

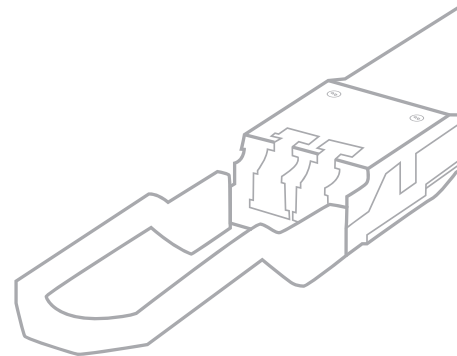


STARVIEW
TECHNOLOGIES
Infinite Possibilities

Programmable High-Speed Transceivers Made Simple



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Our Awards

2018 SME1000 Turnover Growth Excellence Infocomm&Communications
 2018 SG:D Techblazer Awards Most Promising Finalist
 2020 Singapore's Fastest Growing Companies



STARVIEW Technologies

Starview builds high-speed communications infrastructure, and private clouds to power the most demanding workloads. We integrate our Patents and Intellectual Properties of our own products, with third-party solutions to offer unprecedented values and propositions to our customers.

We are passionate about pushing the envelope in technology, harnessing the latest, fastest and best technologies to meet our customer's requirements, and at the same time, breaking the barriers in price and performance.

Transceiver Modules:



All Starview branded transceiver modules are MSA compliant and are offered with wide variety of form factors: SFP, SFP+, SFP28, XFP, QSFP+, QSFP28, CFP, CFP2, CFP4, QSFP-DD, QSFP56-DD and OSFP. These modules are pre-configured before delivery and can be remotely reprogrammed using STAR-POD (Starview Programmable Optical Device) in the field. This unique feature provides flexibility to customers to use a common Starview branded transceiver module to support multiple brands of networking equipment.

Accessories:



STARTAP (Starview Optical Tap): Modular network taps for optical fiber splitting with customized tap ratios

STARMUX (Starview Multiplexer): Compact passive CWDM for fiber congestion alleviation, supporting data rates from 100Mbps to 10Gbps over a single fiber core.

Optical Patch Cables: Pre-terminated in the factory with bend-insensitive fiber

Optical Accessories: Attenuators, couplers, and adapters ensure reliable network communications

Technology Partners



STARVIEW collaborates with leading technology vendors, enabling the integration and customization of cost-effective wired and wireless solutions for customers.

Maintenance and Support



STARVIEW offers SMART services, including Help Desk, Service Level Agreements, global deployment of network products, structured cabling, installation and commissioning, remote technical support, preventive maintenance, training, and warranty contracts. Customers can activate SMART services via hotline, web portal, or email.

TERMS AND CONDITIONS

ORDERS:

All orders are subjected to acceptance by Starview Technologies

All orders placed by customer must be confirmed in writing. Starview Technologies sales can provide specific delivery schedule or additional information on ordering procedures.

Office/Warehouse address:

Starview Technologies Pte Ltd

60 Kaki Bukit Place

#05-19 Eunos Techpark

Singapore 415979

Attn: Sales (sales@starviewtech.net)

Credit Acceptance:

All orders are subject to acceptance by Starview Technologies's Finance Department. If applicable, Starview Technologies will establish an account and Customer will complete the form requested by Starview Technologies

Minimum Orders:

For international customers, the minimum order value is US\$1,000 per order. For any order value below US\$1,000, a processing fee of US\$30 shall be imposed, to cover bank charges imposed during inter-bank transfer. The processing fee will be waived if payment is made via Flywire. A Flywire online link will be provided upon order acceptance.

Payment Terms:

All payments are 100% nett in advance unless otherwise stated

All payments are net 30 days for approved Customer in good standing.

Payments by cheque should be mailed to Starview Technologies Pte Ltd

US Dollar Accounts

Starview Technologies Pte Ltd

Oversea-Chinese Banking Corporation Limited

65 Chulia St, #01-01 OCBC Centre, Singapore 049513

Account No. : USD 601-421522-201

Payments may also be made in the following manner:

Letter of Credit

Please note that a US\$250 handling fee will be charged for orders of less than US\$25,000 that are paid for by letter of credit. All Letters of Credit must be received at least two (2) weeks prior to the scheduled shipment date.

Changes to Orders

All requests to change the order are subject to acceptance by Starview Technologies. All requests must be made in writing, and to be received at least two (2) weeks prior to the scheduled shipping date.

Prices

All prices are subject to change without notice.

RESCHEDULING, CANCELLATION AND RESTOCKING

All requests to reschedule, cancel and restock an order are subject to acceptance by Starview Technologies. Specific fees are applicable for any rescheduling and cancellation requested less than thirty (30) days prior to a scheduled delivery date and for restocking that is requested less than thirty (30) days after receipt of the product by the Customer. Starview Technologies will not restock if requested more than thirty (30) days after receipt of the product by the Customer.

DELIVERIES

Starview Technologies will make reasonable efforts to meet Customer's delivery requirements. If Starview Technologies is unable to meet Customer's delivery requirements, alternative arrangements may be agreed upon by the parties.

SHIPPING

For deliveries to Singapore, price includes custom fees and duties. If the order value is less than SGD1,000 (or USD800) before GST, please arrange for self-collection at our warehouse address. A delivery charge of SGD30 (or USD25) shall apply if delivery is required.

For shipping outside Singapore, prices are ex-works Singapore.

INSTALLATION AND ACCEPTANCE

The installation for some systems must be performed by Starview Technologies. Following the installation, the Customer shall provide written acceptance of installed systems in accordance with Starview Technologies's Acceptance Test Procedures.

RETURNS

All products returned to Starview Technologies require a Return Merchandise Authorization (RMA) number. To obtain an RMA number and ship-to-address instructions, contact Starview Technologies's Technical Support at support@starviewtech.net. Starview Technologies will not be responsible for any product returned without an RMA number.

BASIC WARRANTY

For a period of Twenty Four (24) months from the date of shipment products are warranted under normal use:

- 1) to be free from any defect in design, material, and workmanship,
- 2) to conform strictly to specifications and approved samples, and
- 3) to be fit and sufficient for the purpose intended.

Starview Technologies will repair or replace, free of charge, any part proven to be defective within the basic warranty period. Return-to-Customer shipping costs will be paid by Starview Technologies for products under the basic warranty if submitted by the original purchaser, excluding customer's country import duties/taxes. Shipping to Starview shall be at customer's expense. This basic warranty is standard to all Starview Technologies products. Turnaround for repair is estimated to be between 4-6 weeks.

This warranty is in lieu of all other warranties, express, implied or statutory, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. In no event shall Starview Technologies be liable for special, incidental or consequential damages.

EXCEPTIONS TO BASIC WARRANTY

Warranty is voided if equipment or parts is subjected to misuse, negligence or accidental destruction, eg used in environments where it is not designed for, subjected to abnormal voltages, or damages caused to TX/RX components by abnormally high laser power. All consumable parts are excluded from the basic warranty.

