



FTTP Solutions Overview

Total Access 5000 Series

Version 1.7

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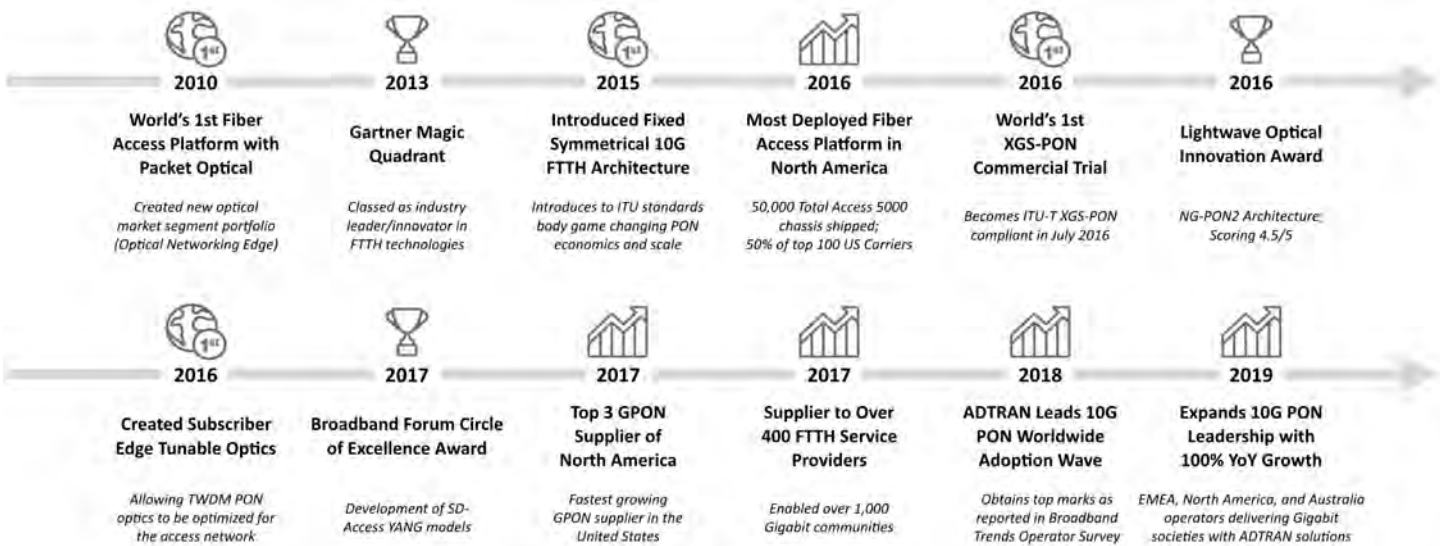
Introduction

At ADTRAN, Inc., we believe amazing things happen when people connect. From the cloud edge to the subscriber edge, we help communications service providers around the world manage and scale services that connect people, places and things to advance human progress. Whether rural or urban, domestic or international, telco or cable, investor or co-op owned utility, enterprise or residential — ADTRAN solutions optimize existing technology infrastructures and create new, multi-gigabit platforms that leverage cloud economics, data analytics, machine learning and open ecosystems — the future of global networking.

Leadership and Innovation

ADTRAN, Inc. is a leading global provider of networking and communications equipment. Headquartered in Huntsville, Alabama, with sales offices strategically located throughout the United States and around the world. Our mission is to be a trusted provider of global communications solutions, to develop innovative technologies used to create products and services that make communications simpler and more affordable for people everywhere. ADTRAN fosters an entrepreneurial environment supported by enthusiastic employees who exhibit an unwavering commitment to personal integrity and support our customers beyond their expectations.

Incorporated in 1985, ADTRAN began operations in 1986. From a humble beginning with only seven employees, ADTRAN has grown into a global leader in telecommunications with more than 2,000 employees. Likewise, the company serves a diverse customer base that spans more than 68 countries.



ADTRAN PON Leadership

Financially Strong

ADTRAN has been a leading provider of access solutions for over 30 years. From the company's inception, ADTRAN has demonstrated an unprecedented record of financial strength and continuum of profitability setting the standard for this industry. The company is well positioned for strong growth moving forward.

Detailed financial information can be accessed at the link below:

www.adtran.com/investors

ADTRAN Value

Our unique approach, unmatched domain expertise and innovative platforms, make anything possible. With products for both carrier and enterprise markets, the company is uniquely positioned to provide complete end to end solutions that produce the greatest network efficiency and at the lowest total cost of ownership. Service providers depend on ADTRAN equipment to connect central offices or remote terminals directly to subscriber equipment, thus enabling the delivery of voice, video and Internet services. ADTRAN also supports business customers with a full line of business-class networking solutions. With the demand for bandwidth increasing at phenomenal rates, ADTRAN is at the forefront of the development of new technologies that will enable service providers to glean more bandwidth from their existing infrastructure as well as new virtualized technologies that will pave the way for greater network scale and efficiency, enabling new services to reach more customers faster than ever before.

Best-in-Class Customer Service and Support

- Comprehensive training and certification programs
- Expert pre-sales network design assistance
- Recognized industry leader in support that offers flexible installation and support offerings to meet your needs
- Technical support staffed with degreed and certified engineers with the expertise to meet your needs quickly and efficiently

Technological Leadership

- Contributor to network access architecture (including SDN and NFV), management and interoperability standardization in the Broadband Forum
- Contributor to the development of ITU-T VDSL2, Gfast, GPON, XG-PON, XGS-PON, and NG-PON standards
- Participation in industry-critical organizations: ATIS, BITAG, Broadband Forum, CELTIC, ETSI, FSAN, FTTH Council, ITU-T, MEF, TIA, UK NICC, UNH IOL, and the Wi-Fi® Alliance
- Pioneering advancements in broadband and other standards underlying today's most widely deployed business access and transport technologies

Professional Services

- Delivers Network Care Programs for ongoing network maintenance and support
- Furnishes turn-key Network Integration services for multi-vendor projects
- Implements value added engineering, management and quality control services
- Partners with service providers to streamline operational processes and reduce costs
- Supports the complete life cycle solution for network operations specific to services delivery

Quality Commitment

- Committed to corporate sustainability and environmental compliance
- Maintain reasonable and appropriate security measures to protect corporate data and information assets
- Extensive in-house labs for reliability testing, component failure analysis, and compliance testing
- ISO 9001:2015, ISO 14001:2015, ISO 27001:2013 and TL 9000 R6.0/R5.0 NSAI certified supplier
- Long-standing, corporate-wide commitment to quality assurance
- Stringent post-production quality assurance testing

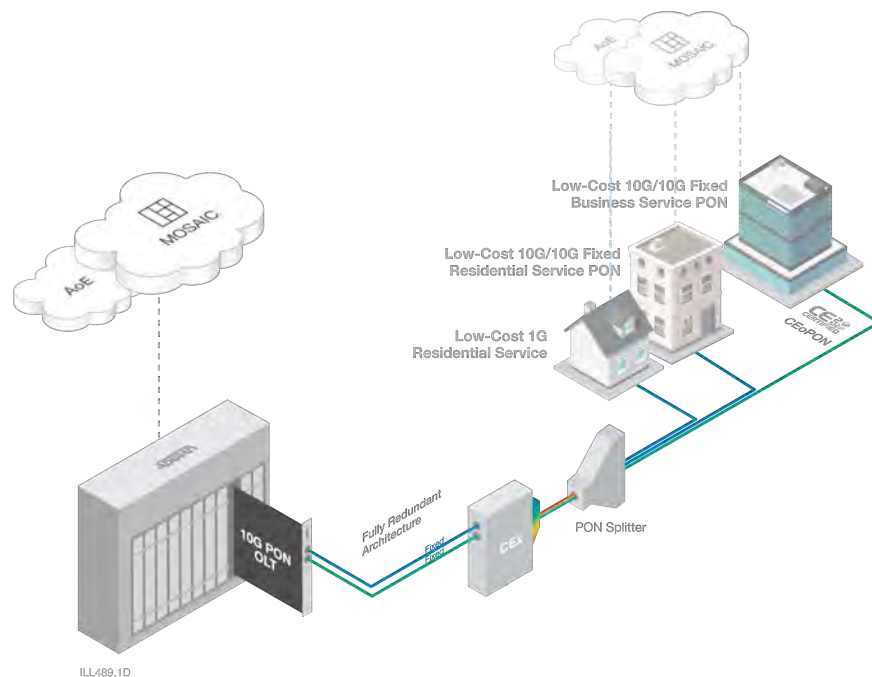
Supply Chain Robustness

- World class supply chain strategy demonstrating unprecedented business continuity
- Despite two co-incident 100 year events, the March 2011 Tohoku earthquake in Japan and April 2011 Super Outbreak, ADTRAN set shipping records in that same impacted quarter
- Best in class diversification supported by four global manufacturing and distribution sites on three continents

Fiber-to-the-Premises Portfolio

ADTRAN offers the most comprehensive broadband access portfolio on the market providing the lowest cost of ownership and highest service density. Our unique approach is underpinned by broadband access innovation that simplifies high capacity services delivery regardless of density, topology, or infrastructure disparity.

Designed with fiber deployment in mind, the ADTRAN [Total Access 5000 Series](#) provides plenty of back-plane capacity, offering high-capacity switching and bandwidth for ultra-broadband services. Optical Line Terminals (OLTs) provide 10 Gbps symmetric of dedicated bandwidth per PON, enabling the delivery of triple play services across an all-Ethernet architecture. ADTRAN's Optical Network Terminals (ONTs) provide carriers with a variety of delivery options for residential, business, and mobile backhaul opportunities. The Total Access 5000 offers the industry's most comprehensive set of broadband solutions from an all-Ethernet platform.



ADTRAN FTTP Solutions Overview

Optical Networking Edge (ONE)

The Total Access 5000 Series has a wide range of capability which also includes a means to bridge the gap between network access and transport by implementing our Optical Networking Edge (ONE) portfolio. ADTRAN has enabled the migration of DWDM, CWDM, OTN, and ROADM technologies into a single chassis to provide the modularity needed to address current and future services.

