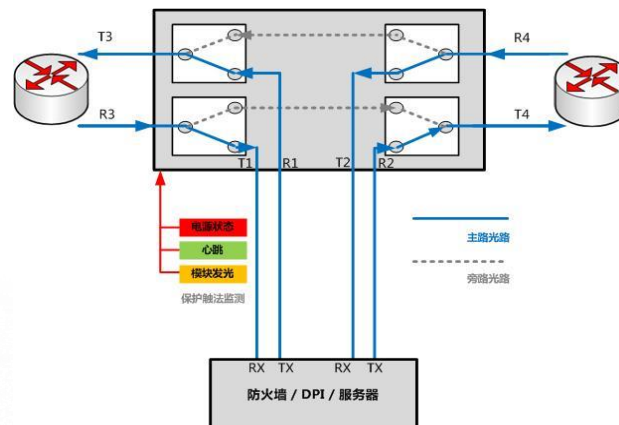# Optical Bypass Protection System

Optical bypass protection system integrates optical switching modules, optical monitoring modules and heart rate monitoring, which provides bypass protection when optical network node equipments appear power interruption, hardware failure, software deadlock etc to insure the normal signal transmission. Mainly used in flow control equipment, signal safety analysis, gigabit data communications and other fields.
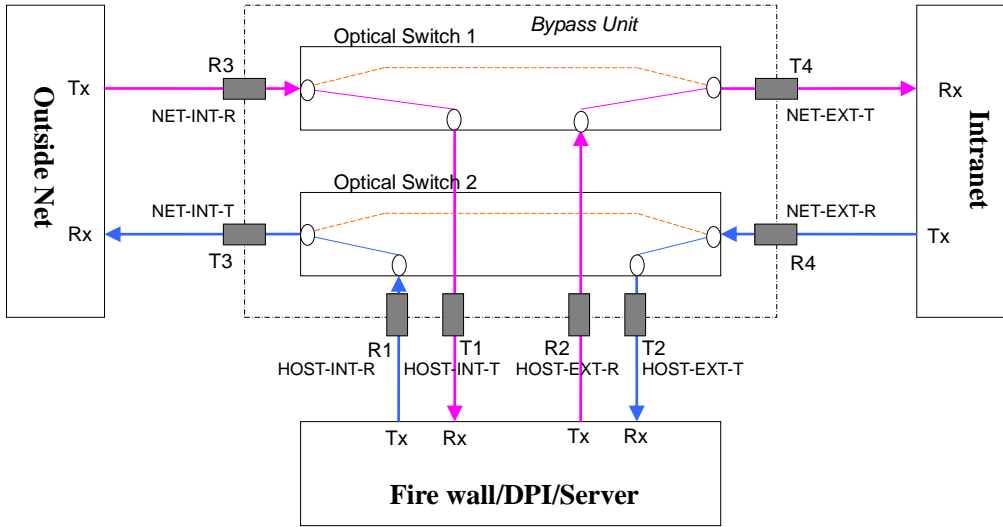
Features

- ▣ Transparent transmission signal, high stability, high reliability
- ▣ Diversification heartbeat, support independent control or group control
- ▣ Low insertion loss
- ▣ Support gigabit networks
- ▣ Customization of product functions and appearance is available.
- ▣ Support four ways
- ▣ Support TCP protocol command management, support WEB management

