

This Job Aid covers the electronics modules (SFU ONT) and housings listed in the following table:

Total Access 351	Description
1187701G1	Total Access 351 SFU Electronics Module
4187701G2	Total Access 351 with Splice Housing
4187701G3	Total Access 351 with OptiTap Housing
Total Access 352	Description
1187702G1	Total Access 352 SFU Electronics Module
4187702G2	Total Access 352 with Splice Housing
4187702G3	Total Access 352 with OptiTap Housing
Total Access SFU Housings	Description
1187770G1	Total Access ONT Splice Housing
1187771G1	Total Access ONT with OptiTap Housing

NOTE

The Total Access 351/352 SFU ONT is only intended to be used with the Corning Systems Model FNI-NG series outdoor NID housing.

FRONT PANEL LEDs

Label	Status	Description
POWER	○ Off	No power
	● Green	Power is On
NETWORK STATUS	○ Off	Administratively Shut Down
	● Green	Normal
	● Yellow	Test in progress
	● Red	Fault Condition
POTS 1 and 2	○ Off	Administratively Shut Down
	● Green	Off Hook
	* Green Flashing	Ringing
	● Yellow	Test mode
	● Red	Fault
ETH 1 and 2	○ Off	Link is down: no activity or Administratively Shut Down
	● Green	10/100/1000 Link is up
	* Yellow Flashing	TX or RX activity

INSTALLATION

NOTE

Refer to the *Total Access 300 Series GigE SFU ONTs Installation Guide* (P/N 6418770XGX-5) for complete information on installing these units.

After unpacking the SFU ONT, inspect it for damage. If damage is noted, file a claim with the carrier and then contact ADTRAN. For more information, refer to the warranty.

DESCRIPTION

The Total Access® 351& 352 Single Family Unit (SFU) Optical Network Terminations (ONTs) are Gigabit Passive Optical Network (GPON) ONTs. The 351 SFU ONT has 2 POTS, and 1 Gigabit Ethernet interface. The Total Access 352 has 2 POTS, and 2 Gigabit Ethernet interfaces. The figure above illustrates the SFU ONT inner enclosure. GPON technology provides a consistent and common approach to advancing the public communications network using:

- ◆ Traditional telephone service is Plain Old Telephone Service (POTS)
- ◆ High speed data services
- ◆ Video services

The GPON network consists of an Optical Line Terminal (OLT) located at the central office and Optical Network Terminals (ONTs) located at the customer's premises. Between them lies the Optical Distribution Network (ODN) consisting of fibers and passive splitters or couplers.

In order 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 optical diplexers to separate the wavelengths.

Required Tools and Supplies

Standard technician tools and those listed below are required for installing the SFU ONT:

- ◆ Carpenter's level
- ◆ 3/32" screw driver for connecting SFU ONT power
- ◆ 5/32" hex tamper proof bit
- ◆ RJ-45/RJ-11 crimper
- ◆ A telephony/data communication test set
- ◆ PON power meter with wavelength filtering
- ◆ Fiberscope or videoscope
- ◆ Two #10 screws and appropriate surface anchors for mounting the SFU ONT
- ◆ Assorted tie wraps for securing cabling and wiring
- ◆ RJ-45 plugs: one for the 1187701G1 and two for the 1187702G1
- ◆ Two RJ-11 plugs (when not using two-screw terminal bridges)

For fiber optic connections, the following are required:

- ◆ Fiber splicing tools
- ◆ Fiber cleaning materials
- ◆ SC/APC fiber connector (Green)

Included with the SFU ONT packaging are 2 two-screw terminal bridges, fiber cable management and strain relief, a fiber connector, and electronics/optics. For data, the connection to the SFU is through the RJ-45 Ethernet connectors. For POTS, the connection is made through two-screw terminal bridges, or RJ-11 connections.

Mount the Enclosure

Complete the following steps to mount the enclosure:

1. Choose a vertical surface near an approved ground, but away from down spouts, permanent water sprinklers, or other water sources. The subscriber should have easy access for testing.
2. Use the top and bottom external mounting holes as a template to mark fastener locations. Use a level to ensure the unit is level to prevent warping.
3. Pre-drill the marked locations and install fasteners or anchors appropriate to the mounting surface (each anchor rated to 15 lbs minimum).
4. Mount the SFU ONT to the side of the subscriber's premise.

The Electronics Module is installed in the housing and swings open on hinges. To release this module, loosen the Security Screw (refer to the illustration on the first page) and swing the electronics Module to the left.

