POLYTRON powered by ASCENT Communication Technology

Optical Passives for HFC, FTTx & RFoG Solutions

- Full Line of Optical Passives and Accessories
- WDM/CWDM/DWDM
- Optical Splitters
- Dispersion Compensation Module (DCM)
- ITU G.694 standard compliant
- Excellent Wavelength Stability
- Cost Effective Solution
- High Port Isolation
- Low Insertion Loss Flexibility for Customization

ACT offers a complete line of DWDMs, CWDMs, WDMs, OADMs, Couplers, DCM, Optical Shelf and Accessories. The Wavelength Division Multiplexers (WDMs) feature low insertion loss, high isolation and excellent wavelength stability.

The CWDM/DWDMs are designed to multiplex (mux) or de-multiplex (demux) optical signals in full optical spectrum with CWDM/DWDM multiple channels at an ITU standards ITU-T defined spacing. It comes as different form factor packages, 1RU 19" rack-mount chassis, standard LGX modules or flat box assemblies.

ACT also developed special range of WDM units which are suitable for HFC, FTTx (P2P, P2MP), RFOG (Radio Frequency over Glass) applications, permitting DOCSIS and HFC to operate over a EPON/GPON compliant Passive Optical Network (PON) as commonly deployed for Fibre to the Home (FTTH) developments solution in high density FTTX networks to bring the video services to business and home premises.

Precautions

The splitters could be interconnected with optical transmitters and/or EDFAs. In these cases, please node the warnings on laser radiation!

Warning

Exposure to class 1M laser radiation is possible. Access should be restricted to trained personnel only. Do not view exposed fiber or connector ends when handling optical equipment.

- Ensure adequate cooling and ventilation as specified.
- The installation and operation manual should be read and understood before units are put into use.
- **Always replace protective caps on optical connectors when not in use.**
- The typical connectors fitted are SC/APC 8°. **Note:** 8° angle polished connectors must be used.

Cleaning

Use only a damp cloth for cleaning the front panel. Use a soft dry cloth to clean the top of the unit.

Do not use spray cleaner of any kind.

Overloading

Overloading wall outlets and extension cords can result in a risk of fire or electric shock.

Use approved electrical cords.

Damage requiring service

Unplug unit and refer servicing only to Ascent Communication Technology qualified service personnel.

Servicing

Do not attempt to service this unit yourself. Refer all servicing only to Ascent Communication Technology qualified service personnel.

General Reminders and Warnings

Review these reminders and warnings before you inspect and clean your fiber-optic connections.

Important reminders

- **Always turn off any laser sources before you inspect fiber connectors, optical components, or bulkheads.**
- Always make sure that the cable is disconnected at both ends and that the card or pluggable receiver is removed from the chassis.
- **Always wear the appropriate safety glasses when required in your area. Be sure that any laser safety glasses meet federal and state regulations and are matched to the lasers used within your environment.**
- Always inspect the connectors or adapters before you clean.
- Always inspect and clean the connectors before you make a connection.

- Always use the connector housing to plug or unplug a fiber.
- **Always keep a protective cap on unplugged fiber connectors.**
- Always store unused protective caps in a resealable container in order to prevent the possibility of the transfer of dust to the fiber. Locate the containers near the connectors for easy access.
- Always discard used tissues and swabs properly.

Warnings

- Never use alcohol or wet cleaning without a way to ensure that it does not leave residue on the endface. It can cause damage to the equipment.
- **Never look into a fiber while the system lasers are on.**
- Never clean bulkheads or receptacle devices without a way to inspect them.
- Never touch products without being properly grounded.
- **Never use unfiltered handheld magnifiers or focusing optics to inspect fiber connectors.**
- **Never connect a fiber to a fiberscope while the system lasers are on.**
- Never touch the end face of the fiber connectors.
- Never twist or pull forcefully on the fiber cable.
- Never reuse any tissue, swab, or cleaning cassette reel.
- Never touch the clean area of a tissue, swab, or cleaning fabric.
- Never touch any portion of a tissue or swab where alcohol was applied.
- Never touch the dispensing tip of an alcohol bottle.
- Never use alcohol around an open flame or spark; alcohol is very flammable.

