Tellabs® 1600-705GR
Desktop GPON Optical Network Terminal

Flexible, Multi-port Fiber-to-the-Desktop (FTTD) GPON ONT
Provides Data, Voice and Video Service Options

Overview

Designed to deliver powerful business services to end-users in Fiber-to-the-Desktop (FTTD) applications, the Tellabs® 1600-705GR Desktop GPON Optical Network Terminal (ONT) incorporates four (4) Gigabit Ethernet, two (2) analog POTS, and one (1) RF Video ports in one cost-efficient package.

Equipped with a ITU-T G.984-compliant 2.5 Gbps downstream and 1.25 Gbps upstream GPON interface supports advanced services including VoIP, High-Speed Data, RF video, and IP video.

Compliant with ITU standard ONT Management and Control Interface (OMCI) definitions, the ONTs are manageable from the Tellabs® Panorama™ Integrated Network Manager (INM) and supports a full range of fault management, accounting, performance, and security functions including supervision, monitoring and maintenance.

Tellabs 1600-705GR Desktop GPON ONT

Services

Data

Four 10/100/1000 Base-T Ethernet data interfaces support:

- Auto-negotiation and MDI/MDIX auto-sensing
- Data transfer at wire speed
- Advanced data features such as VLAN tag stacking, translation, trucking, classification and filtering

Voice

Two POTS interface ports for carrier-grade voice services support:

- Five REN per line, balanced ring at 55V RMS, DTMF dialing
- Supports 500 ft. loop length
- Multiple voice codec
- Echo cancelling, VAD, CNG
- Various CLASS services — caller ID, call waiting, call forwarding, call transfer, etc.
- SIP (RFC3261)
- Drop-in replacement to serve subscriber's existing analog telephone sets

VoIP

To enable VoIP access, the Tellabs 1600-705GR Desktop GPON ONT also supports interfacing external IAD box or home router with voice capability through the Gigabit Ethernet Interface.

Video — RF and IP Video

The Tellabs 1600-705GR Desktop GPON ONT supports multiple methods for delivering video service, including RF Video and IP Video. When deploying RF Video services, the 705GR ONT provides a standard coaxial interface supporting 54–870 MHz CATV AM-VSB service over the 1550 nm optical wavelength on the PON. This standard is in compliance with the ITU-T G.984.4.

The CATV service can handle a variety of digital and analog channels. The ONT functions as an addressable tap on the cable plant and can be enabled or disabled remotely. Power output of +18 dBmV with Automatic Gain Control (AGC) circuitry provides consistent output levels.

The Tellabs 1600-705GR Desktop GPON ONT supports IP video services delivered by multicast and/or unicast streams. When multicast technology is used for delivering video content, the Tellabs 1600-705GR Desktop GPON ONT supports the dedicated multicast GEM port on the downstream. Thus, video content is received and processed by all ONTs through the unified multicast channel, significantly improving bandwidth efficiency.

In addition, integrated Internet Group Management Protocol (IGMP) Transparent Snooping provides further bandwidth optimization. Multicast Quality of Service (QoS) is supported via IEEE 802.1p.

Specifications

Dimensions

- 9.04" (H) x 6.10" (W) x 1.69" (D)

Power Supply

- +12V (feed via external AC/DC adapter)
- A-Type power adapter included with ONT
- AC adapter input 120/240 volts +/- 10% 50/60 Hz (various international plugs are available upon request)
- Dying gasp support

Operating Environment

- Temperature: 5ºC to 40ºC
- Humidity: 5% to 90% relative humidity

Safety & EMI

- ETSI, FCC and UL certified

Installation

- Mounting options: Wall, desktop, in-wall enclosure (sold separately)

Network Interface

- Compliant to ITU-T G.984 GPON standards
- SFF type laser, SC/APC connector
- 1.244 Gbps burst mode upstream transmitter
- 2.488 Gbps downstream receiver
- Compliant with ITU-T G.984.2 Amd1, Class B+

