



## Product Features

- G.984 compliant
- Environmentally hardened for indoor and outdoor deployments
- Full Class B+ Optics, capable of 30 km reach
- Optional Internal Opti-Fit mounting
- 10/100/1000 Base-T Ethernet Port(s)
- RF Over Glass Support (ONT specific)
- HPNA Support (ONT specific)
- Fiber cable management
- Native Ethernet transport over the GPON (GEMBased)
- VoIP using SIP or MGCP
- Traditional voice using GR-303, TR-008, or TR-57
- IPTV video support
- Traffic management through priority queuing, scheduling, policing and traffic shaping
- VLAN Stacking (Q-in-Q), VLAN tagging/untagging
- QoS with four traffic classes as per IEEE 802.1p
- Full IEEE 802.1Q VLAN ID processing per port
- Full OMCI integration

# Total Access 300 Series

## Total Access 300 Series GPON SFU ONTs

**Carriers today are dealing with increasing competition, operational costs, and demand for bandwidth.** To address these concerns, ADTRAN® offers a complete suite of fiber access solutions that are enabling carriers to compete more cost-effectively while expanding broadband services to un-served and underserved areas, like those targeted by the American Recovery and Reinvestment Act and Connect American Fund.

With fiber access solutions like Gigabit Passive Optical Networking (GPON) carriers have a new means to compete in an environment where bandwidth is king. GPON provides the flexibility, reliability, and bandwidth to give carriers a competitive advantage in today's market. As part of the ADTRAN FTTx strategy, ADTRAN offers a range of differentiated GPON Optical Network Terminal (ONT) solutions to address residential, business, and cell site applications.

The Total Access® 300 Series is a line of GPON ONTs designed to address the residential market with industry-leading voice, data, and video capabilities. This series includes the Total Access 351, 352, 352H, 361, 362, 362H, 362R Outdoor ONTs and Total Access 324 and 334 Indoor ONTs. With Total Access GPON ONTs, carriers can benefit from high data rates of fiber optic transmission and the flexibility offered by ADTRAN's portfolio of Ethernet-based systems that can be easily configured for new, customized service offerings.

Total Access 300 Series ONTs work seamlessly with ADTRAN's widely deployed Total Access 5000 Series Multiservice Access and Aggregation Platform. Functioning as a highly capable GPON OLT and flexible carrier-class access platform, the Total Access 5000 bridges the gap between existing and next-generation network architectures like GPON. It makes a carrier's access network capable of meeting a variety of legacy and emerging system requirements. Its Ethernet architecture allows carriers to increase bandwidth while offering differentiated capabilities. Coupled with Total Access 300 Series ONTs, this provides an end-to-end GPON deployment strategy that is supported by a common management solution.

The Total Access 300 series ONTs leverage the industry-leading converged voice and data functionality widely deployed in ADTRAN

integrated access, IP gateway, and Voice over IP (VoIP) platforms, with millions of ports currently deployed. Based on the ADTRAN Operating System (AOS), each ONT provides unmatched SIP and MGCP interoperability with a host of major soft-switch vendors, as well as integrated statistics and tools that allow carriers to quickly and easily troubleshoot network configuration issues, as well as monitor performance.

Features of the Total Access 300 Series Outdoor ONTs include box-in-box, weatherproof and access controlled construction with entry ports for fiber, power, ground, Ethernet, telephone, RFoG (specific models), and HPNA (specific models). Each device supports 2.5 Gbps GPON applications per the ITU-T G.984.2 specification. Data services are delivered over 10/100/1000Base-T Ethernet interfaces. Telephone service is supported by POTS interfaces.

The POTS ports use in-band signaling tones and currents to determine call status. GPON Encapsulation Mode (GEM) is used to carry Ethernet traffic. SIP, MGCP, GR-303, TR-008, and TR-57 are all available to support a wide variety of network models. Voice traffic is carried as VoIP packets to either the Total Access 5000 integrated Voice Gateway Module for access to legacy TDM interfaces, or as SIP or MGCP to an external soft-switch to support voice services. A full suite of Quality of Service (QoS) features are available with support for 802.1Q VLANs and 802.1p for prioritization.

The Total Access 300 Series Outdoor ONTs are powered by an external UPS. The AC-powered UPS provides a nominal 12 VDC to the ONT. Total Access 300 Series Indoor ONTs are optionally powered by an external UPS or directly connected to a 120 VAC power source. Management of the Total Access 300 Series ONTs is performed over OMCI as specified in G.984.4. The Total Access 300 Series Outdoor ONTs are environmentally hardened for installation inside or outside a residence as a particular installation demands. The ONTs are accepted by Rural Utilities Service (RUS) and provide a wealth of benefits for carriers of all types, deploying broadband solutions including voice, data, video, and HDTV. An industry-leading warranty and best-in-class technical support make ADTRAN Total Access GPON solutions the best value on the market today.

# Total Access 300 Series

## Total Access 300 Series GPON SFU ONTs

### Product Specifications

#### Voice Support

##### VoIP Protocol

- SIP
- MGCP

##### Traditional Voice

- GR-303
- TR-008
- TR-57

#### LEDs

- Power
- Network Status
- POTS
- ETH

#### Mechanical Outdoor Units

- 9.75" W x 12" H x 4" D
- 3 lbs., 0.5 oz. weight

#### Mechanical Indoor Units

- 9.3" W x 2.1" H x 6.7" D
- 1.25 lbs. weight

#### Compliance

- FCC PART 15 Class B
- UL/CSA 60950
- RoHS 5 of 6 Compliant

#### Interfaces

##### Voice Interfaces

- 2 POTS lines
- RJ-11 and screw-down terminals
- 5 REN per line
- 10 REN per unit
- 1,000 ft. drop length

##### Data Interfaces

- RJ-45 10/100/1000Base-T Ethernet ports
- Auto-sensing
- Auto MDI/MDIX

##### RF Video Interfaces (ONT specific)

- F-Type connector
- 1610nm RF return path

##### Video PON Optical Output (ONT specific)

- Output wavelength 1610+ 10nm
- Optical output Power 1 dBm min.