The ADTRAN ONE portfolio provides an efficient, cost-effective integration of packet optical transport capabilities within a multi-service delivery and aggregation solution providing unmatched multi-service scalability and accelerated time to revenue.

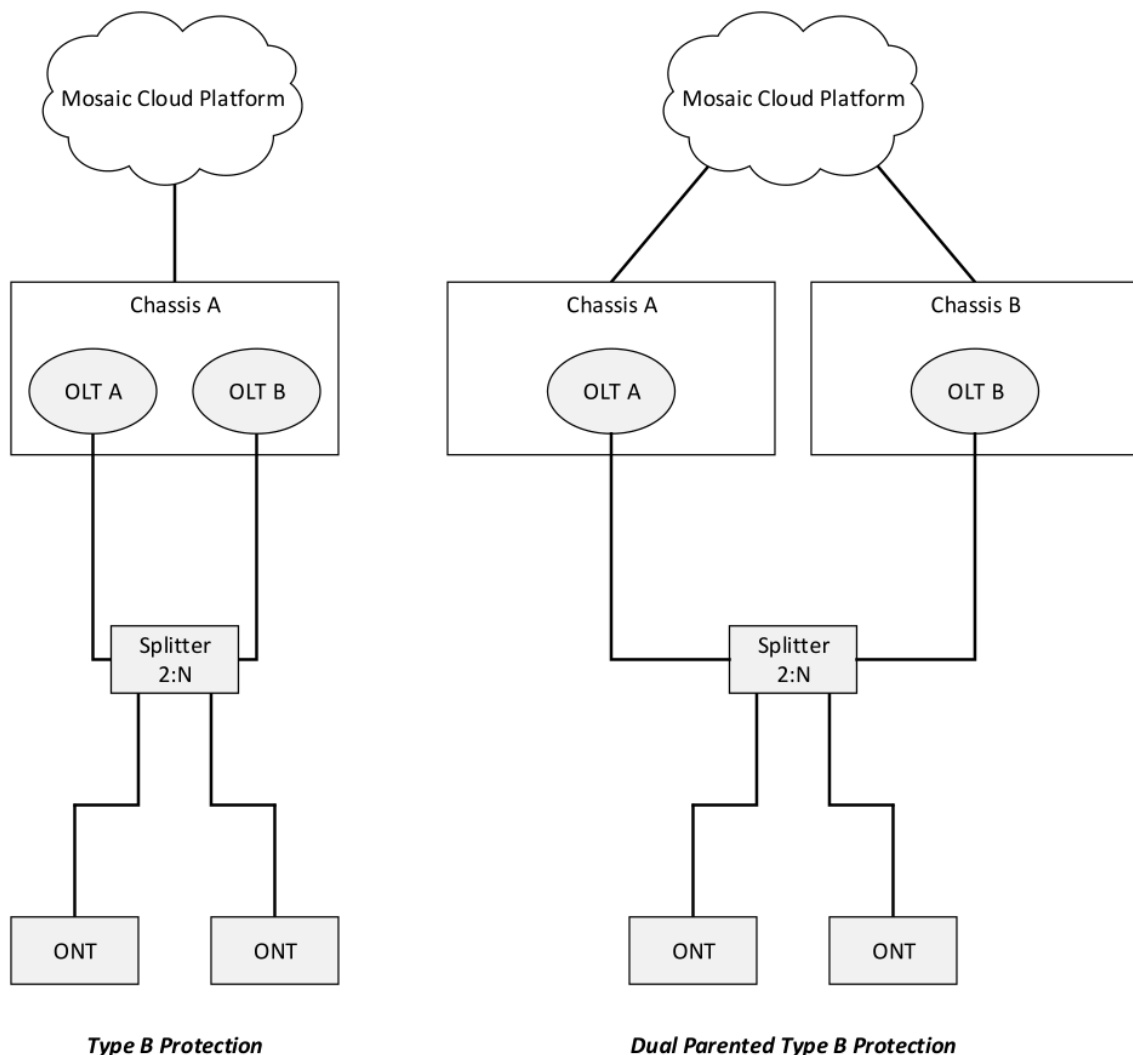
At ADTRAN we recognized the opportunity to leverage packet optical innovations, re-purposing and right sizing this technology to redefine last mile access aggregation and thus blurring the network boundaries between access and transport.

www.adtran.com/ONE

PON Redundancy

The ADTRAN PON redundancy solution allows for diversified hardware without disrupting any already utilized network topologies such as ELINE, ELAN, or standard residential subscriber services. PON Redundancy is offered through a deployment utilizing [Mosaic Cloud Platform](#). Mosaic Cloud Platform establishes a secure connection to the Total Access 5000 Series chassis, enabling a suite of cloud-based Software Defined Network (SDN) features. This includes hardware diversification with active ports and protect ports on independent [OLT](#) modules. PON Redundancy works in much the same way as protected pair does on ADTRAN [Switch Modules](#), only the active PON ports laser will be transmitting. The protect port will have its laser disabled unless there is an event that triggers a fail over. The OLT module with the protect ports serves as the dedicated standby module.

ADTRAN's PON Redundancy solution offers deployment options for either Type B or Dual Parented Type B protection. Type B can be deployed within a single chassis with paired OLT modules while Dual Parented Type B protection offers additional protection by utilizing fully independent chassis each with their own OLT modules. A differentiation for the ADTRAN solution is the option for Dual Parented Type B protection which can provide uninterrupted services during a catastrophic chassis failure, localized power outages in a cabinet, and fiber cuts. Dual Parented Type B protection offers geographical redundancy and fiber path diversification for peace of mind.



Equipment Descriptions

Total Access 5000 Series

ADTRAN Total Access 5000 Series provides an ultra-flexible, high-capacity, deep fiber solution. The Total Access 5000 Series is a carrier class Multi-service Access and Aggregation Node (MSAN) that bridges the gap between existing and the next-generation networks — like 10G PON. With a pure Ethernet core, the system supports services over copper and fiber, easily scaling to support even the most bandwidth intensive applications. The Total Access 5000 Series provides the bandwidth and Ethernet switching capabilities needed to deliver a highly profitable service offering and meet a variety of legacy and emerging service requirements.

Total Access 5000



- 9 RU, 23-inch brackets
- System Controller Module slot
- Two redundant Switch Module slots
- Twenty-one Access Module slots

Total Access 5006



- 5 RU, 19-inch brackets
- System Controller Module slot
- Two redundant Switch Module slots
- Six Access Module slots

Total Access 5004



- 2 RU, 19-inch brackets
- Two redundant Management and Switch Module slots
- Four Access Module slots

Total Access 5000 Series Common Modules

Switch Module200 2-100/2-40 GE (SM200)



The SM200 is intended for deployment with the Total Access 5000 system. Quad Small Form-factor Pluggables ports — two QSFP28(100G), two QSFP+ (40G) — serve as the network interfaces to the system and other Total Access nodes. The SM200 also provides common system functions, controls communication between access modules and the System Controller Module (SCM), and interface to the high-speed backplane through the Total Access Switch Module Input/Output (SMIO). Redundant ports can be deployed in protected pair, cross-slot Link Aggregation (LAG), Ethernet Ring Protection Switching (ERPS), and ERPS over LAG configurations. The SM200 supports 100G ERPS and 40G of bandwidth per slot of the Total Access 5000. The SM200 offers a great uplink capacity if planning to support 10/10G XGS-PON services. When used in a non-redundant fashion, a single SM200 has full non-blocking bandwidth between the backplane to the Access Modules — up to 21 individual dedicated 20 Gbps busses to the SM — and the faceplate uplink ports, 280 Gbps total from two QSFP28 (100G) and two QSFP+ (40G) Ports per SM200. When used in a redundant fashion, the combined SM200s bandwidth is 1.92 Tbps to additionally support their shared 520 Gbps Peer Port.

Switch Module40 4-10 GE (SM40)



The SM40 is intended for deployment with the Total Access 5000/5006 system. The SM40 provides network data aggregation for the Total Access 5000/5006 system. Small Form-Factor Pluggable (SFP) Gigabit Ethernet ports (both SFP and SFP+) serve as the network interface to the system and other Total Access nodes. The SM40 also provides common system functions, controls communication between access modules and the System Controller Module (SCM), and interface to the high-speed backplane through the Total Access Switch Module Input/Output (SMIO). The SM40 offers several different redundancy types for its uplink configuration. Redundant ports can be deployed in protected pair, cross-slot Link Aggregation (LAG), Ethernet Ring Protection Switching (ERPS), and ERPS over LAG configurations. The SM40 is capable of 40G ERPS over LAG and 40G of bandwidth per slot when redundant Switch Modules are present in the Total Access 5000 chassis. When the SM40 is used with the ETOS-10, the chassis is capable of supporting 40G ERPS rings. The SM40 supports Link Aggregation Control Protocol (LACP). LACP facilitates increased link capacity by creating 802.3ad trunks that exchange packets between Ethernet interfaces more efficiently. 802.1Q and Q-in-Q (double tagging) enables the Total Access 5000 system to support both single and double tagged Ethernet frames. When used in a non-redundant fashion, a single SM40 has full non-blocking bandwidth between the backplane to Access Modules — up to 21 individual dedicated 20 Gbps busses to the SM — and the faceplate uplink ports, 40 Gbps total from four SFP+ (10G) Ports per SM40. When used in a redundant fashion, the combined SM40s bandwidth is 1.121 Tbps to additionally support their shared 80 Gbps Peer Port.

Management and Switch Module20 2-10GE (MSM20)



The MSM20 is intended for deployment with the Total Access 5004 system. The MSM20 provides network data aggregation for the Total Access 5004 system. Two Small Form-Factor Pluggable (SFP+) serve as the network interface to the system and other Total Access nodes. The MSM20 provides common system functions, controls communication between access modules and the interface to the high-speed backplane. The MSM20 supports Link Aggregation Control Protocol (LACP). LACP facilitates increased link capacity by creating 802.3ad trunks that exchange packets between Ethernet interfaces more efficiently. 802.1Q and Q-in-Q (double tagging) enables the Total Access 5004 system to support both single and double tagged Ethernet frames.