Caution: Only Starview Technologies's trained personnel may open the case of an instrument since permanent damage to the unit may occur. All Starview Technologies warranties will immediately become null and void if any unauthorized third party opens an instrument case, removes the warranty sticker from across the seam of the case, removes any of the case screws, if the product serial number is altered, erased or removed, if the hardware or software is altered, if the units are not installed according to manufacturer's instructions or applicable security standards.

GENERAL INFORMATION

Starview Technologies's office is open from 9.00 a.m. to 18:00 p.m (GMT + 08.00)

All sales of Starview Technologies equipment shall be governed by and interpreted in accordance with the laws applicable in Singapore, except as to (i) conflicts of laws provisions; and (ii) the reference to the Incoterm "ex-works", which incorporates into these Terms and Conditions all the current rules of the International Chamber of Commerce pertaining to the 2000 Incoterms.

Why Programmable High-Speed
Transceivers Made Simple?

STARPOD Program Your Transceivers



Reprogramming Starview
Transceivers



DWDM Wavelength Tuning



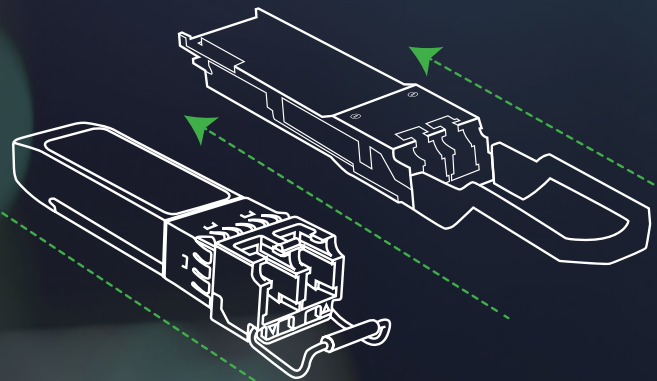
Remote Diagnostic

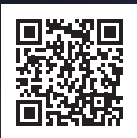
Patent No: **US 9,959,110 B2** **AU 2014395561**
SG 11201604256V **CN ZL201480074114.9**



QSFP+/ QSFP28/ QSFP56

SFP/ SFP+/ SFP28





Features

- Programming Kit for Starview SFP/ SFP+/ SFP28 and QSFP+/ QSFP28/ QSFP56
- User friendly graphical user interface(GUI)
- USB port for basic set up
- Multi-vendor programming
- Wavelength tuning for DWDM tunable SFP+ module



Why STARPOD?

1

User friendly interface

Easy to use menu with click and select interface

2

Fast and Efficient

Immediate use of Starview transceiver to work on device after reprogramming

3

Cost Saving

Saves on CAPEX and OPEX with one common type of transceiver

Starview Programmable Optical Device (STARPOD) is designed to allow the user to re-program Starview transceiver modules (typically SFP/SFP+ and QSFP+/QSFP28/QSFPP56) in the field. The STARPOD is also capable to tune the DWDM wavelengths of the DWDM tunable SFP+ module. This flexibility to re-program the transceiver module allows the user to connect the module to interwork with multiple leading vendors. The user will save time and money to support the wide varieties of networking equipment today.

Using STARPOD with a computer, the user re-programs the transceiver module in less than a minute. After re-programming, the transceiver module can work with the leading vendor of choice. The module can be re-programmed as many times as required.

Starview Technologies offers a wide range of highly reliable transceiver modules allowing the user to protect their investment cost especially with STARPOD.

STARPOD Purchase vs Transceiver Purchase

Using STARPOD, you recover your investment by re-programming and re-using your transceivers multiple times. If you are keeping transceivers as spares to support multiple brands of network equipment, a single generic type of Starview transceiver is only needed. You program Starview transceivers as needed, instead of keeping multiple transceivers of the same type for different equipment brands. Transceivers can also be preconfigured before delivery. You decide what is best for you.



One time Cost: Purchase price of STARPOD. Only 1 transceiver type is needed for each network equipment brand. You program as needed

One time Cost: At least 1 transceiver of each type, multiplied by number of network equipment brand

Running costs: None

Running costs: Multiple transceivers needed for each brand, even if they are of the same type

STARPOD - Transceiver Database and more....

- CISCO
- Juniper
- Alcatel Lucent Enterprise
- Extreme Networks
- Dell
- Huawei
- HP Enterprise
- H3C
- Arista Networks
- Transition Networks
- Aruba
- BTI
- Intel
- EXFO
- Viavi
- Allied Telesis
- Tellabs
- ALAXLA Networks
- PacketLight
- Netscout
- Adtran
- Brocade
- Ericsson
- RAD
- Avaya
- Nokia
- VSS Monitoring
- Gigamon
- Cyan
- Hitachi Metals
- Edge-core
- Anritsu
- ECI
- Mellanox
- Ubiquiti
- Ciena
- D-Link
- And many more...

Specifications

Modules	SFP/ SFP+/ SFP28 and QSFP+/ QSFP28/ QSFP56
Data Rate/Wavelength/Distance	As per module data rate
Dimension	Width: 4.09" [104 mm] Depth: 4.21" [107 mm] Height: 1.18" [30 mm]
Power Input	USB
Operating System	Microsoft Windows 7 and above
Warranty	2 Years

Supported Wavelengths for Tunable DWDM SFP+ Transceivers

The following table provides correlation of the ITU-frequency DWDM channel number, wavelength and frequency

## ITU Channel	Wavelength	Frequency (THz)
11.5	1568.36	191.15
12	1567.95	191.20
12.5	1567.54	191.25
13	1567.13	191.30
13.5	1566.72	191.35
14	1566.31	191.40
14.5	1565.90	191.45
15	1565.50	191.50
15.5	1565.09	191.55
16	1564.68	191.60
16.5	1564.27	191.65
17	1563.86	191.70
17.5	1563.45	191.75
18	1563.05	191.80
18.5	1562.64	191.85
19	1562.23	191.90
19.5	1561.83	191.95
20	1561.42	192.0
20.5	1561.01	192.05
21	1560.61	192.10
21.5	1560.20	192.15
22	1559.79	192.20
22.5	1559.39	192.25
23	1558.98	192.30
23.5	1558.58	192.35
24	1558.17	192.40
24.5	1557.77	192.45
25	1557.36	192.50
25.5	1556.96	192.55
26	1556.55	192.60
26.5	1556.15	192.65
27	1555.75	192.70
27.5	1555.34	192.75