##### Video—RF Output (ONT specific)

- Impedance: 75-ohms
- Connector Type: F-Type
- Bandwidth: 54MHz to 1GHz
- RF Output Power: 15dBmV/ch to 24.5dBmV/ch
- RF Output Tilt: 2dB to 7dB from 54 to 870MHz
- Channel Loading: up to 82 (Analog), up to 200 (Digital)
- CNR: 46dB min
- CSO: -56dBc max
- CTB: -56dBc max

##### HPNA Interface (ONT specific)

- HPNA 3.1 compliant

#### Power Connections Battery Backup

- 12 VDC (nominal) from external battery backup/power supply
- 5-wire battery backup/power supply status signals
- Screw-down terminal

#### Power Connections Indoor AC

- 12 VDC external power supply connects to 120 VAC source
- External power supply provided with appropriate Indoor ONT models

#### Management

- Remote management through SNMP and TL1 to Total Access 5000 GPON OLT
- Ethernet interface on Total Access 5000 for IP management access
- Craft interface on Total Access 5000 for VT100 management access
- OMCI between ONT and OLT
- AOS statistics and debug capabilities

#### Environmental Outdoor

- Operating Temperature: -40°C to +65°C
- Storage Temperature: -40°C to +85°C
- Relative Humidity: Up to 95%, non-condensing

#### Environmental Indoor

- Operating Temperature: 0°C to 40°C
- Storage Temperature: -20°C to +70°C
- Relative Humidity: Up to 95%, non-condensing

#### Optics

- Class B+ compliant as specified in G.984.2
- Up to 30km reach with 32x split
- SC/APC for GPON uplink

### Enclosures for Outdoor Units

- Corning OptiTap™ mounting for pre-terminated fiber cable
- Slack storage tray
- Wind-driven rain protection

### Packet-based Voice Resources

- CODECs
  - G.711-64k PCM
  - G.729a-8k CS-ACELP
- G.168 Echo Cancellation

### Media Stream

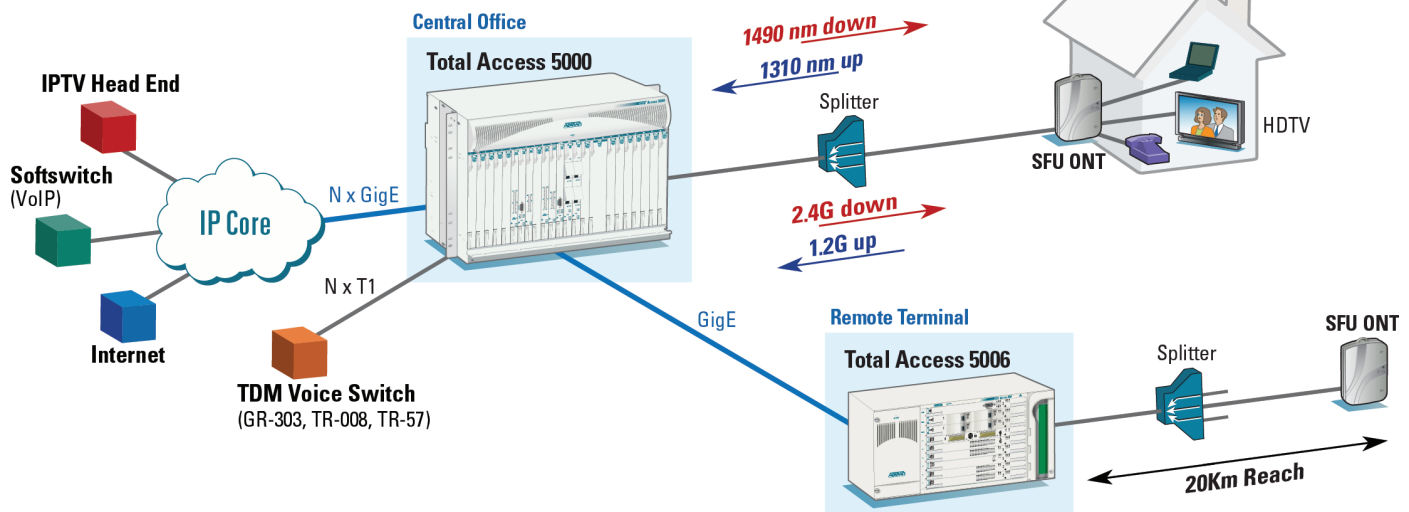
- RTP/UDP/IP (RFC 3550)
- RTP payload for DTMF digits (RFC 2833)
- SDP (RFC 2327)

### Tone Services

- Local DTMF Detection
- Local Tone Generation
  - Dialtone
  - Busy
  - Call Waiting
  - Alternate Call Waiting
  - Receiver Off Hook
- Ringing
  - Distinctive Ring

### Calling Feature Support (varies with feature server/gateway)

- Caller ID
  - Name and Number (MDMF, SDMF)
  - Call Waiting IAD
- Voice Mail
  - Stutter dialtone
  - Visual Message Waiting Indicator (VMWI)
- Call Hold
- Call Forward
  - Busy Line
  - No Answer
- Call Transfer
  - Blind, Attended
- Call Waiting
- Distinctive Ring
- Do Not Disturb
- Three-way Calling
- Call Return
- Speed Dial
- 3-way Conferencing (3WC)



## Fiber To The Premises (FTTP)

ADTRAN Total Access 5000 Multiservice Access and Aggregation Platform enables multiplay service delivery over an all Ethernet access platform capable of delivering FSAN-compliant GPON. OLT modules can be installed in any access slot in the Total Access 5000 enabling FTTP service delivery. Services are delivered over a single fiber up to 30km from a central office or remote terminal, providing 2.4Gb of bandwidth over the PON. The ADTRAN OLT is completely ITU-T G.984 standards-compliant and offers unprecedented bandwidth per subscriber.