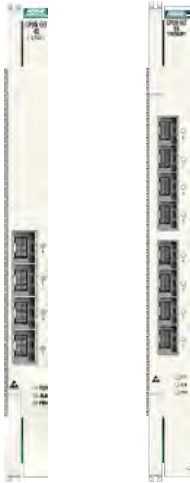
Bridging System Controller Module (SCM)



The SCM provides the logical user interface to the entire Total Access 5000/5006 system. SCMs enable the provisioning of modules, alarm status monitoring, the querying of performance data, and the initiation of tests for any module in the primary (Host) or expansion (Client) shelves. The Bridging SCM provides various interfaces for both local and remote management of the Total Access 5000/5006 system. The SCM support Simple Network Management Protocol (SNMP), Command Line Interface (CLI), Transaction Language 1 (TL1), Telnet, SSHv2, local craft access, and Ethernet Bridging.

Total Access 5000 Series Access Modules

GPON Optical Line Terminal (OLT)



The GPON OLT Access Module is a Gigabit Passive Optical Network (GPON) 2.5 Gbps Optical Line Terminal (OLT) that is used with the Total Access 5000 Series. The module provides industry standard, G.984.5 compliant, GPON interfaces. Each module supports non-blocking connectivity to the [SM40](#) and [SM200](#). This provides 2.488 Gbps downstream and 1.244 Gbps upstream standard rates. The 8-port GPON OLT supports rates up to 40G per slot. For maximum performance, the Total Access 5000 [SM40](#) or [SM200](#) are required. The 8-port GPON OLT is capable of supporting 20K subscribers per Total Access 5000 chassis when utilizing a 1:128 split. This module is available in 4-port and 8-port variants.

10G PON Optical Line Terminal (OLT)



The 10G PON OLT Access Module is capable of data rates of up to 10 Gbps of symmetrical data. The OLT provides four, industry standard – G.9807.1 compliant – 10G/10G PON interfaces per access module for fixed wavelength applications. The OLT provides PON optics through front panel fiber XFP cages labeled PON 1-4. The 4-port 10G PON OLT supports rates up to 40G per slot. For maximum performance, the Total Access 5000 [SM40](#) or [SM200](#) are required. The 10G PON OLT is also capable of supporting 10K subscribers per Total Access 5000 chassis when utilizing a 1:128 split.

Combo PON Optical Line Terminal (OLT)



The Combo PON OLT Access Module is capable of supporting both GPON and XGS-PON coexistence. The OLT provides ease and flexibility when migrating from GPON to XGS-PON deployment service rates. It helps meet the service rate requirement needs of different subscribers. The combo optics of the OLT combine GPON transceiver, XGS-PON transceiver, and an integrated WDM filter into a single SFP+ form-factor. There is no need for additional accessories, such as an external WDM filter, that will introduce insertion loss onto the ODN.

The OLT provides eight, industry standard – G.984.X, G.9807.X, G.988.X compliant – 2.5G/1.25G or 10G/10G PON interfaces per access module. The OLT provides PON optics through front panel fiber SFP+ cages labeled PON 1-8. The 8-port Combo PON OLT supports rates up to 40G per slot. For maximum performance, the Total Access 5000 [SM40](#) or [SM200](#) are required. The Combo PON OLT is also capable of supporting 21K subscribers per Total Access 5000 chassis when utilizing a 1:128 split.

24-port Active Ethernet Optical Line Terminal (OLT)



The 24-Port AE OLT Access Module supports 24 subscriber interfaces. The 3rd generation AE OLT provides support for up to 504 ports per Total Access 5000 system. It is optimized for use with the Total Access 5000 [SM40](#) and [SM200](#) to support non-blocking Gigabit services.

Active Ethernet is a Fiber-to-the-Premises (FTTP) application that uses Ethernet components that are IEEE 802.3ah compliant. Active Ethernet provides dedicated bandwidth based on individual customer requirements that are applicable to both residential and business customers.

	Number of PON Ports	Down-stream	Upstream	Standard Compliance	Slot Backplane Bandwidth	Max Split Ratio	Subscribers Per Chassis
4-port GPON OLT	4 SFP	2.5 Gbps	1.25 Gbps	G.984.X	20G	1:128*	10,752
8-port GPON OLT	8 SFP	2.5 Gbps	1.25 Gbps	G.984.X	40G	1:128*	21,504
10G PON OLT	4 XFP	10 Gbps	10 Gbps	G.9807.X	40G	1:128	10,752
Combo PON OLT	8 SFP+	2.5 Gbps 10 Gbps	1.25 Gbps 10 Gbps	G.984.X G.9807.X	40G	1:128	21,504
AE OLT	12 Bi-Di	1 Gbps	1 Gbps	IEEE 802.3ah	20G		504

***Note:** 1:128 split ratio supported on 2nd Gen GPON OLT. 1st Gen supports 1:64 split ratio.

Pluggable Optics

The ADTRAN Total Access 5000 Series Modules are designed for optimum system performance and reliability when used with ADTRAN Pluggable Optics (SFP, CSFP, SFP+, and XFP). ADTRAN continuously evaluates Pluggable Optics from various component suppliers in an effort to ensure availability of appropriate options for our customers. This continuing process protects customers and their system/network from potentially detrimental effects caused by non-ADTRAN optics.

ADTRAN adheres to this design strategy to ensure:

- Performance over operating temperature
- Compliance with industry standards such as NEBS
- Optical network performance including Optical Signal to Noise Ratio (OSNR)
- Compatibility with connected equipment
- Integration with system diagnostic reporting

	Down-stream	Upstream	Transmit Wavelength	Receive Wavelength	Class Compliance	Connector Type	Form-Factor
GPON OLT Transceiver	2.488 Gbps	1.244 Gbps	1490 nm	1310 nm	B+/C+	SC/UPC	SFP
10G PON OLT Transceiver	9.953 Gbps	9.953 Gbps	1577 nm	1270 nm	N1/N2	SC/UPC	XFP
Combo PON OLT Transceiver	2.488 Gbps	1.244 Gbps	1490 nm	1310 nm	D1/D2	SC/UPC	SFP+
	9.953 Gbps	9.953 Gbps	1577 nm	1270 nm			
Compact AE OLT Transceiver	1 Gbps	1 Gbps	1490 nm	1310 nm		Dual LC	CSFP

Total Access 5000 Series Accessories

4xODN XGS-PON/GPON Coexistence (CEx4) Module



The 4xODN XGS-PON/GPON Coexistence (CEx4) Module enables multiple XGS-PON and GPON signals to coexist on the same Optical Distribution Network (ODN). The CEx4 Module supports up to four ODNs.

The CEx4 Module front panel connectors support the following downstream/upstream wavelengths:

- GPON: 1490 \pm 10 nm/1310 \pm 20 nm
- XGS-PON/XG-PON1: 1578 \pm 3 nm/1270 \pm 10 nm
- ODN: supports common outputs to an Optical Distribution Network

PON Coexistence Element (CE1) Module

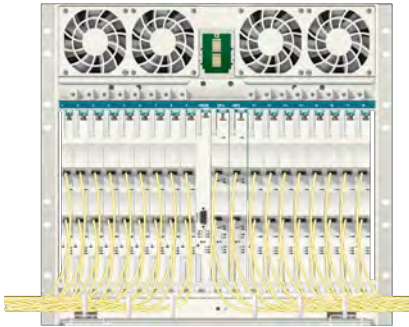


The PON CE1 Module enables multiple PON signals to coexist on the same Optical Distribution Network (ODN).

The CE1 Module front panel connectors support the following downstream/upstream wavelengths:

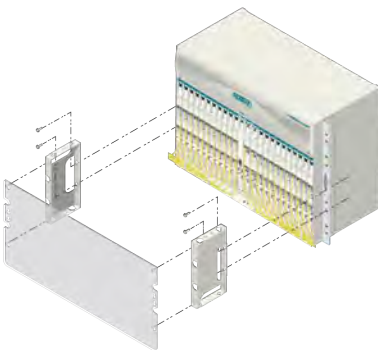
- NG-PON2 TWDM: 1595-1603/1532-1540 nm
- GPON: 1490/1310 nm
- XGS-PON: 1577/1270 nm
- Optical Time Domain Reflector (OTDR): 1650 nm
- RF Video: 1550 nm
- ODN: supports common outputs to an Optical Distribution Network

Fiber Manager



The 2nd Generation Fiber Manager increases the number of fibers that can be routed on a Total Access 5000 chassis, and provides a 3RU closed baffle with a filter holder. The 3RU baffle provides front air-intake for the system. The Fiber Manager allows for the management of up to 330, 1.6 millimeter fibers, or 200, 2.0 millimeter fibers per side. The Fiber Manager mounts to the front of the Total Access 5000 chassis.

Clear Cover



The Clear Cover is a transparent plastic shield that attaches to the front of the Total Access 5000 chassis. It provides a protective shield for dense, fiber-managed deployments. The installed Clear Cover covers the entire width of the chassis and the entire height of the chassis module space, from just below the fan module to the bottom of the chassis, including the optional [Fiber Manager](#).