⚠ CAUTION

Do not use a knife to cut the opening in the rubber grommets. This may result in an excessively large hole and compromise the integrity of the unit allowing moisture into the unit.

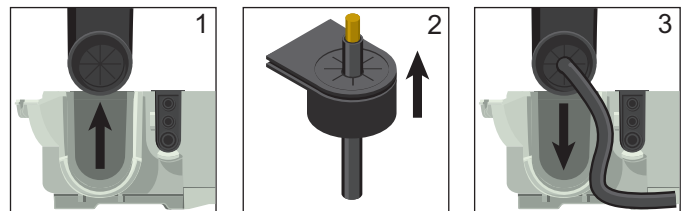
Ground Connection

Install the ground connection (see illustration above right) by completing the following steps:

1. Remove the rubber grommet from the housing and insert a #6 solid copper ground wire through the rubber grommet.
2. Using the figure on top of page 3, route the ground wire as shown and attach it to the ground bar.
3. Replace the rubber grommet in the housing.
4. Route the ground wire 12 inches below finished grade by the shortest and most direct route to the AC power ground system

Multi Grounded Neutral (MGN) of the customer premises. Ensure the wire is free of any sharp bends.

5. Attach the ground wire to the side of the subscriber's premises with stainless steel half moon clamps or tie-wrap the ground wire to the riser conduit of the Buried Fiber Drop.
6. Clean the MGN connector with emery cloth to insure a stable connection.
7. Attach the ground wire from the SFU ONT to the MGN connector with the appropriate UL approved ground clamp/fitting.
8. Coat the connection with a metal corrosion preventative.
9. Attach a Warning Ground Tag to this grounding connection.



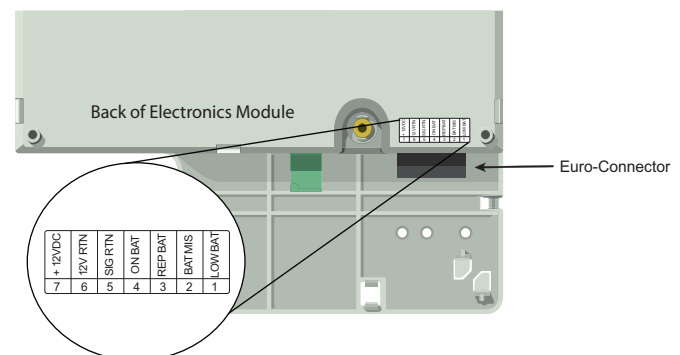
Power/Alarm Connections

NOTE

Wiring the Power/Alarm connector improperly could damage the SFU.

The SFU ONT is supplied with a 7-conductor Euro-style Power/Alarm connector. To make connections from the UPS to the power connector complete the following steps:

1. Remove the Euro-Connector by pulling it out of the electronics module.

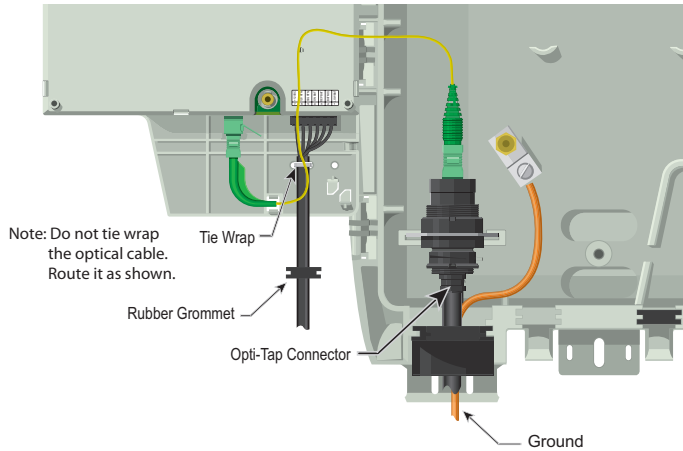


2. Refer to the illustration at the top of the next column and "Local Power Source Wiring" section to assist in completing the next steps.
3. Remove the rubber grommet from the housing and insert the power and ground cable through the grommet.
4. To terminate the two UPS power leads (Pins 6 and 7) and, if needed, the five alarm status leads in the power connector, cut all wires and strip back the insulation. Use a flat head screwdriver (or similar device) and loosen all the screws on the Power Alarm Connector. Insert one wire at a time and tighten the screws to make an electrical contact.
5. Reconnect the Euro-Connector to the bottom of the Electronics Module.
6. Tie Wrap the wires through the holes just below the Euro-style connector.
7. Replace the rubber grommet while closing the Electronics Module. This places less stress on the wiring and allows the Electronics Module to close without pinching any wiring.