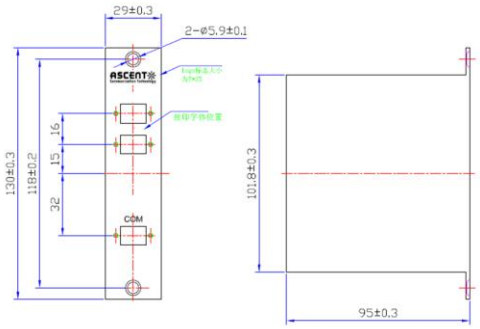
Optical Splitters Specifications 1x2

ACT Optical Passives Optical Splitters (AOS)

Optical Specifications	
Operating Wavelength	1260 nm to 1650 nm
Configuration	1x2
Insertion Loss	Varies. See below chart
Uniformity	≤0.6 dB
Directivity	≥50 dB
Polarization Dependent Loss	≤0.1 dB
Return Loss	≥55 dB
Connectors	SC/APC, SC/PC, LC/APC, LC/PC
Fiber Types	900 µm, 2 mm, or 3 mm
General Specifications	
Operating Temperature	-20 °C to +70 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5 % to 95 % RH (non-condensing)
Dimensions (W × D × H)	LGX, Splice Tube or Flat Box (ABS): 100 mm × 80 mm × 10.5 mm
Weight	Weight varies depending on model.

Split Ratio	**Typical Insertion Loss (dB)**
50/50	3.6/3.6
55/45	3.1/4.3
60/40	2.8/4.8
65/35	2.3/5.3
70/30	2.1/6.1
75/25	1.6/7.2
80/20	1.3/8.0
85/15	1.2/9.6
90/10	0.9/11.3
95/05	0.6/15

Note: Contact ACT for different packaging options. Losses excluding connector loss (a pair of connector loss max: 0.3 dB)



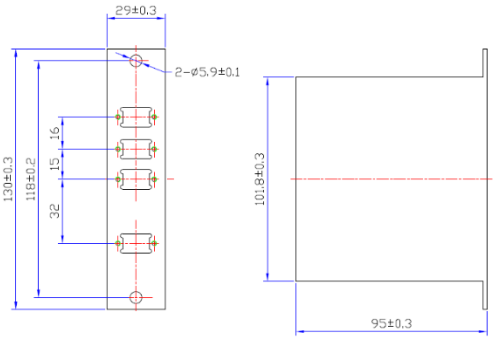
Optical Splitter Specifications 1x3

ACT Optical Passives Optical Splitters (AOS)

Optical Specifications	
Operating Wavelength	1260 nm to 1650 nm
Configuration	1x3
Insertion Loss	Varies. See below chart
Uniformity	≤0.6 dB
Directivity	≥50 dB
Polarization Dependent Loss	≤0.2 dB
Return Loss	≥55 dB
Connectors	SC/APC, SC/PC, LC/APC, LC/PC
Fiber Types	900 µm, 2 mm, or 3 mm
General Specifications	
Operating Temperature	-20 °C to +70 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5 % to 95 % RH (non-condensing)
Dimensions (W × D × H)	LGX, Splice Tube, or Flat Box (ABS): 100 mm × 80 mm × 10.5 mm (≤8 output ports), 140 mm × 115 mm × 18 mm (>8 output ports)
Weight	Weight varies depending on model

Split Ratio	**Typical Insertion Loss (dB)**
80/10/10	1.3/11.4/11.4
70/15/15	2/9.7/9.7
60/20/20	2.8/8/8
50/25/25	3.7/7.1/7.1
40/30/30	4.3/5.6/5.6
33/33/33	5.2/5.2/5.2
30/35/35	5.6/4.9/4.9

Note: Contact ACT for different packaging options. Losses excluding connector loss (a pair of connector loss max: 0.3 dB)



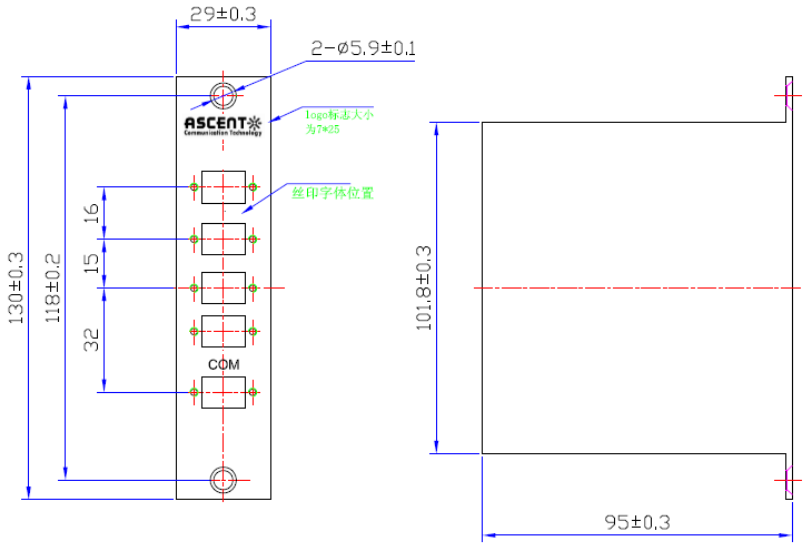
Optical Splitters Specifications 1x4, 1x5, 1x6, 1x8