Application

1:1 serial mode

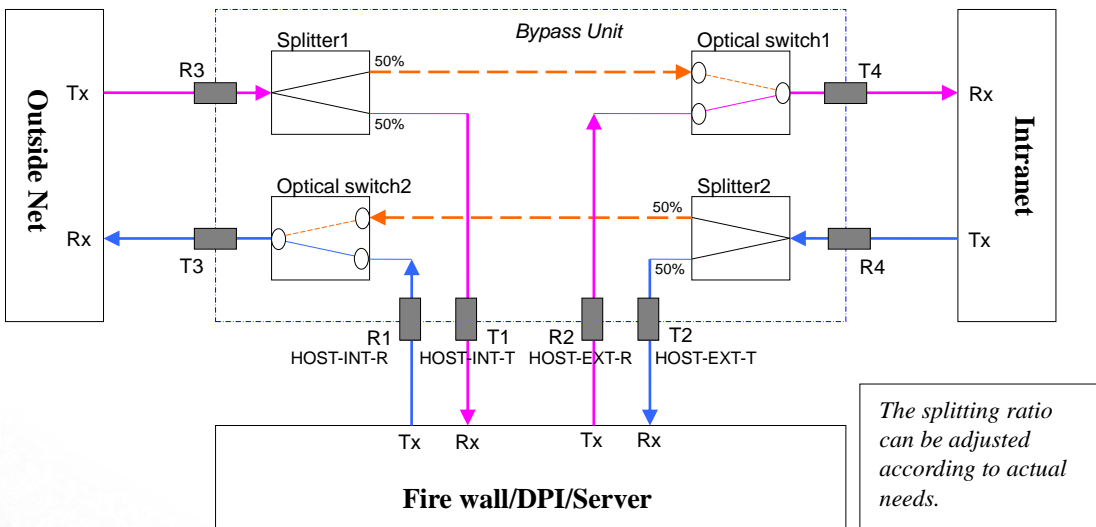Bypass Unit

Optical Switch 1

Optical Switch 2

Outside Net

Tx — R3 — NET-INT-R

Rx — NET-INT-T — T3

Intranet

Rx — T4 — NET-EXT-T

Tx — NET-EXT-R — R4

R1 HOST-INT-R   T1 HOST-INT-T   R2 HOST-EXT-R   T2 HOST-EXT-T

Tx   Rx   Tx   Rx

Fire wall/DPI/Server

Normal：outside net(download)→R3→T1→Fire wall/DPI/Server→R2→T4→intranet(download)

outside net(upload)←T3←R1←Fire wall/DPI/Server←T2←R4←intranet(upload)

Bypass：outside net(download)→R3→T4→intranet(download)

outside net(upload)←T3←R4←intranet(upload)

1+1 parallel mode

Splitter1   Bypass Unit   Optical switch1

Optical switch2   Splitter2

Outside Net

Tx — R3 — 50% / 50%

Rx — T3

Intranet

Rx — T4

Tx — R4 — 50% / 50%

R1 HOST-INT-R   T1 HOST-INT-T   R2 HOST-EXT-R   T2 HOST-EXT-T

Tx   Rx   Tx   Rx

Fire wall/DPI/Server

The splitting ratio can be adjusted according to actual needs.

Normal：outside net(download)→R3→T1→Fire wall/DPI/Server→R2→T4→intranet(download)

outside net(upload)←T3←R1←Fire wall/DPI/Server←T2←R4←intranet(upload)

Bypass：outside net(download)→R3→T4→intranet(download)

outside net(upload)←T3←R4←intranet(upload)

Performance Index

Parameter		Unit	Index			
Guard Mode			SM 1：1	SM 1+1	MM 1：1	MM 1+1
Test Wavelength		nm	1310 / 1550		850	
Insertion Loss	R1 – T3	dB	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
	R2 – T4	dB	≤ 1.5	≤ 1.5	≤ 1.5	≤ 1.5
	R3 – T1	dB	≤ 1.5	≤ 3.5	≤ 1.5	≤ 3.5
	R4 – T2	dB	≤ 1.5	≤ 3.5	≤ 1.5	≤ 3.5
	R3 – T4	dB	≤ 1.5	≤ 5.0	≤ 1.5	≤ 5.0
	R4 – T3	dB	≤ 1.5	≤ 5.0	≤ 1.5	≤ 5.0
Return Loss		dB	≥ 45		≥ 30	
Crosstalk		dB	≥ 55		≥ 35	
WDL		dB	≤ 0.25		≤ 0.25	
PDL		dB	≤ 0.1		≤ 0.1	
Switching Time		ms	< 10		< 10	
Fiber Type			SM（9/125um）		MM（62.5/125um）	
Connector			LC / PC			
Communication Port			RS-232 、RJ45			
Power Supply		V	AC: 85 ~ 264（50/60Hz） or DC: 36 ~ 72			
Power Consumption		W	< 2.5			
Chassis Type			1U standard 19" rack（482.6×220×44mm）			

Ordering Information   N−BC−D−E−F

N	B	C	D	E	F
Link Number	Guard Mode	Mirroring Mode	Fiber Type	Optical Monitoring	Connector Type
L1：support 1 line protection **L2**：support 2 line protection **L4**：support 4 line protection **X**: other	**1：1**：1：1 serial mode **1+1(xx:yy)**：1+1 parallel mode(xx:yy means splitting ratio) **X**: other	**Empty**：without mirroring **M50**: 50% mirroring splitting **M40**: 40%mirroring splitting **M30**：30% mirroring splitting X: other	**SM**: 9/125 single mode，1310/1550nm **M6**: 62.5/125 multi-mode, 850nm **X**: other	**PD0**: no optical monitoring **PD1**:R1 or R2 optical monitoring **PD2**: R1 R2 optical monitoring **PD4**: R1-R4 optical monitoring **X**: other	**LP**: LC/PC **LA**: LC/APC **X**: other