

Passive Optical Splitter Modules

7th Edition



Passive Optical Splitter Modules

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Passive Otical Splitter Modules



Introduction

TE's FTTX Solutions are the industry's first infrastructure solutions designed from the ground up to meet the unique requirements of FTTX networks. Designed for operational efficiency and scalability, TE's FTTX solutions simplify network intsallation, maintenance, and management from the central office/headend to the outside plant.

Installed in an outside plant enclosure, passive optical splitter modules give carriers the ability to split optical signals to multiple homes or businesses.

TE splitter modules are protected from exposure and damage by their packaging. Surrounded by superior cable management, technicians need less time to route fiber in the cabinet, saving operating costs. Available in configurations from 1x2 up to 1x64, the modules can be ordered in adapter port or pigtailed versions.

FEATURES

- Qualified to GR-1209 and GR-1221.
- Industry-leading low loss.
- · Terminated with GR-326 certified connectors.
- Rugged package protects delicate splitters from installer handling.
- Variety of package styles allow adaptation to many applications.
- Wideband performance allows operation from 1260nm to 1635nm.



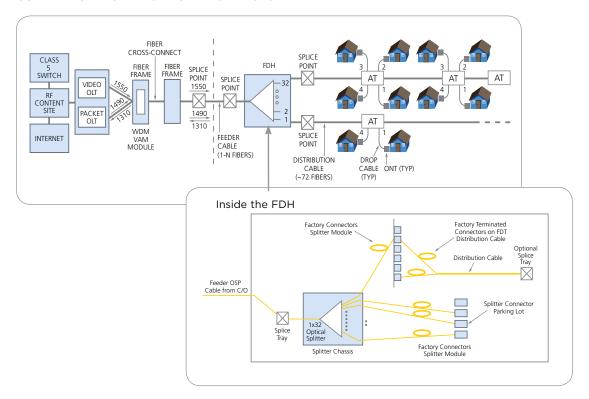
Passive Otical Splitter Modules - Applications

Centralized Splitting

There are two main approaches to FTTX optical splitters: centralized and cascaded. TE recommends the centralized approach for several significant reasons.

- The centralized splitter approach maximizes the highest efficiency of expensive OLT cards. Since each home in this approach is fiber-connected directly back to a central hub, all ports on the OLT card are used and 100% efficiency is achieved.
- Provides easy testing and troubleshooting access. It is very difficult to use an optical timedomain reflectometer (OTDR) to test multiple splitters unless the network is built with each fiber characterized to enable the OTDR to recognize each individual fiber run.
- Minimizes signal loss by eliminating extra splices and/or connectors from the distribution network. Each time an optical signal encounters a network component or connection, such as a splitter, it suffers a certain degree of signal loss. Therefore, when splitters are cascaded together, loss will occur at each device. The combined loss effect can reduce the distance a signal can travel, imposing distance limitations on fiber runs.
- Reducing the number of components in the network decreases the number of opportunities for failure.

SCHEMATIC DIAGRAM OF PON ARCHITECTURE





Passive Otical Splitter Modules

Mini Plug-and-Play Splitter Modules/Splitter Specifications

TE's Mini Plug-and-Play Splitter Modules support centralized splitting architectures. The modules are available in a wide range of split ratios and are used in TE's FDH 3000 series cabinets, chassis, and rack mounts. The rugged packaging is built for high performance, while the true Plug-and-Play design reduces installation time.

FEATURES

- Bend-optimized fiber and ruggedized extreme temperature cabling
- Operating temperature range -55° to +85° C
- Superior loss performance at 1490 and 1550 wavelengths
- Easy to insert and remove without affecting adjacent splitters
- · Reversible dust cap makes test and turn-up easy
- Allows pass-through of up to 2 fibers per splitter
- Universal module designed for use across applications - cabinets, chassis and frames