ACT Optical Passives Optical Splitters (AOS)

Optical Specifications	
Operating Wavelength	1260 nm to 1650 nm
Configuration	1x4, 1x5, 1x6
Insertion Loss	Varies. See below chart
Uniformity	≤0.6 (1x4) ≤0.8 (1x5, 1x6) ≤1.8 (1x8)
Directivity	≥50 dB
Polarization Dependent Loss	≤0.3 dB
Return Loss	≥ 55 dB
Connectors	SC/APC, SC/PC, LC/APC, LC/PC
Fiber Types	900 µm, 2 mm, or 3 mm
General Specifications	
Operating Temperature	-20 °C to +70 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5 % to 95 % RH (non-condensing)
Dimensions (W × D × H)	LGX, Splice Tube or Flat Box (ABS): 100 mm × 80 mm × 10.5 mm
Weight	Weight varies depending on model.

Split ratio	**Typical Insertion Loss (dB)**
25/25/25/25	6.8
1x5 Balanced	7.8
1x6 Balanced	8.7
1x8 Balanced	10.2

Note: Contact ACT for different packaging options. Losses excluding connector Loss (a pair of connector loss max: 0.3 dB)



Optical Splitters Specifications 1x16, 1x32, 1x64

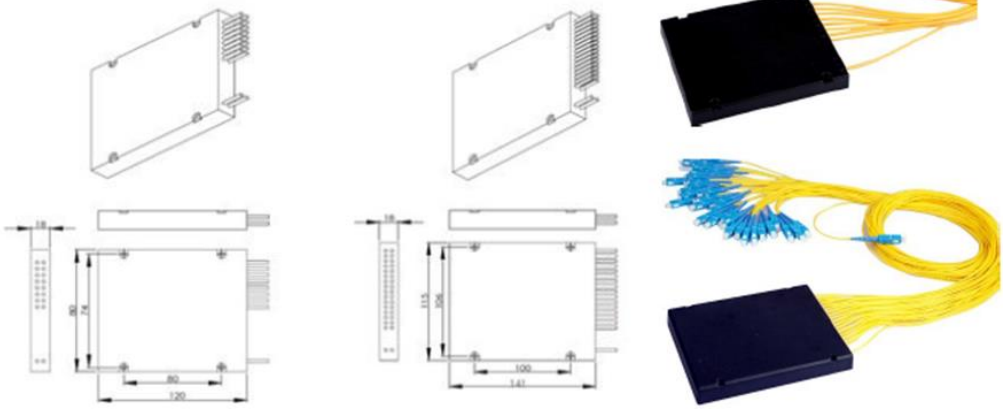
ACT Optical Passives Optical Splitters (AOS)

Optical Specifications	
Operating Wavelength	1260 nm to 1650 nm
Configuration	1x16, 1x32, 1x64
Insertion Loss	Varies. See below chart
Uniformity	≤1.2 dB (1x16); ≤1.5 dB (1x32); ≤2.5 dB (1x64)
Directivity	≥55 dB
Polarization Dependent Loss	≤0.4 dB
Return Loss	≥ 55 dB (Bare Fiber or APC)
Connectors	SC/APC, SC/PC, LC/APC, LC/PC
Fiber Types	900 µm, 2 mm, or 3 mm
General Specifications	
Operating Temperature	-20 °C to +70 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5 % to 95 % RH (non-condensing)
Dimensions (W × D × H)	LGX, Flat Box, or splice fiber tray
Weight	Weight varies depending on model.