- APD receiver and DFB transmitter
- 0.5~+5dBm launch power, -27 dBm sensitivity, and -8dBm overload
- Wavelengths:
  – Upstream 1310nm (data)
  – Downstream 1490nm (data)
  – Downstream 1550nm (RF Video)
- Video — AM-VSB Cable Video Distribution @ 1550 nm received optical power levels, +1 dBm to -5 dBm
- Laser compliant to FCC 47 CFR Part 15, Class B and FDA 21 CFR 1040.10 and 1040.11, Class I

GPON Quality of Service (QoS)

- Fully ITU-T G.984-compliant framing
- Multiple T-CONTs per device
- Multiple GEM ports per device
- Supports single T-CONT and multiple T-CONTs modes
- Flexible mapping between GEM ports and T-CONT
- Activation with automatic discovered SN and password
- AES-128 Decryption with key generation and switching
- Forward Error Correction (FEC)
- 802.1p mapper service profile on U/S
- Mapping of GEM Ports into a T-CONT with priority queues-based scheduling
- Support for multicast GEM port

Ethernet Interface

- (4) 10/100/1000 Base-T interfaces with RJ-45 connectors
- Ethernet port auto negotiation or manual configuration
- MDI/MDIX automatic sensing
- Hardware priority queues on the downstream direction in support of Class of Service (CoS)
- 802.1D bridging
- Virtual switch based on 802.1Q VLAN
- Up to 256 MAC address and 16 VLAN group
- VLAN tagging/detagging per Ethernet port
- VLAN stacking (Q-in-Q), VLAN translation, VLAN trunking
- 802.1x port-based authentication
- Network Access Control (NAC)
- IP ToS/DSCP to 802.1p mapping
- CoS based on VLAN-ID, 802.1p bit, ToS/DSCP
- Marking/remarking of 802.1p
- IGMP v2/v3 snooping
- MAC address limiting to prevent flooding overflow
- Upstream broadcast rate limiting and filtering for security control

POTS Interface

- RJ-11 connector
- 5-REN load
- Balanced ringing, 55V RMS
- DTMF dialing
- Multiple codecs:
  – G.711 (μ-law and A-law)
  – G.726
  – G.729 (A and B)
  – G.723.1
- Echo cancellation
- Voice Activity Detection (VAD) and Comfort Noise Insertion
- SIP (RFC3261)
- SDP (RFC2327)
- RTP (RFC3550/3551)
- DTMF encoding by RELAY or IN-BAND method
- Support various CLASS services — caller ID, call waiting, call forwarding, call transfer, call toggle, three-way calling, distinctive ringing, etc.

- G.711 for fax, modem connection and TTY devices
- T.38/T.30 fax
- Configurable dial plan
- Country-specific ring tone generation
- DHCP client or static IP configurations

Coxial Interface

- (1) Coxial F-Connector
- 54-870 MHz CATV AM-VSB
- +18dBmV with AGC control

LED Indicators

- Power
- Ethernet 1-4
- POTS 1-2
- VoIP
- Video
- GPON

Operations, Administration and Maintenance (OAM)

- Standards-compliant OMCI as defined by ITU-T G.984.4
- Management Information Base (MIB) manipulation over OMCI by Create, Delete, Set, Get and Get Next commands
- Provisioning all kinds of services including Ethernet, VoIP, etc.
- Alarming and AVC report, performance monitoring
- Remote image download over OMCI, as well as activation and rebooting
- Holds two versions with image integrity checking and automatic rollback

Next Step:

Visit **www.tellabs.com/solutions/opticallan** to learn more about how Tellabs Optical LAN Solutions are solving enterprise network challenges while significantly reducing CapEx and OpEx, power consumption,and space requirements. If you have a question about Tellabs Optical LAN Solutions, please email **ask@tellabs.com**.

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