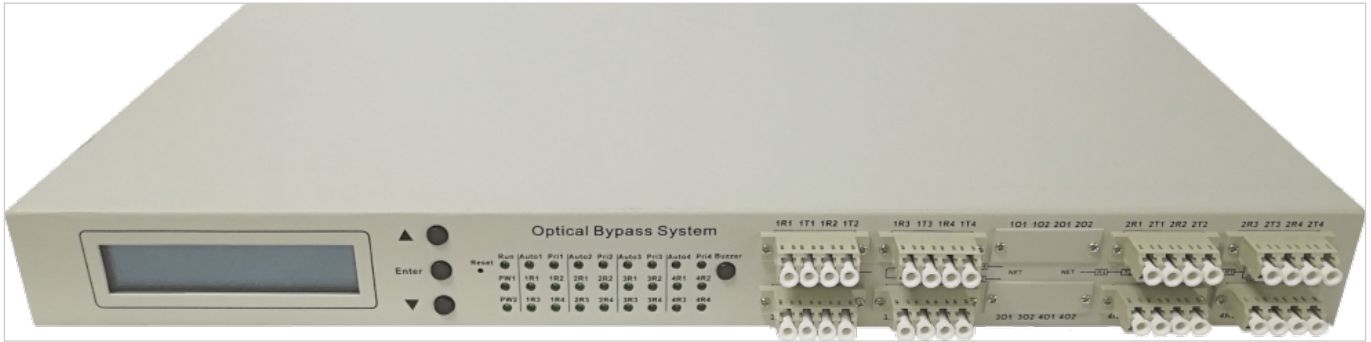




General Description

The PDR Optical Bypass Switch is a rack-mounted, carrier-grade optical path control system designed to protect network integrity by automatically rerouting traffic around a failed inline device. Supporting single-mode fiber at 1310 nm or 1550 nm across up to four independent channels, the unit delivers sub-50 ms switching with insertion loss of no more than 1.5 dB. Bypass conditions are monitored continuously via power supply status, optical power thresholds, and TCP/IP heartbeat packets, allowing the switch to detect and react to device failures — including power outages, hardware faults, and software deadlocks — without manual intervention. Management is available through a front-panel LCD with key controls, an RS-232 CLI port, and an RJ-45 Ethernet interface, while dual AC/DC power inputs provide built-in supply redundancy.

Key Features

- Automatic bypass protection via power supply monitoring, optical power monitoring, and TCP/IP heartbeat monitoring — individually or in combination
- Sub-50 ms carrier-grade switching speed for transparent network failover
- Up to 4 independent bypass channels in a single 1U 19-inch rack chassis
- Supports Auto-Switch and Manual-Switch operating modes with configurable auto-return from Manual to Auto after an idle period
- Optical signal Internal-Splitted and External-Splitted configurations supported
- LC/PC single-mode (9/125 μm) fiber interfaces with ≤ 1.5 dB insertion loss and ≥ 50 dB return loss
- Front-panel LCD display and key controls plus CLI management via RS-232 and RJ-45
- Dual power inputs: AC 85–264 V (50/60 Hz) and DC 36–72 V for full redundancy
- Switching-log function records reason, time, and result of every switching event
- Switchover protection limits switching frequency to prevent equipment damage from rapid oscillation

PDR VIDEOTRONICS (INDIA) PRIVATE LIMITED

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Technical Specifications

Parameter	Specification
Working Wavelength	1310 nm / 1550 nm (selectable)
Fiber Type	SM 9/125 μ m (ITU-T G.652)
Optical Interface	LC/PC
Channels	Up to 4 independent channels
Insertion Loss	≤ 1.5 dB
Return Loss	≥ 50 dB
Crosstalk	≥ 55 dB
Switching Time	< 50 ms
Bypass Control	Power supply monitoring Optical power monitoring Heartbeat monitoring (TCP/IP Active or Passive)
OPM Threshold	Default -30 dBm (range adjustable); no signal displayed as -50 dBm
Heartbeat Protocol	Active: TCP/IP Ping Passive: TCP/IP or UDP Ping
Heartbeat Interval	Default 50 ms (unit: 10 ms)
Heartbeat Timeout	Default 50 ms (configurable)
Auto-Switch Back	Configurable delay 0–999 s; Auto or Non-Auto selectable
Management Interface	RJ-45 Ethernet RS-232 (DB9) CLI
Heartbeat Interface	ETH (RJ-45)
Display & Control	Front-panel LCD with key controls
Power Supply	AC: 85–264 V (50/60 Hz) DC: 36–72 V (dual inputs)
Power Consumption	< 20 W
Operating Temperature	-5°C to $+55^{\circ}\text{C}$
Storage Temperature	-20°C to $+75^{\circ}\text{C}$
Dimensions	19-inch rack, 1U height

Applications

- Inline node protection for network security appliances — firewalls, IPS, DPI, and flow-control devices
- Repeater and optical amplifier protection in long-haul and metro networks
- Serial-connection optical device protection in carrier and enterprise infrastructure
- Fiber-to-the-Home (FTTH) and Fiber-to-the-Building (FTTB) access network deployments
- Data centre interconnects and spine-leaf fabric resilience
- Military, industrial, and mission-critical communication systems requiring uninterrupted optical link continuity

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Ordering Information

Standard Package Contents

Item	Quantity
Optical Bypass Switch	1
Power Cord (AC)	1
RS-232 Management Cable	1
Rack-Mount Brackets & Screws	1 set
User Manual	1

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