



ADTRAN

# 2221-16TP/16CX

## 16-port Gfast Sealed, Outdoor ONU

### SDX Series



Gigabit

SDN  
Enabled

Sealed

Open  
Architecture

Low TCO

## Benefits

- Fully sealed enclosure for passive cooling enabling completely silent operation in residential areas
- Ultra-low Total Cost of Ownership (TCO) for triple-play service delivery
- Provides 16 ports of vectored 212 MHz Gfast and VDSL2 (2221-16TP only)
- AC, DC, Span-powered and reverse power options
- Supports IPTV video service
- Bypass relay function for smooth migration and zero-touch provisioning
- Advanced traffic management supports business services
- 1/10G GPON or 10G PON uplink options
- Supports EFM bonding for greater bandwidth and reach
- Supports FTTB, FTTdp, FTTCab and FTTH deployments
- Mosaic Cloud Platform Integration
- DPU management via NETCONF/YANG
- Optimised power consumption

## Overview

### Premium broadband services are fueling the need for pushing fibre deeper into the network and closer to the end user.

As this occurs, it provides an opportunity for network operators to leverage next-generation broadband technologies like VDSL2 17a Vectoring, VDSL2 35b (Super Vectoring), and Gfast.

The ADTRAN SDX 2221-16TP/16CX Gfast ONU allows service providers to realise up to 1.5 Gbps symmetric broadband speeds over existing copper or coax infrastructure. It rapidly enables advanced communications and entertainment services to previously hard-to-connect subscribers. Now if a location has a phone line, it can be served with Gigabit services.

Part of ADTRAN's comprehensive family of Gfast products, the SDX 2221 Series Gfast ONUs are purpose-built for Fibre-to-the-distribution point (FTTdp), Fibre-to-the-Building (FTTB), Fibre-to-the-Cabinet (FTTCab) or Fibre-to-the-Home (FTTH) markets. A fully sealed and submersible housing makes the SDX 2221-16TP/16CX ONUs robust and reliable network elements that can be deployed in pedestals, on poles, in low-profile "doghouse" enclosures and even in underground vaults and handholes.

The most cost-effective solutions for Distribution Point Units (DPUs) support long-term operation without requiring direct touch installation or maintenance. They also must be able to support a positive operator business case for only a small number of served subscribers. Concepts for simplified installation like "zero-touch" customer turn-up processes allow a single truck roll/site visit for hardware installation and then a zero-touch turn-up for every subsequent customer. The ADTRAN Gfast family of products provides a remote-controlled bypass system for each subscriber, supporting a smooth migration from existing DSL services.

The ADTRAN SDX 2221 Series Gfast DPUs are the industry's most open, programmable solutions and can be managed via any SDN controller or the ADTRAN Mosaic Cloud Platform. This allows for zero-touch installation and easy management of thousands of DPUs in the field, and provides a path to an open, software-defined network.

Fed with Active Ethernet, GPON or 10G PON, the SDX 2221-16TP/16CX ONUs support up to 16 subscribers with high-speed vectored 212 MHz Gfast data service, and are ideal for deep-fibre deployments to the curb, building, home, distribution point, or multi-dwelling unit (MDU). The SDX 2221-16TP Gfast ONUs support fallback to 106 MHz or VDSL2 (17a and 35b) providing a truly versatile ultra-broadband solution.

# ADTRAN 2221-16TP/16CX

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The SDX 2221-16TP/16CX Gfast ONUs support ultra-high-speed (up to 1.5 Gbps per pair) data rates, IPTV, and voice services over the existing in-building copper infrastructure. Services can be deployed rapidly and with minimal installation and construction costs. Combining the ability to be deployed in any outdoor or indoor environment with dramatically lower deployment costs, the SDX 2221 Series ONUs allow carriers to maximise the performance of Gfast for every subscriber in their network. It also enables operators to invest in a full FTTH network over a longer period of time, making the cost more manageable.

SDX 2221-16TP/16CX Gfast ONUs support remote (span), local or reverse powering.

ADTRAN Gfast solutions can be operationally aligned with FTTH architectures for common OMCI provisioning simplifying integration. They also work seamlessly with ADTRAN's widely deployed hiX5600 and Total Access 5000 Series Multi-Service Access Nodes (MSANs) and the SDX 8210 and 8310 Access/Aggregation switches, bridging the gap between existing and next-generation network architectures.