The Total Access Series ONTs work seamlessly with ADTRAN Total Access 5000 Series Multiservice Access and Aggregation Platform. With its Ethernet architecture, the Total Access 5000 allows carriers to increase bandwidth while offering differentiated capabilities. Coupled with Total Access Series ONTs, this provides an end-to-end GPON deployment strategy that is supported by a common management solution.



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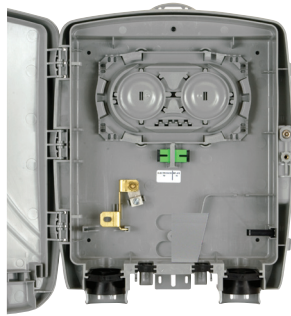


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# Total Access 300 Series

## Total Access 300 Series GPON SFU ONTs



Splice Tray Enclosure



Corning OptiTap™ Enclosure

## Ordering Information

### Indoor ONTs

ONT Model	Part number	Application	POTS	GigE Ports	HPNA	RF Video	Battery Backup/UPS
Total Access 324	1287735G1	SFU/Indoor	2	4	—	—	No, AC only
Total Access 324 w/UPS Connector	1287735G2	SFU/Indoor	2	4	—	—	Yes
Total Access 334	1287736G1	SFU/Indoor	2	4	—	1	No, AC only
Total Access 334 w/UPS Connector	1287736G2	SFU/Indoor	2	4	—	1	Yes

### Outdoor ONTs

ONT Model	Housing	Part number	Application	POTS	GigE Ports	HPNA	RF Video
Total Access 351	Splice	4287701G2	SFU	2	1	—	—
Total Access 352	Splice	4287702G2	SFU	2	2	—	—
Total Access 352	Opti-tap	4287702G3	SFU	2	2	—	—
Total Access 352H	Splice	4287702G4	SFU	2	4	1	—
Total Access 362	Splice	4287712G12	SFU	2	2	—	1
Total Access 362	Opti-tap	4287712G13	SFU	2	2	—	1
Total Access 362H	Splice	4287712G14	SFU	2	4	1	1
Total Access 362R	Splice	4287715G12	SFU	2	2	—	1 (w/RF return)

### ONT Cartridge Only (No Housing)

Total Access 351, 2ND GEN	1287701G1
Total Access 352, 2ND GEN	1287702G1
Total Access 352H, 2ND GEN	1287702G3
Total Access 362, 2ND GEN	1287712G1
Total Access 362H, 2ND GEN	1287712G3
Total Access 362R 2ND GEN	1287715G1
Total Access 324	1287735G1
Total Access 324 W/UPS CONN	1287735G2
Total Access 334	1287736G1
Total Access 334 W/UPS CONN	1287736G2

### SFU Housing and Spare Kits

Total Access 350 ONT NID HSG SPLICE	1187770G1
Total Access 350 ONT NID HSG OPTITAP	1187771G1
Total Access 350 ONT Slack Storage Unit	1187772G1
Total Access 300 SFU Spares Kit, Qty 5	1187700G1
ONT UPS, GPON	1187731G1
GPON UPS Cable, 50 FT	1187732G1
<b>MDU Housing Details</b>	
MDU UPS, GPON	1187733G1
GPON MDU SPLITTER	1187734G1
ONT INSTALLATION ACC KIT	1187736G1
Total Access 380 MDU, SPLICE	1187773G1

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# Active Ethernet ONT Series

## Total Access 324E, Total Access 354E, and Total Access 372E Optical Network Terminal (ONT) Devices

### Product Features

- Environmentally hardened for indoor and outdoor deployments
- Supports voice, video and data
- VoIP using SIP or MGCP
- Traditional voice using GR-303, TR-008, or TR-57
- 10/100/1000 Base-T Ethernet Port(s)
- IPTV video support
- Traffic management through priority queuing, scheduling, policing and traffic shaping
- Fiber cable management
- QoS with four traffic classes as per IEEE 802.1p
- Full IEEE 802.1Q VLAN ID processing per port
- Supports Transparent LAN Services (TLS)
- Supports SNMP
- Supported by AOE

**The increasing popularity of bandwidth intensive applications has driven the demand for fiber access.** To meet the increasing demands related to bandwidth, Active Ethernet is now a popular standards-based deployment option for fiber media from the Central Office (CO) to the customer premises and is the preferred technology choice of many service providers around the world for FTTH applications. ADTRAN's Active Ethernet ONTs provide carriers with a consistent and common approach for triple play service delivery to residential and business customers alike. This technology allows carriers to deliver traditional telephone services—Plain Old Telephone Services (POTS), high-speed data, and video services over the public communications networks with a deployment method that used standard Ethernet frames, alleviating the need for a transition protocol.

