

TRIAX GPON

A Complete Range of GPON Solutions

For Hospitality, Commercial and MDU settings

triax.com



Introduction to TRIAX GPON

In today's fast-paced digital world, high-speed and reliable connectivity is essential for businesses, communities and service providers alike.

TRIAX Gigabit Passive Optical Network (GPON)

Solutions offer a cutting-edge, fibreoptic-based network infrastructure that delivers ultra-fast, scalable and cost-effective broadband connectivity.

Designed to meet the growing demands of smart cities, enterprises, telecom operators and residential developments, the TRIAX GPON Solution ensures seamless voice, video and data transmission with minimal latency and maximum efficiency.

By leveraging passive optical technology, TRIAX GPON reduces operational costs, improves energy efficiency and provides a future-proof network for next-generation applications. With high bandwidth, centralised management and robust security, TRIAX GPON is the ideal choice for organisations looking to modernise their networks and enhance the user experience.

Discover how our innovative GPON technology can transform your customers' network infrastructure needs and drive their digital transformation.

TRIAX

Your GPON Solution Partner.



What is GPON

Gigabit Passive Optical Network (GPON) is a high-speed, fibre-optic broadband technology that delivers data, voice and video services to end-users over a single fibre infrastructure. It is widely used by Internet Service Providers (ISPs) and telecom operators to offer scalable and cost-effective broadband solutions.

GPON is part of the Passive Optical Network (PON) family and is defined by ITU-T recommendations G.984.x.

How GPON Works

GPON operates on a point-to-multipoint (P2MP) architecture, where a single optical fibre from the central office (CO) is split among multiple users utilising passive optical splitters. This eliminates the need for active components in the distribution network, reducing maintenance costs and power consumption.

Key Components of GPON

1. Optical Line Terminal (OLT) – Located at the CO, the OLT manages data transmission, allocates bandwidth and ensures smooth communication with end-user devices.
2. Optical Network Unit (ONU)/Optical Network Terminal (ONT) – Installed at customer premises, ONUs/ONTs receive optical signals from the OLT and convert them into electrical signals for local network use.
3. Optical Splitter – A passive device that divides the optical signal from the OLT into multiple paths for distribution to multiple ONUs. Split ratios typically range from 1:8 to 1:128.
4. Fibre Infrastructure (PON) – The physical optical fibres (Passive Optical Network) that connect the OLT, splitters and ONUs.

Technical Specifications of GPON

GPON utilises Asynchronous Transfer Mode (ATM) and Gigabit Ethernet (GE) for data transmission. It Supports downstream speeds of up to 2.5 Gbps and upstream speeds of 1.25 Gbps, making it suitable for high-bandwidth applications such as 4K video streaming, cloud computing and VoIP.

Key Technologies in GPON

- Wavelength Division Multiplexing (WDM): GPON uses WDM to separate upstream and downstream traffic, with downstream operating at 1490 nm and upstream at 1310 nm (data transmission), while a third wavelength at 1550 nm can be used for RF video signals.
- Time Division Multiplexing (TDM) & Time Division Multiple Access (TDMA): GPON shares bandwidth efficiently among multiple users by assigning time slots for data transmission.
- Forward Error Correction (FEC): Ensures data integrity by correcting transmission errors, improving network reliability.

Advantages of GPON

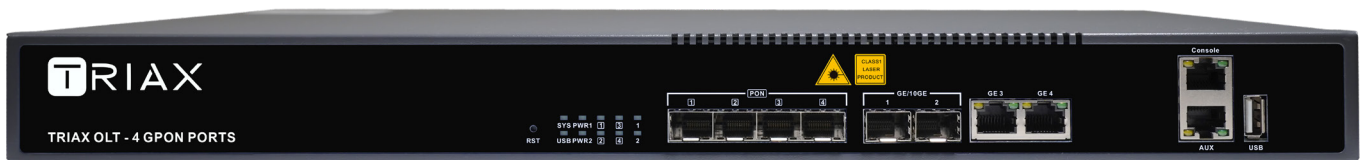
- High Bandwidth Efficiency: Supports multiple services (data, voice and video) on the same infrastructure.
- Cost-Effective: Uses passive splitters, reducing maintenance and energy costs.
- Long Reach: Supports fibre lengths of up to 20 km, covering a wide area without signal degradation.
- Scalability: A single OLT can serve multiple users, making GPON ideal for urban and rural deployments.
- Security & Reliability: Encrypted data transmission and low latency ensures secure and stable connections.

Free TRIAX GPON Project Design

Collaborate with TRIAX to ensure your next GPON project meets your required specifications. We can accommodate project specific requirements not covered in this brochure.

TOLT-4422 - Layer 3 GPON OLT - 4 GPON ports

The TOLT-4422 is a 19" rack mount GPON OLT with 4 PON ports that provides flexible and fast FTTx access, suiting scenarios such as sparsely populated or remote areas, industrial parks, commercial buildings and other MDU settings including hospitality.



MANAGEMENT FUNCTION

- SNMP, Telnet, CLI, WEB, SSH v2
- Fan Group Control
- Port status monitoring and configuration management
- Online ONT configuration and management
- User management
- Alarm management

LAYER 2 SWITCH

- 32K Mac address
- Supports 4096 VLANs
- Supports port VLAN
- Supports VLAN tag/Un-tag, VLAN transparent transmission
- Supports VLAN translation and QinQ
- Supports storm control based on port
- Supports port isolation
- Supports port rate limitation
- Supports 802.1D and 802.1W
- Supports static LACP, Dynamic LACP
- QoS based on port, VID, TOS and MAC address
- Access control list
- IEEE802.x flow control
- Port stability statistic and monitoring

MULTICAST

- IGMP snooping
- 2048 IP Multicast Groups

DHCP

- DHCP server, DHCP relay, DHCP snooping
- DHCP option82

POWER CONSUMPTION

- 35W

WORKING TEMPERATURE

- -20°C ~+60°C

STORAGE TEMPERATURE

- -40~+70°C

RELATIVE HUMIDITY

- 5~95% (non-condensing)

LAYER 3 ROUTE

- ARP proxy
- 4096 hardware Host Routes, 512 hardware Subnet Routes
- Supports Radius, TACACS+
- Supports IP source guard
- Supports static route, dynamic route RIP v1/v2, RIPng and OSPF v2/v3;

IPv6

- Supports NDP;
- Supports IPv6 Ping, IPv6 Telnet, IPv6 routing
- Supports ACL based on source IPv6 address, destination IPv6 address, L4 port, protocol type, etc;
- Supports MLD v1/v2 snooping (Multicast Listener Discovery snooping)

GPON FUNCTION

- T-CONT DBA
- Gempport traffic
- Is compliant with ITU-T984.x standard
- Up to 20KM transmission distance
- Supports data encryption, multi-cast, port VLAN separation, RSTP, etc
- Supports ONT auto-discovery/link detection/remote upgrade of software
- Supports VLAN division and user separation to avoid broadcast storm
- Supports power-off alarm function, for easy link problem detection
- Supports broadcasting storm resistance function
- Supports port isolation between different ports
- Supports ACL and SNMP to configure data packet filter
- Specialised design for system breakdown prevention to maintain a stable system
- Supports RSTP

DIMENSION (L*W*H)

