MULTICOM PRODUCTS

MULTICOM PRODUCTS

SECTION A

OUTSIDE PLANT

COAX CABLE

- DROP
- TRUNK
- HEAT SHRINK

TRUNK CONNECTORS

FIBER CABLE

- ADSS
- ARMOURED

TAPS & PASSIVES

OUTDOOR NODES

- 4 PORT NODES
- NODE SERVICE CABLE

TERMINATION

- TRANSMIT & RECEIVE HIGH POWER NODE - See Section C - Fiber Optic Headend & Termination
- TRANSMIT & RECEIVE NODE - See Section C - Fiber Optic Headend & Termination
- RECEIVE ONLY NODE - See Section C - Fiber Optic Headend & Termination
- RFOG ONU - See Section C - Fiber Optic Headend & Termination

Drop Cable

Product Specifications

Key Features

Cable Type	Part #	Braid %	Color/Description
RG-59	M5960-BV	60%	Black
RG-59	M5960-BVV	60%	Black/CATV UL Listed
RG-6	M660-BV	60%	Black
RG-6	M660-BVW	60%	White
RG-6	M660-BVV	60%	Black/CATV UL Listed
RG-6	M660-BVVW	60%	White/CATV UL Listed
RG-6	M660-BVM	60%	Black/Messenger
RG-6	M660-BEF	60%	Black/Flooded
RG-6	M6Q-BVV	60%/90%	QUAD Sheild, CATV UL Rated
RG-6	M690-BV	90%	Black
RG-6	M690-BVW	90%	White
RG-6	M690-BVV	90%	Black/CATV UL Listed
RG-6	M690-BVVW	90%	White/CATV UL Listed
RG-6	M690-BVM	90%	Black/Messenger
RG-6	M660T-BVS	60%	SCTE Compliant, Tri-Shield
RG-11	M1160-BV	60%	Black
RG-11	M1160-BVV	60%	Black/CATV UL Listed
RG-11	M1160-BVM	60%	Black Messenger
RG-11	M1160-BEF	60%	Black/Flooded
RG-11	M1190-BV	90%	Black
RG-11	M1190-BVV	90%	Black/CATV UL Listed
RG-11	M1190-BVM	90%	Black/Messenger

Features:

- PVC Jacket
- Foam Dielectric
- Swept to 3,500 MHz
- Impedance - 75 Ohm
- 1,000 Foot Reels
- CATV UL Listed Available
- Black or White
- Copper Clad Steel Center Conductor
- Messenger, Flooded, Tri-Shield
- 60%, 90% Aluminum Braid

Frequency MHz	RG-59	RG-6	RG-11
	db/100 Ft/M	db/100 Ft/M	db/100 Ft/M
5 MHz	0.89 / 2.92	0.96 / 2.26	0.38 / 1.25
55 MHz	1.95 / 6.40	1.60 / 5.25	0.97 / 3.18
211 MHz	3.59 / 11.78	2.87 / 9.41	1.81 / 5.94
450 MHz	5.30 / 17.38	4.26 / 13.97	2.65 / 8.69
550 MHz	5.90 / 19.35	4.71 / 15.45	2.94 / 9.64
750 MHz	6.96 / 22.83	5.59 / 18.34	3.44 / 11.28
870 MHz	7.54 / 24.73	6.00 / 19.68	3.84 / 12.60
1000 MHz	8.09 / 26.54	6.54 / 21.45	4.23 / 13.87
1450 MHz	10.54 / 34.57	8.30 / 27.22	5.07 / 16.63
2250 MHz	13.70 / 44.94	10.60 / 34.77	6.50 / 21.32
3000 MHz	15.50 / 50.84	11.90 / 39.03	7.67 / 25.16
3500 MHz	16.74 / 54.91	12.85 / 42.15	8.28 / 27.16

Part# Matrix:

M660T-BVVW

- Cable Type - blank=Black, W=White, Flooded, M=Messenger
- UL Rating - blank=no rating, V=CATV, X=CMX UL, R=CMR UL
- Jacket - V=PVC, E=PE
- SCTE Compliant - blank=No, S=Yes
- Bond - B=Bonded
- Add'l Type - T=Tri-shield, Q=Quad shield 60/40
- Braiding % - 60, 90, Other
- Cable size (RG) - 6, 11, 59
- Multicom

Society of Cable Telecommunications Engineers

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Premium
SCTE High Performance

.500 Trunk Cable Product Specifications

Construction Materials*	
Jacket Material	PE
Center Conductor Material	Copper Clad Aluminum
Dielectric Material	PE
Construction Type	Seamless Extruded
Messenger Wire Material	Galvanized Steel
Outer Conductor Material	Aluminum

Dimensions*	
Diameter Over Center Conductor, nominal	2.769mm - 0.109"
Diameter Over Dielectric, nominal	11.430mm - 0.450"
Diameter Over Outer Conductor, nominal	12.700mm - 0.500"
Diameter Over Jacket, nominal	14.224mm - 0.560"
Diameter Over Messenger Wire, nominal	2.769mm - 0.109"
Jacket Thickness, nominal	0.7620mm - 0.0300"
Outer Conductor Thickness, nominal	0.6096mm - 0.0240"
Cable Length	732m - 2,400"
Shipping Weight	176 lbs @ 1,000'