PERFORMANCE SPECIFICATIONS

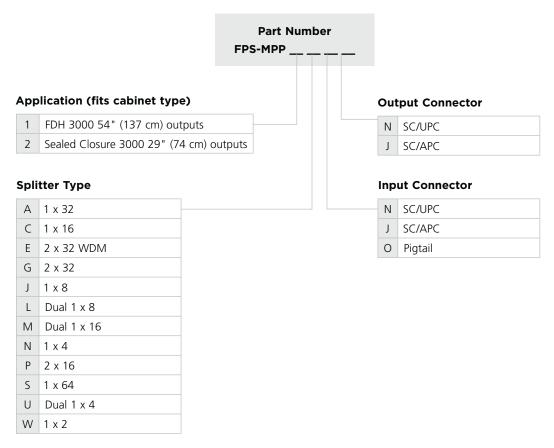
Splitter Type	Max Loss*	Typical Loss*	Uniformity*	Return Loss	Directivity	PDL	Wavelength Range
1 x 2	3.8 dB	3.1 dB	1.1 dB	≥55 dB	≥55 dB	0.2 dB	1260 - 1360 nm and 1480 - 1580 nm
1 x 4	7.2 dB	6.6 dB	0.8 dB	≥55 dB	≥60 dB	0.2 dB	1260 - 1635 nm
1 x 8	10.3 dB	9.7 dB	1.0 dB	≥55 dB	≥60 dB	0.2 dB	1260 - 1635 nm
1 x 16	13.5 dB	12.8 dB	1.0 dB	≥55 dB	≥60 dB	0.3 dB	1260 - 1635 nm
1 x 32	16.7 dB	16.0 dB	1.3 dB	≥55 dB	≥60 dB	0.3 dB	1260 - 1635 nm
1 x 64	20.4 dB	19.7 dB	2.0 dB	≥55 dB	≥60 dB	0.4 dB	1260 - 1635 nm
2 x 16	14.1 dB	12.9 dB	2.0 dB	≥55 dB	≥60 dB	0.4 dB	1260 - 1635 nm
2 x 32	17.4 dB	16.2 dB	2.0 dB	≥55 dB	≥60 dB	0.4 dB	1260 - 1635 nm

For more information, please contact TE's Technical Assistance Center 1.800.366.3691 x73475

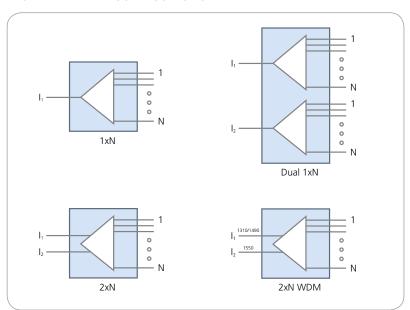


^{*} Includes PDL, WDL and TDL. Does not include connector loss

Mini Plug-and-Play Splitter Modules



SPLITTER TYPE CONFIGUAIONS



 I_1 , I_2 = Inputs

1...N = Outputs

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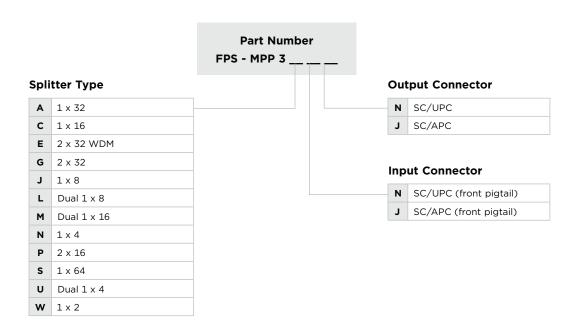
NGF Modular Splitter Block

The NGF Modular Splitter Block utilizes TE's latest splitter packaging technology and is used in TE's Next Generation Frame which has unmatched density for fiber management and signal distribution.