- 442mm * 229mm * 43.6mm

WEIGHT

- Net weight of single power: 2.95kg
- Gross weight of single power: 4.15kg

FEATURES

- Compact design, meets various application scenarios:
 - Supports deployment in diverse scenarios including low density areas, remote/sparsely populated areas and industrial parks
 - Supports FTTM and sharing site/rack with wireless base stations
- Small size and lightweight, easier to transport and install:
 - Supports multiple installation modes, e.g, limited room space, basement and small rack or cabinet
- Carrier-class security protection, supports dynamic routing protocol RIP&OSPF, ensures the safe operation of the network:
 - Supports uplink redundancy protection including LACP STP, RSTP and MSTP
 - Supports RIP & OSPF protocol
 - Supports link protection
- Lower TCO:
 - Dramatically saves on investment fees in trunk fibres, pipe engineering and facilities. Effectively reduce CapEx and OpEx

| TOLT - 4422 | | | |
|-----------------------------|--------------------------------|---|---------------------|
| ART. Number | 308500 | | |
| | Product Description | Accessories | Power Configuration |
| | 4*GPON 2*RJ45 2*SFP/SFP+ | GPON SFP C++++ MODULE X 4 | 2*AC |
| Chassis | Rack | 1U 19Inch Standard Box | |
| Uplink Port | QTY | 4 | |
| | RJ45(GE) | 2 | |
| | SFP(GE)/SFP+(10GE) | 2 | |
| GPON Port | QTY | 4 | |
| | Physical Interface | SFP Slots | |
| | Max splitting ratio | 1:128 | |
| Management Ports | | 1*10/100/1000BASE-T out-band port, 1*CONSOLE port 1*USB2.0 | |
| Backplane Bandwidth (Gbps) | | 104 | |
| Port Forwarding Rate (Mpps) | | 47.616 | |
| PON Port Specification | Transmission Distance | 20KM | |
| | GPON port speed | Upstream 1.244Gbps, Downstream 2.488Gbps | |
| | Wavelength | TX 1490nm, RX 1310nm | |
| | Connector | SC/UPC | |
| | Fibre Type | 9/125µm SMF | |
| | Supported PON module level | Class B+, C, C+, C++, C+++, C++++ | |
| Power Supply | AC | Working Voltage Range: 100~240V, Rated Voltage: 110V/220V | |
| Management Mode | | EMS, WEB, SNMP, Telnet, CLI | |

TOLT-8422 - Layer 3 GPON OLT - 8 GPON ports

The TOLT-8422 is a 19" rack mount GPON OLT with 8 PON ports that provides flexible and fast FTTx access, suiting scenarios such as sparsely populated or remote areas, industrial parks, commercial buildings and other MDU settings including hospitality.



MANAGEMENT FUNCTION

- SNMP, Telnet, CLI, WEB, SSH v2
- Fan Group Control
- Port status monitoring and configuration management
- Online ONT configuration and management
- User management
- Alarm management

LAYER 2 SWITCH

- 32K Mac address
- Supports 4096 VLANs
- Supports port VLAN
- Supports VLAN tag/Un-tag, VLAN transparent transmission
- Supports VLAN translation and QinQ
- Supports storm control based on port
- Supports port isolation
- Supports port rate limitation
- Supports 802.1D and 802.1W
- Supports static LACP, Dynamic LACP
- QoS based on port, VID, TOS and MAC address
- Access control list
- IEEE802.x flow control
- Port stability statistic and monitoring

MULTICAST

- IGMP snooping
- 2048 IP Multicast Groups

DHCP

- DHCP server, DHCP relay, DHCP snooping
- DHCP option82

POWER CONSUMPTION

- 45W

WORKING TEMPERATURE

- -20°C ~+60°C

STORAGE TEMPERATURE

- -40~+70°C

RELATIVE HUMIDITY

- 5~95% (non-condensing)

LAYER 3 ROUTE

- ARP proxy
- 4096 hardware Host Routes, 512 hardware Subnet Routes
- Supports Radius, TACACS+
- Supports IP source guard
- Supports static route, dynamic route RIP v1/v2, RIPng and OSPF v2/v3

IPV6

- Supports NDP;
- Supports IPv6 Ping, IPv6 Telnet, IPv6 routing
- Supports ACL based on source IPv6 address, destination IPv6 address, L4 port, protocol type, etc
- Supports MLD v1/v2 snooping (Multicast Listener Discovery snooping)

GPON FUNCTION

- T-CONT DBA
- Gempport traffic
- Is compliant with ITU-T984.x standard
- Up to 20KM transmission distance
- Supports data encryption, multi-cast, port VLAN separation, RSTP, etc
- Supports ONT auto-discovery/link detection/remote upgrade of software
- Supports VLAN division and user separation to avoid broadcast storm
- Supports power-off alarm function, for easy link problem detection
- Supports broadcasting storm resistance function
- Supports port isolation between different ports
- Supports ACL and SNMP to configure data packet filter
- Specialised design for system breakdown prevention to maintain a stable system
- Supports RSTP

DIMENSION (L*W*H)

- 442mm * 319mm * 43.6mm

WEIGHT

- Net weight of single power: 4.05kg
- Gross weight of single power: 5.65kg

FEATURES

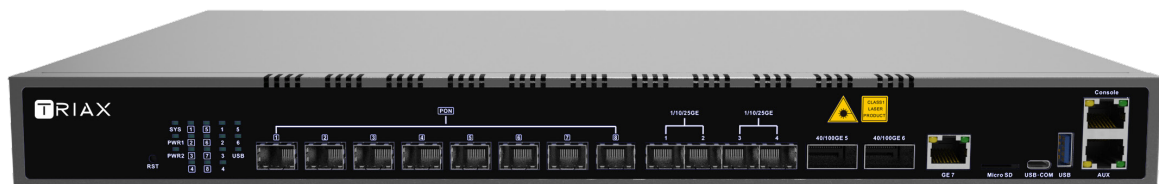
- Compact design, meets various application scenarios:
 - Supports the deployment in diverse scenarios including low density areas, remote/sparsely populated areas and industrial parks
 - Supports FTTM and sharing site/rack with wireless base stations
- Small size and lightweight, easier to transport and install:
 - Supports multiple installation modes, e.g, limited room space, basement and small rack or cabinet
- Carrier-class security protection, supports dynamic routing protocol RIP & OSPF, ensures the safe operation of the network:
 - Supports uplink redundancy protection including LACP, STP, RSTP and MSTP
 - Supports RIP & OSPF protocol
 - Supports link protection
- Lower TCO:
 - Dramatically saves on investment fees in trunk fibres, pipe engineering, and facilities. Effectively reduce CapEx and OpEx

| TOLT - 8422 | | | |
|-----------------------------|-------------------------------------|--|---------------------|
| ART. Number | 308501 | | |
| | Product Description | Accessories | Power Configuration |
| | 8*GPON 4*RJ45 2*SFP 2*SFP+ | GPON SFP C++++ MODULE X 8 | 2*AC |
| Chassis | Rack | 1U 19Inch Standard Box | |
| Uplink Port | QTY | 8 | |
| | RJ45(GE) | 4 | |
| | SFP(GE)/SFP+(10GE) | 2 | |
| GPON Port | QTY | 8 | |
| | Physical Interface | SFP Slots | |
| | Max splitting ratio | 1:128 | |
| Management Ports | | 1*10/100/1000BASE-T out-band port, 1*CONSOLE port, 1*USB2.0 | |
| Backplane Bandwidth (Gbps) | | 104 | |
| Port Forwarding Rate (Mpps) | | 68.448 | |
| PON Port Specification | Transmission Distance | 20KM | |
| | GPON port speed | Upstream 1.244Gbps, Downstream 2.488Gbps | |
| | Wavelength | TX 1490nm, RX 1310nm | |
| | Connector | SC/UPC | |
| | Fibre Type | 9/125µm SMF | |
| | Supported PON module level | Class B+, C, C+, C++, C+++, C++++ | |
| Power Supply | AC | Working Voltage Range: 100~240V, Rated Voltage: 110V/220V | |
| Management Mode | | EMS, WEB, SNMP, Telnet, CLI | |

TOLT-842X 8-Port 10G Combo PON/GPON OLT

The TOLT-842X is an innovative 10G GPON OLT product with 8 PON ports with XG(S) - PON & GPON Combo compatibility and supports single GPON mode, giving customers more networking possibilities and the flexibility to choose the appropriate bandwidth access mode according to current applications and future business needs. In the early stage of construction, customers can choose to consider reducing investment costs and switch any of the 8 PON to single GPON mode and then switch to XG(S)-PON&GPON Combo

mode according to future requirements. They can also choose the smooth upgrade from GPON to XG(S)-PON, and switch to XG(S)-PON & GPON Combo mode in the early stage, ensuring the stability of the original functionality during any upgrades. TOLT-842X provides 1*GE (RJ45) + 4*25GE (SFP28) + 2*100GE (QSFP28) uplink ports to achieve full-speed data forwarding and meet the needs of high-bandwidth, high-speed data transmission and large-scale deployment.



