



# GPON hardware: your questions answered

First edition



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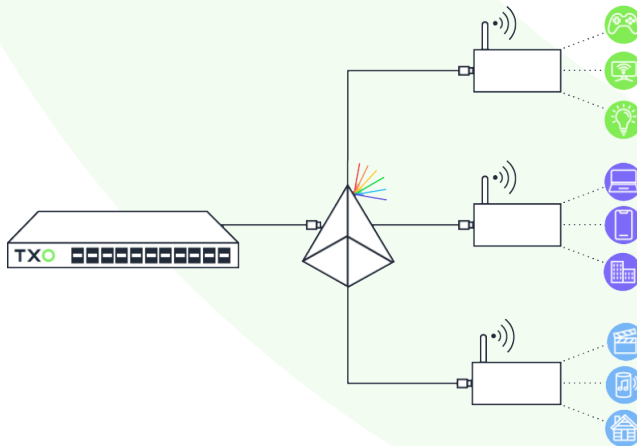


Here at TXO, we love helping ISPs and supporting their passive optical network (PON) architecture. As a result, our customers are able to consolidate multiple services onto a single fibre transport network. We're proud to quickly deliver customisable, high-capacity GPON hardware to support fibre networks around the world.

## How does GPON work?

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Here's an infographic of GPON technology at work:



In the infographic above you'll see that an Optical Line Terminal (OLT) sends a single line of optical light (signal) into a splitter. The splitter contains glass elements that act as a prism to divide (or split) the optical light into multiple identical waves of signals down individual fibres which are connected to an Optical Network Unit (ONU). This is a termination point where the end-user can leverage the signal for work, home and leisure activities.

The output of GPON configurations typically feeds up to 64 unique endpoints, powering multiple FTTx applications with ample capacity and consistent connectivity to ensure the lowest possible cost of ownership.

Here at TXO we're experts in our field and know exactly what it takes to keep your network ticking. In this document our Group Head of Optical Networking & Product, Joe Thompson (aka our very own fibre optic whizz) answers all the common questions we get asked about GPON hardware. If your question is not answered here, please reach out to us, we'll be happy to help!



## All about our OLTs

Our plug-and-play OLTs (Optical Line Terminal) are high-performing, active Ethernet aggregation devices that serve as a service provider endpoint for passive optical networks. OLTs are beneficial because they replace the need for multiple layer 2 switches at distribution points, therefore saving you money.

OLTs can satisfy long-distance optical fibre access requirements due to their flexible network mode. These compact devices are convenient and can be deployed easily as a result of their plug and play capability. In addition, OLTs can be used for “triple-play”, VPN, Enterprise LAN, IP Camera and ICT applications.

Here you'll find answers to the questions we often get asked about our OLTs:

Question	Answer
Unit life expectancy and advertised MTBF?	50,000 hours.
Warranty options available (default and excess)?	We offer a 2-year free warranty and we're also open to providing an extended warranty in select cases.
Support options, contact methods, hours of operation and emergency support?	We're pleased to offer a range of vendor support solutions. This includes our UK-based lab and Account Manager on escalation list. As well as vendor support through our presence in China and emergency services via our team in Solihull.
Any software / firmware updates?	All updates and patches are provided by our team.
Typical RMA timeline from ticket raise to hardware replacement?	No quibble, immediate advanced replacement can be with you same day or within 24 hours.
Training options available?	All installation and registration training is provided by our expert team.
Supply & lead times over the last 24 months?	Typically our products are built to order. OLTs take 3-4 weeks based on quantity needed. Also we offer a buffer stock pool to avoid time delays, protecting you from any possible supply chain issues.
What monitoring options are supported outside of the vendors OSS solutions. (e.g. SNMP)?	CLI, NMS, EMS, SNMP.
Any vendor / optic coding restrictions for network-to-network interface (NNI) optics? Will NNI collect status data from TXO SFPs?	There's no coding restrictions and SFPs will not collect status data.
If TXO NNI SFPs are not supported, please confirm if optical transceivers are available across wavelengths (e.g., non 1310)	We offer third party SFPs that are fully supported with a 3-year warranty.
What is the TX/RX sensitivity of the PON optics?	B+ PON module Sensitivity is -28dbm C+ PON module sensitivity is -30dbm.
Are there vendor / optic coding restrictions for PON optics? Will NNI collect status data from third-party SFP?	No restrictions.