ADTRAN's Total Access® Active Ethernet ONT series may be used in conjunction with the Total Access 5000 Multi-Service Access and Aggregation Platform to support pure Fiber to the Premises (FTTP) applications with Active Ethernet solutions from central office, remote terminal and remote node locations. The optical network consists of an Optical Line Terminal (OLT) located at the central office and ONTs located at the customer premises, all supported by a common management solution. To allow for the transmission of downstream and upstream traffic on one single fiber, different wavelengths are used for each direction. Downstream traffic uses 1490 nm, while upstream traffic is carried on 1310 nm. The ONT employs diplexers to separate wavelengths. The Active Ethernet ONTs support broadband data delivery, triple play (voice, video and data), legacy voice services (GR-303, TR-008, and TR-57), Next Gen Voice over IP (VoIP)—SIP and MGCP, and a number of options for fiber connectivity.

The Active Ethernet ONTs can support a variety of physical optical connections and speeds. For gigabit Ethernet speeds, the Active Ethernet ONT can support either the GigE 2-fiber SFP modules or GigE 1-fiber (Bi-directional) SFP modules. The distances offered by the ADTRAN solution for GigE allows

single, bi-directional fiber with 1490 nm transmit wavelengths to distances of 10, 20, 40, and 80 kilometers.

The Total Access Active Ethernet ONTs leverage the industry-leading converged voice and data functionality widely deployed in ADTRAN VoIP platforms, with millions of ports currently deployed. Based on the ADTRAN Operating System (AOS), each ONT provides unmatched SIP and MGCP interoperability with a host of major softswitch vendors, as well as integrated statistics and tools that allow carriers to quickly and easily troubleshoot network configuration issues, as well as monitor performance.

Features of the Total Access Active Ethernet ONTs include box-in-box, weatherproof and access controlled construction with entry ports for fiber, power, ground, Ethernet and telephone. Data services are delivered over 10/100/1000Base-T Ethernet interfaces. Telephone service is supported by POTS interfaces.

The POTS ports use in-band signaling tones and currents to determine call status. SIP, MGCP, GR-303, TR-008, and TR-57 are all available to support a wide variety of network models. Voice traffic is carried as VoIP packets to either the Total Access 5000 integrated Voice Gateway Module for access to legacy TDM interfaces, or as SIP or MGCP to an external softswitch to support voice services. A full suite of Quality of Service (QoS) features are available with support for 802.1Q VLANs and 802.1p for prioritization.

Total Access Active Ethernet ONTs are powered by an external UPS. The AC-powered UPS provides a nominal 12 VDC to the ONT. Management of the Total Access Series ONTs is performed over OMCI. Outdoor ONTs are environmentally hardened for installation inside or outside a residence as a particular installation demands. The ONTs provide a wealth of benefits for carriers of all types, deploying broadband solutions including voice, data, video, and HDTV. An industry-leading warranty and best-in-class technical support make ADTRAN® Total Access FTTP solutions the best value on the market today.

# Active Ethernet ONT Series

## Total Access 324E, Total Access 354E, and Total Access 372E ONT Devices

### Product Specifications

#### Voice Support

##### VoIP Protocol

- SIP
- MGCP

##### Traditional Voice

- GR-303
- TR-008
- TR-57

#### LEDs

- Power
- Network Status
- POTS
- ETH
- DS1 (Total Access 372E)

#### Mechanical Outdoor Units

- 9.75 in. W x 12 in. H x 4 in. D (Outdoor units with housing)
- 3 lbs, 8 oz (with housing)

#### Mechanical Indoor Units

- 9.3 in. W x 2.1 in. H x 6.7 in. D
- Weight: 1.25 lbs

#### Compliance

- FCC PART 15 Class B
- UL/CSA 60950

#### Interfaces

##### Voice Interfaces

- RJ-11 and screw-down terminals
- 5 REN per line
- 10 REN per unit
- 1,000 ft. drop length

##### Data Interfaces

- RJ-45 10/100/1000 Base T Ethernet ports
- Auto-sensing
- Auto MDI/MDIX

##### DS1 Interfaces

- PWE3

- RJ-45

#### Power Connections

- 12 VDC (nominal) from external battery backup/power supply
- 5-wire battery backup/power supply status signals
- Screw-down terminal

#### Management

- Remote management through SNMP to Total Access 5000 GPON OLT
- Ethernet interface on Total Access 5000 for IP management access
- Craft interface on Total Access 5000 for VT100 management access
- OMCI between ONT and OLT
- AOS statistics and debug capabilities

#### Environmental Outdoor

- **Operating Temperature:** 32°F to 102°F (-40°C to +65°C)
- **Storage Temperature:** -4°F to 158°F (-40°C to +85°C)
- **Relative Humidity:** Up to 95%, non-condensing

#### Environmental Indoor

- **Operating Temperature:** 0°C to 40°C
- **Storage Temperature:** -20°C to +70°C
- **Relative Humidity:** Up to 95%, non-condensing

#### SFP-based Optics

- 10, 20, 40, or 80 kilometers

#### Enclosures

- Corning OptiTap™ mounting for pre-terminated fiber cable
- Slack storage tray
- Wind-driven rain protection

ONT Model	Application	Telephony	Gigabit Ethernet	T1
Total Access 324E	SFU/Indoor	2	4	—
Total Access 354E	SFU/SBU	2	4	—
Total Access 372E	SBU	8	2	4