Customer Premises Equipment (CPE)

Indoor Optical Network Terminal (ONT) Portfolio



**Total Access 401/411
Micro FTTH ONT**



**Total Access 424
FTTH Single Family Unit ONT**



**SDX 602x
10G Small Business Unit ONT**



**SDX 621/621i/621v
10G Single Family Unit ONT**



**SDX 621x
10G Single Family Unit ONT**



**SDX 624v/624vp
10G Mutli-Port ONT**

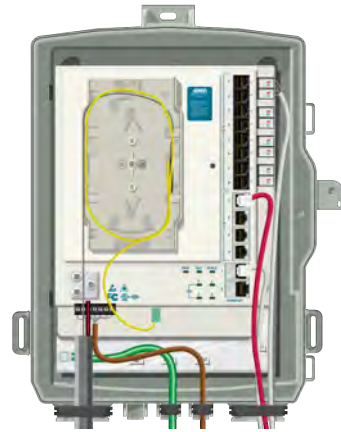
	Access Technology	VoIP	1G UNI (RJ-45)	10G UNI (RJ-45)	SFP+ Network Interface	UPS	Use Case	Additional Features
TA 401	GPON/AE		1				SFU	
TA 411	GPON/AE	1	1			•	SFU	
TA 424	GPON/AE	2	4			•	SFU/MDU	
SDX 602x	XGS-PON		1*	1 SFP+*	1	•	SBU	CE feature set
SDX 621	XGS-PON			1			SFU	
SDX 621i	XGS-PON		1				SFU	
SDX 621v	XGS-PON	1		1			SFU	
SDX 621x	XGS-PON	2	1	1	1	•	SFU	
SDX 624v	XGS-PON	2	3	1		•	SFU	
SDX 624vp	XGS-PON	2	3	1		•	SBU	PoE+
SDX 620s	XGS-PON			SFP+ form-factor				SFP+ ONT

***Note:** One active UNI at a time

Outdoor Optical Network Terminal (ONT) Portfolio



**Total Access 351/352/352H/
354E/362/362R/364
Single Family Unit ONT**



**Total Access 372/372E/372R
Single Business Unit ONT**



**Total Access 374
Multi-Dwelling Unit ONT**



**Total Access 452/454
Single Family Unit ONT**

	Access Technology	VoIP	1G UNI (RJ-45)	10G UNI (RJ-45)	UPS	Use Case	Additional Features
TA 351	GPON	2	1		•	SFU	
TA 352	GPON	2	2		•	SFU	
TA 352H	GPON	2	2		•	SFU	HPNA
TA 354E	AE	2	4		•	SFU	
TA 362 RF	GPON	2	2		•	SFU	RF
TA 362R	GPON	2	2		•	SFU	RF with Return
TA 364	GPON	2	4		•	SFU	RF
TA 372	GPON	8	2		•	SBU	4 DS1
TA 372E	AE	8	2		•	SBU	4 DS1
TA 372R	GPON	8	2		•	SBU	4 DS1, RF with Return
TA 374	GPON	4	4		•	MDU	
TA 452	GPON/AE	2	2		•	SFU	
TA 454	GPON/AE	4	4		•	MDU	
SDX 622vh	XGS-PON	2	1	1	•	SFU	

Residential Gateway (RG) Portfolio



**Total Access 414RG
Wireless RG ONT**



**Total Access 424RG
Wireless RG ONT**



**SmartRG SR400ac
Gigabit Ethernet Residential Gateway**



**SmartRG SR905ac/905acv
FTTH Residential Gateway**



**SmartRG SE80ac
Dual-Band INTELLIFI® Satellite**



**SmartRG SE81ac
Dual-Band INTELLIFI® Satellite**

	Access Technology	VoIP	1G UNI (RJ-45)	2.4 GHz Antenna	5.0 GHz Antenna	USB Port	UPS	INTELLIFI® Wi-Fi Mesh	SmartRG Software Compatible	Additional Features
TA 414RG	GPON	2	4	2x2 802.11n		1(2.0)	•			4 SSIDs
TA 424RG	GPON/AE	2	4	2x2 MIMO 802.11n	4x4 MIMO 802.11ac	1(2.0)	•			4 SSIDs per radio
SR400ac			4	3x3 MIMO 802.11n	3x3 MIMO 802.11ac	1(2.0) 1(3.0)		•	•	
SR905ac			4	4x4 MU-MIMO 802.11n	4x4 MU-MIMO 802.11ac	2(3.0)		•	•	SFP uplink available
SR905acv		2	4	4x4 MU-MIMO 802.11n	4x4 MU-MIMO 802.11ac	2(3.0)		•	•	SFP uplink available
SE80ac			1	2x2 MU-MIMO 802.11n	2x2 MU-MIMO 802.11ac			•		
SE81ac			2	2x2 MU-MIMO 802.11n	2x2 MU-MIMO 802.11ac			•		Standalone RG capable

Compatible SFP ONTs for Residential Gateway (RG) Portfolio



**SmartRG SM8
GPON SFP ONT Module**

- Single fiber bi-directional SFP
- Transmit/receive data rate: 1.244/2.488 Gbps
- Transmit/receive wavelength: 1310/1490 nm
- Embedded PON MAC
- ITU-T G.984.2/5 compliant
- SR905ac/SR905acv RG compatible



**SmartRG SM9
AE SFP ONT Module**

- BiDi LC or SC SFP single mode transceiver
- Data rates: 155 Mbps to 2.5 Gbps
- Hot-pluggable
- 20, 40, or 80 km reach
- IEEE 802.3ah compliant
- ITU-T G.957 compliant
- SR905ac/SR905acv RG compatible

Home Network Accessories



**MC60
MoCA 2.0 Adapter**

- Supports MoCA 2.0/1.1/1.0
- Modulations: 8/16/32/64/128/256/512/1024 QAM, BPSK, QPSK
- Maximum Data Rate: 800 Mbps bi-directional combined (multi-node)
1 Gbps bi-directional combined (point-to-point)
- One RJ-45 port for Gigabit Ethernet LAN
- Coax Connector: F-Type: 75 Ω impedance
CATV Input: 5 – 1675 MHz
TV Out: 5 – 1002 MHz
- Network Size – Up to 16 devices
- Can coexist with existing cable TV and terrestrial broadcast services on the same coaxial cable



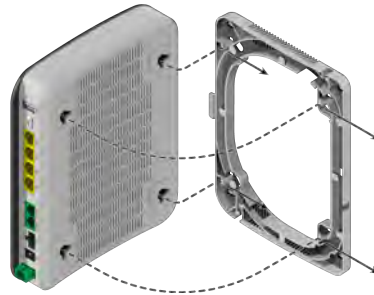
**PL60
Powerline Adapter**

- IEEE 1901 and HomePlug AV2.1 compliant
- Modulations: OFDM 4096/1024/256/64/16/8 QAM, QPSK, BPSK, ROBO
- Frequency Band: 2 to 86 MHz
- Peak PLC Rate: 1.8 Gbps
- Peak Throughput (TCP/UDP): 550/600 Mbps
- Estimated Range: 300 meters in-wall power lines
- 1 x 10/100/1000 Ethernet (Auto MDI/MDI-X)
- SmartConnect and Factory Reset buttons
- Security 128-bit AES hardware encryption
- Tri-color powerline quality indicator LED
- MIMO enhanced throughput/coverage
- Quality of Service
- Power-Saving Mode

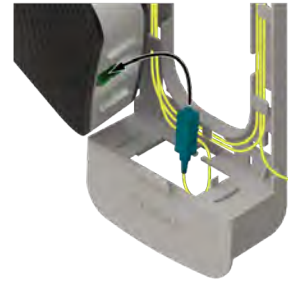
FTTP Deployment Accessories



**Total Access 411
UPS Wall Mount Housing**

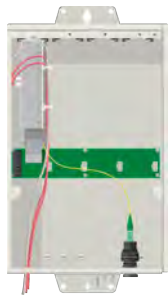


**Total Access 414RG and 424
Fiber Tray and Wall Mount Bracket**



**Total Access 424RG
Fiber Tray and Wall Mount Bracket**

ADTRAN offers a variety of ONT mounting solutions for both indoor and outdoor applications. A mount can incorporate a fiber tray to store excess incoming fiber and also house an Uninterruptible Power Supply (UPS).



**Total Access 380
Outdoor MDU Housing**

Can house 351, 352, 352H, 354E, 362, 362H, 362R, 364, 452, and 454 ONT cartridges



**Total Access 480
Outdoor MDU Housing**

Can house 352, 352H, 362, 374, 452, and 454 ONT cartridges



**Total Access 485
Indoor MDU Stackable Shelf**

Can support a maximum of three Stackable Shelves

The Total Access 380, 480, and 485 MDUs feature four slots that will house a variety of ONTs to serve a number of applications including high-speed Internet, voice, and video. The flexible design of the MDU housing provides the convenience of mixing and matching various ONT models to serve a variety of individual customer needs within the multi-dwelling unit being served. Other features are included such as a common powering system that uses a single UPS/BBU to power all four ONTs installed in the housing. The MDU can also accommodate a 1:4 fiber splitter.

Operate at Web-Scale

Our unique approach provides service delivery evolution by allowing network operators to deliver deployable next generation access architectures that provide network operators datacenter economies and cloud service agility.