Electrical Specifications*	
dc Resistance, Inner Conductor, nominal	1.35 ohms @ 1,000'
dc Resistance, Outer Conductor, nominal	0.37 ohms @ 1,000'
dc Resistance, Loop, nominal	1.72 ohms @ 1,000'
Characteristic Impedance	75 ohm
Characteristic Impedance Tolerance	±2 ohm
Nominal Velocity of Propagation (NVP)	87%
Jacket Spark Test Voltage	5000Vac
Operating Frequency Band	5-1000 MHz
Structural Return Loss	30 dB @ 5-1000 MHz

General Specfications*	
Cable Type	.500 Trunk
Environmental Space	Aerial
Jacket Color	Black
Packaging Type	Reel

Mechanical Specifications*	
Messenger Wire Breaking Strength, minimum	816 kg - 1,800 lbs
Minimum Bend Radius, bonded	88.90mm - 3.50"
Minimum Bend Radius, standard	152.40mm - 6.00"
Pull Tension, maximum	136 kg - 300 lbs

Maximum Attenuation*		
Frequency (MHz)	dB/100ft	dB/100m
5	0.16	0.52
55	0.55	1.80
211	1.09	3.58
250	1.20	3.94
270	1.24	4.06
300	1.31	4.30
330	1.38	4.53
350	1.43	4.69
400	1.53	5.02
450	1.63	5.35
500	1.73	5.67
550	1.82	5.97
600	1.92	6.30
750	2.17	7.12
870	2.35	7.69
1000	2.53	8.30
Compliance	*All specifications meet or surpass SCTE 15 2006 Specifications	

Description:
Multicom's High Performance SCTE-Compliant Trunk Cable is manufactured under the ISO 9001:2008 quality management system to meet or surpass industry standards. With low attenuation and inherent strength - its proven performance and reliability make it the right choice for distribution applications.

SCTE Society of Cable Telecommunications Engineers
SCTE 15 2011 Compliant

RoHS COMPLIANT

ISO 9001:2008
Manufactured under ISO 9001:2008 quality management system

Part# M500-JCAM109S

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Heat Shrink Tubing

Key Features

- Standard 48 inch lengths
- 1.5 inch inner diameter
- 52 mil wall thickness
- For .500 to .750 coax cable
- Easy to cut
- For use in aerial and below ground connections
- 10 tubes to a bag, 5 bags to a box

Description

Multicom's heavy-duty heat shrinkable tubing is designed for aerial and direct burial connections in CATV wiring including splices, taps, amplifiers and splitters. When the tubing is heated with either a heat gun or torch, the lining of adhesive sealant will flow for easy sealing and bonding.

M-HST-1500

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4 Port Outdoor Optical Node

Product Specifications

Item	Unit	Technical Parameter	
Forward Optical Receiver			
Optical Parameters			
Optical Receiving Power	dBm	-6 ~ +2	
Optical Return Loss	dB	> 45	
Optical Receiving Wavelength	nm	1100 ~ 1600	
Optical Connector Type		SC/APC	
Optical Fiber Type		Single Mode	
Link Performance			
C/N	dB	≥ 51	@84ch, Pin= -1dBm, output level 106dBuV, EQ 6dB
C/CTB	dB	≥ 65	
C/CSO	dB	≥ 63	
RF Parameters			
Frequency Range	MHz	54 ~ 1003	
Flatness in Band	dB	± 0.75	
Rated Output Level	dBmV	≥ +46 (≥ 106 dBμV)	
Max Output Level	dBmV	≥ +48 (≥ 108 dBμV) when input optical power -6 ~ +2dBm	
Output Return Loss	dB	≥ 16	
Output Impedance	Ω	75	
Return Optical Transmitter			
Optical Parameters			
Optical Transmit Wavelength	nm	1310 ±10	
Laser Type		FP Laser	
Optical Output Power	mW	1	
Optical Connector Type		SC/APC	
RF Parameters			
Frequency Range	MHz	5 ~ 42	
Flatness in Band	dB	±0.75	
Input Level	dBmV	+15 ~ +25 (75 ~ 85 dBμV)	
Input Return Loss	dB	≥ 16	
Output Impedance	Ω	75	
NPR Dynamic Range	dB	≥10 (NPR ≥30 dB) using the FP laser	
General Statistics			
Power Voltage	V	AC35 ~ 90V/50-60Hz (insert power at any F-Port)	
Operating Temperature	°C	-30 ~ +70 (-22 ~ +158°F)	
Storage Temperature	°C	-30 ~ +70 (-22 ~ +158°F)	
Relative Humidity	%	Max 95% no condensation	
Consumption	W	≤ 34	
Dimensions	mm	295 (L) x 210 (W) x 150 (H) (11.6in x 8.3in x 6in)	

MUL-OFN-V-M-FP-4-M

- Case Size - S: Small, M: Medium, L: Large
- Number of Ports - 2, 4
- Laser Type - FP only
- Interior Components - M: Modular, F: Fixed