## ITU Channel	Wavelength	Frequency (THz)
28	1554.94	192.80
28.5	1554.54	192.85
29	1554.13	192.90
29.5	1553.73	192.95
30	1553.33	193.0
30.5	1552.93	193.05
31	1552.52	193.10
31.5	1552.12	193.15
32	1551.72	193.20
32.5	1551.32	193.25
33	1550.92	193.30
33.5	1550.52	193.35
34	1550.12	193.40
34.5	1549.72	193.45
35	1549.32	193.50
35.5	1548.91	193.55
36	1548.51	193.60
36.5	1548.11	193.65
37	1547.72	193.70
37.5	1547.32	193.75
38	1546.92	193.80
38.5	1546.52	193.85
39	1546.12	193.90
39.5	1545.72	193.95
40	1545.32	194.0
40.5	1544.92	194.05
41	1544.53	194.10
41.5	1544.13	194.15
42	1543.73	194.20
42.5	1543.33	194.25
43	1542.94	194.30
43.5	1542.54	194.35
44	1542.14	194.40

## ITU Channel	Wavelength	Frequency (THz)
44.5	1541.75	194.45
45	1541.35	194.50
45.5	1540.95	194.55
46	1540.56	194.60
46.5	1540.16	194.65
47	1539.77	194.70
47.5	1539.37	194.75
48	1538.98	194.80
48.5	1538.58	194.85
49	1538.19	194.90
49.5	1537.79	194.95
50	1537.40	195.0
50.5	1537.00	195.05
51	1536.61	195.10
51.5	1536.22	195.15
52	1535.82	195.20
52.5	1535.43	195.25
53	1535.04	195.30
53.5	1534.64	195.35
54	1534.25	195.40
54.5	1533.86	195.45
55	1533.47	195.50
55.5	1533.07	195.55
56	1532.68	195.60
56.5	1532.29	195.65
57	1531.90	195.70
57.5	1531.51	195.75
58	1531.12	195.80
58.5	1530.72	195.85
59	1530.33	195.90
59.5	1529.94	195.95
60	1529.55	196.0
60.5	1529.16	196.05

Ordering Information

SV-STARPOD2-USB

Starview Programmable Optical Device (STARPOD) for reprogramming Starview Transceiver modules (SFP/ SFP+/ SFP28/ QSFP+/ QSFP28/ QSFP56) to support various manufacturer's coding, c/w USB cable and AC/DC power adapter. STARPOD software can be downloaded at www.starviewtech.net

Your Reliable Fiber Optic Transceiver Provider

SFP / SFP+ / SFP28 / QSFP+ / QSFP28 / QSFP56 / OSFP / DAC / AOC..

700+

Customers Trusted

30+

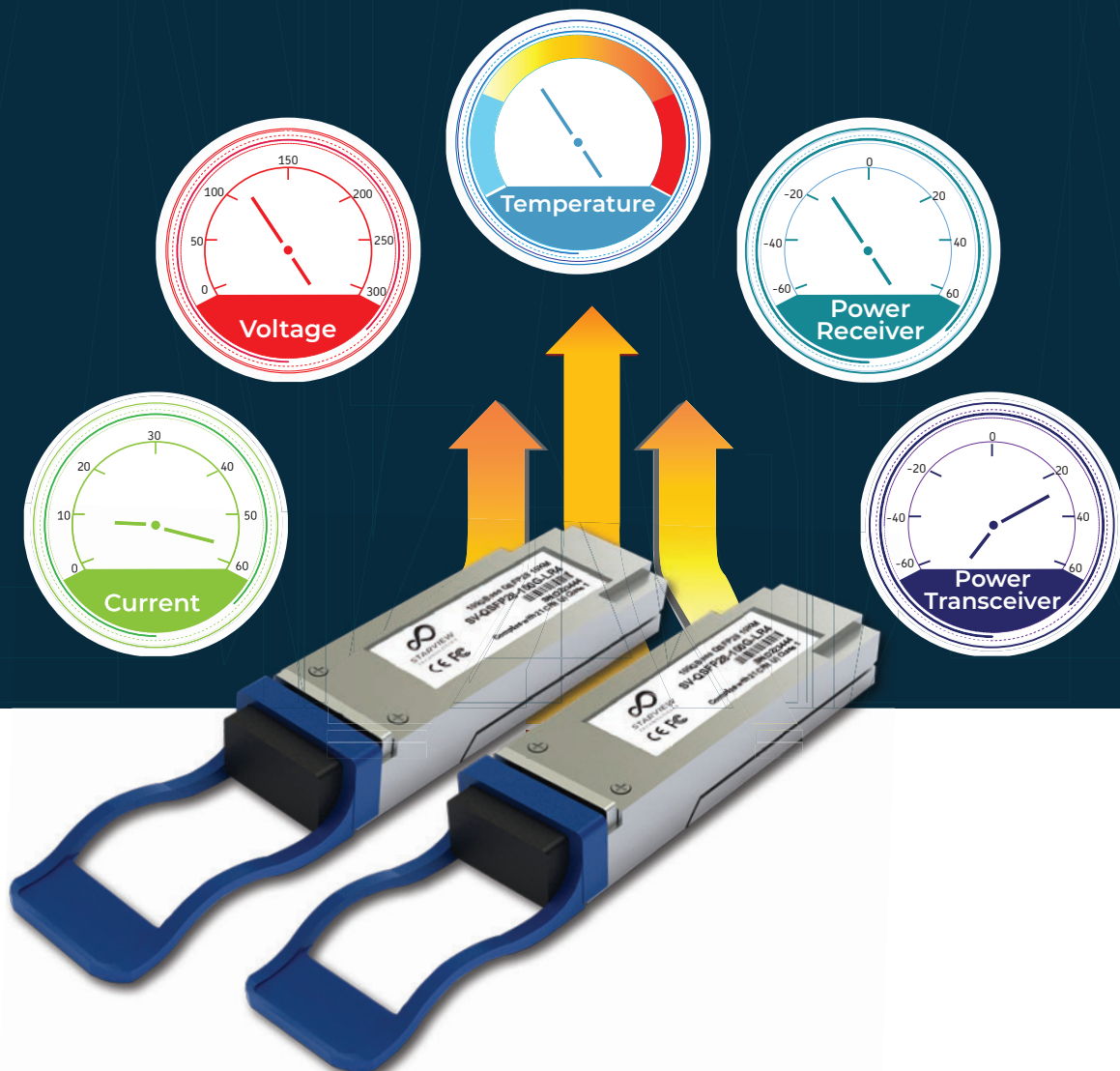
Countries We Sold

>60%

Save Cost for You

30+

Compatible Brands





Programmable



Multi-Vendor
Support



Fast Delivery



Tech Support

Why Choose STARVIEW Transceivers?

Starview is a reliable supplier of Optical Transceiver modules for more than 10 years, with good customer track records. Starview offers a wide range of transceiver modules, and owns patent for STARPOD (Starview Programmable Optical Device) to program our modules to work in various manufacturer's devices.