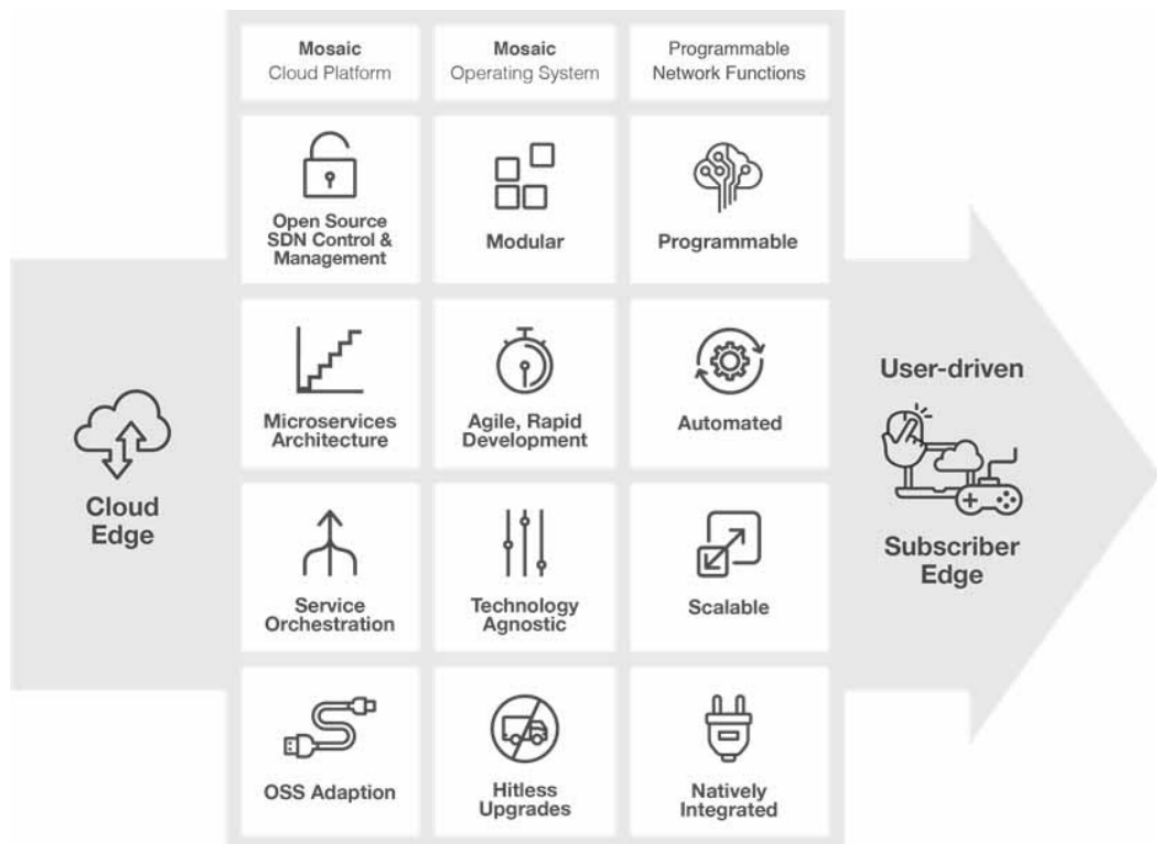
ADTRAN Mosaic™

ADTRAN Mosaic™ is an open, programmable, and scalable services architecture that delivers a modern, user-driven experience for customers. Mosaic is the industry's most open and complete Software-Defined Access (SD-Access) solution that natively integrates a complete FTTx portfolio with an open-source Software-Defined Network (SDN) controller. It supports the rapid service creation and delivery of broadband and business services at Web-scale. This provides a framework to support user-driven service models. The Mosaic architecture consists of three major components: Mosaic Cloud Platform, Mosaic Operating System, and Programmable Network Functions.

Mosaic Cloud Platform – An open microservices architecture providing network management and SDN control for the entire access network.

Mosaic Operating System – A modular, component-based operating system (OS) that supports the creation of operational applications and features, not only at the network management/control and service orchestration layers, but also at the hardware abstraction layer, fully supporting open and modern interface protocols.

Programmable Network Functions – The Mosaic Cloud Platform and Mosaic Operating System are complemented by a full line of SDN-optimized programmable network functions ranging from the data center to the customer premises.



Mosaic Architecture

Advanced Operational Environment (AOE)

The ADTRAN® Advanced Operational Environment (AOE) transforms the traditional operational environment from equipment configuration and provisioning to a service oriented approach that aligns with the service providers' drive towards software-centric networks. AOE enables end-to-end service management, simplifying operations such as network planning, capacity management, service activation and assurance, providing timely and cost effective overall service management.

AOE offers a web-based interface to perform software upgrades in a scalable and reliable manner on all supported network elements. Software upgrades can be carried out on-demand or scheduled during a maintenance window. AOE makes it simpler to upgrade software on thousands of ONTs in an FTTP network.

Comprehensive Perspective

ServiceDesigner® – Enables the network planner or provisioning to specify the configuration and performance parameters associated with a service in a “once and done” fashion using a simple web GUI. Component profiles are defined and used for complete service templates. Service templates are defined for multiple technology use. Service templates are defined for voice, video, data and business services.

Auto Provisioning – Enables more efficient “zero-touch” residential FTTP service turn ups. This feature obviates the need for maintaining fiber plant records and allows service providers to actually learn accurate fiber assignments using reliable mechanisms like DHCP Option 82. It also allows for much richer back-office integrations wherever applicable and provides an avenue to decrease the overall time to revenue for new subscriber turn-up.

ServiceActivator® – Simplifies the often arcane process of provisioning ports and cross connects to a simple service “drag and drop” capability. ServiceActivator works in concert with ServiceDesigner to perform end to end service provisioning based on template definitions. All the complexities of turning up subscribers services on access ports are completely transparent to the technician.

ServiceCheck® – A comprehensive diagnostic function useful in both circuit acceptance and troubleshooting situations. ServiceCheck goes beyond data visualization by employing diagnostic tests and algorithms such as metallic loop test, SELT/DELT, TScan®, optical, and logical layer diagnostics to determine service integrity. PM, status, provisioning, and hardware information are written into system logic that checks the provisioning against the best practice settings for the particular service and then checks against an exhaustive set of rules to determine root causes for degrading conditions or failures. ServiceCheck offers recommendations to compensate for impairments if the line impairment cannot be isolate or repaired.

ServiceMonitor® – A Performance Monitoring tool used to identify circuits that exhibit physical or packet performance degradation issues. It checks large number of circuits in a background operation; checks central offices or regions at a time. It is non-intrusive; generates a report of circuits experiencing degrading or suspect performance issues. It may be used with ServiceCheck to automate the diagnostics of suspect services identified by ServiceMonitor.

CapacityManager – Monitors links and trunks throughout the access network to identify potential bottlenecks and recommended actions. Monitors can be configured for custom alerts. The alerts can be viewed on the AOE dashboard. This is non-service affecting.

InventoryManager – Presents comprehensive set of inventory management and planning tools through an intuitive Graphical User Interface (GUI). It allows the user to view network-wide port usage by equipment type, descriptive inventory information by location and user definable report.

OSS Gateway – Provides northbound interface specifications for integration with service provider billing, provisioning, and facilities OSS to automate common tasks and functions. It supports alarms, provisioning, inventory, and performance monitoring along with TL1 and XML standard interfaces and web services.

Mosaic Subscriber Experience Suite

ADTRAN Mosaic Subscriber Experience Suite offers support of a user-driven service model by using microservices with open APIs and operational logic to provide advanced analytics, software-centric operations and virtualized service delivery – making installation and activation faster and easier while improving the overall quality of service.

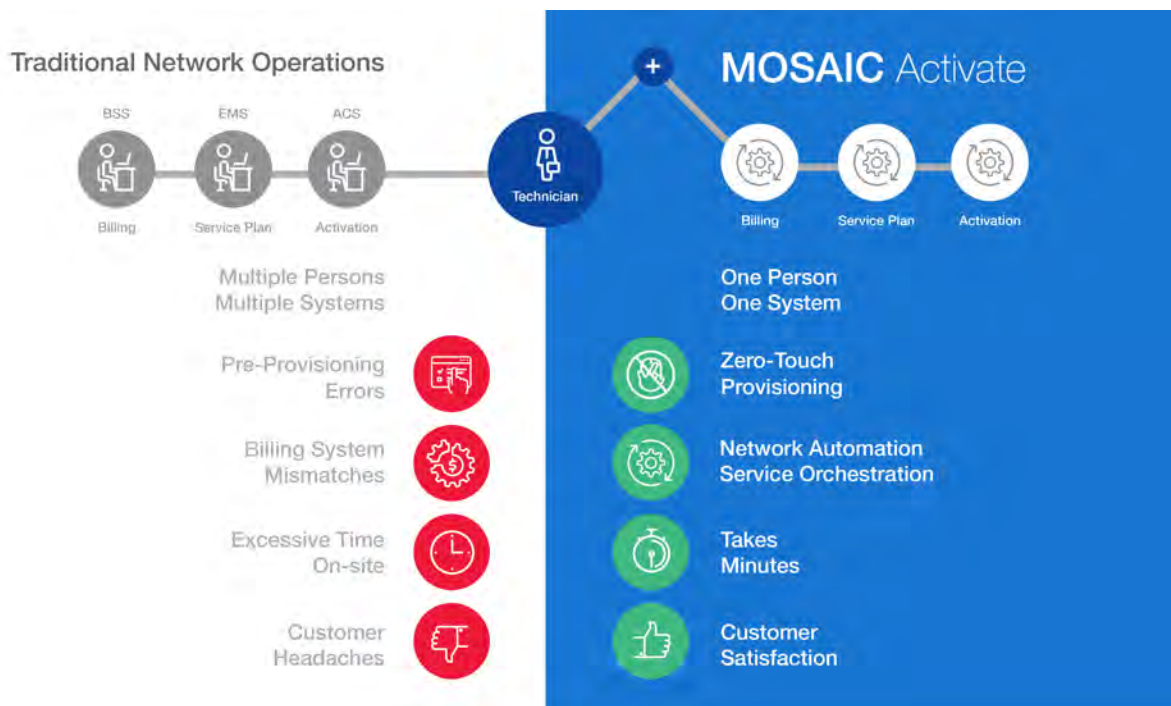
ADTRAN Mosaic Subscriber Experience Suite provides the components and solutions service providers need to be successful in emerging programmable and cloud driven telecommunication networks. ADTRAN Mosaic Subscriber Experience Suite provides the next steps in the evolution of broadband ecosystems and techniques for virtualizing the subscriber experience.

www.adtran.com/MSE

Mosaic Activate – Orchestrating Subscriber Experience

Mosaic Activate (MA) provides a cohesive end-to-end service activation workflow using straightforward APIs and operational logic. This model provides instantaneous service activation for homes and businesses, allowing customers to attach to the network and choose their services independently, eliminating the time and coordination required for traditional service turn-up. Service and inventory 100 percent accuracy is assured in Activation Automation because the network reports how it is provisioned to the operations support systems and (OSS) and business support systems (BSS).