MANAGEMENT FUNCTION

- SNMP, Telnet, CLI, WEB, SSH v2
- Fan Group Control
- Port Status monitoring and configuration management
- Online ONT configuration and management
- User management
- Alarm management

LAYER 2 SWITCH

- 32K Mac address
- Supports 4096 VLANs
- Supports port VLAN
- Supports VLAN tag/Un-tag, VLAN transparent transmission
- Supports VLAN translation and QinQ
- Supports storm control based on port
- Supports port isolation
- Supports port rate limitation
- Supports 802.1D and 802.1W
- Supports static LACP, Dynamic LACP
- QoS based on port, VID, TOS and MAC address
- Access control list
- IEEE802.x flow control
- Port stability statistic and monitoring

MULTICAST

- IGMP snooping
- 2048 IP Multicast Groups

DHCP

- DHCP server, DHCP relay, DHCP snooping
- DHCP option82

LAYER 3 ROUTE

- ARP proxy
- 4096 hardware Host Routes, 512 hardware Subnet Routes
- Supports Radius, TACACS+
- Supports IP source guard
- Supports static route, dynamic route RIP v1/v2, RIPng and OSPF v2/v3

IPv6

- Supports NDP
- Supports IPv6 Ping, IPv6 Telnet, IPv6 routing
- Supports ACL based on source IPv6 address, destination IPv6 address, L4 port, protocol type, etc
- Supports MLD v1/v2 snooping

PON FUNCTION

- T-CONT DBA
- X-Gem traffic
- Is compliant with ITU-T G.9807 (XGS-PON), ITU-T G.987(XG-PON) and ITU-T 984.x
- Up to 20KM transmission Distance
- Supports data encryption, multi-cast, port VLAN, separation, RSTP, etc
- Supports ONT auto-discovery/link detection/remote upgrade of software
- Supports VLAN division and user separation to avoid broadcast storm

- Supports power-off alarm function, for easy link problem detection
- Supports broadcasting storm resistance function
- Supports port isolation between different ports
- Supports ACL and SNMP to configure data packet filter
- Specialised design for system breakdown prevention to maintain a stable system
- Supports RSTP, IGMP Proxy

DIMENSION (L*W*H)

- 442mm*330mm*43.6mm

WEIGHT

- Net weight: 4.8 KG

POWER CONSUMPTION

- 150W

WORKING ENVIRONMENT

- Working Temperature: -20°C ~+60°C
- Working Humidity: 5%~95% (non-condensing)

STORAGE ENVIRONMENT

- Storage Temperature: -40 ~ +70°C
- Storage Humidity: 5%~95% (non-condensing)

FEATURES

- High Performance Chipset
- 100Gbps QSFP28 High-Speed Uplink
- Supports XGS-PON/XG-PON/GPON triple mode for Flexible Networking

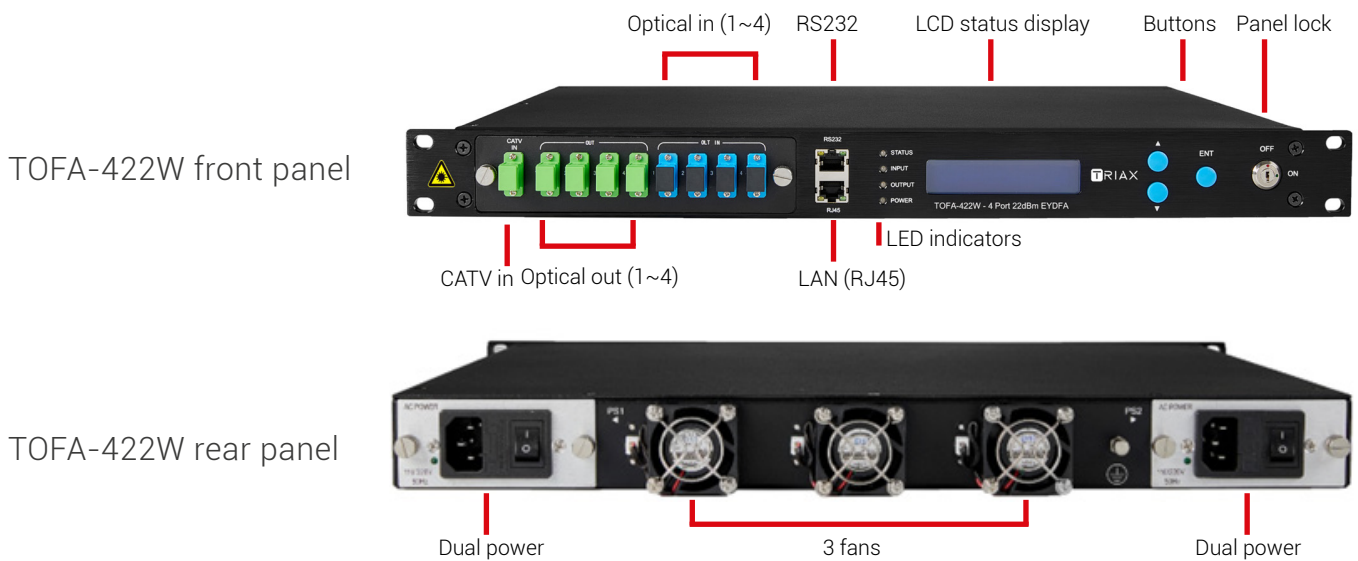
| TOLT - 842X | | | |
|---|--|---|---------------------|
| ART. Number | 308502 | | |
| | Product Description | Accessories | Power Configuration |
| | 8*XG(S)-PON/GPON 1*GE(RJ45) 4*25GE(SFP28) 2*100GE(QSFP28) | n/a | 2*AC POWER |
| Chassis | | | |
| Chassis | Rack | 1U 19Inch Standard Box | |
| Uplink Port | QTY | 8 | |
| | RJ45(GE) | 1 | |
| | SFP28(25GE) | 4 | |
| | QSFP28(25GE/50GE/100GE) | 2 | |
| | QTY | 8 | |
| | Physical Interface | SFP+ Slots | |
| XG(S)-PON/GPON port | Connector Type | XG(S)-PON&GPON Combo mode: N2_C+ | |
| | | Single GPON mode: Class B+/C/C+/C++/C+++/C++++ | |
| | Optical Splitting Ratio | 1:256(Maximum), 1:128(Recommended) | |
| Management Ports | | 1*10/100/1000BASE-T out-band port, 1*CONSOLE port, 1*USB3.0, | |
| | | 1*Type-C USB console, 1*Micro SD port | |
| Backplane Bandwidth (Gbps) | | 1960 | |
| Port Forwarding Rate (Mpps) | | 566.928 | |
| XG(S)-PON&GPON Combo Port Specification | Transmission Distance | 20KM | |
| | XG(S)-PON Port Speed | GPON: Upstream1.244Gbps, Downstream 2.488Gbps | |
| | | XG-PON: Upstream 2.488Gbps, Downstream 9.953Gbps | |
| | | XGS-PON: Upstream 9.953Gbps, Downstream 9.953Gbps | |
| | Wavelength | GPON: Upstream 1310nm, Downstream 1490nm | |
| | XG(S)-PON: Upstream: 1270nm Downstream: 1577nm | | |
| | Supported PON ports | PON 1~8 (8 PON ports are in XG(S)-PON&GPON Combo mode by default) | |
| GPON Port specification | Transmission Distance | 20KM | |
| | GPON Port Speed | Upstream: 1.244Gbps, Downstream: 2.488Gbps | |
| | Wavelength | Upstream: 1310nm, Downstream: 1490nm | |
| | Supported PON ports | PON 1~8 (Each PON port can be manually hot switched to GPON mode) | |
| Lightning Protection | Power Lightning Protection | 6KV | |
| | Interface Lightning Protection | 4KV | |
| Power Supply | AC | Working Voltage Range: 100~240V, Rated Voltage: 110V/220V | |
| Number of Fans | | 4 | |
| Management Mode | | CLI (Console/Telnet/SSH) / WEB | |

TOFA-422W - 4 Port 1550nm High Power PON EYDFA

1550nm fibre amplifier combines low-noise EDFA and high-power EYDFA.