Starview offers a wide range of Transceiver modules with leading-edge optical components, low cost and fast lead time. All SVI transceiver modules are pre-coded before delivery to ensure inter-operability with the vendors' networking equipment, and equipped with DDM (Digital Diagnostic Monitoring) capabilities. The DDM features allow users to remotely monitor in real-time the transceiver receive optical power, transmitter optical power, laser bias current, transceiver input voltage and temperature. This function provides network manager an effective tool for implementing reliable performance monitoring of their networking devices.

Starview Transceivers are fully ROHS and MSA compliant, supports multiple network protocols to enable high speed voice, video and data communications. These applications can be used for Ethernet, Fiber Channel, 4G LTE, GPON and SONET/ SDH. SVI Transceivers are available to transmit data over Copper, Singlemode or Multimode fiber, with options to select such as transmission distances, wavelengths, power consumption and operating temperatures.

Further savings on OPEX (Operating Expenses) can be achieved with STARPOD. Using STARPOD, SVI transceiver modules are field reprogrammableaainteroperability of the transceiver module with a certificate of compatibility and money back guarantee if the module does not work.



Compatibility

Our modules are pre-configured with the standard vendor's coding before delivery



Full traffic test

Our modules are fully tested to ensure quality and reliability.



Laser color

Our modules are fully tested with Optical Spectrum Analyser to ensure the wavelength is correctly transmitted



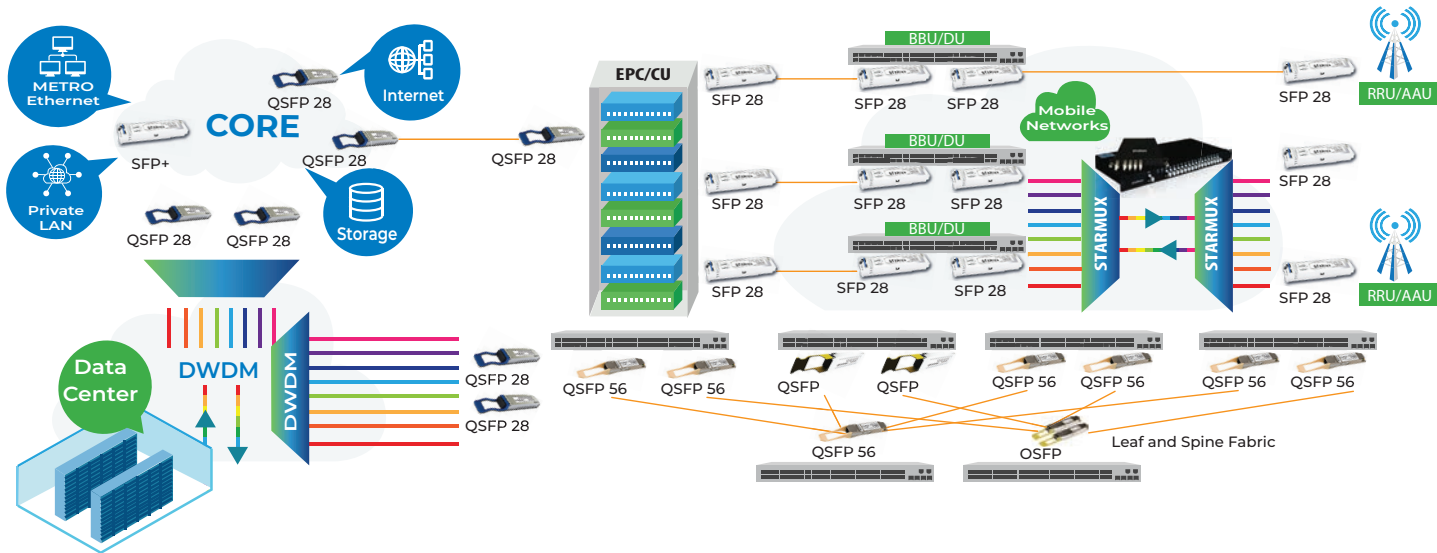
EEPROM and label contents

All our module EEPROM is fully compatible with STARPOD for reprogramming in the field with our standard module part number



Lens inspection and clean

Our modules are fully inspected to ensure the TOSA and ROSA windows are without dust

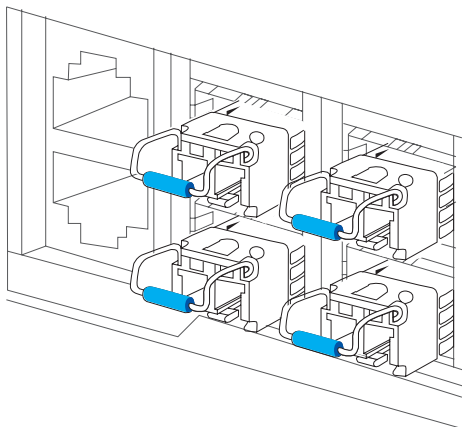


STARVIEW Transceivers

SFP+	SFP28C	SFP+	QSFP28	Single LambdaC	SFP56C	SFP28-DD	QSFP56-DDC	SFP	
5G Wireless Backhaul		40G,50G &100G connectivity			200G Transceiver		400G Transceiver		
10G SFP+	25G SFP284	0G QSFP+	50G QSFP+1	00G QSFP285	Single Lambda	QSFP56	QSFP28-DDQ	SFP56-DD	OSFP
Industrial Temp <i>Dual Fiber</i> LR 10km/20km ER 40km ZR 80km CWDM/DWDM LR 10km/20km ER 40km ZR 80km BIDI LR 10km/20km ER 40km ZR 80km	Industrial Temp <i>Dual Fiber</i> LR 10km/20km ER 40km CWDM LR 10km BIDI LR 10km/20km ER 40km	<i>Dual Fiber</i> SR4 150m/300m LR 2km/10km ER 40km BIDI SR 150m	<i>Dual Fiber</i> LR 10km ER 40km BIDI LR 10km ER 40km	<i>Four channel</i> 4x 25.78Gbps CWDM4 2KM LWDM10/40km SR4 100m LR4 10/20km ER4 40km ZR4 80km	<i>Single Lambda</i> 1x 106.25Gbps DR 500m FR 2km LR 10km CWDM LR 10km	4x53.125Gbps PSR4 100m FR4 2km LR4 10m ER4 40km	8x25.78Gbps 2x CWDM4 2km 2x LR4 10km	8x 53.125Gbps SR8 100m(OM4) 4x 106.25Gbps DR4 500m FR4 2km LR4 10km ER4 40km ZR4 120km / 480km	8x 53.125Gbps SR8 100m(OM4) 4x 106.25Gbps DR4 500m FR4 2km LR4 10km

Starview Transceiver Module Deployment

- CISCO
- Juniper
- Alcatel Lucent
- Extreme Networks
- Force 10
- Huawei
- HP
- H3C
- Arista Networks
- Transition Networks
- ADVA Optical Networking
- BTI
- Intel
- EXFO
- JDSU
- Allied Telesis
- Tellabs
- Nortel
- ALAXLA Networks
- Netscout
- Adtran
- Brocade
- Ericsson
- RAD
- Avaya
- NSN
- VSS Monitoring
- Gigamon
- Cyan
- Hitachi Metals
- Etc.





