protocol				SNMP			
	Communication interface				RS232			
	Power supply			(V)	90	220	265	50/60Hz
					-72	-48	-36	
	Power consume			(W)			4	
	Working temp.			(℃)	-20		65	
	Storage temp.			(℃)	-40		85	

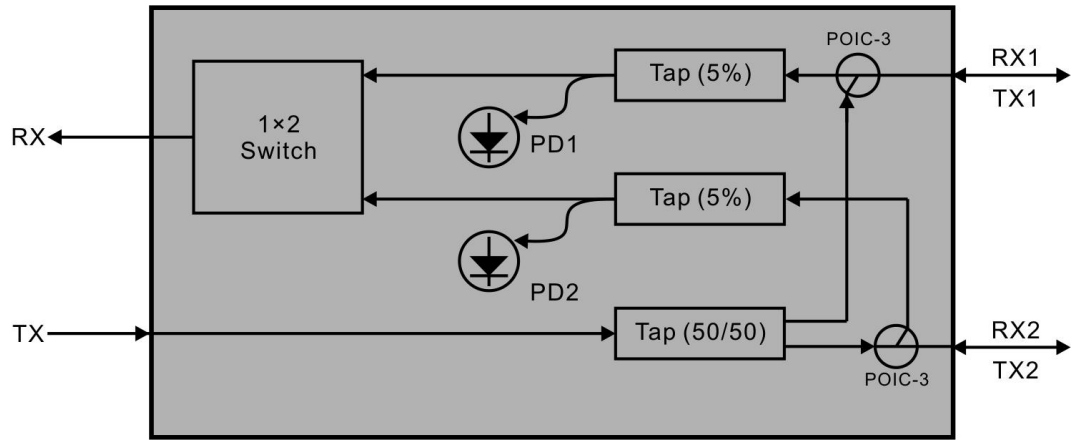
	Working relative humidity	(%)	0		95	
	Size (W) × (D) × (H)		483×254×44			(W) × (D) × (H)

OPS-1000 OPTICAL PROTECTION SYSTEM FUNCTION:

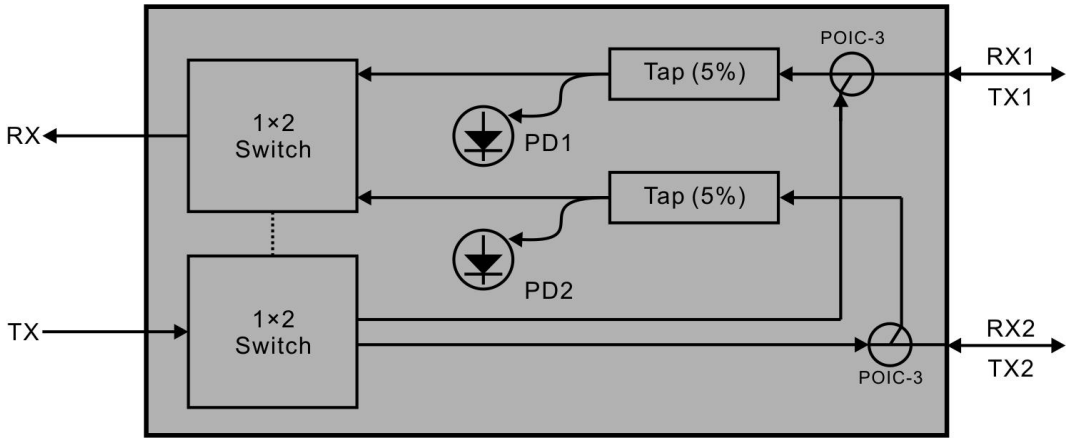
Optical fiber switching function	1. Automatic switching function: When system monitoring optical power decrease of light path and exceed (under) the user setting switching threshold, the system will automatic switch from operating fiber to spare fiber. 2. Manual switching function: Users can realize manual switch by the equipment panel button and network management terminal. 3. Automatic/manual restore function model: with automatic restore and manual restore function model.
Optical power detection function	System supplies real time detection function of operation fiber and spare fiber.
Network management function	SNMP network management function, RS232 communication interface, support remote monitor and management.
Parameter setting, check function	With alarming threshold, switching threshold, protection model etc parameter setting and checking function.
Alarm function	1. Sound alarm: when equipment alarms, the equipment, webmasters all have alarming prompt, and offer banned sound function. 2. Light alarm: When alarms, three will be alarming prompt, according to the indicator lights' color change or webmaster to monitor the current system status. 3. Display alarming details: The equipment's LCD display current alarming information. 4. Alarming classify and classification function 1), Classify alarm: Include optical power and other alarming function. 2), Other alarm: Include equipment power, alarming when the equipment can't contact with operation maintenance terminal system.
Display function	1. System business current work in operation fiber or protection fiber. 2. Alarming failure prompt. 3. Equipment current operation model—manual/automatic. 4. The current optical power value of operation fiber and spare fiber. 5. Display the current alarming threshold, switching threshold.
Reliability	1. High reliability, mean time between failures (MTBF) not less to 100，000h. 2. 1+1 power supply back up, support hot plug. Two-way DC power supply, two-way AC power supply, or one DC one AC power supply can be optional. 3. System's use, not effect to optical transmission network's common work. 4. Outage maintaining: In system outage, plus electric process to keep original work line and communication are not affected. Or switch the lines that have optical signal. 5. Without light lock: When computer room system without light output, Can maintain the original line state.5.