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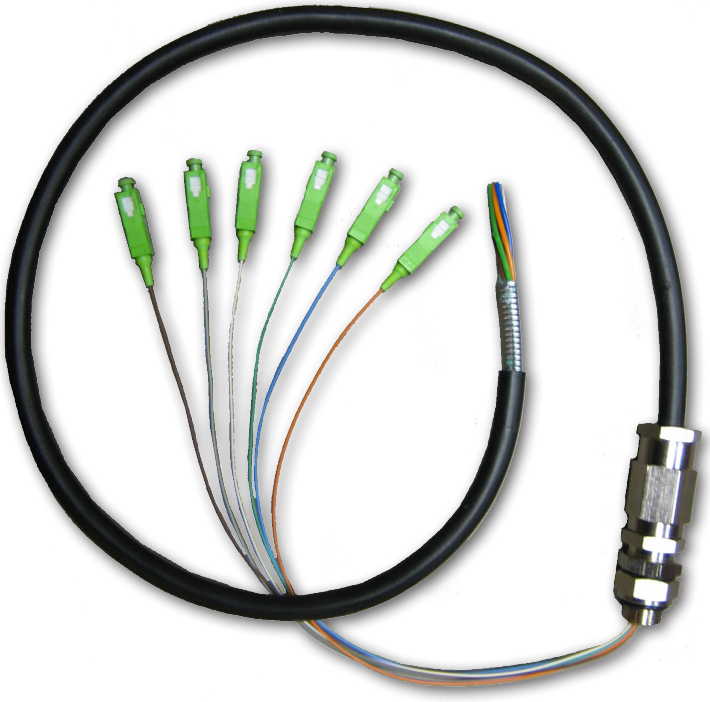
Specifications subject to change without notice

Node Service Cable

Key Features

- Multicom Node Service Cable utilizes a specialized 5/8″-24 feed-through adapter, featuring an anti-twist coupling. The anti-twist feature allows the coupling body to be secured to the outdoor housing, without twisting the cable.
- Assemblies come standard in 16.5′ (5m) lengths with six fibers and six SC/APC connectors, but can be custom built to specifications with all variation of lengths and connector options available.
- Corning fiber
- Loose tube
- Armored
- Fully water blocked
- PE outer jacket



Description

Multicom armored Node Service Cable assemblies are used to link the fiber optic transport cable directly to the fiber optic processing equipment. This connection is critical and requires an environmental seal between the cable and the node housing.

MNSC-xM-xF-xC-xx/xxx

- Connector Type - Ex: SC/APC
- Connectors - x=Number of connectors
- Fibers - x=Number of fibers
- Meters - x=Length in meters

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MULTICOM PRODUCTS

SECTION B

FIBER MANAGEMENT

JUMPERS

- SINGLE MODE
- MULTIMODE - See Section F - IT/Data Products

PIG TAILS

MATING SLEEVES

ATTENUATORS

SPLITTERS

- TUBE
- BOX
- RACK MOUNT
- CASSETTE (LGX)
- LGX CHASSIS
- WDM (LGX) - See Section C - Fiber Optic Headend & Termination

SPLICE & PATCH ENCLOSURES

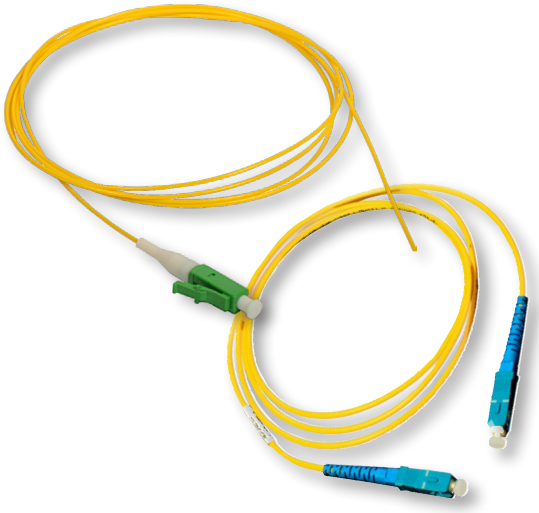
- RACK MOUNT
- ADAPTER PANELS

SFP

- SFP - See Section F - IT/Data Products
- SFP+ - See Section F - IT/Data Products

Fiber Optic Jumpers and Pigtails

Multicom manufactures a large selection of Singlemode and Multi-Mode fiber optic Jumpers and Pigtails with a selection of industry standard connectors.



Features:

» Custom lengths
» Corning fiber used in all jumpers and pigtails
» 2mm jacket for more flexibility and capacity in tight spaces
» Meets all standard panel interfaces
» All cables serialized and test results are recorded
» High bandwidth, high tensile strength, small bend radius

Applications:

» Trunking lines direct to telecommunication closets
» Fiber patch panel within communication closets
» Links between electronic equipment and fiber patch panel

CORNING

Don't Settle for Less than the Highest Quality - We Use Only Corning Fiber-Based Fiber Optic Passives

Specifications for FC, ST, and SC Types:

Fiber Type	SM			MM
Contact Mode	PC	UPC	APC	PC
Insertion Loss (dB)	≤0.2	≤0.2	≤0.2	≤0.3
Temperature (ºC)	-40 to +80	-40 to +80	-40 to +80	-40 to +80
Repeatability (dB)	≤0.1	≤0.1	≤0.1	≤0.1
Interchange (dB)	≤0.2	≤0.2	≤0.2	≤0.2
Return Loss (dB)	≥45	≥50	≥65	≥35
Cable Diameter	2mm, (0.9mm and 3mm also available)			
Ferrule Material	Zirconia Ceramic			

FOJ-2M-SM-SC/APC-S-SC/APC

- Second Connector Type
- S = Simplex, D = Duplex
- First Connector Type
- SM = Singlemode, MM = Multi-Mode
- Blank if 1, or Number of Fibers
- xM = Length in Meters, xFT = Length in Feet
- FOJ = Fiber Optic Jumper, FOP = Fiber Optic Pigtail

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Mating Sleeves and Attentuators

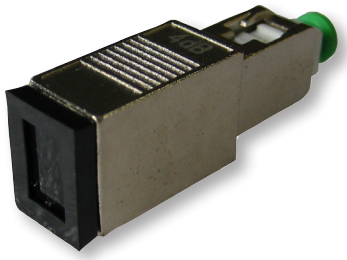
Mating Sleeves with high-precision sleeves enable reliable mating of the ferrule diameters, ensuring low insertion and return loss.