FEATURES

- Designed for use with TE High-Density NGF System.
- Modular design allows up to 48 32-way splitters into one 30" NGF Distribution Frame.
- · Splitter inputs and outputs terminated to TE's patented sliding adapter pack technology.
- NGF splitter block accepts 4 mini plug-and-play splitters (listed below)

Block Style	Dimensions	Part Number
Left side block mounting	19.35" x 7.20" x 11.80" (49.14 cm x 18.28 cm x 29.97 cm)	NGF-VSP3-00000L (For ETSI frame: NGF-VSP3-ETSIOL)
Right side block mounting	19.35" x 7.20" x 11.80" (49.14 cm x 18.28 cm x 29.97 cm)	NGF-VSP3-00000R (For ETSI frame: NGF-VSP3-ETSIOR)





Passive Otical Splitter Modules

Rack Mounts for Mini Plug-and-Play Splitters

TE's Rack Mounts for Mini Plug-and-Play Splitters are configurable for use in Central Office, Multiple Dwelling Unit (MDU) applications as well as laboratory environments. These chassis come equipped to fit both 19" and 23" rack mount frames.

Description	Dimensions	Part Number
1RU splitter drawer with splice tray - accommodates up to 4 Mini Plug-and-Play splitters	19/23" x 1.7" x 12" (48.3/58.4 cm x 4.3 cm x 30.5 cm)	FPS-MPPACCRMPNL
Rack mount splitter chassis – accommodates up to 24 Mini Plug-and-Play splitters	19/23" x 6.94" (48.3/58.4 cm x 17.6 cm)	FPS-MPPRACKMT24
Cable management for rack mount splitter chassis	19/23" x 5.19" (48.3/58.4 cm x 13.2 cm)	FPS-MPPRACKMTCM
Parking lot panel for rack mounts	19/23" x 3.5" (48.3/58.4 cm x 8.9 cm)	ACE-ACC200-PKLT3



1RU Splitter drawer





Rack Mount Splitter Chassis



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Cabinet Mount Splitter Modules

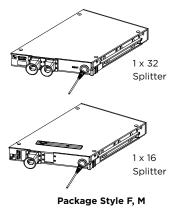
TE's Cabinet Mount Splitter Modules support the installed base of distribution hubs for turning up services to additional customers. The splitters are designed for TE's legacy fiber distribution hub cabinets.

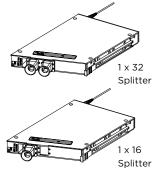
FEATURES

- Rugged 2mm jacketing allows technicians to handle as a standard jumper.
- Strain relief boot protects pigtails from macrobends.
- Splitter outputs labeled with port number, splitter serial number for easy port identification.
- Pull-proof jumpers prevent handling damage.



Cabinet Mount Splitter Module







Package Style G, N, K

Package Style J



Cabinet Mount Splitter Modules

ORDERING INFORMATION

Cabinet Type/Splitter Module	Part Number
ACE 92/102/132	
1x32 Splitter	FPS-SPF1AJJ
1x16 Splitter	FPS-SPF1CJJ
Dual 1x16 Splitter	FPS-SPF1MJJ
Quad 1x8 Splitter	FPS-SPF1ZJJ
ACE 142	
1x32 Splitter	FPS-SPK1AJJ
1x16 Splitter	FPS-SPK1CJJ
Dual 1x16 Splitter	FPS-SPK1MJJ
Quad 1x8 Splitter	FPS-SPK1ZJJ
ACE 152	
1x32 Splitter	FPS-SPM1AJJ
1x16 Splitter	FPS-SPM1CJJ
Dual 1x16 Splitter	FPS-SPM1MJJ
Quad 1x8 Splitter	FPS-SPM1ZJJ
ACE 204	
1x32 Splitter	FPS-SPG1AJJ
1x16 Splitter	FPS-SPG1CJJ
Dual 1x16 Splitter	FPS-SPG1MJJ
Quad 1x8 Splitter	FPS-SPG1ZJJ
ACE 214/304	
1x32 Splitter	FPS-SPN1AJJ
1x16 Splitter	FPS-SPN1CJJ
Dual 1x16 Splitter	FPS-SPN1MJJ
Quad 1x8 Splitter	FPS-SPN1ZJJ
Legacy TE Fiber Access Terminal	
1x16 Splitter	FPS-SPJ1CJJ
1x8 Splitter	FPS-SPJ1JJJ
1x4 Splitter	FPS-SPJ1NJJ
Legacy FONS Gen 1	
1x32 Splitter	OCMF1X4329A09F5
Dual 1x16 Splitter	OCMF1X4169A10F9