TWO KINDS OF PROTECTED TYPE PRINCIPLE DIAGRAM

OPS-1551-2-0 (1+1 principle diagram)

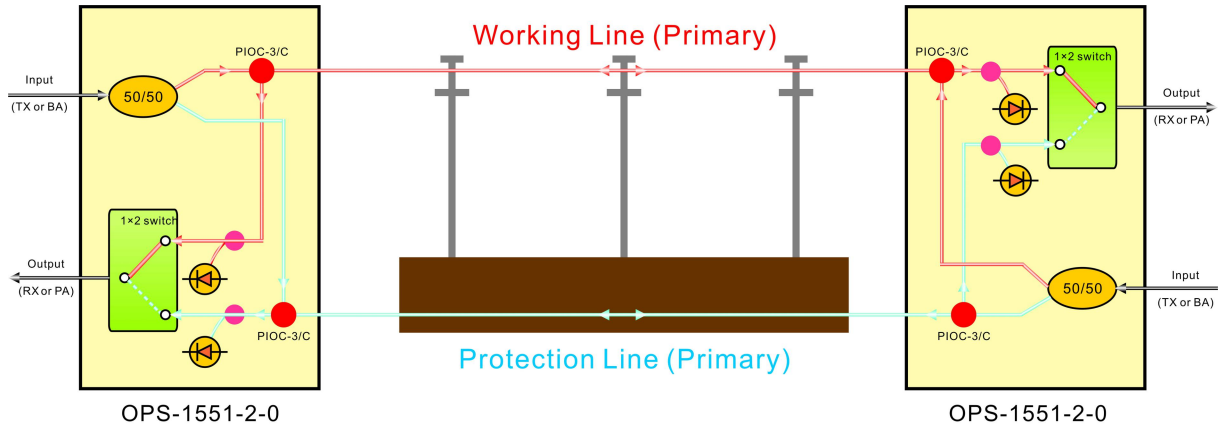


OPS-1511-2-0 (1: 1 principle diagram)