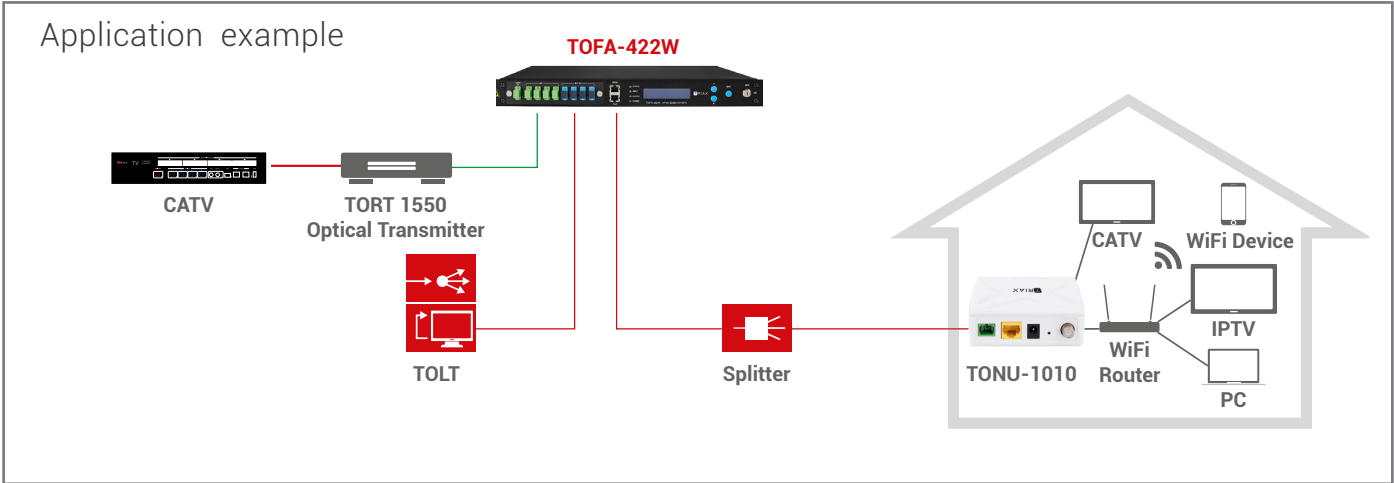
The total output optical power can reach 37dBm, optical power of 1550nm per output port is not less than 19dBm/22dBm (optical power level selectable), replacing multiple EDFA units. Each output port has

built in CWDM to multiplex CATV signal and OLT PON Data flow, ideal for FTTH applications. The TOFA-422W offers excellent performance and reliability and supports network management and power redundancy.



FEATURES

- TOFA-422W adopts a high-quality pump laser and double cladding active fibre
- Each output port has built in CWDM
- Compatible with any FTTx PON: EPON, GPON, 10GPON
- Perfect APC, ACC and ATC optical circuit design ensures low noise, high output and high reliability of the device in the whole operating band (1545 ~ 1565nm)
- Automatic protection of low input or no input. When the optical power at input is lower than the set value, the laser will automatically shut down to protect the operating safety of the device
- Output adjustable, adjustment range from 0~-4dBm
- CATV/PON dual fibre inputs
- Fast switching time of optical switch with low loss (automatic and manual)
- Built-in dual power supply, automatically switched and hot plug supported
- The operating parameters of the TOFA-422W are controlled by a microprocessor, and the LCD status display on the front panel has many functions such as laser status monitoring, parameter display, fault alarm, network management. Once the operating parameters of the laser deviate from the range set in the software by the user, the system will issue an alarm
- Standard RJ45 interface is provided, supporting SNMP and WEB remote network management



TOFA - 422W

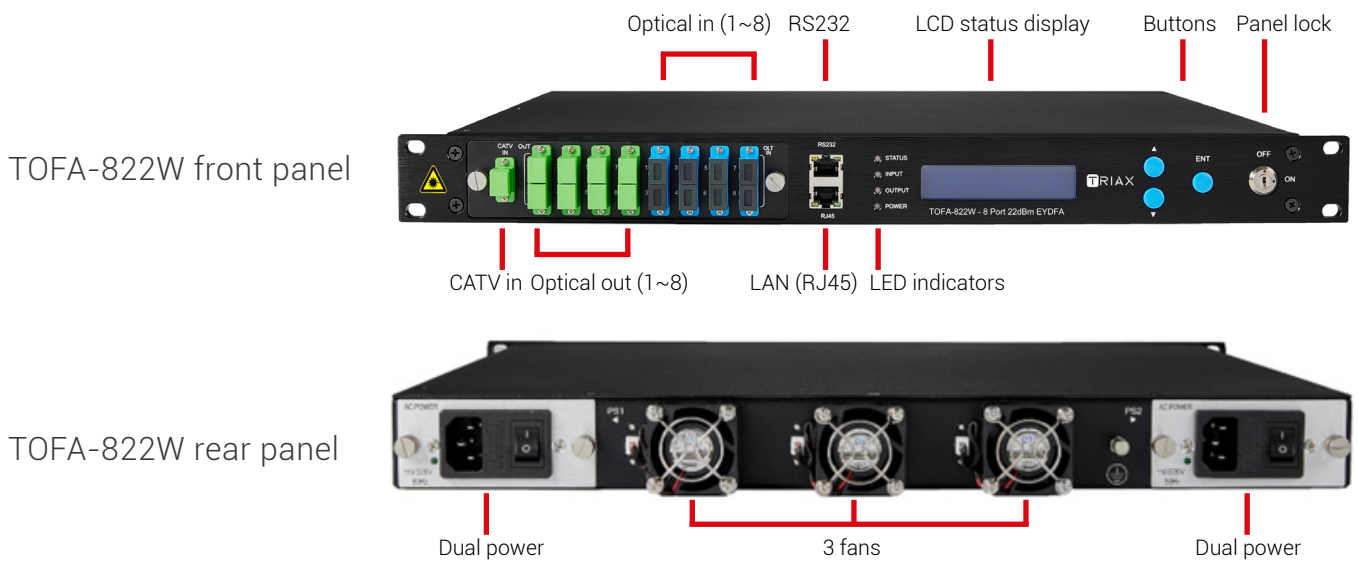
| | | | | | |
|----------------------------------|--|------------|-------------------------------------|--------------|---------------------|
| ART. Number | 308550 | | | | |
| EAN Number | 5061038085334 | | | | |
| Ordering Information | Product Description | | | Output Power | Power Configuration |
| | 4*SC/APC (Output) 4*SC/UPC(PON Input) 1*SC/APC (CATV Input) | | | 4*22dBm | 2*AC |
| Items | Unit | Min. | Typ. | Max. | Remarks |
| Optical | | | | | |
| CATV Operating Wavelength | nm | 1545 | | 1565 | |
| OLT PON Pass Wavelength | nm | | XPON:1310/1490 10G PON:1270/1577 | | |
| Optical Input Range | dBm | -3 | | 10 | 1dBm interval |
| Output Power | dBm | | | 37 | |
| No. of OLT PON Ports | No. | | | 4 | SC/UPC |
| No. of COM Ports | No. | | | 4 | SC/APC |
| CATV Pass Loss | dB | | | 0.8 | |
| OLT Pass Loss | dB | | | 0.8 | 0.1dB each step |
| Output Adjustment Range | dB | -4 | | 0 | |
| Output Ports Uniformity | dB | | | 0.7 | |
| Output Power Stability | dB | | | 0.3 | |
| Isolation between CATV and OLT | dB | 40 | | | |
| Switching Time of Optical Switch | ms | | | 8 | |
| Insertion Loss of Optical Switch | dB | | | 0.8 | |
| Noise Figure | dB | | | 6 | Pin: 0dBm |
| PDL | dB | | | 0.3 | |
| PDG | dB | | | 0.4 | |
| PMD | ps | | | 0.3 | |
| Remnant Pump Power | dBm | | | -30 | |
| Optical Return Loss | dB | 45 | | | |
| Fibre Connector | | | SC/APC | | |
| Network Management Interface | | | SNMP, WEB SUPPORT | | |
| Power Supply | V | 90 | | 265 | AC |
| Power Consumption | W | | | 70 | Dual power supply |
| General | | | | | |
| Operating Temp | °C | -5 | | 65 | |
| Storage Temp | °C | -40 | | 85 | |
| Operating Relative Humidity | % | 5 | | 95 | |
| Dimension W x L x H | mm | 370×483×44 | | | |
| Weight | Kg | 5.5 | | | |

TOFA-822W 8 Port 1550nm High Power PON EYDFA

1550nm fibre amplifier combines low-noise EDFA and high-power EYDFA.