Available with all standard connectors.

FOATT-SC/APC-3DB

- nDB = Number of Decibels (dB)
- Connector Type
- Fiber Optic Attenuator

Multicom's line of fiber optic passives also include high quality and cost-effective splitters including tube, box, cassette, and rack-mounted varieties. See our web site for details.



Fixed-value **Attenuators** reduce the signal level without appreciably distorting the waveform.

Available in 1 dB increments and all standard connectors.

FOMS-SC/APC

- Connector Type
- Fiber Optic Mating Sleeve

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Fiber Optic Splitters

Multicom's fiber optic splitters are available in a wide range of styles and sizes to split or combine light with minimal loss. All splitters are manufactured using a very simple process that produces reliable, low-cost devices. Splitters can be fabricated in custom fiber lengths and with any type of connector.

Features

- LGX Compatible
- Low Insertion Loss
- Even or Various Splitting Ratios
- 1x2 through 1x64 Configurations
- Bidirectional, Compact
- Environmentally Stable

Applications

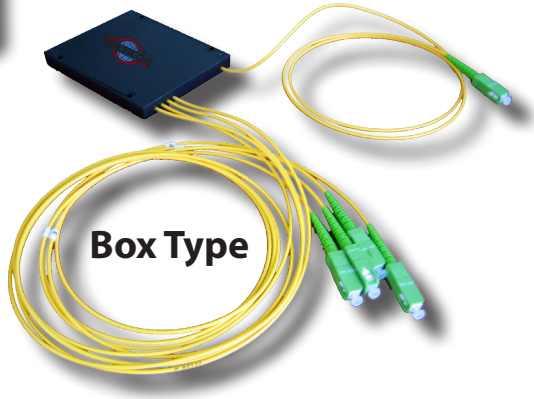
- Long-Haul Tele/Data Communications
- Fiber Optic Equipment and Systems
- CATV Systems
- Local Area Network, PON, and FTTH
- Fiber Sensors

Multicom manufactures a large variety of splitters:

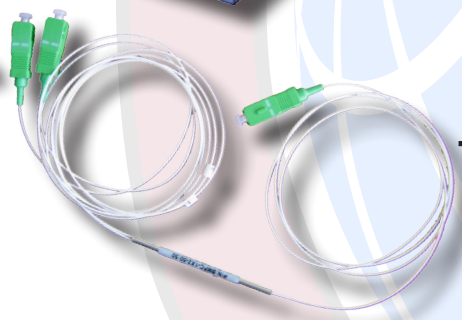
Single and Double Wide LGX Cassette

Installed into a rack-mountable chassis
P/N: MUL-FOCH-CASS

Rack Mount
1x2 thru 1x64



Box Type



Tube Type

These splitters are immune to electro-magnetic interference (EMI), consume no electrical power, and do not add noise to the system design.

FOSPL-C-1/8-60/40-SM-SC/APC

- Connector Type
- S=Single, M=Multi (Mode)
- 60% Split/40% of Split, or E=Even
- Number of Splits (1x8)
- T=Tube, B=Box, C=Cassette, RM=Rack Mount
- Fiber Optic Splitter

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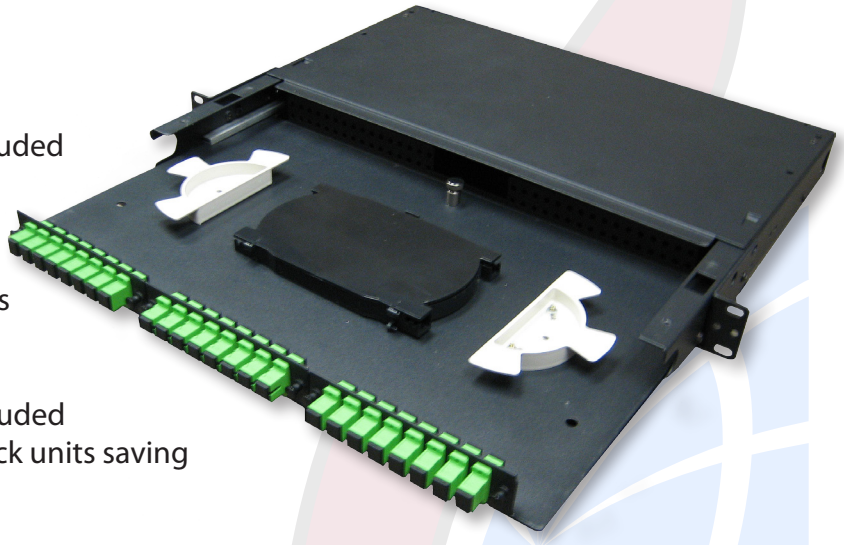
1 RU Rack Mount - Custom Loaded Patch and Splice Enclosure

Product Specifications

Key Features

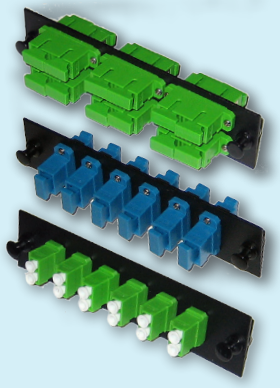


- Custom loaded to your specific configuration
- 1.5M Pigtails included in loaded enclosures
- Splice tray and cable management spools included
- Accepts up to three LGX Adapter Panels
- Hinged front and rear Plexiglass doors
- Side patch and exit ports
- Fully removable sliding-out tray for easy access
- 16 gauge cold rolled steel construction
- Powder coat black finish
- Assorted strain relief and fiber accessories included
- Provides higher patch field density in fewer rack units saving valuable rack space

Description

The Multicom 1 RU Patch and Splice Enclosure is designed to accept up to 3 LGX Adapter Panels with the ability to use a full array of connector types. This enclosure offers a flexible solution, enabling the incorporation of a multi-functional chassis that allows easy access during installation or re-work with no disturbance of the existing fiber cable - making this one of the most flexible enclosures on the market.