Other splitter configurations are available, please contact TE's Technical Assistance Center 800-366-3891 x73475



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FMT Splitter Module

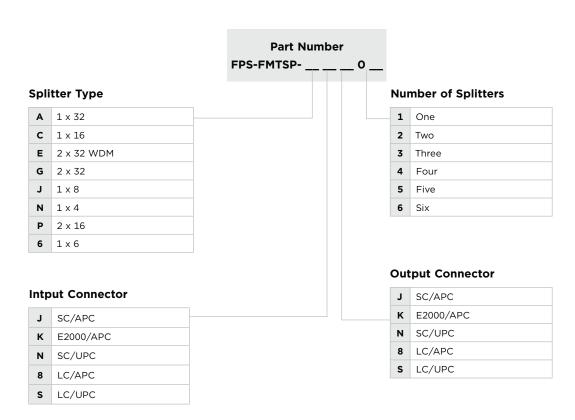
TE's FMT Splitter Module is configured for fiber distribution racks in a wide variety of applications. It is a self contained 36 port 1RU chassis with front-access adapter ports that help easy configuration and reconfiguration of rack mount setups.

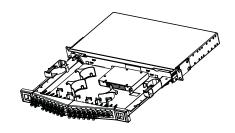
FEATURES

- A non-modular, high-density self-contained unit
- Flexible applications fitting in any 19" or 23" rack unit
- Designed to fit in 1 RU (1.75")
- Features angle right/angle left adapter panels for strain relief
- Both standard power and WDM splitter capabilities offered

SPLITTER CAPACITY (Standard SC form factor connector)

Splitter Type	1 x 32	1 x 16	1 x 8	1 x 4
Maximum Number of splitters	1	2	3	6





ISO Top View

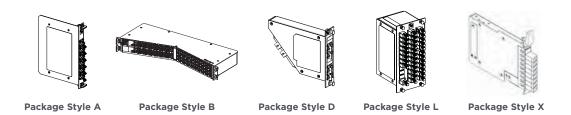


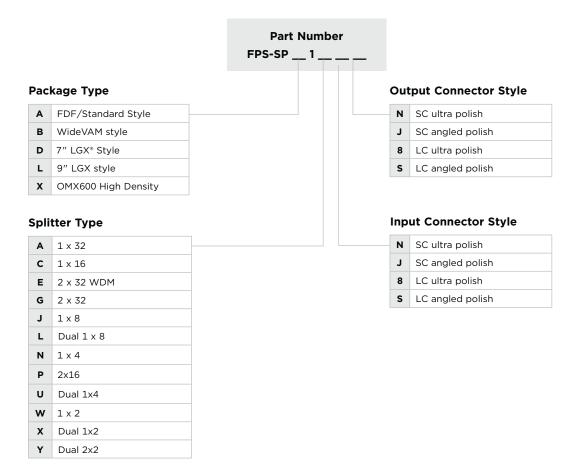
Rack Mount Splitter Modules-Adapter Port Versions

TE's Rack Mount Splitter Modules offer a wide range of splitter functionality in adapter port modules that allow for configurability across the various chassis that can be installed into various fiber management frame styles.

FEATURES

- Removable retainers allow access to rear ports for cleaning
- · Colored retainers and designation labeling help technicians distinguish between ports
- Mounts in standard TE fiber management products



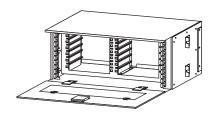


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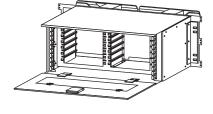


Fiber Distribution Frame - Standard Chassis

The FDF VAM chassis fits into any open chassis location within an existing TE fiber distribution frame (FDF). The FDF VAM chassis is available with or without rear cable management. It accommodates a maximum of either 12 plug-in modules, 12 bulkhead plates, 12 blank panels or any combination thereof. The 8" rear load chassis mounts in EIA or WECO racks.



