Optical Switch Wholesale China - Official Technical Overview & Hardware Datasheet

PRODUCT OVERVIEW & HARDWARE DATASHEET: OPTICAL SWITCH WHOLESALE CHINA

EXECUTIVE SUMMARY

Designed for carrier-grade aggregation, datacenter interconnect (DCI), and high-density metro core networks, the Optical Switch Wholesale China series represents a paradigm shift in all-optical circuit switching. Leveraging non-blocking MEMS (Micro-Electro-Mechanical Systems) or high-speed LC-based actuation, these switches deliver transparent, protocol-agnostic, and ultra-low-latency optical path provisioning. Ideal for dynamic wavelength routing, fiber protection switching, and remote reconfiguration of physical layer topologies, the platform reduces manual patching errors while maximizing fiber utilization.



HARDWARE ARCHITECTURE & SILICON

The system is built around a fully non-blocking optical backplane and a redundant hot-swappable controller module. Key silicon integration includes a dedicated FPGA-based management plane that handles real-time optical power monitoring, path computation, and SNMP/NetConf telemetry. The switching matrix supports either transparent 100G/400G DWDM channels or sub-wavelength granularity, depending on the selected chassis variant. All optical connectors are front-accessible with APC or UPC polishing, minimizing insertion loss (<0.8 dB typical) and back reflection (< -50 dB).

KEY FEATURES & ROUTING LOGIC

- Non-Blocking Optical Core: All input ports can be switched to any output port

simultaneously without contention, enabling full-mesh lambda provisioning.

- Hitless Reconfiguration: Break-before-make or make-before-break switching algorithms with sub-50ms restoration for critical trunk lines.

- Multi-Protocol Agnostic: Transparent to any bit rate or modulation format – from 1G Ethernet to 400G coherent optics, and even legacy SDH/SONET.

- Redundant Control Plane: Dual supervisor modules with 1+1 failover and stateful checkpointing, ensuring zero configuration loss.

- Wholesale Integration Ready: Standardized NETCONF/YANG models and RESTCONF API for seamless orchestration by OSS/BSS platforms.

- Power & Thermal Efficiency: Passive optical core consumes <5W per switching element, plus active management <40W per chassis.

COMPLIANCE & STANDARDS

- Optical Safety: IEC 60825-1 Class 1 Laser Product

- Regulatory: CE, FCC Part 15, RoHS, REACH

- Environmental: GR-63-CORE (NEBS Level 3 compliant for selected models)

- Optical Interface: ITU-T G.652, G.655 fiber compatibility; LC/SC/MPO connectors

- Management: SNMP v2c/v3, CLI (SSH), Web GUI, OpenConfig telemetry

TECHNICAL SPECIFICATIONS

Parameter	Specification
Form Factor	1RU / 2RU / 4RU rack-mountable (models 8/16/32 ports)
Switching Technology	Non-blocking MEMS or LC-based optical matrix
Insertion Loss	≤ 0.8 dB typical (≤ 1.2 dB max, per channel)
Switching Speed	<50 ms (path reconfiguration, typical)
Optical Connector Type	LC/UPC, LC/APC, MPO-12 (order configurable)
Wavelength Range	1260 nm to 1650 nm (O, E, S, C, L bands)
Power Supply	Dual hot-swappable AC (100-240V) or DC (-48V)
Max Power Consumption	45W (8-port) to 110W (32-port)
Operating Temperature	0°C to 50°C (extended -5°C to 55°C optional)
Management Interfaces	RJ45 10/100/1000, USB console, RS-232

ORDERING SKU INFORMATION

- OWS-CH-8P: 8-port bidirectional optical switch, 1RU, dual AC PSUs

- OWS-CH-16P: 16-port non-blocking matrix, 2RU, dual DC PSUs, extended temp range

- OWS-CH-32P: 32-port high-density chassis, 4RU, redundant fans + PSUs, 1+1 control plane

- OWS-LC-8E: 8-port expansion line card for OWS-5000 modular chassis (sold separately)

- ACC-SFP-MON: Optical power monitoring tap module for inline diagnostics