Route OptiTap Fiber Drop Cable

Refer to the illustration on the following page for fiber installations:

1. Place the OptiTap fiber drop in the same rubber grommet channel as the ground cable. The ground cable should be “behind” the Opti-Tap fiber.
2. Connect the OptiTap fiber.
3. Place the OptiTap connector in the cut-out in the housing.
4. Connect the fiber cable to the connector on the bottom of the Electronics Module.
5. Route the cable so that when the Electronics Module is closed, the fiber is not pinched.



NOTE

There are wire routing clips on the lower right of the Electronics Module housing. It is recommended that these not be used. Route the power wires so that they are not pinched when the Electronics Module is closed.

Install Optical Connection

NOTE

Refer to the *Total Access 300 Series GigE SFU ONTs Installation Guide* (P/N 6418770XGX-5) for information on installing the SC/APC optical connection.

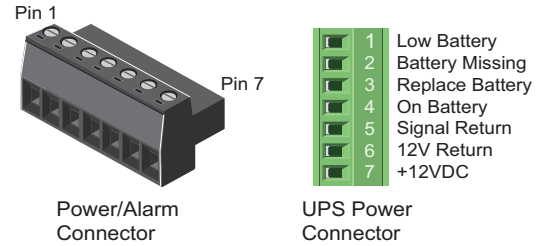
To install the optical connector, complete the following:

1. With the electronics module swung open, route the fiber through the most direct grommet entrance and connect it to the appropriate SC/APC optical connection.
2. Check that there are no bends in the fiber less than 30 mm (1.2 inches) radius or 60 mm (approximately 2.5 inches) in diameter. When the maintenance door is closed, it should not come in contact with the fiber.

Local Power Source Wiring

The SFU ONT needs to be powered by a UL Listed Power Supply suitable for the application with Output at LPS Levels.

This SFU ONT should only be operated from the type of certified/listed power supply recommended by the power supply manufacturer.



(Note: Refer to the sticker on the bottom of the Power/Alarm Connector if needed)

Use the Pin-Out information in the table below as needed.

Pin-Out Power/Alarm	Description	Pin-Out UPS
1	LOW BAT	1
2	BAT MIS	2
3	REP BAT	3
4	ON BAT	4
5	SIG RTN	5
6	12V RTN	6
7	+12VDC	7

Install UPS

Installation of the Uninterruptible Power Source (UPS, P/N 1187730G1) will be dictated by on-site conditions and local telephone company practices.

⚠ CAUTION

Use caution when routing wires and cables. Avoid severe bending and routing over sharp edges. Use grommets when possible to avoid wear on cable insulation.

1. Install the UPS cable that runs from the SFU ONT to the Power/ Alarm connector of the UPS via the customer provided PVC conduit (or method used by your local telephone company practice).
2. Swing the electronics module closed and tighten the security screw with the 5/32 Hex tamper proof bit.
3. If necessary, tie wrap both the #6 ground wire and the UPS cable run to the Buried Fiber Drop riser conduit.

POTS Connection

The telephone service or POTS connections can be made with either two-screw terminal bridges, or RJ-11 connectors.

If the two-screw terminal bridges are used the RJ-11 jacks provide a diagnostic test point. Inserting an RJ-11 jack (i.e., telephone cable or telephone test set) will connect the telephone set to the SFU ONT and also disconnect the subscriber service from the SFU ONT providing fault isolation to the SFU or premises wiring.

To terminate the POTS lines on the two-screw terminal bridges complete the following:

1. Trim each wire to length and strip insulation. Identify each pair in the service cable.
2. Loosen the screws from the **TIP** (green) and **RING** (red).
3. Wrap the appropriate wire around the appropriate screw and tighten the screws to secure the connections.

POTS can also be connected directly to the RJ-11 jack. In this case the two-screw terminal bridges become isolated and are not used.

Ethernet Connection

If the ONT is going to support up to 1 Gigabit operation (10/100/1000), the cable used should be rated CAT-6. Strip back the jacket of the subscriber Ethernet cable and connect the 4-pair twisted wires to the RJ-45 Plug using an RJ-45 crimp. Insert the terminated RJ-45 jack into the appropriate RJ-45 **ETH** socket on the SFU ONT. The table below lists the Ethernet Connections and related services.