Split ratio	Typical Insertion Loss (dB)	Max. Insertion Loss (dB)
1x16 Balanced	13	13.5
1x32 Balanced	16	16.9
1x64Balanced	19.5	21.0

Note: Contact ACT for different packaging options. Losses excluding connector Loss (a pair of connector loss max: 0.3 dB)

Port	1x16	2x16	1x32	2x32	1x64	2x64
L x W x H (mm)	120x80x18				140x114x18	



Optical Splitters Specifications 2x2, 2x4, 2x8, 2x16, 2x32, 2x64

ACT Optical Passives Optical Splitters (AOS)

Item		**Description**					
Operating Wavelength		1260 nm to 1650 nm					
Configuration		2x2, 2x4, 2x8, 2x16, 2x32, 2x64					
Type		**2x2**	**2x4**	**2x8**	**2x16**	**2x32**	**2x64**
Insertion Loss (dB)	Typ.	4.0	7.0	10.5	13.5	16.5	20.5
	Max.	4.1	7.4	10.8	14.3	17.3	20.7
Uniformity (dB)	Typ.	0.6	0.8	1.0	1.5	2.0	2.0
	Max.	0.8	0.8	1.5	2.0	2.5	2.5
PDL (dB)	Typ.	0.1	0.1	0.1	0.2	0.2	0.2
	Max.	0.2	0.2	0.3	0.4	0.4	0.4
Wavelength	Typ.	0.10	0.10	0.10	0.30	0.40	0.70
Dependent Loss (dB)	Max.	0.20	0.30	0.40	0.60	0.80	1.00
Temperature	Typ.	0.30	0.30	0.30	0.40	0.40	0.40
Dependent Loss	Max.	0.50	0.50	0.50	0.50	0.50	0.50
PLC Splitter Bare Fiber (mm)		4x4x55	4x4x55	4x4x55	4x7x60	4x7x60	4x7x60
PLC Splitter Blockless (mm)		4x4x55	4x12x60	4x12x60	4x12x80	6x20x80	6x20x80
PLC Splitter Module (mm)		100x80x10	100x80x10	100x80x10	120x80x18	120x80x18	141x115x18
Directivity		55 dB min.					
Return Loss		55 dB (50) min.					
Operating Temperature		-40 °C +85 °C					
Storage Temperature		-40 °C to +85 °C					
Fiber Length		1 m or customized					
Fiber Type		G652D, G657A or other					
Connector Type		Customized					
PLC-splitter-rack-mountable		19” 1U 2U rack-mounted box, LGX box, ODF box					

Note: Contact ACT for different packaging options. Losses excluding connector loss (a pair of connector loss max: 0.3 dB)

Optical Shelf and Frame Specifications

ACT Optical Passive Shelf and Optical Passive Distribution Frame

- Standard 19" cabinet design for convenient and quick installation.
- Specially-structured front-back latch of the cases facilitates easier adjusting and suitable for different kind of frame installation.
- Fiber can be led in from both the left and the right sides with complete front operations.
- Each module has a reliable restricting and positioning mechanism to ensure correct operations.
- Patent design for protecting bare fiber fusing point.
- 12 slots for the Shelf and 12 core fiber distribution module to utilize the place and shrink the box size
- Convenient cable fixing device

Optical Shelf Specifications

Material	1.5 mm thick cold-rolled sheet
Capacity	Up to 72 interconnectors or patches, 12 LGX modules (4RU)
Dimensions (W × H × D)	With mounting bracket 483 mm × 177 mm × 305 mm (4RU)
	With mounting bracket 483 mm × 44 mm × 320 mm (1RU)
Model Number	AOP-LGX-CH (4RU), AOP-LGX-CH-1RU (1RU up to 6 LGX Module),