400G OSFP

Compact Octal Small Form Factor Pluggable



AOC



Fiber OSFP Modules

Features

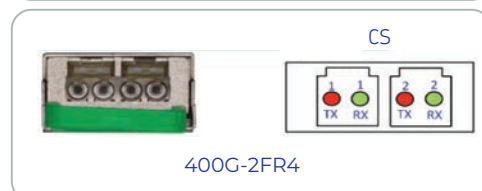
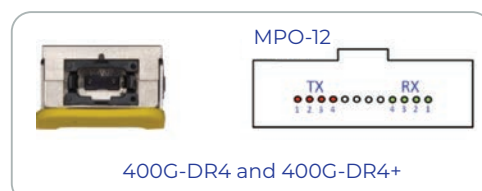
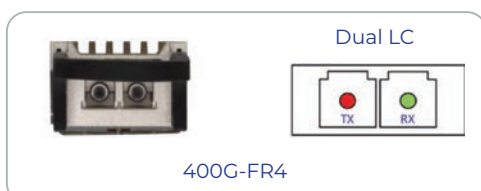
- Available with 8 x 50G and 4 x 100G options:
- 4 x 100Gbps DR4
- 4 x 100Gbps FR1 (or DR4+)
- 4 x 100Gbps FR4
- 4 x 100Gbps LR1 (or DR4++)
- 4 x 100Gbps LR4

Applications

- Data Centers
- Cloud Networks
- Connector type: MPO-16(APC), MPO-12(APC), LC
- Compliant with IEEE 802.3bs, IEEE P802.3cm and 100GLambda MSA
- The OSFP has an advantage in a clearer way to 800G and superior thermal performance

Specifications

Standards	IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA
Dimensions	Width: 0.88" [22 mm] Depth: 3.95" [100 mm] Height: 0.51" [13 mm]
Power	3.3V
Power Consumption	< 10 Watts
Connector Type	MPO-16(APC), MPO-12(APC), LC
Environment	0°C – 70°C
Compliance	400GAUI-8; IEEE 802.3bs and OSFP MSA
Warranty	2 year



Standard temperature:
0°C to +70°C

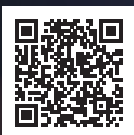
Ordering Information

Active Optical Cables

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
	SV-AOC-400GOSFPT6T6-1M			1			
	SV-AOC-400GOSFPT6T6-3M			3			
400 Gb/s	SV-AOC-400GOSFPT6T6-5M			5			
	SV-AOC-400GOSFPT6T6-7M			7			
	SV-AOC-400GOSFPT6T6-10M			10			

Fiber OSFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-OSFP-400G-PSR8	MM	850	0.1	-6.0 to 4.0	-7.9 to 4.0	1.9
	SV-OSFP-400G-PDR4	SM	1310	0.5	-2.9 to 4.0	-5.9 to 4.0	3.0
	SV-OSFP-400G-PFR1	SM	1310	2	-2.9 to 4.0	-7.3 to 4.0	4.4
400 Gb/s	SV-OSFP-400G-PLR1	SM	1310	10	-1.4 to 4.5	-7.7 to 4.5	6.3
	SV-OSFP-400G-CFR4	SM	CWDM	2	-3.3 to 3.5	-7.3 to 3.5	4.0
	SV-OSFP-400G-CLR4	SM	CWDM	10	-2.8 to 5.6	-9.1 to 5.6	6.3



400G QSFP56-DD

Compact Quad Small Form Pluggable – Double Density



Features

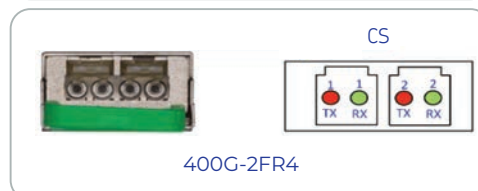
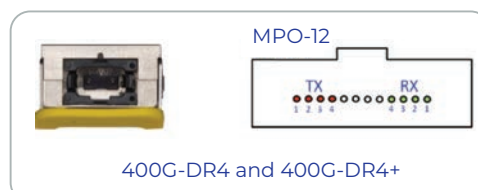
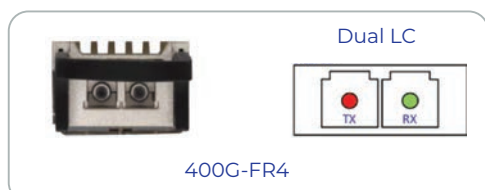
- Available with 8 x 50G and 4 x 100G options:
- 8 x 50Gbps SR8
- 4 x 100Gbps DR4
- 4 x 100Gbps FR1 (or DR4+)
- 4 x 100Gbps FR4
- 4 x 100Gbps LR1 (or DR4++)
- 4 x 100Gbps LR4

Applications

- Data Centers
- Cloud Networks
- Connector type: MPO-16(APC), MPO-12(APC), LC
- Compliant with IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA
- The QSFP-DD has an advantage in that is more widely adopted and offers simpler backward compatibility

Specifications

Standards	IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA
Dimensions	Width: 0.72" [18 mm] Depth: 3.67" [93mm] Height: 0.51" [13 mm]
Power	3.3V
Power Consumption	< 10 Watts
Connector Type	MPO-16(APC), MPO-12(APC), LC
Environment	0°C – 70°C
Compliance	400GAUI-8; IEEE 802.3bs and OSFP MSA
Warranty	2 year



Standard temperature:
0°C to +70°C

Ordering Information

Active Optical Cables

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
400 Gb/s	SV-AOC-400GT6T6-1M			1			
	SV-AOC-400GT6T6-3M			3			
	SV-AOC-400GT6T6-5M			5			
	SV-AOC-400GT6T6-7M			7			
	SV-AOC-400GT6T6-10M			10			
4 x 100 Gb/s	SV-AOC-400GT6T5-1M			1			
	SV-AOC-400GT6T5-3M			3			
	SV-AOC-400GT6T5-5M			5			
	SV-AOC-400GT6T5-7M			7			
	SV-AOC-400GT6T5-10M			10			

Direct Attach Cable

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
400 Gb/s	SV-DAC-400GT6T6-1M			1			
	SV-DAC-400GT6T6-3M			3			