FDF-STDVAM For TE Front Load Frames ONLY



FDF-FCMVAM For TE Rear Load Frames ONLY

SPLITTER CAPACITY

(Standard SC form factor connector)

1 x 32	1 x 16	1 x 8	1 x 4
2	4	6	12

Contact your TE representative for additional configurations

SPLITTER CAPACITY

(Standard SC form factor connector)

1 x 32	1 x 16	1 x 8	1 x 4
2	4	6	12

Contact your TE representative for additional configurations

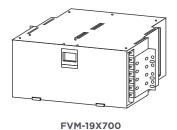
Description	Dimensions (HxWxD)	Part Number*
Unloaded chassis for TE front load frames: No rear cable management or doors attached to module	8" x 21.6" x 8.7" (20.32 x 54.86 x 22.10 cm)	FDF-STDVAM
Unloaded chassis for TE rear load frames: Rear cable management and doors attached to module	8.0" x 24.4" x 12.1" (20.32 x 61.98 x 30.73 cm)	FDF-FCMVAM

^{*} Chassis accept adapter port splitters package style A.



Inside Subtitle Fiber Distribution Frame - Standard Chassis

The 7" VAM chassis fits into any open chassis location within an existing TE 7" $\,$ module system FDF or in an LGX-style frame. It accommodates a maximum of 12 single plug-in modules, 12 bulkhead plates, 12 blank panels or any combination thereof. Adjustable mounting brackets are provided for 19" or 23" rack mounting environments. The 7" chassis mounts in EIA or WECO racks.



SPLITTER CAPACITY

(Standard SC form factor connector)

1 x 32	1 x 16	1 x 8	1 x 4
2	4	6	12

Contact your TE representative for additional configurations

Description	Rear Doors	Dimensions (HxWxD)	Part Number*
Unloaded chassis	without rear doors	7" x 19" or 23" x 12" (17.78 x 48.26 cm or 58.42 x 30.48 cm)	FVM-19X700
for TE 7" style frames; 23" VCG included	with rear doors	7" x 19" or 23" x 11.03" (17.78 x 48.26 cm or 58.42 x 28.02 cm)	FVM-19X700X11
Front vertical	for 19" mounting environments		VCG-25
cable guides	for 23" mounting environments		VCG-45

 $^{^{}st}$ Chassis accept adapter port splitters package style A.



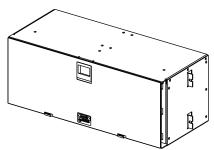
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Fiber Distribution Frame (FDF) WideVAM Chassis

TE's WideVAM family of products allows for an even more efficient integration of optical components into the FDF. WideVAM chassis are available for both the 8" FDF product family and universal 19"/23" rack mount environments. The WideVAM chassis continue to provide the utmost protection, modularity and flexibility for all optical component needs.

The WideVAM product incorporates 18 front and 10 rear ports to provide 50 percent more density than the standard FDF VAM. 7-inch and 8-inch WideVAM chassis are available, ensuring consistent, superior cable management within the frame.





WideVAM Chassis for TE Front-Load Frames

SPLITTER CAPACITY

(Standard SC form factor connector)

1 x 32	1 x 16	1 x 8	1 x 4
3	6	12	24

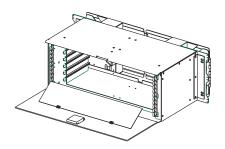
Contact your TE representative for additional configurations

Description	Dimensions (HxWxD)	Part Number*
Unloaded chassis for TE front load frames; accommodates (6) 1 x 16 or (3) 1 x 32 WideVAM modules	8" x 21.6" x 8.84" (20.32 x 54.86 x 22.45 cm)	FDF-STDWVAM

^{*} Chassis accept adapter port splitters package style B.