Optical Distribution Frame Specifications

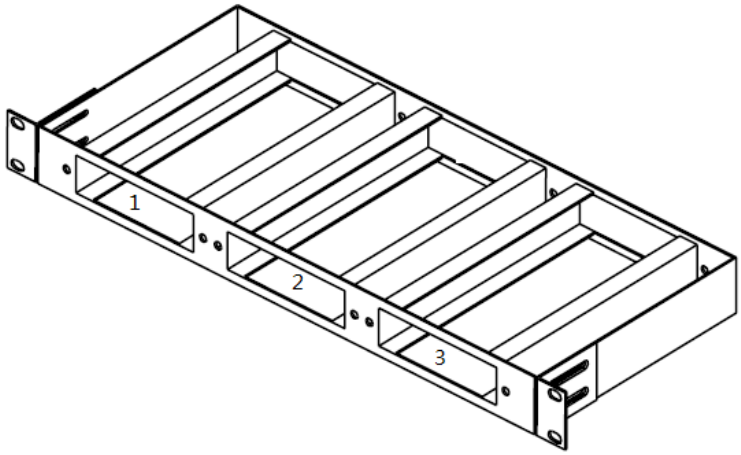
Material	1.5 mm thick cold-rolled sheet, 1 to 4RU
Insertion Loss	≤0.5 dB
Optical Connector	AS: SC/APC; US: SC/UPC; AF: FC/APC or UF: FC/UPC
Return Loss	PC ≥ 40 dB, UPC ≥ 50 dB, APC ≥ 60 dB
Model Number	AOP-ODF-DXX-YY (XX: 36, 48, 72, 96 Fiber, YY: Optical Connector)

General Specifications

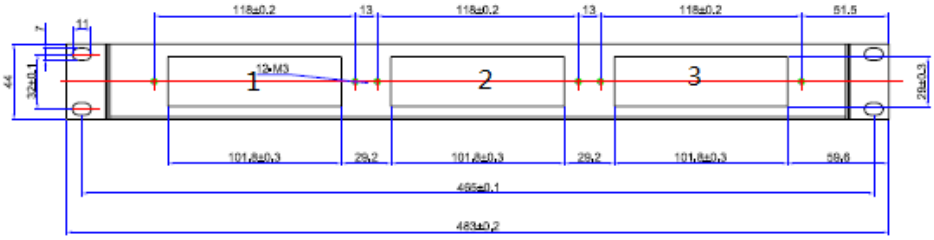
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5 % to 95 % RH (non-condensing)
Weight	Varies by model type

Note: Contact ACT for different packaging options. 8° angle polished

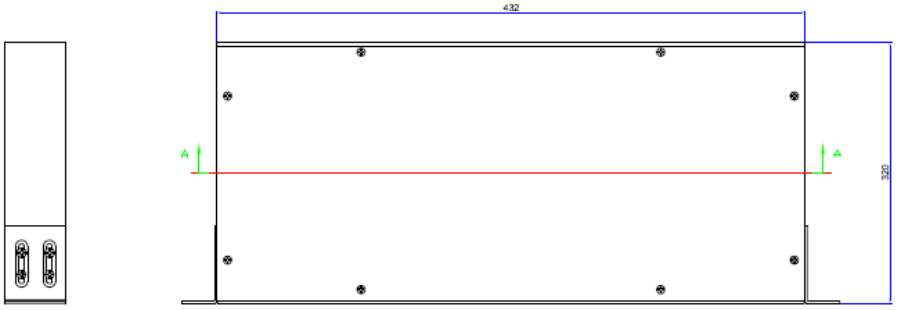
ACT Optical Passive Shelf 1RU (3 LGX slots) Mechanical Design Diagram:



Top View without Cover



Front View with Dimensions



Top and Side View

Optical Splice Enclosure Specifications

ACT Optical High Density Fiber Enclosure

- High strength, low weight, low cost, non-metallic shell
- Suitable for aerial, underground duct or direct burial applications
- Can be used in through, branch or mid span splice locations
- Holds up to 144 splices
- Cable entry/exit ports
- Spacious buffer tube storage system and fiber management trays
- Pressure testing valve and earth deriving device
- Integrated seal, air tight and water proof
- Ideal for cable repair
- RoHS compliant

Optical Splice Enclosure Specifications

Sealing Structure	Heat-shrinkable Sealing	Mechanical Sealing
Maximum Splices Capacity	24 to 144	240
Core Capacity per Tray	24	12, 24, 48
Cable Ports	9	6
Cable Diameter (max)	Ø38 mm	Ø17 mm
Dimensions (D × H)	Ø470 mm × 210 mm	Ø220 mm × 480 mm
Model Number	AOP-HSE-9-xx (xx: splices)	AOP-MSE-6-xx (xx: splices)

General Specifications

Operating Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
Operating Humidity	5 % to 95 % RH (non-condensing)
Weight	Varies by model type

Note: Contact ACT for different packaging options. 8° angle polished for all APC connectors.

Ordering Information

Contact ACT for the complete CWDM/DWDM/WDM/Optical Splitter offerings and other accessories.