- Pre-provisioning tasks greatly reduced or eliminated
- Vast reduction in network engineers required to activate customers
- Less training required
- 100 percent accuracy for service and equipment inventory
- Supports ADTRAN and third-party vendor equipment

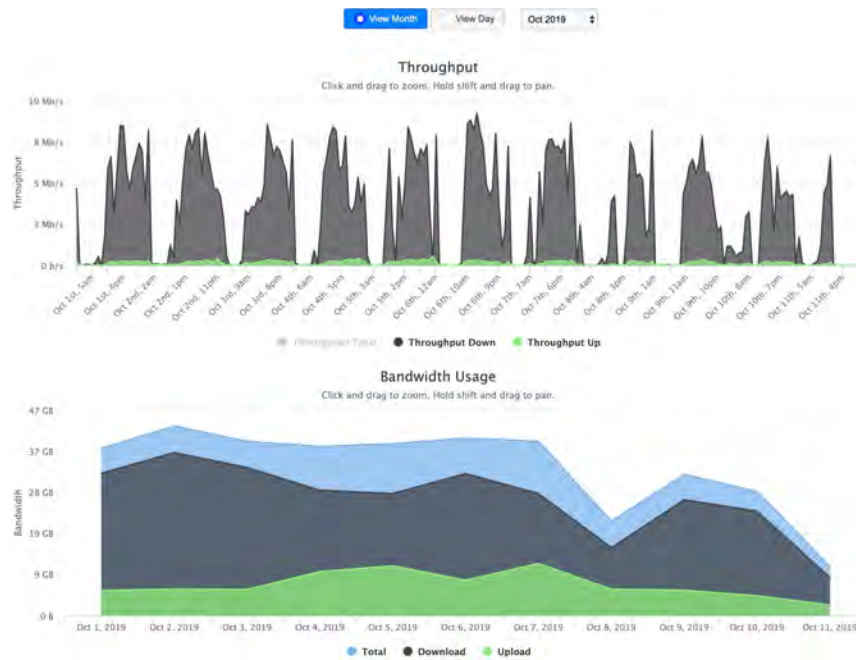


Mosaic Activate Infographic

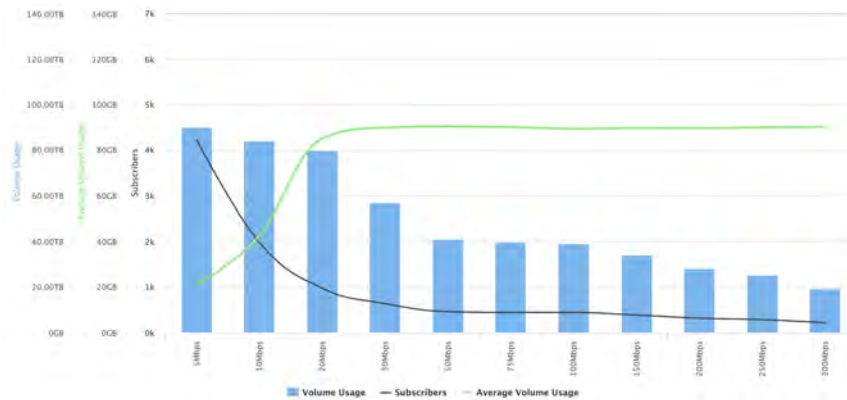
Mosaic Subscriber Insight – Personalizing Subscriber Experience

Mosaic Subscriber Insight (MSI) improves operational efficiency, empowers end-users, elevates customer focus, and ultimately improves the subscriber experience. MSI enables broadband service providers to:

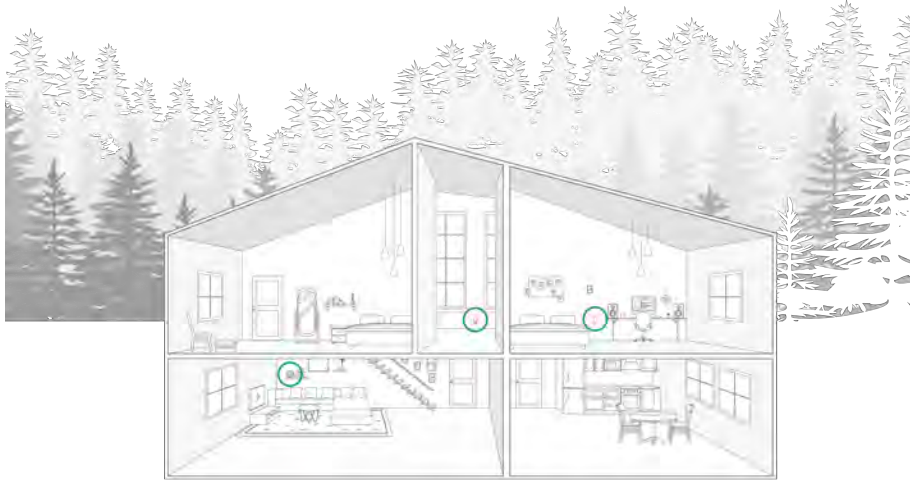
- Gain real-time insight into subscriber, application and network status to actively troubleshoot problems and eliminate truck-rolls
- Diagnose patterns in subscriber behavior and usage
- Determine the correct customers to target for upgraded services
- Classify subscribers by usage to identify low-usage, potential flight-risk subscribers
- Identify subscriber and billing system inconsistencies, and improperly provisioned circuits to cut revenue leakage
- Gain a global view of network and traffic patterns to plan network upgrades before experiencing bottlenecks



Total Subscriber Throughput and Bandwidth Usage



Service Package Bandwidth Usage



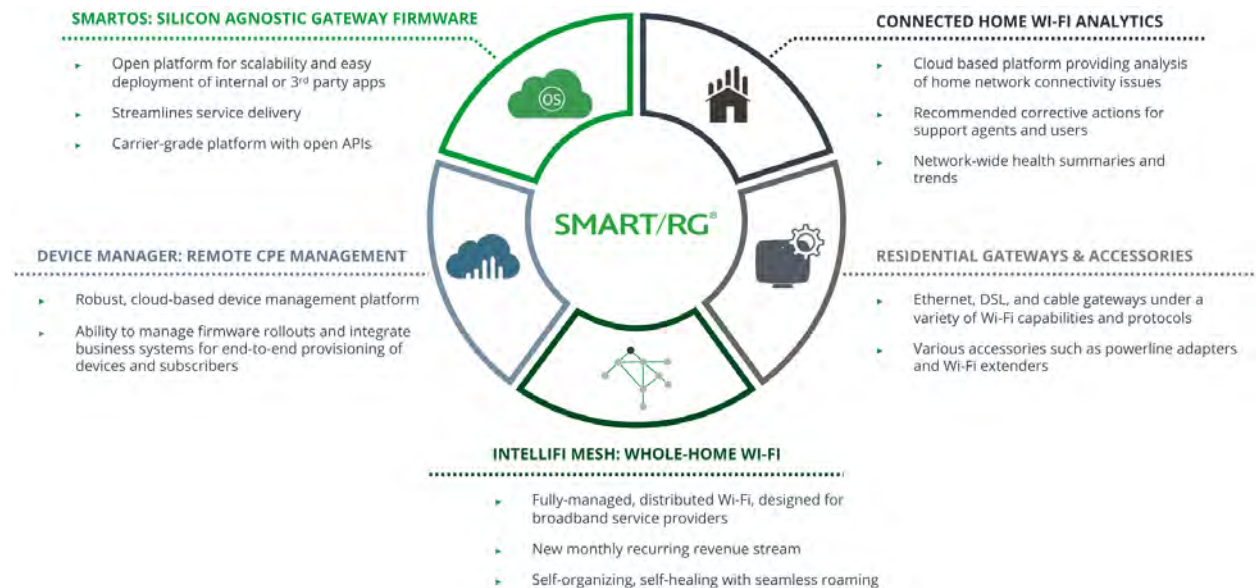
In-Home Wi-Fi Experience

SmartRG Software Portfolio

SmartRG’s products and services provide robust Wi-Fi solutions by delivering the power of the broadband operator’s access network to the consumer’s home and distributing it anywhere and everywhere. SmartRG offers future-proof solutions that simplify the complex internet ecosystem, enabling service providers to fully realize the opportunity of residential broadband. Through the SmartOS™ platform and our integrated suite of products, applications and tools, SmartRG enables service providers to more consistently deliver what their subscribers want: Internet the way it should be.

SmartRG offers fully integrated service delivery Residential Gateways that optimize the subscriber experience while reducing complexity in the home network. These products leverage the power of SmartOS™ to deliver a rich feature set and leverage best-of-breed silicon components. In addition, SmartRG’s Residential Gateways provide powerful Wi-Fi capabilities that can be extended in the home with INTELLIFI®, SmartRG’s advanced Wi-Fi meshing solution.

www.smartrg.com

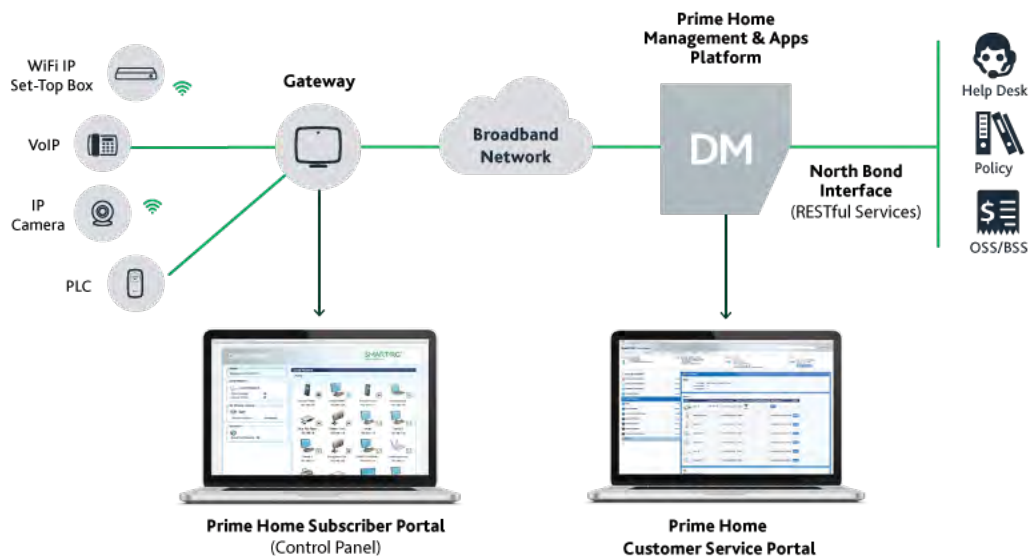


SmartRG Solutions

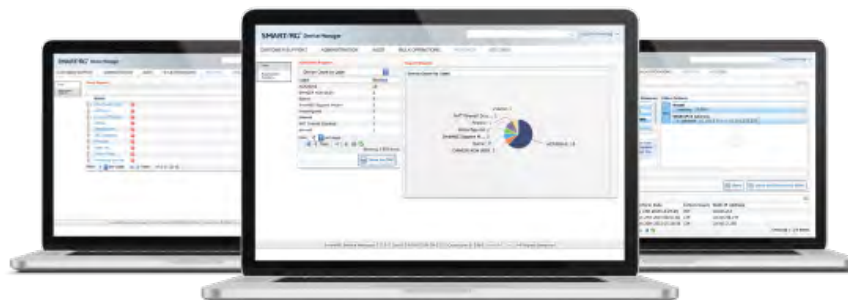
Device Manager – Remote CPE Management

Device Manager by SmartRG is a robust TR-069 ACS management platform. Whether you are simply looking to manage firmware rollouts or integrate business systems to efficiently provide end-to-end provisioning of devices and subscribers, SmartRG's solutions meet service providers' needs. The Device Manager platform utilizes a secure cloud-based deployment designed to be repeatable and portable; so regardless of a broadband operator's geographical location or CPE management requirements, SmartRG scales with you.