## Packet-based Voice Resources

- CODECs
  - G.711-64k PCM
  - G.729a-8k CS-ACELP
- G.168 Echo Cancellation

## Media Stream

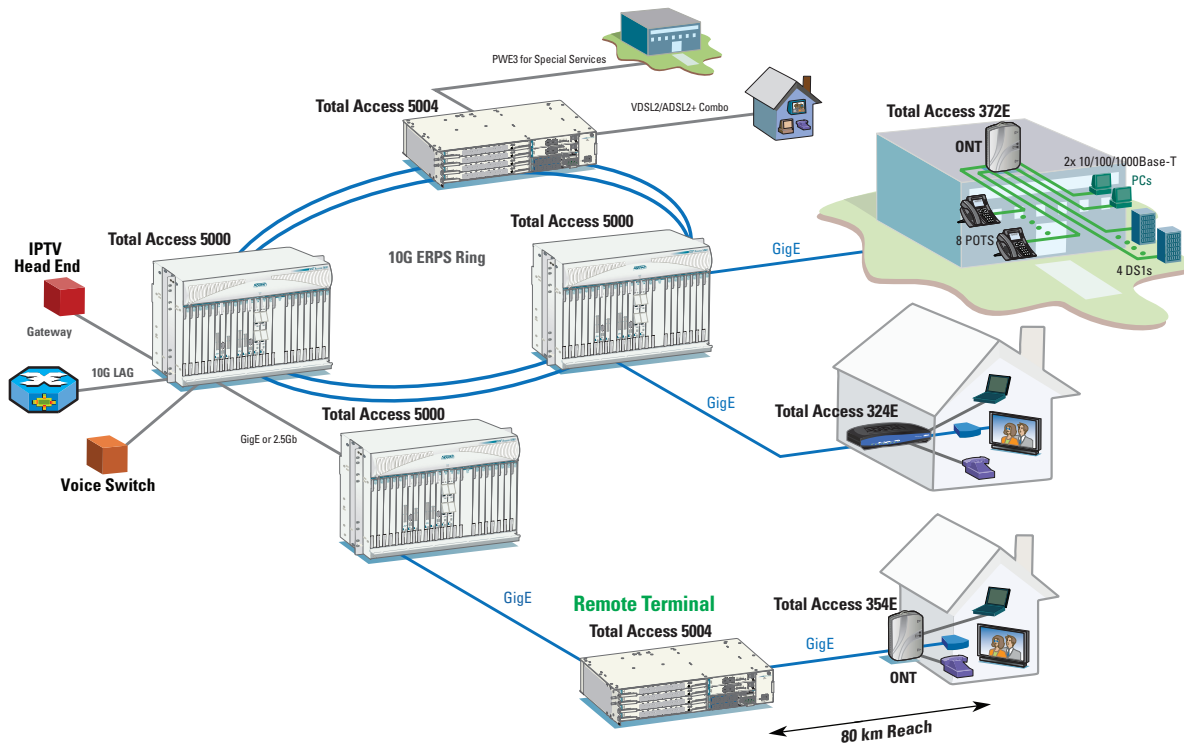
- RTP/UDP/IP (RFC 3550)
- RTP payload for DTMF digits (RFC 2833)
- SDP (RFC 2327)

## Tone Services

- Local DTMF Detection
- Local Tone Generation
  - Dialtone
  - Busy
  - Call Waiting
  - Alternate Call Waiting
  - Receiver Off Hook
- Ringing
  - Distinctive Ring

## Calling Feature Support (varies with feature server/gateway)

- Caller ID
  - Name and Number (MDMF, SDMF)
  - Call Waiting IAD
- Voice Mail
  - Stutter dialtone
  - Visual Message Waiting Indicator (VMWI)
- Call Hold
- Call Forward
  - Busy Line
  - No Answer
- Call Transfer
  - Blind, Attended
- Call Waiting
- Distinctive Ring
- Do Not Disturb
- Three-way Calling
- Call Return
- Speed Dial
- 3-way Conferencing (3WC)





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# Active Ethernet ONT Series

## Total Access 324E, Total Access 354E, and Total Access 372E ONT Devices



Splice Tray Enclosure



Corning OptiTap™ Enclosure



Total Access 354E Back Panel

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## Ordering Information

Equipment	Part #
<b>Active Ethernet ONTs</b>	
Total Access 324E 2nd Gen.	1287737G1
Total Access 324E 2nd Gen. with UPS Connector	1287737G2
Total Access 354E Outdoor Single Family Unit	1287704G1
Total Access 372E Small Business Unit	1287723G1
<b>Battery Backup Unit</b>	
Total Access SFU ONT BBU	1187731G1
Total Access SBU ONT BBU	1187735G1
<b>Housing and Spare Kits</b>	
<b>Total Access 354E</b>	
Splice Housing	1187770G1
Opti-Tap Housing	1187771G1
Slack Storage Unit	1187772G1
<b>Total Access 372E</b>	
Splice Housing	1187775G1
Opti-Tap Housing	1187777G1
Total Access 300 SFU Spares Kit, Qty 5	1187700G1
Total Access 300 SBU Spares Kit, Qty 5	1187700G2

**SFPs**

**GigE, Bidirectional, Single Fiber (1310 nm Tx, 1490 nm Rx)**

10 km	1200487G10
20 km	1200487G20
40 km	1200487G40
80 km	1200487G80



TL19:1270



ADTRAN is an ISO 9001, ISO 14001, and a TL 9000 certified supplier.

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# Total Access 324

## 3rd Generation SFU ONT/FTTP Indoor GPON Single Family Unit ONT

### Product Features

- Cost-effective delivery of triple-play services in high density housing environments
- G.984 compliant
- Environmentally hardened for indoor deployments
- 10/100/1000 Base-T Ethernet Port(s)
- Native Ethernet transport over the GPON (GEM Based)
- VoIP using SIP or MGCP
- IPTV video support
- Traffic management through priority queuing, scheduling, policing and traffic shaping
- VLAN Stacking (Q-in-Q), VLAN tagging/untagging
- QoS with four traffic classes as per IEEE 802.1p
- Full IEEE 802.1Q VLAN ID processing per port
- Full OMCI integration

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To address these concerns, ADTRAN® offers a complete suite of fiber access solutions that are enabling carriers to compete more cost-effectively while expanding broadband services to un-served and underserved areas, like those targeted by the American Recovery and Reinvestment Act and Connect American Fund.