Characteristics	Specification
Suitable for module type	LGX Adapter Panels
Number of module positions	3 - Can be Simplex/Duplex
Material	16 gauge, cold-rolled steel
Material finish	Black, powder coated
Operating temperature	-40 to 140°F (-40 to 60°C)
Height	1.75" (44.4mm)
Width	17" (432mm)
Depth	14" (356mm)
Net weight	13lbs. (5.9kg)



Multicom's Fiber Optic Adapter Panels are compatible with, and can be custom pre-loaded into Patch and Splice Enclosures. Adapter Panels are available in all connector formats.

MUL-RM-8F-PS-SC/APC-S

- S = Simplex, D = Duplex
- F/O Connector Type
- PS = Patch and Splice, PO = Patch Only
- Number of Fibers - xF
- RM = Rack Mount, WM = Wall Mount
- Multicom

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* Specifications subject to change without notice

Small Form Factor Pluggable (SFP) Optical Transceiver Modules

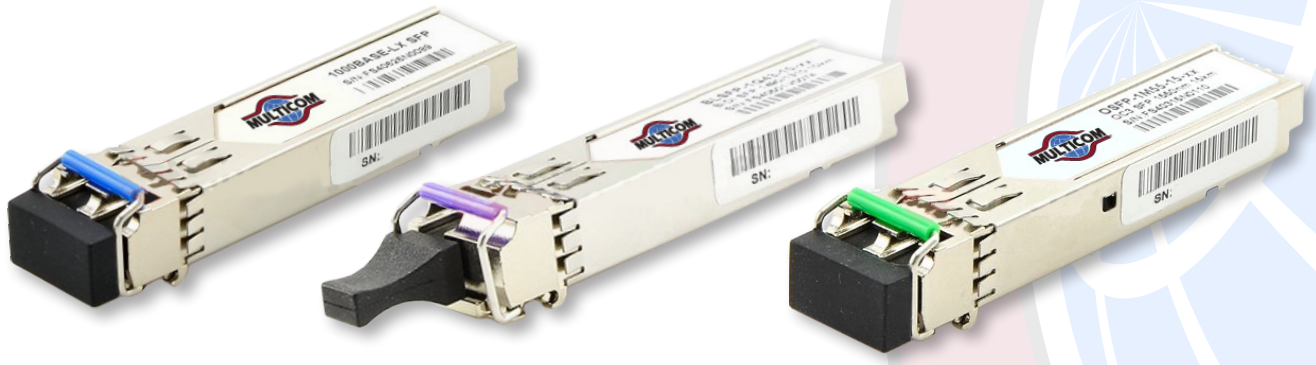
Multicom SFP Optical Transceiver Modules give you a wide variety of Ethernet connectivity options for data center, enterprise wiring closet, and service provider transport applications. Multicom stocks a diverse range of industry-compliant SFP modules in the configuration you need for Ethernet deployments in any networking environment.

Key Features:

- Industry's smallest 10G form factor for greatest density per chassis
- Hot-swappable input/output device that plugs into an Ethernet SFP port of a any compatible switch (no need to power down if installing or replacing)
- Supports "pay-as-you-populate" model for investment protection and ease of technology upgrading and migration
- Digital optical monitoring capability for strong diagnostic capabilities
- Optical interoperability with 10GBASE XENPAK, 10GBASE X2, and 10GBASE XFP interfaces on the same link

Applications:

- Fast Ethernet
- SDH/SONET
- ATM Switches and Routers
- Other Optical Links



The Multicom Part#s below represent the majority of SFP configurations. However additional variations are available including connector type, transmission distance and manufacturer-specific SFPs.

MSFP MSFP+ MXFP	-	M S	-	SLC DLC	-	85 13 15	-	55 10 20

Other manufacturers include:
Cisco, Juniper, Televes, Olson, and more

- Transmission Distance: 550M, 10KM or 20KM
- Wavelength: 850, 1310 or 1550nm
- Connector Type: Single LC or Dual LC
- Multimode or Single Mode
- Multicom Transceiver Type

Example: MSFP-S-DLC-13-10 is a Single Mode, Dual LC Connector SFP with 1310nm wavelength going up to 10KM

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MULTICOM PRODUCTS

SECTION C

FIBER OPTIC HEADEND & TERMINATION

HEADEND

TRANSMITTERS

- 1310
- 1550 - DIRECT MODULATED
- 1550 - EXTERNAL MODULATED

EDFA

WDM - See Section B - Fiber Management

HEADEND RETURN PATH RECEIVERS

OPTICAL TRANSPORT CHASSIS (OTC) SYSTEM

- OPTICAL TRANSPORT CHASSIS
- 1310NM TRANSMITTER MODULE
- 1550NM TRANSMITTER MODULE
- RETURN PATH RECEIVER MODULE
- EDFA MODULE