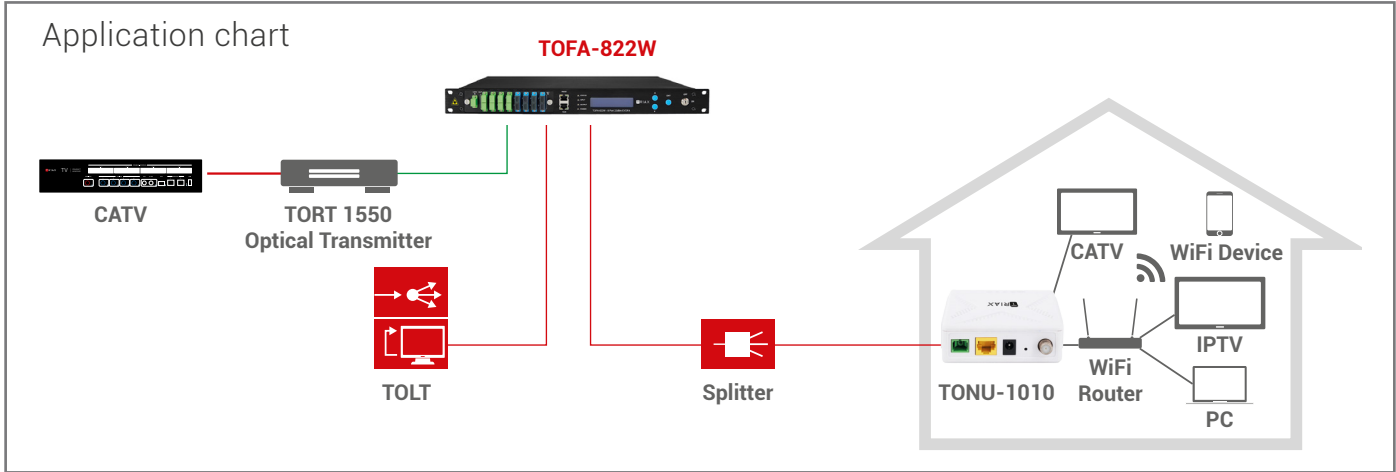
The total output optical power can reach 37dbm, optical power of 1550nm per output port not less than 19dBm/22dBm (optical power level selectable), replacing multiple EDFA units. Each output port has

built in CWDM to multiplex CATV signal and OLT PON Data flow, ideal for FTTH applications. The TOFA-822W offers excellent performance and reliability and supports network management and power redundancy.



FEATURES

- TOFA-822W adopts a high-quality pump laser and double cladding active fibre
- Each output port has built in CWDM
- Compatible with any FTTx PON: EPON, GPON, 10GPON
- Perfect APC, ACC and ATC optical circuit design ensures low noise, high output and high reliability of the device in the whole operating band (1545 ~ 1565nm)
- Automatic protection of low input or no input. When the optical power at input is lower than the set value, the laser will automatically shut down to protect the operating safety of the device
- Output adjustable, adjustment range from 0~-4dBm
- CATV/PON dual fibre inputs
- Fast switching time of optical switch with low loss (automatic and manual)
- Built-in dual power supply, automatically switched and hot plug supported
- The operating parameters of the TOFA-822W are controlled by a microprocessor, and the LCD status display on the front panel has many functions such as laser status monitoring, parameter display, fault alarm, network management. Once the operating parameters of the laser deviate from the range set in the software by the user, the system will issue an alarm
- Standard RJ45 interface is provided, supporting SNMP and WEB remote network management



TOFA - 822W

| | | | | | |
|----------------------------------|---|------------|-------------------------------------|--------------|---------------------|
| ART. Number | 308551 | | | | |
| EAN Number | 5061038085341 | | | | |
| | Product Description | | | Output Power | Power Configuration |
| | 8*SC/APC (Output) 8*SC/UPC(PON Input) 1*SC/APC (CATV Input) | | | 8*22dBm | 2*AC |
| Items | Unit | Min. | Typ. | Max. | Remarks |
| Optical | | | | | |
| CATV Operating Wavelength | nm | 1545 | | 1565 | |
| OLT PON Pass Wavelength | nm | | XPON:1310/1490 10G PON:1270/1577 | | |
| Optical Input Range | dBm | -8 | | +10 | 1dBm interval |
| Output Power | dBm | | | 37 | |
| No. of OLT PON Ports | No. | | | 8 | SC/UPC |
| No. of COM Ports | No. | | | 8 | SC/APC |
| CATV Pass Loss | dB | | | 0.8 | |
| OLT Pass Loss | dB | -4 | | 0.8 | 0.1dB each step |
| Output Adjustment Range | dB | | | 0 | |
| Output Ports Uniformity | dB | | | 0.7 | |
| Output Power Stability | dB | | | 0.3 | |
| Isolation between CATV and OLT | dB | 40 | | | |
| Switching Time of Optical Switch | ms | | | 8 | |
| Insertion Loss of Optical Switch | dB | | | 0.8 | |
| Noise Figure | dB | | | 6 | Pin: 0dBm |
| PDL | dB | | | 0.3 | |
| PDG | dB | | | 0.4 | |
| PMD | ps | | | 0.3 | |
| Remnant Pump Power | dBm | | | -30 | |
| Optical Return Loss | dB | 45 | | | |
| Fibre Connector | | | SC/APC | | |
| Network Management Interface | | | SNMP, WEB SUPPORT | | |
| Power Supply | V | 90 | | 265 | AC |
| Power Consumption | W | | | 70 | Dual power supply |
| General | | | | | |
| Operating Temp | °C | -5 | | 65 | |
| Storage Temp | °C | -40 | | 85 | |
| Operating Relative Humidity | % | 5 | | 95 | |
| Dimension W x L x H | mm | 370×483×44 | | | |
| Weight | Kg | 5.5 | | | |

TOLT-SFP GPON Class C++++ SFP OLT Transceiver



FEATURES

- SFP with SC/PC Connector Transceiver
- 1490 nm DFB Tx with isolator
- 1310 nm APD Rx
- Digital diagnostics SFF-8472 Compliant
- 2488 Mbps continuous mode Transmission
- 1244 Mbps Burst mode receiver Data Rate
- RX Fast Burst Mode Detection
- Provide fast RSSI function
- Operation case temperature: 0~70°C
- Class D+ link budget
- Complies with ITU-T G984.2 Amendment 1
- Complies with RoHS directive (2002/95/EC)

| TOLT - SFP | |
|---------------------|--|
| ART. Number | 308600 |
| Product Description | SFP GPON OLT / Tx1490 / Rx1310 / 20km / Tx2.5G / Rx1.25G / G984.2 Class D+ / 0~70°C / SC receptacle / Po>8dBm |

TOLT-SFP+ XGS-PON/GPON Combo OLT Optical Transceiver



FEATURES

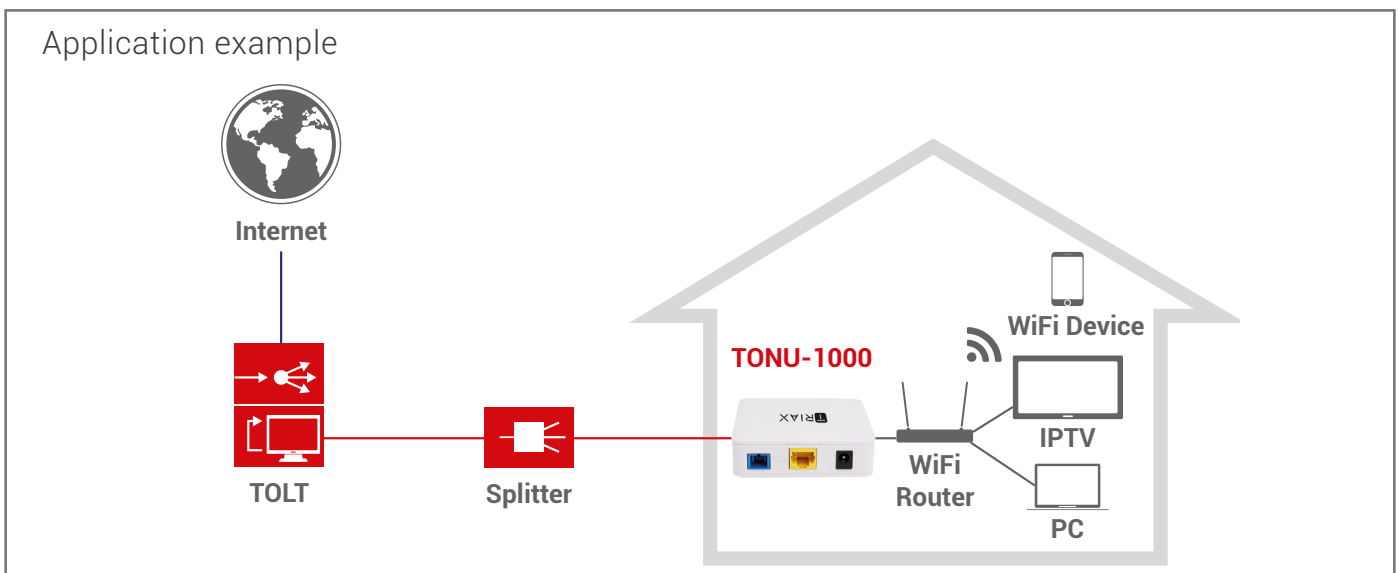
- Compliant with ITU-T G.9807.1, ITU-T G.987.2 and G.984.2 application
- XGS-PON 1577nm 9.953G continuous-mode transmitter with EML laser, 1270nm 9.953G&2.488G burst-mode receiver with APD-TIA (with RESET), with GPON 1490nm 2.488G continuous-mode transmitter with DFB laser, 1310nm 1.244G burst-mode receiver with APD-TIA (with RESET)
- 2-wire interface for integrated digital diagnostic monitoring
- Digital receiving signal strength indication (RSSI)
- SFP+ MSA package with SC/UPC receptacle optical interface
- +3.3V power supply
- Operating case temperature 0~70°C
- RoHS compliance