WideVAM Chassis for TE Frames



SPLITTER CAPACITY

(Standard SC form factor connector)

1 x 32	1 x 16	1 x 8	1 x 4
3	6	12	24

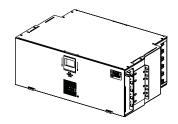
Contact your TE representative for additional configurations

ORDERING INFORMATION

Description	Dimensions (HxWxD)	Part Number*
Unloaded chassis for TE frames; accommodates (6) 1 x 16 or (3) 1 x 32 WideVAM modules	8" x 24.41" x 12.11" (20.32 x 62 x 30.76 cm)	FDF-FCMWVAM

^{*} Chassis accept adapter port splitters package style B.

WideVAM 7" Chassis



SPLITTER CAPACITY

(Standard SC form factor connector)

1 x 32	1 x 16	1 x 8	1 x 4
3	6	12	24

Contact your TE representative for additional configurations

Description	Dimensions (HxWxD)	Part Number*
7" unloaded chassis; accommodates (6) 1 x 16 or (3) 1 x 32 WideVAM modules	7" x 19" x 11.94" (17.78 x 48.26 x 30.33 cm	FVM-19X700W

^{*} Chassis accept adapter port splitters package style B.



Optical Distribution Frame (OMX) Chassis

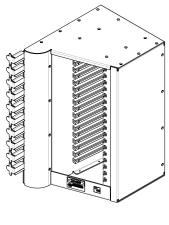
The OMX600 high-density VAM chassis is designed to fit into any open chassis location within new or existing OMX600 fiber distribution frames. Each chassis can accommodate a maximum of 18 high-density VAM plug-in modules, 18 bulkhead plates, 18 blank plates or any combination thereof.



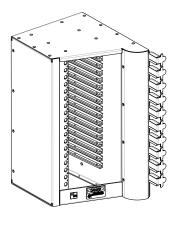
OMX600 High-Density VAM Chassis (Right Orientation)

Description	Dimensions (HxWxD)	Orientation	Part Number*
OMX600 high-density VAM chassis, unloaded;	373 mm x 227 mm x 286 mm	Left orientation	MX6-HDVAMCHAS-L
accommodates up to 18 single OMX600 high-density modules	(14.7" x 8.9" x 11.3")	Right orientation	MX6-HDVAMCHAS-R

^{*}Chassis accepts adapter port splitters package style X



MX6-HDVAMCHAS-L (Left Orientation)



MX6-HDVAMCHAS-R (Right Orientation)



Passive Otical Splitter Modules

Chassis for LGX®, LSX and NG3 Compatible Frames

The 7" and 9" chassis are designed to fit into any open chassis location within new or existing LGX-compatible fiber frames. It can accommodate a maximum of 12 plug-in modules, 12 bulkhead plates, 12 blank plates, or any combination thereof. The mounting slots are oriented vertically.



7" Chassis — VAM Vertical Mount

SPLITTER CAPACITY

(Standard SC form factor connector)

1 x 32	1 x 16	1 x 8	1 x 4
2	4	8	12

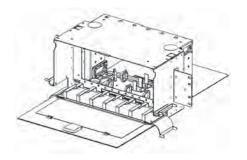
Contact your TE representative for additional configurations

ORDERING INFORMATION

Description	Dimensions (HxWxD)	Part Number*
7" unloaded chassis; VAMs mount vertically; accommodates up to 12 modules	7" x 19/23" x 11" (17.78 x 48.26/58.42 x 27.94 cm)	FVM-VLM19X700-W

^{*} Chassis accept adapter port splitters package style D.

9" Chassis - VAM Vertical Mount



SPLITTER CAPACITY

(Standard SC form factor connector)

1 x 32	1 x 16	1 x 8	1 x 4
4	6	12	12

Contact your TE representative for additional configurations

Description	Dimensions (HxWxD)	Part Number*
9" unloaded chassis; VAMs mount vertically; accommodates up to 12 modules	9" x 19/23" x 11" (22.9 x 48.26/58.42 x 27.94 cm)	FVM-VLM19X900-W

^{*} Chassis accept adapter port splitters package style L.