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### Product Specifications

#### Voice Support

##### VoIP Protocol

- SIP (RFC 3261)
- MGCP (RFC 3435)
- G.711 ( $\mu$ -law and A-law)
- DTMF encoding by RELAY or IN-BAND method
- CLASS service support
- DHCP Client or static IP configuration
- Echo Cancellation
- Voice Activity Detection and Comfort Noise Generation
- 5 REN per line
- Loop start/Ground Start
- Balanced and unbalanced ringing
- Country specific coefficients
- Metallic loop testing

#### Data Support

- 802.1D bridging
- VLAN tagging/detagging per Ethernet port
- VLAN stacking (Q-in-Q) and VLAN Translation
- QoS with support with 802.1p
- Up to 16 VLAN groups
- Automatic MAC address learning and aging
- Up to 256 MAC address entries
- MAC address limiting

#### OAM Support

- ITU-T G.984.4/G.988 based management of all services
- Remote firmware upgrades through Total Access 5000 OLT
- SIP configuration from Total Access 5000

#### GPON Support

- Compliant with ITU-T G.984 GPON standards
  - 1.244 Gbps Burst Mode Upstream Transmitter
  - 2.5 Gbps Downstream Receiver
- Compliant with ITU-T G.984.2 Amd1, Class B+
  - 0.5dBm ~+5dBm launch power, -27dBm sensitivity, and -8dBm overload
  - Wavelengths:
    - US 1310nm, DS 1490nm
    - Received optical power monitoring
- Serial number discovery and Registration ID provisioning
- Advanced Encryption Standard (AES)
- Forward Error Correction (FEC)
- Supports up to 8 T-CONTS
- Multiple GEM ports with flexible mapping between TCONTs
- Traffic management (shaping and priority queuing)

### **IPTV Support**

- Up to 256 multicast groups
- IGMP Snooping
- IGMP snooping with immediate leave
- IGMP snooping with proxy reporting

### **Physical Specifications**

#### **LEDs**

- POWER
- LAN1~LAN4
- Battery
- LOS
- TEL1~TEL2
- Optical

#### **Interfaces**

- Four 10/100/1000 BaseT Ethernet interface via RJ-45
- Auto-negotiation and MDI/MDIX auto-sensing
- Two POTS lines via RJ-11

#### **Power Supply, Power Consumption**

- 12VDC
- Power Consumption: less than 12W
- Input connection: 2.5 mm plug or UPS Molex connection

#### **Physical Dimensions**

- 10.2 in x 6 in x 1.8 in (260 mm x 152 mm x 45 mm)  
(W x D x H, without bracket)
- Weight: 2 lbs (0.9 kg)

### **Regulatory Agency Approvals**

- FCC PART 15 Class B
- UL/CSA 60950
- CE Mark
- RoHS6 Compliant
- WEEE Compliant
- 1040.10 and 1040.11 Class 1
- EN 55022, EN 55024, EN 300 386, CLASS B
- FDA – FCC 47 CFR Part 15, Class B and FDR 21 CFR

### **Management**

- TR-069 compliant
- Remote management through SNMP and TL1 to Total Access 5000 GPON OLT
- Ethernet interface on Total Access 5000 for IP management access
- Craft interface on Total Access 5000 for VT100 management access
- OMCI between ONT and OLT
- AOS statistics and debug capabilities



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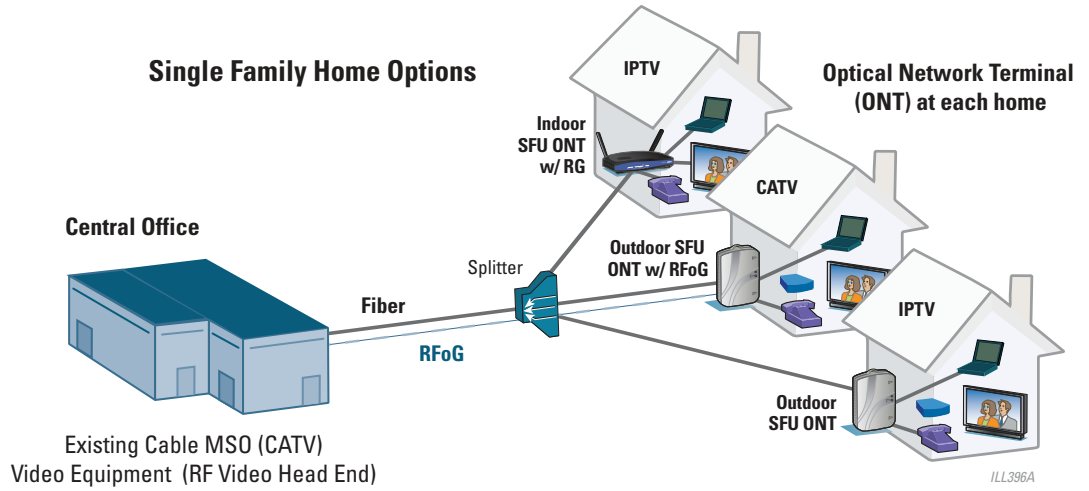
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# Total Access 324

## 3rd Generation SFU ONT/FTTP Indoor GPON Single Family Unit ONT



### Voice Services Support

#### Tone Services

- Local DTMF Detection
- Local Tone Generation
  - Dialtone
  - Busy
  - Call Waiting
  - Alternate Call Waiting
  - Receiver Off Hook
- Ringing
  - Distinctive Ring