Question	Answer
What are the environmental parameters of the equipment? Has it been tested in FTTx street cabinets?	Standard CE marking parameters. The equipment is tested in our internal lab, the customer gets a free proof of concept in a FTTx street cabinet to approve.
Is the device powered through 48VDC? What is the current requirement at full capacity?	Yes, it's able to be powered by 48V DC power supply.
Is the unit better mounted horizontally or vertically within a cabinet to optimise air flow?	It was designed to be mounted in a 19-inch cabinet, either horizontally or vertically.
What are the physical dimensions of the chassis?	437mm×44mm×280mm.
How is IP lockout / base configuration access provided? e.g. serial port connectivity	We can provide a manual option for configuration access.
What is the maximum achievable PON port density for PON / XGS-PON optical transceivers?	Maximum 16 PON ports for one unit.
Are both GPON and XGS-PON supported?	GPON only, however excitingly, our XGS-PON is coming in 2022. Stay tuned!
Are there any future PON standards on the product roadmap?	We're exploring options for lab-use only in our UK and French facilities.
What is the maximum split ratio supported?	1:128.
Are any components, other than the PON line cards, not provided with N+1 redundancy?	Only power supply N+1 redundancy.
What's the connector type for PON optical transceivers?	SC/UPC; SC/APC.
Is zero touch provisioning provided? In particular, is Radius authentication supported?	Zero touch provision and Radius authentication is supported.
Does the unit support any L3 routing? (e.g. OSPF, BGP, MPLS)	All supported.
What is the origin of hardware when shipped?	Our products are shipped directly from our facilities in the UK.
Are any components manufactured by a company currently not permitted for usage / or in question by the UK government (e.g. Huawei)	No.

## All about our ONUs

Our open-use ONUs (Optical Network Units) offer high-speed fibre services to global ISPs and service providers. As part of a wider configuration, they deliver triple-play services (data, voice and video over IP) for business and residential users.



Here you'll find answers to the questions we often get asked about our ONUs:

Question	Answer
What is the TX / RX sensitivity of the unit?	Sensitivity is -28dbm.
Is there an option with telephony port?	This is customisable for you.
What is the customer facing port?	FTTH, FTTB, FTTX solution customers.
What monitoring/status information can we collect from the ONT? e.g. FCS error rate	None on the standard version. We can explore adding more specific monitoring capability with a collaborative R&D effort with full fibre.
How is monitoring / diagnostic data collected? Does this have to be facilitated through vendor software?	The pre-installed software supports this.
Do you offer in-life support for firmware upgrades and is there a cost associated to this?	Full support across firmware and upgrades throughout warranty duration with no associated costs.
What is the MTBF?	10,000 hours.
What battery backup options are available and what are the cost implications?	Currently no battery backup options, but customisable versions can be designed to meet your unique needs.
How is fibre routed into the device?	Located on the side port.
What branding options are available and are there any volume requirements?	Full branding and white label options are available, with no limitations on volume.
What is the power adaptor type?	DC 12V.
To what safety / manufacturing standards has the device been tested?	ISO 9001 – an internationally recognised standard for quality management. To see a full list of our ISO certifications and memberships, head to our website.



## Why you'll love our FTTx solutions

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A key reason for selecting us as your partner for FTTx solutions is that we help to enhance your ability to collect service data for customer circuits. This is then made available to your customers through bespoke APIs and customer portals. Examples of data currently provided are:

- Light levels
- Firmware version
- Fibre distance
- UNI port status and information
- Uptime

Our range of premium quality and cost-effective GPON hardware is a key part of our FTTx product portfolio. All our products are tested extensively in our lab before dispatch and come backed by our comprehensive warranty as standard. Partnered with our full end-to-end support, we help you to deliver high-speed internet connectivity to your customers.

Here's a full list of our FTTx solutions:

- FTTx street cabinets
- GPON hardware
- Optical transceivers
- Cables & accessories
- Network design & build

For an initial conversation or further information on how our FTTx solutions can help you increase bandwidth and reduce costs, please reach out to our team of experts by phone, email or [online contact form](#).

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