CHANNEL ELIMINATION FILTER

RACK PANEL - M-IRH-PANEL

RACK MOUNT MULTISWITCH - MUL-MS34-CH/K

TERMINATION

- TRANSMIT & RECEIVE HIGH POWER NODE
- TRANSMIT & RECEIVE NODE
- RECEIVE ONLY NODE
- RFOG ONU

1310nm Intelligent Direct Modulated Optical Transmitter

Key Features

- High linearity, optically isolated, distributed AM feedback ORTEL DFB laser
- Transmits NTSC, PAL, ATSC, and related digital information for CATV and/or telephony applications
- Available in 7.7, 10, 12, 14 and 14.9 dBm output power
- 47-1003MHz RF input bandwidth
- Front panel RF test point
- Microprocessor-controlled diagnostics, front panel LCD display and controls
- Automatic Gain Control (AGC) and Manual Gain Control (MGC) override
- Integrated SNMP network interface
- Dual hot-pluggable redundant power supplies

Description

The MUL-1310TX-V-1-X intelligent directly modulated optical transmitter is mainly used in 1310nm optical fiber transmission systems. It uses an ORTEL DFB laser with an optical output power of 7.7, 10, 12, 14 and 14.9 dBm, and advanced intelligent electronic predistortion compensation technology.

This intelligent directly modulated optical transmitter is one of the most important components to build a CATV-HFC network. It is mainly used to transmit analog video, digital television signal, telephone voice signal and data (or compressed data) signal. This Multicom product provides a high quality low cost transmitter solution for a 1310nm optical fiber CATV system.

MUL-1310TX-V-1-10

- Output Power (dBm) - 7.7, 10, 12, 14, 14.9
- Output Port(s)
- Factory
- Transmitting Wavelength (nm) - 1310, 1550
- Multicom

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* Specifications subject to change without notice

1550nm 6dB Intelligent Direct Modulated Optical Transmitter

Key Features

- High linearity, optically isolated, distributed AM feedback ORTEL DFB laser with an optical output power of 6dBm
- Transmits NTSC, PAL, ATSC, and related digital information for CATV and/or telephony applications
- 47-1003 MHz RF input bandwidth
- Front panel RF test point
- Microprocessor-controlled diagnostics, front panel LCD display and controls
- Automatic Gain Control (AGC) and Manual Gain Control (MGC) override
- Integrated SNMP network interface
- Dual hot-pluggable redundant power supplies

Description

The MUL-1550TX-V-1-6 intelligent directly modulated optical transmitter is mainly used in 1550nm optical fiber transmission systems. It uses an ORTEL DFB laser with an optical output power of 6dBm, and advanced intelligent electronic predistortion compensation technology.

This intelligent directly modulated optical transmitter is one of the most important components to build a CATV-HFC network. It is mainly used to transmit analog video, digital television signal, telephone voice signal and data (or compressed data) signal. This Multicom product provides a high quality low cost transmitter solution for a 1550nm optical fiber CATV system.

MUL-1550TX-V-1-6

- Output Power (dBm) - 6, 10
- Output Port(s)
- Factory
- Transmitting Wavelength (nm) - 1310, 1550
- Multicom

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1550nm Externally Modulated Optical Transmitter

Key Features

- Two high linearity, optically isolated, distributed AM feedback ORTEL DFB lasers capable of transmitting 7, 8, 9 and 10 dBm each
- Transmits NTSC, PAL, ATSC, and related digital information for CATV and/or telephony applications
- 47-1003 MHz RF input bandwidth
- Front panel RF test point
- Microprocessor-controlled diagnostics, front panel LCD display and controls
- Automatic Gain Control (AGC) and Manual Gain Control (MGC) override
- Integrated SNMP network interface
- Dual hot-pluggable redundant power supplies

Description

The Multicom MUL-1550TXEM-V-2 Externally Modulated Optical Transmitter is a state-of-the-art high-performance fiber optic transmitter specially developed for CATV signal distribution in HFC networks, and the long-distance transmission of cable phone and cable data. Optimized for a variety network applications, it is packaged in a convenient 1 RU housing. This two-ORTEL DFB laser transmitter couples the optical output powers of 7, 8, 9 and 10dBm each, with low optical linewidth resulting in unmatched performance.

The optical modulator, combined with proprietary predistortion circuitry, provides advanced features such as built-in field adjustable SBS control and electronic dispersion compensation allowing these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

MUL-1550TXEM-V-2-10

- Output Power (dBm) - 7, 8, 9, 10
- Output Port(s)
- Factory
- Transmitting Wavelength (nm) - 1550
- Multicom

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1550nm EDFA

Key Features

- Automatic control of the output optical power
- Output optical power attentuation is adjustable
- High-performance erbium doped fiber amplifier, high efficiency energy conversion
- Advanced 32 bit processor, with automatic monitoring circuitry. Accurately monitors and controls the optical output power and various parameters of the pump laser, ensures stable optical output power and can effectively extend the working life of the pump laser.
- Front panel LCD display shows all status parameters and provides ability to set parameters on the EDFA
- 1RU standard 19" rackmount cabinet, equipped with standard IEEE802.3 10Base-T Ethernet interface and RS232 interface, for network management monitoring and control console.

Description

The Multicom 1550nm Erbium Doped Fiber Amplifier (EDFA) is a low noise 1550nm optical amplifier, designed using advanced optical principles. The hot pluggable, redundant power EDFA is designed to amplify 1550nm optical signals to increase the optical transmission distance over fiber, and can be used in conjunction with the Multicom 1550nm optical transmitters.