| TOLT - SFP+ | | | | |
|-----------------------------|---|-------|---------|-------|
| ART. Number | 308601 | | | |
| Product Description | GPON-XGSPON Combo OLT, compatible with GPON OLT C+ and XGS-PON OLT N2, TX 1490nm 2.488Gbps, Burst RX 1310nm 1.244Gbps, TX 1577nm 9.95Gbps, Burst RX 1270nm 9.95Gbps, SFP+ form-factor, BIDI SC/UPC Receptacle, 0~70°C | | | |
| Parameter | Unit | Min. | Typical | Max. |
| Storage Temperature | °C | -40 | | 85 |
| Operating Case Temperature | °C | 0 | | 70 |
| Storage Humidity | % | 5 | | 90 |
| Operating Relative Humidity | % | 5 | | 85 |
| Power Supply Voltage | V | 3.135 | 3.3 | 3.465 |
| Power Supply Consumption | W | | | 3 |
| Bit Rate for Tx 1577nm | Gbps | 9.953 | | |
| Bit Rate for Rx 1270nm | Gbps | 2.488 | 9.953 | |
| Bit Rate for Tx 1490nm | Gbps | 2.488 | | |
| Bit Rate for Rx 1310nm | Gbps | 1.244 | | |

TONU-1000 GE ONU

TONU-1000 (XPON 1GE ONU) is specially designed to meet the needs of telecom operators for FTTO (office), FTTD (desktop), FTTH (home), SOHO broadband access, video surveillance, etc. The ONU is based on high-performance chip technology solutions and supports Layer 2 / Layer 3 functions, providing data services for carrier-grade FTTH applications.

The ONU has high reliability and can be applied to a wide temperature environment; and has a powerful firewall function, which is easy to manage and maintain. It provides a QoS guarantee for different services. The ONU complies with international technical standards such as IEEE802.3ah and ITU-T G.984.



FEATURES

- XPON Dual Mode can automatically access EPON/GPON
- Rogue ONU detection compliant
- Powerful Firewall
- Wide Working Temperature: -25°C~+55°C

TONU-1000

| | | |
|-------------|---------------------|---------------------------------|
| ART. Number | 308700 | |
| | Product Description | Accessories |
| | 1*GE | AC-DC power adapter, DC12V/0.5A |

Interface

| | |
|-----|---|
| PON | <p>1 XPON port (EPON PX20+ & GPON Class B+)</p> <p>SC single mode, SC/UPC connector</p> <p>TX optical power: 0~+4dBm</p> <p>RX sensitivity: -27dBm</p> <p>Overload optical power: -3dBm (EPON) or - 8dBm (GPON)</p> <p>Transmission distance: 20KM, Wavelength: TX 1310nm, RX1490nm</p> |
| LAN | 1*GE, Auto-negotiation, RJ45 connector |

Function data

| | |
|---------------------|--|
| XPON mode | Dual mode, Auto-access to EPON/GPON OLT |
| Uplink mode | Bridging and Routing Mode |
| Abnormal protection | Detecting Rogue ONU, Hardware Dying Gasp |
| Firewall | DDOS, Filtering Based on ACL/MAC/URL |

Product features

| | |
|------------|---|
| Basic | <p>Supports MPCP discover & register</p> <p>Supports authentication MAC/LOID/MAC + LOID</p> <p>Supports Triple Churning</p> <p>Supports DBA bandwidth</p> <p>Supports auto-detecting, auto-configuration, and auto firmware upgrade</p> <p>Supports SN/Psw/LOID/LOID+Psw authentication</p> |
| Alarm | Supports Dying Gasp, Port Loop Detect, Ethernet Port LOS |
| LAN | <p>Supports Port rate limiting</p> <p>Supports Loop detection</p> <p>Supports Flow control</p> <p>Supports Storm control</p> |
| WLAN | <p>Supports VLAN tag mode</p> <p>Supports VLAN transparent mode</p> <p>Supports VLAN trunk mode (max 8 vlans)</p> <p>Supports VLAN 1:1 translation mode (≤8 vlans)</p> |
| Multicast | <p>Supports IGMPv1/v2/Snooping</p> <p>Max Multicast vlan 8, Max Multicast Group 64</p> |
| QoS | Supports 4 queues, SP and WRR, 802.1P |
| L3 | <p>Supports IPv4/IPv6</p> <p>Supports DHCP/PPPOE/Static IP</p> <p>Supports Static route</p> <p>Supports NAT</p> |
| Management | <p>Supports CTC OAM 2.0 and 2.1</p> <p>Supports ITUT984.x OMCI</p> <p>Supports WEB</p> <p>Supports TELNET</p> <p>Supports CLI</p> |

Electrical

| | |
|---------------|---|
| Power adapter | DC 12V, 0.5A, external AC-DC power adaptor, ≤4W |
| Indicators | SYS, LINK/ACT, REG |

General

| | |
|--|---|
| Operating condition | <p>Operating temperature: -10 ~ +55°C</p> <p>Operating humidity: 5 ~ 95% (non-condensing)</p> |
| Storage condition | <p>Storage temperature: -40 ~ +70°C</p> <p>Storage humidity: 5~ 95% (non-condensing)</p> |
| Packaging size (L x W x H) / Net weight | 82x82x25mm / 0.85Kg |

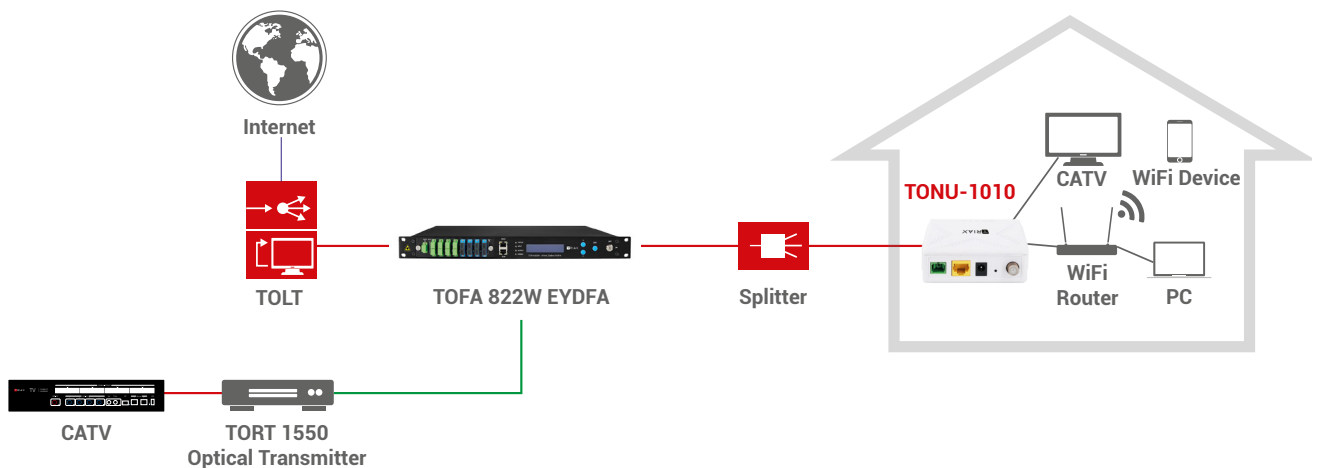
TONU-1010 GE ONU + CATV

With the added feature of a CATV Output the TONU-1010 (XPON 1GE ONU) is specially designed to meet the needs of telecom operators for FTTO (office), FTTD (desktop), FTTH (home), SOHO broadband access, video surveillance, etc. The ONU is based on high-performance chip technology solutions and supports Layer 2/Layer 3 functions, providing data services for carrier-grade FTTH applications.