- Can manage residential gateway (xDSL, FTTH, DOCSIS) subscribers, multi-device (STB, VoIP, storage, UDM), and next-generation converged IP STBs
- Handle all stages of device management lifecycle including provisioning, firmware upgrades, Wi-Fi and security configuration, execute bulk operations, generate reports, and much more
- Discovers detailed information about the devices in the home such as online/offline status, wireless signal strength, and device manufacturer by abstracting this information into the cloud
- Offers consumer visibility into the home network and access to a variety of configuration tools and data services which provides the subscriber with the ability to more easily troubleshoot problems
- Enables quick rollout of new services such as managed Wi-Fi, managed firewall, and parental control applications, including dynamic content filtering and time blocking
- Allows creation of professional reports and charts for a wide array of subscriber and device information



Device Manager Overview



Subscriber Control Panel

SmartRG Home Analytics™ – Connected Home Wi-Fi Analytics

SmartRG Home Analytics™ collects real-time data directly from customer premises equipment (CPE), such as Wi-Fi routers and IP set-top boxes (STBs) and organizes it in the cloud, enabling a variety of use cases for customer care agents, technicians, end users, and network administrators or chief information officers. Using patented data collection and streaming techniques, SmartRG provides unique visibility and analysis of common Wi-Fi and bandwidth-related service issues, security vulnerabilities, as well as interesting market trends across the subscriber base.

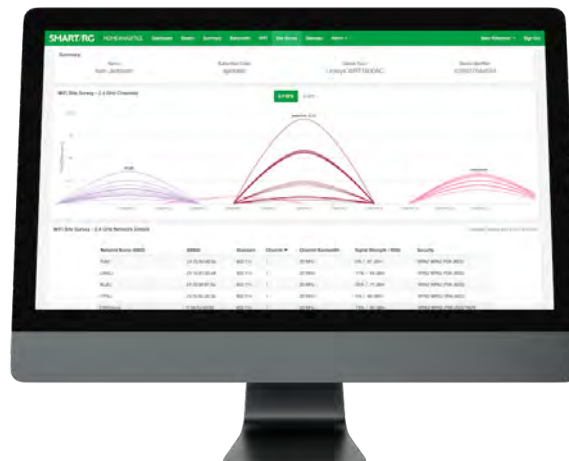
- Provides helpdesk agents a better understanding of subscriber service calls and the recommendations they need to resolve Wi-Fi issues quickly
- Reduce helpdesk calls and proactively eliminate the need for on-site visits
- Detects developing home network issues before subscribers are impacted
- Eliminate multi-system queries by giving CSRs a subscriber, network and device spanning view of the actual subscriber experience
- Delivers relevant insights into in-home Wi-Fi performance on a per subscriber basis, as well as across the entire Wi-Fi subscriber network
- Aggregated views provide IT and engineering teams feedback to develop fixes and technical improvements to services, equipment and devices
- Allows pairing of SmartRG Home Analytics™ with Device Manager for one-stop management, monitoring and sophisticated predictive analytics for both SmartRG and third-party wireless and networking equipment



Executive Dashboard



Subscriber Portal



Wi-Fi Site Survey

Training

ADTRAN offers a variety of training options, including instructor-led Installation and Maintenance training at our facilities in Huntsville, Alabama. Cost based on-site training is available at the customer location.

ADTRAN also offers web-based training that serves as a primer to the instructor led courses.

Many training options may be viewed at the ADTRAN Website Training Page:

www.adtran.com/training

- **Virtual** – Take advantage of live, expert instruction over the Web with our live Virtual training offering. This option transitions traditional classroom learning to the internet.
- **Classroom** – Students attending training at our training facilities will experience our special classroom and laboratory facilities designed to get the most out of every learning experience. In addition, these classes give students the opportunity to interact with peers from across the industry all while benefiting from others experiences.
- **Custom Classes** – Custom training classes are available for your organization either at your location, at an ADTRAN facility, or using ADTRAN Virtual Classroom.

Recommended Training Courses

Total Access 5000 Series Training

Total Access 5000 Fundamentals – This online self-paced course provides an overview of the Total Access 5000. Topics covered include a hardware overview, topology and node expansion, VLAN tagging, CLI basics, procedures for system turn up, upgrading firmware, save/restore provisioning, and an introduction to the Web GUI and AOE user interfaces.

Total Access 5000 FTTP Training – This course is designed for those students that will be responsible for either designing, installing, provisioning or maintaining the Total Access 5000 Fiber-to-the-Premises solutions. This course will include interactive lecture as well as lab exercises. Integrated hands-on lab exercises are designed to reinforce the classroom instruction. After completion of the course, the student should be able to turn-up, provision, and maintain the ADTRAN Total Access 5000 system. Applications include GPON and Active Ethernet (AE). This course prepares individual for the FTTP certification.

Advanced Operational Environment Training

AOE Overview – This course covers and overview of the features and functions of AOE. Topics include logging in, using the dashboard, ServiceDesigner®, ServiceActivator®, ServiceCheck®, ServiceMonitor®, troubleshooting, and managing assets.

AOE Fundamentals – This course covers navigational features for AOE, including the use of shortcuts, the dashboard tabs and the Network Device Manager. Details are included for device discovery, viewing topology, designing and activating services, monitoring services, software upgrades and for troubleshooting. When the course is over, the user will understand the basics for how to use AOE without getting into specific details for particular ADTRAN services.

AOE Administration – This course is for people who will be managing and administrating the ADTRAN AOE Network Management System. The course will cover basic Linux commands, AOE installation, AOE administration, user and device management, as well as reporting and troubleshooting.

SmartRG Home Analytics and Device Manager Training

SmartRG Device Manager Customer Support Representative Skills Training – This course is designed for SmartRG Device Manager end-user staff that will be responsible for direct contact with the subscribers. After the completion of this course, the student will be able to interact with subscriber and device data, assist subscribers with common issues, and provide troubleshooting and maintenance assistance to subscribers.

SmartRG Device Manager Administrator Skills Training – This course is designed for personnel that will be responsible for system administration of the SmartRG Device Manager platform. After the completion of this course, the student will be able to manage permissions, roles and users, perform firmware updates, and use audit tools and their reports.

SmartRG Home Analytics Provider Skills – This course is designed for end-user staff that will be responsible for direct contact with subscribers or providing escalation technical support for subscriber quality issues. After the completion of this course, the student will be able to navigate the relationship and integration between SmartRG Home Analytics and SmartRG Device Manager as well as apply the SmartRG Home Analytics tool for troubleshooting.

	Duration	Prerequisites	Price	Location	Part No.
Total Access 5000 Fundamentals	3 hours	None	Free	Online	
Total Access 5000 FTTP Training	3 days	TA5K Fundamentals	Quoted	ADTRAN	1600CSYS5010E
				Customer Site	1600CSYS5010C
AOE Overview	2 hours		Free	Online	
AOE Fundamentals	3 hours	AOE Overview	Quoted	Virtual	1600CSYS6010V
AOE Administration	3 days		Quoted	ADTRAN	1600CSYS6010E
SmartRG Device Manager CSR Skills	3 hours		Quoted		1600CSYS1000V
SmartRG Device Manager Admin Skills	2 hours		Quoted		1600CSYS1010V
SmartRG Home Analytics Provider Skills	2 hours		Quoted		1600CSYS1020V

Network Care Program Options

ADTRAN has evolved over time to a supplier of complex services delivery, for network-based solutions. Complete networks continue to be created and maintained using a wide variety of components, including hardware and software building blocks, sophisticated testing, management and planning tools and decades of experience. ADTRAN Services is uniquely qualified to successfully operationalize a project concept into tangible services revenue in multi-vendor service provider networks, including: feasibility, planning, engineering, installation, test, acceptance and ongoing asset management.