Part Number	Description	Operation
1187701G1	ETH 1	Data and/or Video
1187702G1	ETH 1	Data and/or Video
	ETH 2	Data and/or Video

OPERATIONAL SPECIFICATIONS

- ◆ Voltage Range: 10.5 VDC to 15 VDC
- ◆ Maximum Current: 1 Amp
- ◆ Operational Temperature Range: -40°C to +65°C
- ◆ Storage Temperature Range: -40°C to +85°C
- ◆ Relative Humidity: 95%, noncondensing
- ◆ Dimensions: 9.7" W x 12" H x 4" D
- ◆ Weight: 3 lbs 0.8 oz (enclosure and electronics module)
- ◆ Operating Altitude Range:
 - ◇ -197 (-60 meters) to 13000 feet (3962 meters)

NOTE

The operating ambient temperature is derated by 1°C/1000 feet (3.3°C/km).

MAINTENANCE

The SFU ONT does not require routine hardware maintenance for normal operation. ADTRAN does not recommend that repairs be attempted in the field. Repair services may be obtained by returning the defective unit to ADTRAN. Refer to the warranty for further information. Field support for software is provided through upgrade facilities.

COMPLIANCE

The Total Access 351 & 352 Series SFU ONTs are NRTL Listed to the applicable UL safety standards. The Total Access 351 & 352 Series SFU ONTs meet or exceed all the applicable requirements of NEBS, and Telcordia GR-63-CORE.

The Total Access 351 & 352 Series SFU ONTs are intended for deployment in the Outside Plant (OSP) at locations where the NEC applies (for example, Customer Premises) and is intended to be installed by trained service personnel. Configuration Codes for the SFU ONT are listed below.

Configuration Codes	Input	Output
Power Code (PC)	F	C
Telecommunication Code (TC)	-	-
Installation Code (IC)	A	-

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate this equipment.

⚠ WARNING

The 10/100/1000 Base-T port(s) and POTS are classified as Type 4 as defined in Appendix B of GR-1089-CORE Issue 4, and are suitable for connection to intra-building or unexposed wiring or cabling only. Do not metallically connect these ports to interfaces which connect to the Outside Plant (OSP) or to the OSP wiring. The 10/100/1000Base-T ports and POTS are designed for use as an intra-building interface only (Type 4 ports as described in GR-1089-CORE Issue 4) and require isolation from exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect this interface metallically to OSP wiring.

⚠ CAUTION

The Total Access 351 & 352 Series SFU ONTs contain a Class 1 Laser Module which complies with 21 CFR 1040.10 and 1040.11.

- ◆ Electrostatic Discharge (ESD) can damage electronic modules. When handling modules, wear an antistatic discharge wrist strap to prevent damage to electronic components. Place modules in antistatic packing material when transporting or storing. When working on modules, always place them on an approved antistatic mat that is electrically grounded.
- ◆ This equipment must be connected to a known, reliable earth ground at all times during installation and service. Refer to the National Electrical Code (NEC) and state/local codes for details on grounding requirements. A 6 AWG copper ground conductor shall be used to connect the equipment to earth ground.
- ◆ Per GR-1089-CORE the Total Access 351 & 352 Series SFU ONTs are designed and intended for installation as part of a Common Bonding Network (CBN). The Total Access 351 & 352 Series SFU ONT are not designed nor intended for installation as part of an Isolated Bonding Network (IBN).
- ◆ Per GR-1089-CORE Section 9, the SFU ONTs do not have an internal DC connection between 12V and frame ground.
- ◆ The Total Access 351 & 352 Series SFU ONTs Chassis frame ground terminal must be connected to an earth ground to ensure the ONT SFU is properly grounded.

NOTE

- ◆ Power supply input and output conductors of equipment which are outside of the building, are intended to be less than 140 feet and have adequate clearance from power and lightning conductors in accordance with NEC 725 and 800. Final acceptance of the Listed equipment installation will ultimately be up to the local Authority Having Jurisdiction (AHJ).
- ◆ The main feed is optical and therefore not classified as any type of port as defined in Appendix B of GR-1089-CORE Issue 4.
- ◆ The Total Access 351 & 352 Series SFU ONTs are designed to operate with nominal operating voltage of 12 VDC and a minimum operating voltage of 10.5 VDC. The Total Access 351 & 352 Series will not be damaged by any steady state voltage between 10.5 VDC and 15.0 VDC in magnitude.

For more information, refer to the *Total Access 300 Series GigE SFU ONTs Installation Guide* (P/N 6418770XGX-5) available online at www.adtran.com.

Warranty: ADTRAN will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found online at www.adtran.com/warranty.

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