# High-Quality OEM 2-Port Fixed OLT DC Installation and Grounding Standards - Official Technical Overview & Hardware Datasheet

## EXECUTIVE SUMMARY

This document serves as the definitive technical overview and hardware datasheet for the High-Quality OEM 2-Port Fixed OLT, a carrier-grade optical line terminal engineered for reliable Fiber-to-the-Home (FTTH) and Fiber-to-the-Building (FTTB) deployments. This platform is distinguished by its fixed 2-port GPON or XGS-PON interface, purpose-built for remote, space-constrained, and environmentally challenging installations. This datasheet provides comprehensive guidelines for its DC power installation and chassis grounding, which are critical to ensuring system longevity, operational stability, and immunity to electromagnetic interference. The device adheres to stringent telecom standards, offering a robust, low-maintenance solution for service providers seeking high-density subscriber aggregation with unparalleled physical-layer resilience.



HARDWARE ARCHITECTURE & SILICON

The OEM 2-Port Fixed OLT is architected around a purpose-built, energy-efficient Broadcom or equivalent PON MAC chipset, capable of processing full line-rate traffic on both PON ports concurrently. The internal architecture comprises a dedicated control plane processor for management and routing protocols, and a data plane that provides a non-blocking switching fabric. A key feature is the passive thermal design combined with active cooling management, allowing the device to operate in ambient temperatures from -40°C to +65°C. The hardware is encapsulated within a ruggedized 1RU metal chassis with an anodized aluminum finish to mitigate corrosion and support ESD protection. The backplane integrates advanced surge protection circuitry, essential for outdoor or curb-side installations, and is designed for a Mean Time Between Failures (MTBF) exceeding 200,000 hours under controlled

conditions.

## KEY FEATURES & ROUTING LOGIC

The system's feature set is tailored for efficient last-mile aggregation:

- Fixed 2-Port PON Interface: Supports ITU-T G.984 (GPON) or G.987 (XGS-PON) standards with a 1:128 split ratio, delivering up to 2.5Gbps/1.25Gbps (GPON) or 10Gbps/10Gbps (XGS-PON) per port.
- Layer 2/Layer 3 Routing: Integrated IPv4/IPv6 static routing, RIP, and OSPF for efficient traffic management, ensuring subscriber isolation and VLAN aggregation (802.1Q).
- Comprehensive Security: Features MAC address filtering, Anti-DoS protection, and IP Source Guard to prevent network vulnerabilities.
- Advanced QoS: Hardware-based packet classification with 8 priority queues per port, supporting SP, WRR, and SP+WRR scheduling algorithms for precise bandwidth allocation.
- Redundant DC Power Inputs: Dual -48V DC feeds (A and B) with automatic failover capability, ensuring uninterrupted service in the event of a primary power source failure.

## COMPLIANCE & STANDARDS

The OEM 2-Port Fixed OLT meets the rigorous requirements of the global telecommunications industry. The installation and grounding standards detailed herein are designed to satisfy multiple international safety and operational certifications. The device is compliant with NEBS Level 3 (GR-63-CORE and GR-1089-CORE) for environmental and safety standards, ensuring suitability for central office and controlled outdoor environments. It adheres to IEC 60825-1 for laser safety and is certified under CE, FCC Part 15 Class A, and RoHS directives. The grounding system follows ETSI EN 300 253 and Telcordia GR-1089 guidelines, providing a low-impedance path for fault currents and a stable reference plane for signal integrity.

## TECHNICAL SPECIFICATIONS

The core technical parameters are critical for system integration:

- PON Port Type: 2 x SFP/SFP+ slots for GPON/XGS-PON optical modules.
- Uplink Ports: 2 x 10GE SFP+ or 4 x GE RJ45 (model dependent).
- Console Port: 1 x RJ-45 serial console (RS-232).
- Management: 1 x 10/100/1000BASE-T out-of-band management port.
- DC Input Voltage: -36 VDC to -72 VDC (Nominal: -48 VDC).
- Maximum Power Consumption: < 60W (fully loaded).
- Operating Temperature: -40°C to +65°C (ambient).
- Relative Humidity: 5% to 95% (non-condensing).

- Physical Dimensions: 442mm (W) x 44mm (H) x 250mm (D).

- Weight: ~3.5 kg (fully populated).

| **Parameter** | **Specification** |
|---|---|
| Form Factor | 1RU Rack-mountable (Fixed Configuration) |
| PON Interface | 2 x SFP/SFP+ slots (GPON or XGS-PON) |
| Uplink Interface | 2 x 10GE SFP+ and 4 x GE RJ45 |
| DC Power Input | Dual -48V DC (A/B Feed) with Surge Protection |
| Switching Capacity | 20 Gbps (Non-Blocking) |
| Operating Temperature | -40°C to +65°C |
| Grounding System | Centralized Ground Lug (M4/M6 stud), < 0.1Ω resistance |
| Compliance | NEBS Level 3, IEC 60825-1, CE, FCC Class A |
| MTBF | > 200,000 Hours (Bellcore TR-NWT-000332) |