Network Care Programs include SLA services, extended warranty and maintenance programs to provide consistent equipment performance, network optimization services and co-located customer design and engineering services. ADTRAN Network Care Programs include the following valued components:

	Basic Network Care	Enhanced Network Care	Total Network Care
Hardware Maintenance			
Extended warranty	•	•	•
Free repair	•	•	
Dead on Arrival (DOA)	•	•	•
Next business day advanced replacement			•
Product Support			
Product Support assistance via email	•	•	•
<i>Outages</i> – All requests for outages must be initiated by phone and clearly communicated that the issue is outage related. Response targets are measured 24x7 for phone responses.	1 hour or less response time	1 hour or less response time	20 min or less response time
<i>Non-Outages</i> – Add 2 hours to response targets for emailed or web-initiated service requests. Non-outage requests for service made after normal business hours will be placed in the priority queue for the following business day.	6 hour or less response time	6 hour or less response time	4 hour or less response time
Software Maintenance			
Mosaic Cloud Platform	•	•	•
4 hours for AOE install or upgrade	•	•	•
AOE Device Discovery licenses	•	•	•
AOE Graphical User Interface keys	•	•	•
Software patches and updates	•	•	•
Software upgrade protection – annual maintenance	•	•	•
One time single step Network Element firmware upgrade		•	•
Training			
Access to ADTRAN’s Support Community – technical documentation, software notifications, feature requests	•	•	•
Vouchers for training classes*	1 voucher	2 vouchers	4 vouchers

***Note:** One voucher has a value of \$1000

Ordering Information

*Note: Required for functioning chassis

Equipment	Part No.	Notes
Total Access 5000 Chassis		
Total Access 5000 Chassis	1187001F2	
Total Access 5000 SMIO3*	1187051G1	Backplane of Total Access 5000 Chassis, required for SM40
Total Access 5000 SMIO4*	1187055F1	Backplane of Total Access 5000 Chassis, required for SM200
Total Access 5000 Standard Fan Module*	1187080G1	
Total Access 5000 High-Flow Rear Fan*	1187080G3	Required for XGS-PON applications
Total Access 5000 Fan Filter*	1187081G1	
Total Access 5006 Chassis		
Total Access 5006 Chassis	1187003F2	
Total Access 5006 SMIO3*	1187052G1	Backplane of Total Access 5006 Chassis
Total Access 5006 Standard Fan Module*	1187090E1	
Total Access 5006 High-Flow Rear Fan*	1187090G3	Required for XGS-PON applications
Total Access 5006 Fan Filter*	1187091E1	
Total Access 5004 Chassis		
Total Access 5004 Chassis	1187004F1	Integrated backplane
Total Access 5004 Power/Alarm Module*	1187064F1	
Total Access 5004 Fan Module*	1187094F1	Standard/High-Flow Fan Module
Total Access 5004 Fan Filter 10 Pack*	1187092F1	
Total Access 5000 Series Commons		
Total Access 5000/5006 Bridging SCM*	1187011F3	System Controller Module, one required per chassis
Total Access 5000/5006 SM40 4-10 GE*	1187040F1	Switch Module, two required for redundant configuration, SMIO3 required
Total Access 5000 SM200 2-100/2-40 GE*	1187045F1	Switch Module, two required for redundant configuration, SMIO4 required
Total Access 5004 MSM20 2-10 GE*	1187016F1	Management and Switch Module, two required for redundant configuration
Total Access 5000 Series Blanks		
Total Access 5000 SM Blank*	1187920E1	Switch Module blank, for non-redundant configurations
Total Access 5000 AM Single Blank*	1187921E1	Access Module blank, single slot
Total Access 5000 AM Dual Blank*	1187922E1	Access Module blank, two slots
Total Access 5000 AMIO1 Blank*	1187925G1	Rear blank for back of slot, single slot
Total Access 5000 AMIO2 Blank*	1187923G1	Rear blank for back of slot, dual slot
Total Access 5004 MSM Blank*	1187927F1	Management and Switch Module blank, for non-redundant configurations
Total Access 5004 Resource Single Blank*	1187928F1	Resource Module blank, single slot
Total Access 5004 Resource Dual Blank*	1187929F1	Resource Module blank, dual slot
Total Access 5000 Series OLT Modules		
4-port GPON OLT (Gen 2)	1187502F2	Supports class B+/C+ transceivers
8-port GPON OLT (Gen 1)	1187503F1	Supports class B+ transceivers
8-port GPON OLT (Gen 2)	1187503F2	Supports class B+/C+ transceivers
4-port XGS-PON OLT	1187514F1	Supports class N1/N2 transceivers
8-port Combo PON OLT	1187518F1	Supports class D1/D2 transceivers
24-port AE OLT	1187562F1	
OLT Pluggable Optics		
SFP GPON 2.5G/1.25G Class B+	1442530G1	
SFP GPON 2.5G/1.25G Class C+	1442540F1	
XFP XGS-PON 10G/10G Class N1	1442548F1	
XFP XGS-PON 10G/10G Class N2	1442548F2/C	Industrial and Commercial temperature variants
SFP+ XGS-PON 10G/10G Class N1	1442544F1/C	Industrial and Commercial temperature variants
SFP+ XGS-PON 10G/10G Class N2	1442544F2/C	Industrial and Commercial temperature variants
SFP+ Combo PON Class D1	1442543F1/C	Industrial and Commercial temperature variants
SFP+ Combo PON Class D2	1442543F2/C	Industrial and Commercial temperature variants
CSFP AE Bi-Di 1G/1G 10 km	1442010G1	
CSFP AE Bi-Di 1G/1G 20 km	1442020G1	
CSFP AE Bi-Di 1G/1G 40 km	1442040G1	
Total Access 5000 Series Accessories		
4xODN Coexistence Module	11749041F1	CEx4 Module, XGS-PON/GPON
PON Coexistence Element	11749001F1	CE1 Module, NG-PON2/GPON/XGS-PON/OTDR/RF Video
1RU Filters Housing	1174985F1	External 1RU housing, up to eight CEx4/CE1 Modules.
Total Access 5000 Carrier Module	1174510G3	Module slotted into chassis, up to two CEx4/CE1 Modules
Total Access 5000 Carrier Module Blank	1174510G5	One blank for Carrier Module
Total Access 5000 Fiber Manager	1187940G2	
Total Access 5000 Clear Cover	1187071F1	

Equipment	Part No.	Notes
Indoor ONT Portfolio		
Total Access 401 Micro FTTH ONT	1287786F1	
Total Access 411 Micro FTTH ONT	1287787F1	
Total Access 424 FTTH SFU ONT	1287835F1	
SDX 602x 10G SBU ONT	1287820F2	Requires SFP+ CPE (1200488F1/C)
SDX 621 10G SFU ONT	1287830F1	
SDX 621i 10G SFU ONT	1287844F1	
SDX 621v 10G SFU ONT	1287837F1	
SDX 621x 10G SFU ONT	1287823F1	Requires SFP+ CPE (1200488F1/C)
SDX 624v 10G Multi-Port ONT	1287845F1	
SDX 624vp 10G Multi-Port ONT	1287846F1	
SDX 620s XGS-PON SFP+ ONT	1287840F1	
Outdoor ONT Portfolio		
Total Access 351 SFU ONT	1287701G1	
Total Access 352 SFU ONT	1287702G1	
Total Access 352H SFU ONT	1287702G3	
Total Access 354E SFU ONT	1287704G1	
Total Access 362 SFU ONT	1287712G1	
Total Access 362R SFU ONT	1287715G1	
Total Access 364 SFU ONT	1287713G1	
Total Access 372 SBU ONT	1287722G1	
Total Access 372E SBU ONT	1287723G1	
Total Access 372R SBU ONT	1287722G2	
Total Access 374 MDU ONT	1287703G1	
Total Access 452 SFU ONT	1287802F1	
Total Access 454 SFU ONT	1287803F1	
SDX 622vh 10G SFU ONT	1287835F1	
RG Portfolio		
Total Access 414RG Wireless RG ONT	1287790F1	
Total Access 424RG Wireless RG ONT	1287781F2	
SmartRG SR400ac RG	17600020F1	
SmartRG SR905ac RG	17600130F1	
SmartRG SR905acv RG	17600131F1	
SmartRG SE80ac Satellite	17600060F1	
SmartRG SE81ac Satellite	17600067F1	
ONT Pluggable Optics		
SFP+ CPE XGS-PON 10G/10G Class N1	1200488F1/C	Required for SDX 602x and 621x
SmartRG SM8 GPON SFP ONT	17600187F1	Compatible with SR905ac/SR905acv
SmartRG SM9 AE SFP ONT	TBD	Compatible with SR905ac/SR905acv
Indoor FTTP Deployment Accessories		
Total Access 35X/36X Wall Mount Bracket	1187777G1	Compatible with Total Access 35X/36X
Total Access 374 Wall Mount Plate	1187781G1	Compatible with Total Access 374
Total Access 401/411 ONT Fiber Tray	1287410F1	Compatible with Total Access 401/411
Total Access 411 UPS Wall Mount Housing	1287405F1	Compatible with Total Access 411, does not include UPS
Total Access 414RG/424 Fiber Tray/Wall Mount Bracket	1287409F1	Compatible with Total Access 414RG/424
Total Access 424RG Fiber Tray/Wall Mount Bracket	1287411F1	Compatible with Total Access 424RG
Total Access 485 MDU Base Kit	1287734F1	
Total Access 485 MDU Shelf	1287734F2	
Outdoor FTTP Deployment Accessories		
Total Access 35X/36X Splice Housing	1187770G1	Compatible with Total Access 35X/36X
Total Access 35X/36X Opti-Tap Housing	1187771G1	Compatible with Total Access 35X/36X
Total Access 35X/36X Slack Storage Unit	1187772G1	Compatible with Total Access 35X/36X
Total Access 372 Splice Housing	1187774G1	Compatible with Total Access 372/372E/372R
Total Access 372 Opti-Tap Housing	1187775G1	Compatible with Total Access 372/372E/372R
Total Access 374 Splice Housing	1187780G1	Compatible with Total Access 374
Total Access 380 MDU Splice Housing	1187773G1	Compatible with Total Access 35X/36X/452/454
Total Access 480 MDU Splice Housing	1287733F1	Compatible with Total Access 352/352H/362/374/452/454
Total Access 380/480 GPON MDU Splitter	1187734G1	1:4 splitter, required for each Total Access 380/480
ONT UPS and Cables		
SFU ONT UPS	1187731G1	Compatible with Total Access 35X/36X/374/414RG/424/424RG
MDU ONT UPS	1187733G1	Compatible with Total Access 380/480
SBU ONT UPS	1187735G1	Compatible with Total Access 372/372E/372R
Micro ONT UPS	1287406F1	Compatible with Total Access 411
Micro ONT UPS with Alarm	1287406F2	Compatible with Total Access 411
50 foot UPS Cable	1187732G1	Required for Outdoor ONT Portfolio
6 foot UPS Cable	1287402G1	Required for Indoor ONT Portfolio
Home Network Accessories		
SmartRG MC60 MoCA 2.0 Adapter	17600152F1	
SmartRG PL60 Powerline Adapter	17600153F1	