#### Calling Feature Support

- Caller ID
  - Name and Number (MDMF, SDMF)
  - Call Waiting IAD
- Voice Mail
  - Stutter dial tone
  - Visual Message Waiting Indicator (VMWI)
- Call Hold
- Call Forward
  - Busy Line □ No Answer
- Call Transfer
  - Blind, Attended
- Call Waiting
- Distinctive Ring
- Do Not Disturb
- Three-way Calling
- Call Return
- Speed Dial
- 3-way Conferencing (3WC)

### Environmental

- Operating Temperature: - 40 F to 115 F (-40 C to +46C)
- Storage Temperature: -40 F to 185 F (-40C to 85C)
- Relative Humidity: 5% to 90%
- Hardened outdoor enclosure

## Ordering Information

Equipment	Part #
Total Access 324 3rd Generation Indoor GPON Single Family Unit (SFU) ONT	1287735G3



TL19.1270



ADTRAN is an ISO 9001, ISO 14001, and a TL 9000 certified supplier.

61287735G3-8A March  
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# Total Access 334

## SFU GPON Indoor ONT with RF (3rd Gen)

### Product Features

- Cost-effective delivery of triple-play services in high density housing environments
- G.984 compliant
- Allows use of CATV head end assets via RF support
- IPTV video support
- Environmentally hardened for indoor deployments
- 10/100/1000 Base-T Ethernet Port(s)
- Native Ethernet transport over the GPON (GEM Based)
- VoIP using SIP or MGCP
- Traffic management through priority queuing, scheduling, policing and traffic shaping
- VLAN Stacking (Q-in-Q), VLAN tagging/untagging
- QoS with four traffic classes as per IEEE 802.1p
- Full IEEE 802.1Q VLAN ID processing per port
- Full OMCI integration

**Carriers today are dealing with increasing competition, operational costs, and demand for bandwidth.** To address these concerns, ADTRAN® offers a complete suite of fiber access solutions that are enabling carriers to compete more cost-effectively while expanding broadband services to un-served and underserved areas, like those targeted by the American Recovery and Reinvestment Act and Connect American Fund.

With fiber access solutions like Gigabit Passive Optical Networking (GPON) carriers have a new means to compete in an environment where bandwidth is king. GPON provides the flexibility, reliability, and bandwidth to give carriers a competitive advantage in today's market. As part of the ADTRAN FTTx strategy, ADTRAN offers a range of differentiated GPON Optical Network Terminal (ONT) solutions to address residential, business, and cell site applications.

The Total Access® 300 Series is a line of GPON ONTs designed to address the residential market with industry-leading voice, data, and video capabilities. This series includes the Total Access 351, 352, 352H, 361, 362, 362H, 362R Outdoor ONTs and Total Access 324 and 334 Indoor ONTs. With Total Access GPON ONTs, carriers can benefit from high data rates of fiber optic transmission and the flexibility offered by ADTRAN's portfolio of Ethernet-based systems that can be easily configured for new, customized service offerings.

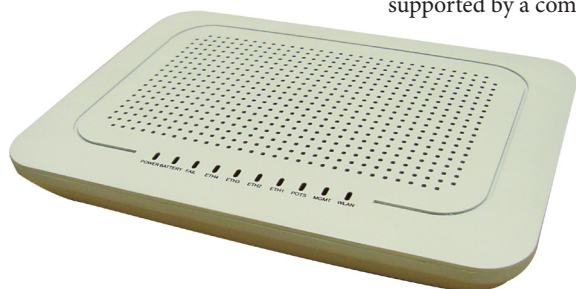
Total Access 300 Series ONTs work seamlessly with ADTRAN's widely deployed Total Access 5000 Series Multiservice Access and Aggregation Platform. Functioning as a highly capable GPON OLT and flexible carrier-class access platform, the Total Access 5000 bridges the gap between existing and next-generation network architectures like GPON. It makes a carrier's access network capable of meeting a variety of legacy and emerging system requirements. Its Ethernet architecture allows carriers to increase bandwidth while offering differentiated capabilities. Coupled with Total Access 300 Series ONTs, this provides an end-to-end GPON deployment strategy that is supported by a common management solution.

The Total Access 300 series ONTs leverage the industry-leading converged voice and data functionality widely deployed in ADTRAN integrated access, IP gateway, and Voice over IP (VoIP) platforms, with millions of ports currently deployed. Based on the ADTRAN Operating System (AOS), each ONT provides unmatched SIP and MGCP interoperability with a host of major softswitch vendors, as well as integrated statistics and tools that allow carriers to quickly and easily troubleshoot network configuration issues, as well as monitor performance.

Features of the Total Access 300 Series Outdoor ONTs include box-in-box, weatherproof and access controlled construction with entry ports for fiber, power, ground, Ethernet, telephone, RFoG (specific models), and HPNA (specific models). Each device supports 2.5 Gbps GPON applications per the ITU-T G.984.2 specification. Data services are delivered over 10/100/1000Base-T Ethernet interfaces. Telephone service is supported by POTS interfaces.