The MUL-EDFA-V-1 is flexible enough to perform in numerous upstream and downstream applications, including supertrunk transmission, hub interconnects and 1310/1550nm overlays. All internal laser parameters and monitoring functions are under microprocessor control. The front panel LCD displays status information related to laser operation, temperatures, laser pump status, comprehensive alarm information, as well as SNMP configuration. The units are packaged in slim 1.75-inch high (1RU), 19-inch aluminum rack-mounted enclosures.

MUL-EDFA-V-1-18

- Output Power (dBm) - 18, 24
- Output Port(s)
- Factory
- Erbium Doped Fiber Amplifier
- Multicom

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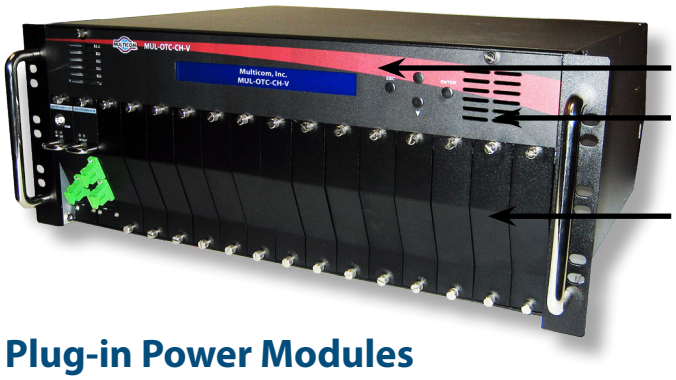
Optical Transport Chassis

Description

The MUL-OTC-CH-V is an Optical Transport Chassis with universal CATV applications, high density, and powerful functionality and flexibility. The galvanized steel 4RU module shelf, CMM Display and Control Module, and Plug-in Power Modules are the basis of this product. The standard 19 inch shelf has 16 universal slots and fan cooling. The plug-in CMM Status Display and Control Module has a LCD status display and front panel pushbutton operation. Installing the Plug-in Application Modules into the shelf and putting the shelf into the cabinet creates an entire HFC headend in very little space.



Plug-in Power Modules

The Plug-in Power Modules convert the AC power (DC optional), input power to supply the Application Modules in the OTC shelf. These modules use the newest switching power supply techniques, coupled with a high performance cooling design, to ensure high reliability. Each OTC system includes two redundant Plug-in Power Modules.

Plug-in Application Modules

Depending on optical fiber network design requirements, users can select the following optional Application Modules:

- MUL-OTC-1310TX-V-X - 1310nm Forward Path Optical Transmitter Module
- MUL-OTC-1550TX-V-X - 1550nm Forward Path Optical Transmitter Module
- MUL-OTC-RPR-V - Forward Path Optical Receiver Module
- MUL-OTC-RPR4-V - Four-channel Return Path Optical Receiver Module
- MUL-OTC-EDFA-V-X - EDFA Optical Amplifier Module
- MUL-OTC-OS-V - Optical Switch Module
- MUL-OTC-PRFA-V - Pre RF Amplifier Module
- MUL-OTC-RFS-V - RF Switch Module

Technical Specifications

Item	Unit	Technical Parameters
Shelf dimension	mm	483W x 176H x 420D - 4RU, 19" shelf
Ambient temperature range	°C	-25 ~ +55 (-13 ~ +131°F)
Humidity range	%	0 ~ 95 Non-condensing environment

MUL-OTC-CH-V

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1310nm Optical Transmitter Module

Key Features

- High linearity, optically isolated, distributed AM feedback ORTEL DFB laser with optical output power options of 3, 6, 7.8, 10, 12 and 14.2dBm
- Transmits NTSC, PAL, ATSC, and related digital information for CATV and/or telephony applications
- 47-1003 MHz RF input bandwidth
- Microprocessor-controlled diagnostics with digital processing technology and advanced RF pre-distortion circuit
- Front panel SC/APC optical connectors allowing for ease in connecting optic fiber and cleaning optical connectors
- Front panel LEDs display laser operation and RF input status

MUL-OTC-1310-V-X

MUL-OTC-CH-V

Description

The Multicom MUL-OTC-1310TX-V intelligent directly modulated optical transmitter module is designed to be used in the Multicom Optical Transport Chassis MUL-OTC-CH-V, and is mainly used in 1310nm optical fiber transmission systems. This 1310nm Module uses an ORTEL DFB laser with an optical output power options of 3, 6, 7.8, 10, 12 and 14.2dBm, and advanced intelligent electronic predistortion compensation technology.

This intelligent directly modulated optical transmitter is one of the most important components to build a CATV-HFC network. It is mainly used to transmit analog video, digital television signal, telephone voice signal and data (or compressed data) signal. This Multicom product provides a high quality low cost transmitter solution for a 1310nm optical fiber CATV system.

The Multicom 1310nm Optical Transmitter Module is a member of the Multicom OTC (Optical Transport Chassis) product family that includes the CMM Display and Control Module and dual redundant Power Modules in a 16 slot chassis. The OTC also supports the hot-swappable 1550nm Optical Transmitter Modules and EDFA modules, as well as alternative modules to meet your network needs.