Sample Configuration:

AOP-24-U-7-AE-0-9

Coarse Wavelength Division Multiplexer in 19" sub-rack 1RU for 24 x Point to Point (P2P) Active Ethernet lines or EPON/GPON with CATV overlay. SC/APC green angle-polished connectors for CATV and COM Port (CPE Side), SC/PC blue flat-polished connectors for the P2P, PON OLT side.

AOP-32-U-7-AE-0-7

Coarse Wavelength Division Multiplexer in 19" sub-rack 1RU for 32 x Point to Point (P2P) Active Ethernet lines or EPON/GPON with CATV overlay. LC/APC green angle-polished connectors for CATV and COM Port (CPE Side), LC/PC blue flat-polished connectors for the P2P, PON OLT side.

AOP-DCM-85-AS

ACT 1RU Dispersion Compensation Optical Fiber Module (DCM) 85Km, SC/APC Connector

AOS-S Optical Splitters (typical part numbers)

AOS-S-1-2-L-9XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 9XXXXXX, 50/50 SC/APC
AOS-S-1-2-L-0XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 0XXXXXX, 95/05, SC/APC
AOS-S-1-2-L-1XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 1XXXXXX, 90/10, SC/APC
AOS-S-1-2-L-2XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 2XXXXXX, 85/15, SC/APC
AOS-S-1-2-L-3XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 3XXXXXX, 80/20, SC/APC
AOS-S-1-2-L-4XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 4XXXXXX, 75/25, SC/APC
AOS-S-1-2-L-5XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 5XXXXXX, 70/30, SC/APC
AOS-S-1-2-L-6XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 6XXXXXX, 65/35, SC/APC
AOS-S-1-2-L-7XXXXXX-1	Optical Coupler, Standard 1x2, LGX Box, Coupling Ratio = 7XXXXXX, 60/40, SC/APC
AOS-S-1-3-L-6XXX9XX-1	Optical Coupler, Standard 1x3, LGX Box, Coupling Ratio = 6XXX9XX, 34/33/33, SC/APC
AOS-S-1-4-L-B000000-1	Optical Coupler LGX Box 1x4 even balanced SC/APC
AOS-S-1-5-L-B000000-1	Optical Coupler LGX Box 1x5 even balanced SC/APC
AOS-S-1-6-L-B000000-1	Optical Coupler LGX Box 1x6 even balanced SC/APC
AOS-S-1-08-F-B000000-1	Optical Coupler FLAT Box 1x8 Bare Fiber even balanced SC/APC
AOS-S-1-16-F-B000000-1	Optical Coupler FLAT Box 1x16 Bare Fiber even balanced SC/APC
AOS-S-1-32-F-B000000-1	Optical Coupler FLAT Box 1x32 Bare Fiber even balanced SC/APC
AOS-S-2-32-F-B000000-1	Optical Coupler FLAT Box 2x32 Bare Fiber even balanced SC/APC
AOS-S-1-64-F-B000000-1	Optical Coupler FLAT Box 1x64 Bare Fiber even balanced SC/APC
AOS-S-2-64-F-B000000-1	Optical Coupler FLAT Box 2x64 Bare Fiber even balanced SC/APC

AOP-LGX-CH-1RU	AOP Optical LGX Chassis 1RU, 19 inches wide, 3 standard LGX slots

Contact Information

GERMANY
Langwiesenweg 64-71
75323 Bad Wildbad, GERMANY
Phone: +49 (0) 7081 / 17 02 0

WEB: www.polytron.de

Ascent Communication Technology Ltd

AUSTRALIA
140 William Street, Melbourne
Victoria 3000, AUSTRALIA
Phone: +61-3-8691 2902

CHINA
Unit 1907, 600 Luban Road
200023, Shanghai CHINA
Phone: +86-21-60232616

EUROPE
Pfarrer-Bensheimer-Strasse 7a
55129 Mainz, GERMANY
Phone: +49 (0) 6136 926 3246

HONG KONG SAR
Unit 9, 12th Floor, Wing Tuck Commercial Centre
177 Wing Lok Street, Sheung Wan, HONG KONG
Phone: +852-2851 4722

USA
2710 Thomes Ave
Cheyenne, WY 82001, USA
Phone: +1-203 816 5188

VIETNAM
15 /F TTC Building, Duy Tan Street
Cau Giay Dist., Hanoi, VIETNAM
Phone: +84 243 795 5917

WEB: www.ascentcomtec.com

EMAIL: sales@ascentcomtec.com

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