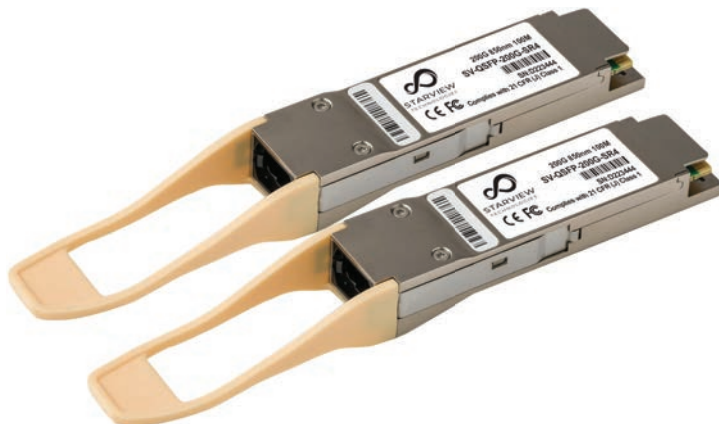
Fiber QSFP56-DD Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
400 Gb/s	SV-QSFP-400G-PSR8	MM	850	0.1	-6.0 to 4.0	-7.9 to 4.0	1.9
	SV-QSFP-400G-PDR4	SM	1310	0.5	-2.9 to 4.0	-5.9 to 4.0	3.0
	SV-QSFP-400G-PFR1	SM	1310	2	-2.4 to 4.0	-6.4 to 4.0	4.0
	SV-QSFP-400G-CFR4	SM	CWDM	10	-1.4 to 4.5	-7.7 to 4.5	6.3
	SV-QSFP-400G-PLR1	SM	1310	10	-2.8 to 5.6	-9.1 to 5.6	6.3
	SV-QSFP-400G-CLR4	SM	CWDM	10	-2.8 to 5.6	-9.1 to 5.6	6.3
	SV-QSFP-400G-LR8	SM	LWDM	10	-2.8 to 5.3	-9.1 to 5.3	6.3
	SV-QSFP-400G-ER4	SM	LWDM	30/40	0.4 to 6.5	-16.5 to -2.5	16.9
	SV-QSFP-400G-ER8	SM	LWDM	40	-0.6 to 5.6	-18.6 to -4.4	18
	SV-QSFP-400G-ZR	SM	DWDM	120	-10.0 to -6.0	-20.0 to 0	10
	SV-QSFP-400G-ZR+	SM	DWDM	480	-10.0 to -6.0	-20.0 to 0	10
	SV-QSFP-400G-HZR4+	SM	Tuneable	120	-5.0 to 3.0	-24.0 to -12.0	19



200G QSFP56

Compact Quad Small Form Pluggable



Features

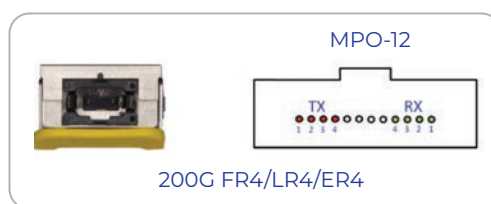
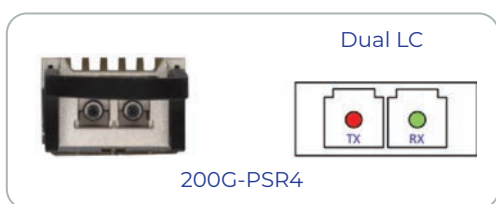
- up to 200Gbps
- 4 x 50Gbps SR4
- 4 x 50Gbps FR4

Applications

- Data Centers
- Cloud Networks
- Compliant with IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA

Specifications

Standards	IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA
Dimensions	Width: 0.72" [18 mm] Depth: 3.67" [93mm] Height: 0.47" [12 mm]
Power	3.3V
Power Consumption	PSR/FR4 < 5 Watts. LR4 < 10.8 Watts. ER4 < 12 Watts.
Connector Type	MPO-12(APC), LC
Environment	0°C – 70°C
Compliance	IEEE802.3bs. 200GAUI-8 and 200GAUI-4 electrical interface
Warranty	2 year



Standard temperature:
0°C to +70°C

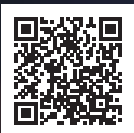
Ordering Information

Direct Attach Cable

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
	SV-DAC-200GT5T5-1M			1			
200 Gb/s	SV-DAC-200GT5T5-3M			3			

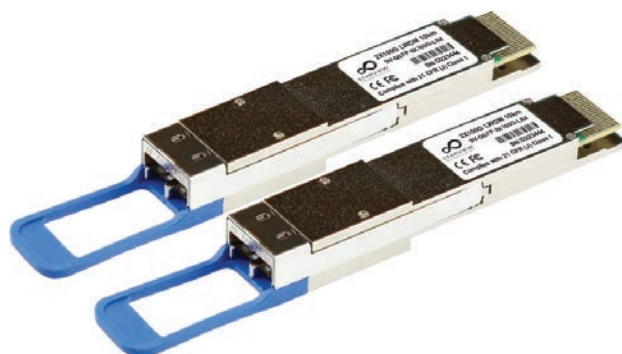
Fiber QSFP56 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-QSFP-200G-PSR4	MM	850	0.1	-6.5 to 4	-8.4 to 4.0	1.9
200 Gb/s	SV-QSFP-200G-FR4	SM	CWDM	2	-4.2 to 4.7	-8.2 to 4.7	4.0
	SV-QSFP-200G-LR4	SM	LWDM	10	-3.4 to 5.3	-9.7 to 5.3	6.3
	SV-QSFP-200G-ER4	SM	LWDM	40	0.0 to 6.5	-15.5 to -3.0	15.5



200G QSFP-DD

Compact Quad Small Form Pluggable – QSFP Double Density



Features

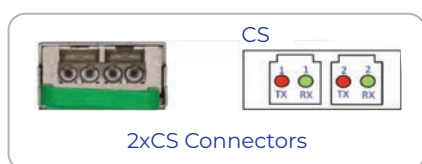
- 8 x 25Gbps DR4
- 8 x 25Gbps FR4
- 8 x 25Gbps LR4

Applications

- Data Centers
- Cloud Networks
- Connector type: Dual CS
- Compliant with IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA

Specifications

Standards	IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA
Dimensions	Width: 0.72" [18 mm] Depth: 3.67" [93mm] Height: 0.47" [13 mm]
Power	3.3V
Power Consumption	< 8.0 Watts
Connector Type	Dual CS
Environment	0°C – 70°C
Compliance	IEEE802.3bs. 200GAUI-8 and 200GAUI-4 electrical interface
Warranty	2 year

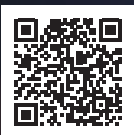


Standard temperature:
0°C to +70°C

Ordering Information

QSFP-DD Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
200 Gb/s	SV-QSFP-2x100G-CDR4	SM	CWDM4	2	-6.5 to 2.5	-11.5 to 2.5	5.0
	SV-QSFP-2x100G-CFR4	SM	CWDM4	10	-6.5 to 2.5	-13.0 to 2.5	6.5
	SV-QSFP-2x100G-LR4	SM	LWDM	10	-4.3 to 4.5	-10.6 to 4.5	6.3