MUL-OTC-1310TX-V-X

- X — Output Power (dBm) - 3, 6, 7.8, 10, 12, 14.2
- V — Factory
- 1310TX — TX Wavelength (nm) - 1310
- OTC — Optical Transport Chassis
- MUL — Multicom

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1550nm Optical Transmitter Module

Key Features

- High linearity, optically isolated, distributed AM feedback ORTEL DFB laser with optical output power options of 3, 6, 7.8, 10, 12 and 14.2dBm
- Transmits NTSC, PAL, ATSC, and related digital information for CATV and/or telephony applications
- 47-1003 MHz RF input bandwidth
- Microprocessor-controlled diagnostics with digital processing technology and advanced RF pre-distortion circuit
- Front panel SC/APC optical connectors allowing for ease in connecting optic fiber and cleaning optical connectors
- Front panel LEDs display laser operation and RF input status

MUL-OTC-1550TX-V-X

MUL-OTC-CH-V

Description

The Multicom MUL-OTC-1550TX-V intelligent directly modulated optical transmitter module is designed to be used in the Multicom Optical Transport Chassis MUL-OTC-CH-V, and is mainly used in 1550nm optical fiber transmission systems. This 1550nm Module uses an ORTEL DFB laser with optical output power options of 3, 6, 7.8, 10, 12 and 14.2dBm, and advanced intelligent electronic predistortion compensation technology.

This intelligent directly modulated optical transmitter is one of the most important components to build a CATV-HFC network. It is mainly used to transmit analog video, digital television signal, telephone voice signal and data (or compressed data) signal. This Multicom product provides a high quality low cost transmitter solution for a 1550nm optical fiber CATV system.

The Multicom 1550nm Optical Transmitter Module is a member of the Multicom OTC (Optical Transport Chassis) product family that includes the CMM Display and Control Module and dual redundant Power Modules in a 16 slot chassis. The OTC also supports the hot-swappable 1310nm Optical Transmitter Modules and EDFA modules, as well as alternative modules to meet your network needs.

MUL-OTC-1550TX-V-X

- Output Power (dBm) - 3, 6, 7.8, 10, 12, 14.2
- Factory
- TX Wavelength (nm) - 1550
- Optical Transport Chassis
- Multicom

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EDFA
Optical Amplifier Module

Key Features

- High-performance Erbium Doped Fiber Amplifier with a JDSU Pump Laser for high efficiency energy conversion
- Automatic monitoring circuitry accurately monitors and controls the optical output power, temperature and various parameters of the pump laser ensuring stable optical output power effectively extend the working life of the pump laser.
- Input and output optical power detection to adjust the laser pump automatically and keep the output optical power of the EDFA module constant

MUL-OTC-EDFA-V-X

MUL-OTC-CH-V

Description

The Multicom MUL-OTC-EDFA-V-X 1550nm Erbium Doped Fiber Amplifier (EDFA) Module is a low noise 1550nm optical amplifier designed to be used in the Multicom Optical Transport Chassis MUL-OTC-CH-V. Available optical output levels range from 13 to 24dBm.

This hot pluggable EDFA is designed to amplify 1550nm optical signals to increase the optical transmission distance over fiber, and can be used in conjunction with the Multicom 1550nm Optical Transmitter Module.

The EDFA Module includes input and output optical power detection to adjust the laser pump automatically and keep the output optical power of the EDFA module constant. Internal control circuitry accurately maintains the output power and temperature of the laser. This module communicates with the CMM status control and display unit by A/D sampling, a switching circuit, and a communication interface circuit.

The Multicom EDFA Optical Amplifier Module is a member of the Multicom OTC (Optical Transport Chassis) product family that includes the CMM Display and Control Module and dual redundant Power Modules in a 16 slot chassis. The OTC also supports the hot-swappable 1310nm and 1550nm Transmitters Modules and Four-Channel Return Path Receiver Module, as well as alternative modules to meet your network needs.

MUL-OTC-EDFA-V-X

- X — Output Power (dBm) - 13-24
- V — Factory
- EDFA — EDFA Module
- OTC — Optical Transport Chassis
- MUL — Multicom

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Four-Channel Return Path Optical Receiver Module

Key Features

- Wide spectral bandwidth supporting 1100nm through 1600nm optical receiving wavelength range
- High density chassis design with 4 HFC RPRs per module for up to 64 RPRs in a 4RU shelf
- Remote management using SNMP allows easy integration to standard management systems
- Status indicators, RF monitor and hot-swappable design for easy diagnostics & maintenance

MUL-OTC-RPR4-V

MUL-OTC-CH-V

Description

The Multicom MUL-OTC-RPR4-V Four-channel Return Path Optical Receiver Module is used for receiving return path television video and audio, digital television, and voice and data (or compressed data) signals. It uses E-O optical receiving devices and the signal amplifier incorporates a low noise GaAs module to ensure a high quality signal output.

Each Return Path Optical Receiver Module includes four optical receivers to receive four optical inputs and convert them into CATV RF, and then pre-amplify them independently. The RPR Module communicates with the CMM Display and Control Module (CMM) by A/D sampling, a switching circuit, and a status communication interface circuit.

The Multicom Four Channel Return Path Receiver Module is a member of the Multicom OTC (Optical Transport Chassis) product family that includes the CMM Display and Control Module and dual redundant Power Modules in a 16 slot chassis. The OTC also supports the hot-swappable 1310nm and 1550nm Transmitters Modules and EDFA modules, as well as alternative modules to meet your network needs.

MUL-OTC-RPR4-V

- Factory
- Channels
- Return Path Receiver
- Optical Transport Chassis
- Multicom

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Specifications subject to change without notice