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# Total Access 334

SFU GPON Indoor ONT with RF (3rd Gen)

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## Product Specifications

### Voice Support

#### VoIP Protocol

- SIP (RFC 3261)
- MGCP (RFC 3435)
- G.711 ( $\mu$ -law and A-law)
- DTMF encoding by RELAY or IN-BAND method
- CLASS service support
- DHCP Client or static IP configuration
- Echo Cancellation
- Voice Activity Detection and Comfort Noise Generation
- 5 REN per line
- Loop start/Ground Start
- Balanced and unbalanced ringing
- Country specific coefficients
- Metallic loop testing

#### Tone Services

- Local DTMF Detection
- Local Tone Generation
  - Dialtone
  - Busy
  - Call Waiting
  - Alternate Call Waiting
  - Receiver Off Hook
- Ringing
- Distinctive Ring

#### Calling Feature Support

- Caller ID
  - Name and Number (MDMF, SDMF)
  - Call Waiting IAD
- Voice Mail
  - Stutter dial tone
  - Visual Message Waiting Indicator (VMWI)
- Call Hold
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- Call Waiting
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- Three-way Calling
- Call Return
- Speed Dial
- 3-way Conferencing (3WC)

### Data Support

- 802.1D bridging
- VLAN tagging/detagging per Ethernet port
- VLAN stacking (Q-in-Q) and VLAN Translation
- QoS with support with 802.1p
- Up to 16 VLAN groups
- Automatic MAC address learning and aging
- Up to 256 MAC address entries
- MAC address limiting

### OAM Support

- ITU-T G.984.4/G.988 based management of all services
- Remote firmware upgrades through Total Access 5000 OLT
- SIP configuration from Total Access 5000

### GPON Support

- Compliant with ITU-T G.984 GPON standards
  - 1.244 Gbps Burst Mode Upstream Transmitter
  - 2.5 Gbps Downstream Receiver
- Compliant with ITU-T G.984.2 Amd1, Class B+
  - 0.5dBm ~+5dBm launch power, -27dBm sensitivity, and -8dBm overload
  - Wavelengths:
    - US 1310nm, DS 1490nm
    - Received optical power monitoring
- Serial number discovery and Registration ID provisioning
- Advanced Encryption Standard (AES)
- Forward Error Correction (FEC)
- Supports up to 8 T-CONTS
- Multiple GEM ports with flexible mapping between TCONTs
- Traffic management (shaping and priority queing)

---

# Total Access 334

SFU GPON Indoor ONT with RF (3rd Gen)

---

## RF Video Interfaces (ONT Specific)

- F-Type connector
- 1610nm RF return path

## Video PON Optical Output (ONT Specific)

- Output wavelength 1610+ 10nm
- Optical output Power 1 dBm min.

## Video—RF Output (ONT Specific)

- Impedance: 75-ohms
- Connector Type: F-Type
- Bandwidth: 54MHz to 1GHz
- RF Output Power: 15dBmV/ch to 24.5dBmV/ch
- RF Output Tilt: 2dB to 7dB from 54 to 870MHz
- Channel Loading: Up to 82 (Analog), up to 200 (Digital)
- CNR: 46dB min
- CSO: -56dBc max
- CTB: -56dBc max

## IPTV Support

- Up to 256 multicast groups
- IGMP Snooping
- IGMP snooping with immediate leave
- IGMP snooping with proxy reporting

## Physical Specifications

### LEDs

- POWER
- LAN1~LAN4
- Battery
- LOS
- TEL1~TEL2
- Optical

### Interfaces

- Four 10/100/1000 BaseT Ethernet interface via RJ-45
- Auto-negotiation and MDI/MDIX auto-sensing
- Two POTS lines via RJ-11

### Power Supply, Power Consumption

- 12VDC
- Power Consumption: Less than 12W
- Input connection: 2.5 mm plug or UPS Molex connection

### Physical Dimensions

- 10.2 in. x 6 in. x 1.8 in. (260 mm x 152 mm x 45 mm)  
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- FCC PART 15 Class B
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- TR-069 compliant
- Remote management through SNMP and TL1 to Total Access 5000 GPON OLT
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(-40° C to +46° C)
- Storage Temperature: -40° F to 185° F  
(-40° C to 85° C)
- Relative Humidity: 5% to 90%
- Hardened outdoor enclosure



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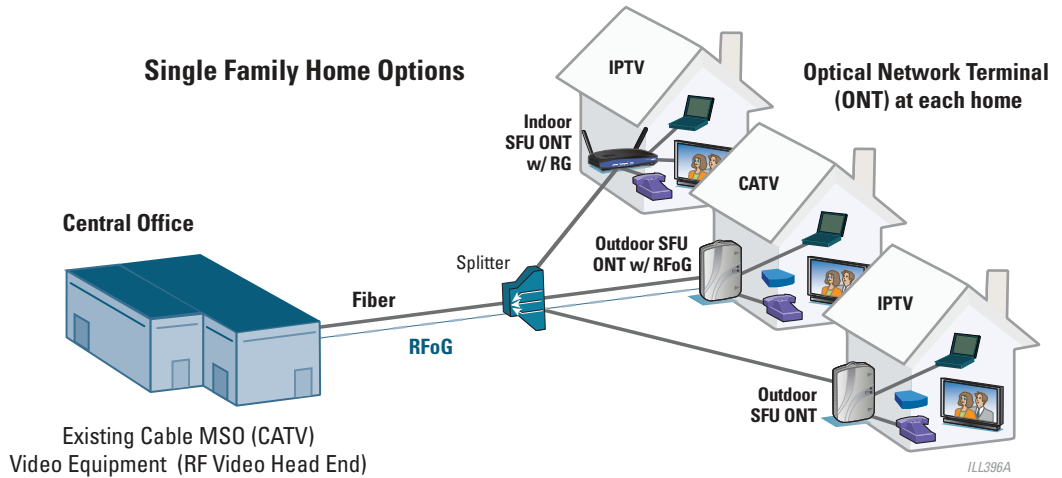
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# Total Access 334

## SFU GPON Indoor ONT with RF (3rd Gen)



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## Ordering Information



Equipment	Part No.
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TL19.1270



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