100G Single Lambda

Compact Quad Small Form Pluggable (QSFP)



Features

- 2 x 50Gbps DR
- 2 x 50Gbps FR
- 2 x 50Gbps LR
- 2 x 50Gbps CLR

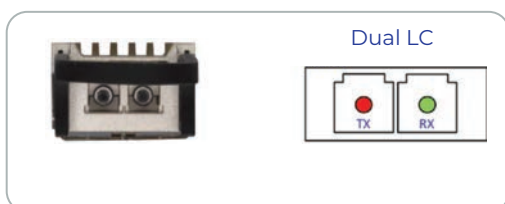
Applications

- 100G Single Lambda breakout connection to 400G
- Data Centers
- Cloud Networks
- Connector type: LC
- Compliant with IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA

The electrical connector interface is 4 x 25G NRZ – the same as all existing 'legacy' 100G QSFP modules. The optical output of a 100G-DR or 100G-FR or 100G-LR module however is a single 100Gbit/s PAM-4 optical signal. The 100G-DR, 100G-FR and 100G-LR modules includes a gearbox chip to convert the 4 x 25G NRZ electrical signals to a 1 x 100G PAM-4 optical signal. This is in contrast to legacy QSFP100 modules (such as a CWDM4 or LR4 100G module), which have 4 x 25G NRZ optical wavelengths multiplexed onto one fiber. Because of the different optical modulation scheme, 100G-DR, 100G-FR and 100G-LR modules will not interoperate with legacy 100G modules (such as CWDM4, LR4 etc.), but they will interop with 400G-DR4 and 400G-DR4+ modules using breakout cables. The 100G-DR will also interop with the 100G-FR and 100G-LR, over a distance of 500m

Specifications

Standards	IEEE 802.3bs, IEEE P802.3cm and 100G Lambda MSA
Dimensions	Width: 0.70" [18 mm] Depth: 3.67" [78mm] Height: 0.51" [13 mm]
Power	3.3V
Power Consumption	< 4 Watts
Connector Type	LC
Environment	0°C – 70°C
Compliance	400GAUI-8; IEEE 802.3bs and QSFP28 MSA
Warranty	2 year



Standard temperature:
0°C to +70°C

Ordering Information

100G Single Lambda Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-QSFP-100G-DR	SM	1310	0.5	-2.9 to 4.0	-5.9 to 4.0	4.5
100 Gb/s	SV-QSFP-100G-FR	SM	1310	2	-2.4 to 4.0	-6.4 to 4.5	4.0
	SV-QSFP-100G-LR	SM	1310	10	-1.4 to 4.5	-7.7 to 4.5	6.3

CWDM 100G Single Lambda Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Gb/s	SV-QSFP-100G-LRC##	SM	1270 ~ 1331	10	-1.4 to 4.5	-7.7 to 4.5	3.1

denotes wavelength range from 1270~1610nm.

27 = 1270nm, 29=1290nm, 31=1310nm, 33=1330nm, 35=1350nm, 37=1370nm, 39=1390nm, 41=1410nm, 43=1430nm, 45=1450nm, 47=1470nm, 49=1490nm, 51=1510nm, 53=1530nm, 55=1550nm,57=1570nm, 59=1590nm, 61=1610nm

C Band DWDM Dual Fiber Strands Single Lambda Modules 100GHz Spacing Wavelength

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Gb/s	SV-QSFP-100G-ZXD8##	SM	DWDM Wavelength	80	-2.4 to 4.0	-6.4 to 4.5	4.0

denotes DWDM 100GHz Spacing Wavelength Guide on page 102



100G QSFP28

Quad Small Form-factor Pluggable 28Gbps



AOC



QSFP28 Modules

Features

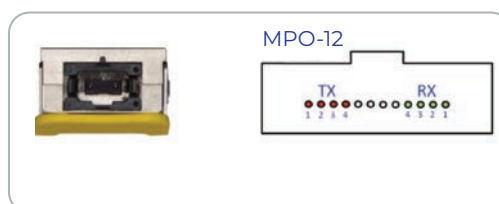
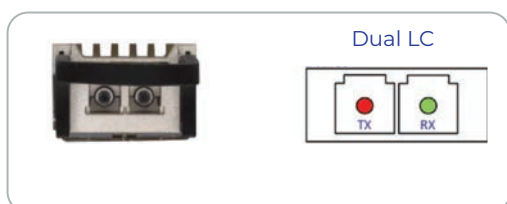
- 4 x 28Gbps Transmission
- Active Optical Cable with QSFP28 pre-terminated lengths
- Active Optical Breakout Cable with QSFP28 and 4 x SFP28 pre-terminated lengths
- MPO-8 Fiber QSFP28 Modules
- Dual Fiber Strands QSFP28 Modules

Applications

- 100GE (103.125Gbps)
- OTU-4 (111.81Gbps)
- Supports various wavelengths such as 850nm, IEEE 100G standard (1295.56, 1300.05, 1304.59, 1309.14nm), and non-standard CWDM (1271, 1291, 1311, 1331nm) wavelengths, with distances up to 40km

Specifications

Standards	IEEE 802.3 2003
Dimensions	Width: 0.72" [18.35 mm] Depth: 2.83" [72 mm] Height: 0.33" [12.4 mm]
Power	4.5V
Power Consumption	<4.5 Watts
Connector Type	MPO or LC
Environment	0°C – 70°C
Compliance	IEC-60825; FDA 21;CFR 1040.10 and 1040.11
Warranty	2 year



Standard temperature:
0°C to +70°C

Ordering Information

Active Optical Cables

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
100 Gb/s	SV-AOC-100GT4T4-1M			1			
	SV-AOC-100GT4T4-3M			3			
	SV-AOC-100GT4T4-5M			5			
	SV-AOC-100GT4T4-7M			7			
	SV-AOC-100GT4T4-10M			10			
4x25 Gb/s	SV-AOC-100GT4T3-1M			1			
	SV-AOC-100GT4T3-3M			3			
	SV-AOC-100GT4T3-5M			5			
	SV-AOC-100GT4T3-7M			7			
	SV-AOC-100GT4T3-10M			10			

Direct Attach Cable

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
100 Gb/s	SV-DAC-100GT4T4-1M			1			
	SV-DAC-100GT4T4-3M			3			
	SV-DAC-100GT4T4-5M			5			
	SV-DAC-100GT4T3-1M			5			
	SV-DAC-100GT4T3-3M			5			
	SV-DAC-100GT4T3-5M			5			