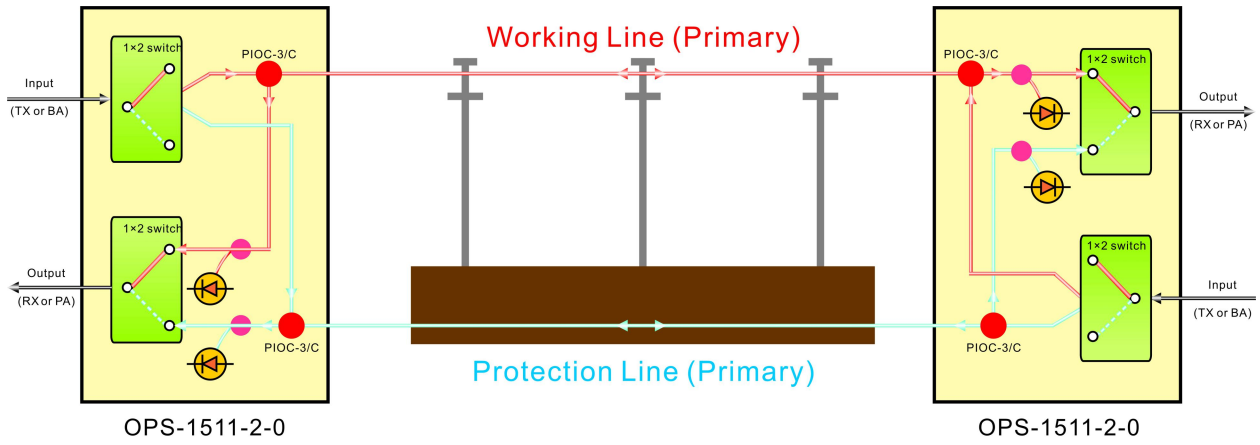
TWO KINDS OF PROTECTED TYPE APPLICATION REFERENCE DIAGRAM

1+1 protection mode (OPS-1551, OPS-1851)



Remark: PIOC-3/C：Polarization Independence triple-ports Optical Circulator

1: 1 protection mode (OPS-1511, OPS-1811)

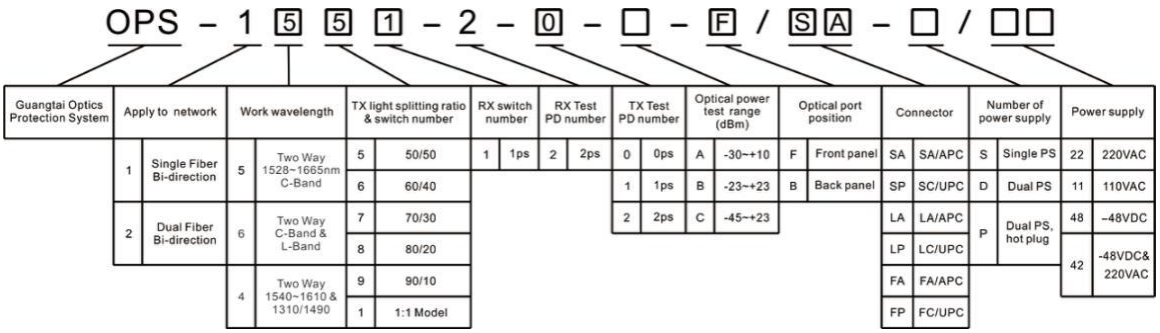


Remark: PIOC-3/C：Polarization Independence triple-ports Optical Circulator

PRODUCT SERIES (STANDARD)

Model	Work wavelength	Operating mode	TX light splitting ratio	Switch number	RX test PD number	TX test PD number	Optical power test range
OPS-1551-2-0-A	1528~1565nm & C-Band	1+1	50/50	-	2	0	-30~+10dBm
OPS-1551-2-1-A			50/50	-	2	1	-30~+10dBm
OPS-1551-2-2-A			50/50	-	2	2	-30~+10dBm
OPS-1511-2-0-A		1:1	-	1	2	0	-30~+10dBm
OPS-1511-2-1-A			-		2	1	-30~+10dBm
OPS-1511-2-2-A			-		2	2	-30~+10dBm
OPS-1551-2-0-A	C-Band & L-Band	1+1	50/50	-	2	0	-30~+10dBm
OPS-1551-2-1-A			50/50	-	2	1	-30~+10dBm
OPS-1551-2-2-A			50/50	-	2	2	-30~+10dBm
OPS-1511-2-0-A		1:1	-	1	2	0	-30~+10dBm
OPS-1511-2-1-A			-		2	1	-30~+10dBm
OPS-1511-2-2-A			-		2	2	-30~+10dBm
OPS-1551-2-0-A	1540~1610nm &1310/1490	1+1	50/50	-	2	0	-30~+10dBm
OPS-1551-2-1-A			50/50	-	2	1	-30~+10dBm
OPS-1551-2-2-A			50/50	-	2	2	-30~+10dBm
OPS-1511-2-0-A		1:1	-	1	2	0	-30~+10dBm
OPS-1511-2-1-A			-		2	1	-30~+10dBm
OPS-1511-2-2-A			-		2	2	-30~+10dBm

MODEL EXPLANATION



Remark:1. OPS-1551-2-0 is with standard configuration

2. The parts marked in gray color belongs to other varieties of this product series, the options marked in gray color in this products series can not be specified.