## Product Specifications

### Mechanical

- **Dimensions:** 17 in x 10 in x 3.3 in (44cm x 25.5cm x 8.5 cm) (H x W x D)
- **Weight:** < 7.0 kg (15 lbs.)
- **Outdoor Mounting:** Pedestal, Pole, Wall, Hand-hole, Dog House-style Cabinets

### Interfaces

#### Network

- Two 1/10 Gbps P2P SFP
- GPON / 10G PON Uplink

### Subscriber

- SDX 2221-16TP
  - ◆ 16 Gfast over copper
  - ◆ Integrated copper connector
- SDX 2221-16CX
  - ◆ 16 Gfast over coax

### DSL Performance

- 212MHz Gfast (ITU-T G.9700 and G.9701)
- VDSL2 Profiles 17a and 35b
- G.vector ITU-T G.993.5
- Configurable Gfast frequency >2.2 MHz
- Programmable Downstream/Upstream Ratio (1:1 to 10:1)
- SRA, SOS, Physical Layer Retransmission

### Ethernet Services

- 802.1D Bridging
- Virtual Switch Based on 802.1q VLAN
- VLAN Tagging/Untagging per Ethernet Port
- VLAN Stacking (Q-in-Q) and VLAN Translation
- Class of Service (CoS) Based on VLAN-ID, 802.1p Bit
- Marking/Remarking of 802.1p

### IPTV Support

- Internet Group Management Protocol v2 and v3
- Dynamic Host Configuration Protocol Support ((DHCP) with Option 82

### Power Options

- **Reverse Power:** 15W (short loops); 21W (long loops)
- **Forward Line Power:** 1 to 2 Line Powering Pairs (+/- 190VDC per pair)\*
- **Local DC Power:** -42 VDC to -56VDC\*
- **Local AC Power:** 100VAC to 220VAC\*

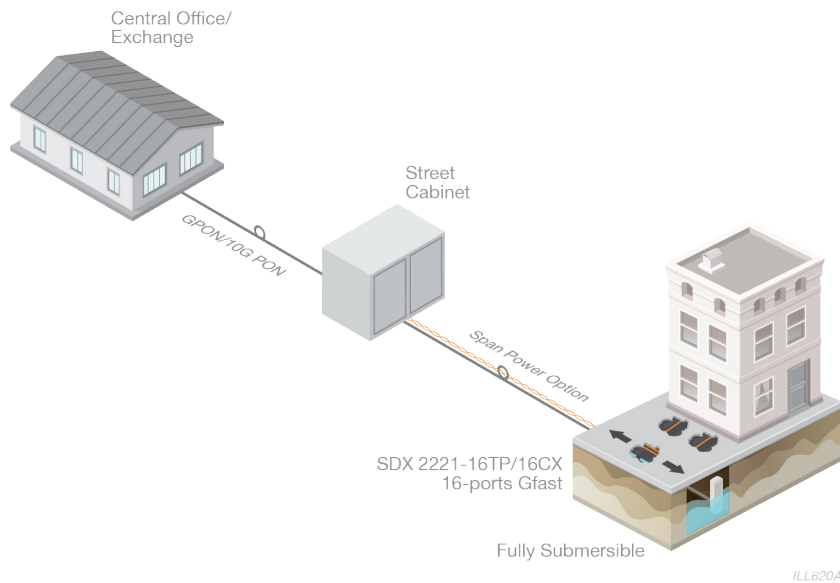
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## Regulatory Approvals

- ETSI EN 300 019
- GR-950-CORE, Issue 3
- ETSI EN 300 386
- GR-1089-CORE, Issue 6
- ETSI EN 60950
- GR-63-CORE, Issue 4
- ETS 300 753
- GR-3108, Issue 3
- ETS ES 201 468
- UL 60950-1/21/22
- DTAG TS 0364/96
- FCC Part 15
- DTAG 1TR9
- RoHS 6 of 6 Compliant
- ITU-T K.72/31/35
- ITU-T K.45

## Environmental

- **Operating Temperature:** -40° C to +65° C  
(-40° F to +149° F)
- **Storage Temperature:** -40° C to +85° C  
(-40° F to +185° F)
- **Relative Humidity:** 100%, Condensing,  
Fully Submersible



## Ordering Information

Equipment	Part No.
ADTRAN SDX 2221-16TP Gfast ONU (Twisted Pair)	11321781Fx*
ADTRAN SDX 2221-16CX Gfast ONU (Coax)	

\*Multiple powering options

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