The ONU has high reliability and can be applied to a wide temperature environment and has a powerful firewall function, which is easy to manage and maintain. It can provide QoS guarantee for different services. The ONU complies with international technical standards such as IEEE802.3ah and ITU-T G.984.



Application example



FEATURES

- XPON Dual Mode, can automatically access EPON/GPON
- Routing & Bridging Mode
- High Performance Solution
- Remote Control CATV (with AGC) on/off

| TONU-1010 | | |
|--|---|---------------------------------|
| ART. Number | 308701 | |
| | Product Description | Accessories |
| | 1*GE + CATV (AGC) | AC-DC power adapter, DC12V/0.5A |
| Interface | | |
| PON | 1 XPON port (EPON PX20+ & GPON Class B+) SC single mode, SC/UPC connector TX optical power: 0~+4dBm RX sensitivity: -27dBm Overload optical power: -3dBm (EPON) or - 8dBm (GPON) Transmission distance: 20KM, Wavelength: TX 1310nm, RX1490nm, CATV 1550nm | |
| LAN | 1*GE, Auto-negotiation, RJ45 connector | |
| CATV | RF Optical power: +2~-18dBm Optical receiving wavelength: 1550±10nm RF frequency range: 47~1000MHz RF output impedance: 75Ω RF output level: ≥ 70dBuV(0~-15dBm) AGC range: 0~-15dBm MER: ≥32dB (-14dBm optical input) | |
| Function data | | |
| PON mode | XPON Dual Mode | |
| Uplink mode | Bridging and Routing Mode Will connect with most mainstream OLTs | |
| CATV | Supports CATV Remote management | |
| Standard | Supports CTC OAM 2.1 and 3.0 Supports ITUT984.x OMCI | |
| Layer 2 | 802.1D&802.1ad bridging 802.1p CoS 802.1Q VLAN | |
| Layer 3 | IPv4 DHCP Client/Server PPPoE, NAT, DMZ, DDNS | |
| Multicast | IGMP v2/v3, IGMP snooping | |
| Security and Firewall | Prevent Rogue ONU DDOS, Filtering Based on ACL/MAC/URL | |
| O&M | Supports EMS\WEB\Telnet\CLI and unified network management of TRIAX OLT | |
| Electrical | | |
| Power adapter | DC 12V, 0.5A, external AC-DC power adaptor, ≤4W | |
| Indicators | SYS, LINK/ACT, REG | |
| Interfaces | 1GE + CATV | |
| Operating condition | Operating temperature: -10 ~ +55°C Operating humidity: 5 ~ 95% (non-condensing) | |
| Storage condition | Storage temperature: -40 ~ +70°C Storage humidity: 5~ 95% (non-condensing) | |
| Packaging size (L x W x H) / Net weight | 100 x 92 x 30mm / 0.140Kg | |

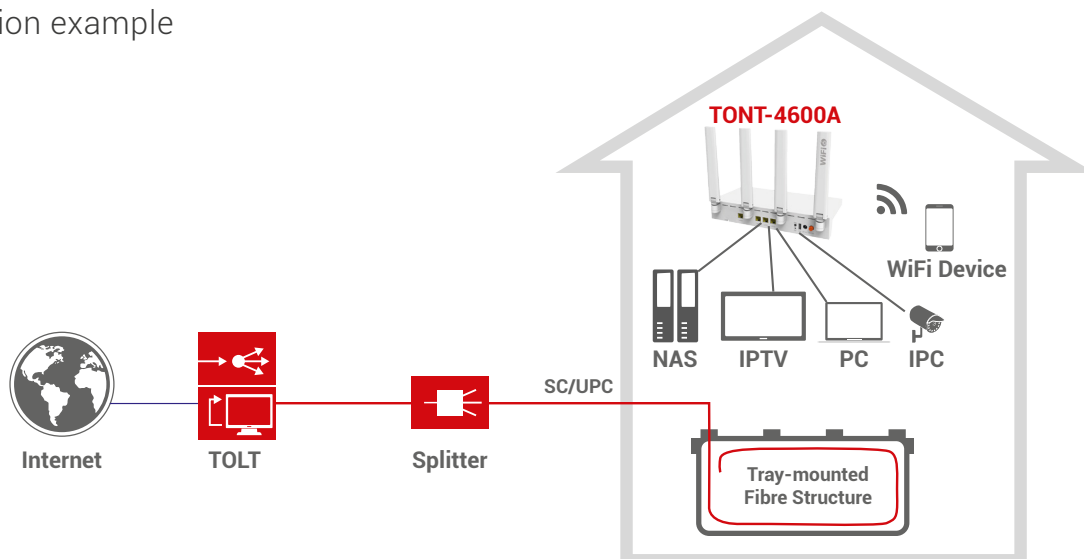
TONT-4600A 1XPON + 4LAN + 1USB3.0 + Wi-Fi6 ONT

TONT-4600 (4*GE, Wi-Fi6, XPON, HGU ONT) is a broadband access device specially designed to meet the needs of fixed network operators for FTTH. This ONT is based on a high performance chip solution, supporting XPON dual mode technology (EPON and GPON). With Wi-Fi speeds of up to 3000Mbps, it also supports IEEE 802.11b/g/n/ac/ax Wi-Fi 6 technology and other Layer 2/Layer 3 features, providing data services for carrier grade FTTH applications.

In addition, the ONT also supports the OAM/OMCI protocol and various services of the ONT can be configured and managed on the TRIAX TOLT. The ONT has high reliability, is easy to manage and maintain and has QoS guarantees for various services. It conforms to a series of international technical standards such as IEEE802.3ah and ITU-T G.984



Application example



FEATURES

- XPON + Wi-Fi6 + Gig+ performance
- Next-Gen Gigabit Wi-Fi6 2.4GHz & 5GHz Dual Band
- IPv4/IPv6 Dual Stack
- USB3.0 Interface for Shared Storage/Printer
- Fibre cable management tray in base



| TONT-4600A | |
|--|---|
| ART. Number | 308704 |
| | Product Description |
| | 1*XPON +4*GE + WiFi6 |
| | Accessories |
| | AC-DC power adapter, DC12V/0.5A |
| Interface | |
| PON | 1XPON port (EPON PX20+ and GPON Class B+) SC single mode, SC/UPC connector TX optical power: 0~+4dBm RX sensitivity: -27dBm Overload optical power: -3dBm(EPON) or - 8dBm(GPON) Transmission distance: 20KM Wavelength: TX 1310nm, RX1490nm |
| User interface | 1 x 4*GE Auto-negotiation RJ45 ports |
| Antenna | 4 x external antennas + 1 x internal antenna |
| USB | 1 x USB 3.0 for shared storage/printer |
| Function data | |
| O&M | WEB/TELNET/OAM/OMCI/TR069 Supports private OAM/OMCI protocol |
| Internet connection | Supports Routing Mode |
| Multicast | IGMP v1/v2/v3, IGMP snooping MLD v1/v2 snooping |
| Wi-Fi | Wi-Fi 6: 802.11a/n/ac/ax 5GHz & 802.11g/b/n/ax 2.4GHz Wi-Fi Encryption: WPA/WPA2/WPA3 Supports OFDMA, MU-MIMO, Dynamic QoS, 1024-QAM Smart Connect for one Wi-Fi name - One SSID for 2.4GHz and 5GHz dual band |
| L2 | 802.1p CoS, 802.1Q VLAN |
| L3 | IPv4/IPv6, DHCP Client/Server, PPPoE, NAT, DMZ, DDNS |
| Firewall | Anti-DDOS, Filtering Based on ACL/MAC/URL |
| Electrical | |
| Power adapter | DC 12V, 1.5A, external AC-DC power adaptor, ≤18W |
| Indicators | PWR ,PON ,LOS ,WAN ,LAN1~4 ,2.4G ,5G , WPS ,USB |
| Interfaces | 1XPON+4GE+1USB3.0+WiFi6 |
| General | |
| Operating condition | Operating temperature: -10 ~ +55°C |
| | Operating humidity: 5 ~ 95% (non-condensing) |
| Storage condition | Storage temperature: -40 ~ +70°C |
| | Storage humidity: 5~ 95% (non-condensing) |
| Packaging size (L x W x H) / Net weight | 260.4 × 157.4 × 45.8mm / 0.55Kg |

TONT-4610 1XPON + 4LAN + 1USB3.0 + CATV + Wi-Fi6 HGU ONT

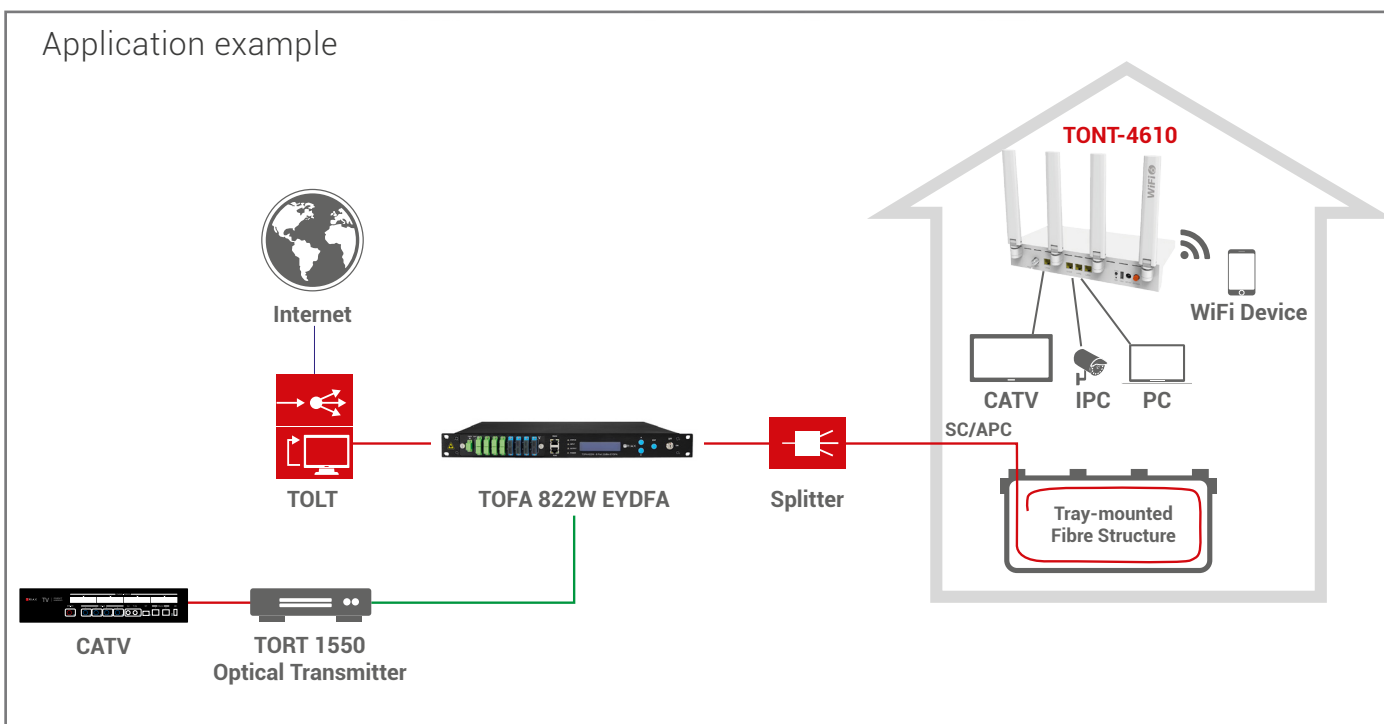
TONT-4610 (4GE+CATV+WiFi6 XPON HGU ONT) is a broadband access device designed to meet the demands of fixed network operators for FTTH and triple-play services. This ONT is based on a high performance chip solution, supporting XPON dualmode technology (EPON and GPON). With Wi-Fi speeds of up to 3000Mbps, it also supports IEEE 802.11b/g/n/ac/ax Wi-Fi 6 technology and other Layer 2/Layer 3 features, providing data services for carrier-grade FTTH applications.

In addition, this ONT supports OAM/OMCI protocols, allowing configuration and management of various services on the TRIAX TOLT, making it easy to manage and maintain, and ensuring QoS for various services. It complies with international technical standards such as IEEE802.3ah and ITU-T G.984.

With a bottom disc fibre structure design to tidy fibre cable, it can be placed on a desktop or wall-mounted, adapting effortlessly to various locations.



Application example



FEATURES

- XPON + Wi-Fi6 + Gig+ performance
- Next-Gen Gigabit Wi-Fi6 2.4GHz & 5GHz Dual Band
- IPv4/IPv6 Dual Stack
- USB3.0 Interface for Shared Storage/Printer
- Fibre cable management tray in base
- With CATV Output



TONT-4610

| | | |
|-------------|---|---------------------------------|
| ART. Number | 308703 | |
| | Product Description | Accessories |
| | 1*XPON + 4*GE + 1USB3.0 + CATV + Wi-Fi6 | AC-DC power adapter, DC12V/0.5A |

Interface

| | |
|----------------|--|
| PON | <p>1XPON port (EPON PX20+ and GPON Class B+)</p> <p>SC single mode, SC/UPC connector</p> <p>TX optical power: 0~+4dBm</p> <p>RX sensitivity: -27dBm</p> <p>Overload optical power: -3dBm(EPON) or - 8dBm(GPON)</p> <p>Transmission distance: 20KM</p> <p>Wavelength: TX 1310nm, RX1490nm</p> |
| User interface | 4 x GE, Auto-negotiation, RJ45 ports |
| Antenna | 2.4GHz 2T2R, 5GHz 3T3R |
| CATV | <p>Optical receiving wavelength: 1550±10nm, optical input range: +2~-18dBm</p> <p>Optical reflection loss: ≥40dB</p> <p>RF frequency range: 47~1000MHz, RF output impedance: 75Ω</p> <p>RF output level and AGC range:</p> <p>≥81±2dBuV@+1~-10dBm</p> <p>≥79±2dBuV@ 0~-11dBm</p> <p>≥77±2dBuV@-1~-12dBm</p> <p>≥75±2dBuV@-2~-13dBm</p> <p>≥73±2dBuV@-3~-14dBm</p> <p>≥71±2dBuV@-4~-15dBm</p> <p>MER: ≥ 32dB (-14dBm optical input)</p> |

Function data

| | |
|---------------------|--|
| O&M | <p>WEB/TELNET/OAM/OMCI/TR069</p> <p>Supports private OAM/OMCI protocol and Unified network management</p> |
| Internet connection | Supports Routing Mode |
| Multicast | IGMP v1/v2/v3, IGMP snooping, MLD v1/v2 snooping |
| Wi-Fi | <p>Wi-Fi 6: 802.11a/n/ac/ax 5GHz, 2.4GHz - 2.4GHz 2x2, 5GHz 3x3, 5 antenna</p> <p>4*External antenna,1*Internal antenna, rate up to 3Gbps, Multiple SSID</p> <p>Wi-Fi Encryption: WPA/WPA2/WPA3</p> <p>Supports OFDMA, MU-MIMO, Dynamic QoS, 1024-QAM</p> <p>Smart Connect for one Wi-Fi name - One SSID for 2.4GHz and 5GHz dual band</p> |
| L2 | 802.1 p CoS, 802.1Q VLAN |
| L3 | IPv4/IPv6, DHCP Client/Server, PPPoE, NAT, DMZ, DDNS |
| Firewall | Anti-DDOS, Filtering Based on ACL/MAC/URL |

Electrical

| | |
|---------------|--|
| Power adapter | DC 12V, 1.5A, external AC-DC power adaptor, ≤18W |
| Indicators | PWR, PON, LOS, WAN, LAN1~4, 2.4G, 5.0G, WPS, USB, CATV |
| Interfaces | 1*XPON + 4*GE + 1*USB3.0 + CATV + Wi-Fi6 |

General

| | |
|---|--|
| Operating condition | Operating temperature: -10 ~ +55°C |
| | Operating humidity: 5 ~ 95% (non-condensing) |
| Storage condition | Storage temperature: -40 ~ +70°C |
| | Storage humidity: 5~ 95% (non-condensing) |
| Packaging size (L x W x H) / Net weight | 260 x 157.4 x 45.8mm / 0.55Kg |



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