Dual Fiber Strands QSFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Gb/s	SV-QSFP-100G-PSR4	MM	850	0.10	-8.4 to 2.4	-30.0 to -5.2	21.6
	SV-QSFP-100G-PSR4F *	MM	850	0.10	-8.4 to 2.4	-30.0 to -5.2	21.6
	SV-QSFP-100G-PLR4L	SM	1310	2	-5.5 to 2.0	-10.2 to 2.0	4.7
	SV-QSFP-100G-CLR4L	SM	CWDM	2	-4.0 to 2.5	-10 to 2.5	6.0
	SV-QSFP-100G-CLR4	SM	CWDM	10	-4.0 to 2.5	-25 to -11.5	21.0
	SV-QSFP-100G-LR4	SM	LWDM	10	-4.3 to 4.5	-12 to -8.6	7.7
	SV-QSFP-100G-LR4F *	SM	LWDM FEC	10	-0.6 to 4.0	-11.6 to -8.4	11.0
	SV-QSFP-100G-ER4	SM	LWDM	40	-2.5 to 6.5	-20.5 to -3.5	18.0
	SV-QSFP-100G-ER4F *	SM	LWDM FEC	30/40	-2.5 to 6.5	-20.5 to -3.5	18.0
	SV-QSFP-100G-ZR4	SM	LWDM	80	3.0 to 7.0	-31.0 to 4.5	34.0
	SV-QSFPDD-100G-ZR	SM	DWDM	120	-8.0 to 1.0	-30.0 to -2.8	22.0

*F denotes dual rate 100G and OTU-4

Standard temperature:
0°C to +70°C

Ordering Information

Single Fiber Strand QSFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Gb/s	SV-QSFP-100G-LR11	SM	1271 TX 1331 RX	20	-1.4 to 4.5	-7.7 to 4.5	6.3
	SV-QSFP-100G-LR12	SM	1331 TX 1271 RX	20	-1.4 to 4.5	-7.7 to 4.5	6.3

Industrial temperature:
-40°C to +85°C

Ordering Information

Single Fiber Strand QSFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Gb/s	SV-QSFP-100G-LR21H	SM	1273.55-1286.66 TX 1295.56-1309.14 RX	20	-4.3 to 4.5	-14.5 to 5.5	10.2
	SV-QSFP-100G-LR22H	SM	1295.56-1309.14 TX 1273.55-1286.66 RX	20	-4.3 to 4.5	-14.5 to 5.5	10.2

Dual Fiber Strands QSFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Gb/s	SV-QSFP-100G-ELR4H	SM	LWDM	20	-6.5 to 2.5	-13.0 to -2.5	6.5
	SV-QSFP-100G-ER4H	SM	LWDM	40	-2.5 to 6.5	-20.5 to -3.5	18.0



50G QSFP28

Quad Small Form-factor Pluggable 28Gbps



Features

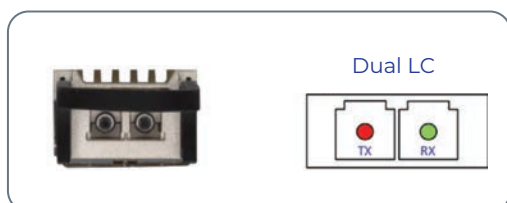
- 2 x 26.5625Gbps transmission on electrical plane
- 53.125Gbps transmission on optical interface
- PAM4 Transceiver Module
- Supports various wavelengths such as 50GE, 5G Network Mid/Backhaul and distances up to 40km

Applications

- Wireless application
- 50G Ethernet
- Enterprise networking

Specifications

Standards	IEEE 802.3 2003
Dimensions	Width: 0.72" [18.35 mm] Depth: 3.07" [78 mm] Height: 0.47" [12 mm]
Power	4.5V
Power Consumption	<4.5 Watts
Connector Type	LC
Environment	0°C - 70°C
Compliance	IEEE 802.3bm QSFP28 and MSA EEE 802.3cd 50GBASE
Warranty	2 year



Standard temperature:
0°C to +70°C

Ordering Information

Dual Fiber Strands QSFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFP56-50G-LR1	SM	1310	10	-4.5 to 4.2	-10.3 to 4.2	5.8
50 Gb/s	SV-SFP56-50G-ER4	SM	1310	40	0.4 to 6.6	-17.6 to -3.4	18

Single Fiber Strand QSFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFP56-50G-LR11	SM	1271TX 1331RX	10	-4.5 to 4.2	-10.8 to 4.2	6.3
50 Gb/s	SV-SFP56-50G-LR12	SM	1331TX 1271RX	10	-4.5 to 4.2	-10.8 to 4.2	6.3
	SV-SFP56-50G-ER41	SM	1295TX 1309RX	40	0.4 to 6.6	-17.6 to -3.4	18
	SV-SFP56-50G-ER42	SM	1309TX 1295RX	40	0.4 to 6.6	-17.6 to -3.4	18



40G QSFP

Quad Small Form-factor Pluggable



AOC



Dual Fiber Strands QSFP Modules

Features

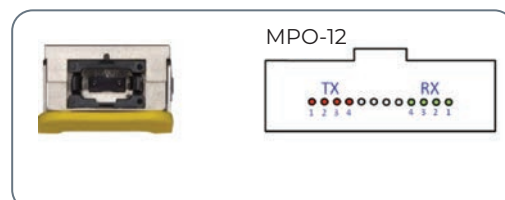
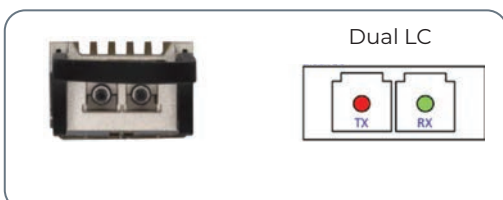
- 4 x 10Gbps Transmission
- Active Optical Cable with QSFP pre-terminated lengths
- Active Optical Cable with QSFP and SFP+ pre-terminated lengths
- MPO-8 Fiber QSFP Modules
- Dual Fiber Strands QSFP Modules

Applications

- 40GE
- Infband
- Supports various wavelengths such as 850nm, 1310nm , CWDM (1270/1290/1310/1330nm) and distances up to 40km

Specifications

Standards	IEEE 802.3 2003
Dimensions	Width: 0.72" [18.35 mm] Depth: 3.07" [78 mm] Height: 0.47" [12 mm]
Power	4.5V
Power Consumption	<3.5 Watts
Connector Type	MPO or LC
Environment	0°C – 70°C
Compliance	IEC-60825; FDA 21;CFR 1040.10 and 1040.11
Warranty	2 year



Standard temperature:
0°C to +70°C

Ordering Information

Active Optical Cables

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
40 Gb/s	SV-AOC-40GT4T4-1M			1			
	SV-AOC-40GT4T4-3M			3			
	SV-AOC-40GT4T4-5M			5			
	SV-AOC-40GT4T4-7M			7			
	SV-AOC-40GT4T4-10M			10			
4x10.3125 Gb/s	SV-AOC-40GT4T3-1M			1			
	SV-AOC-40GT4T3-3M			3			
	SV-AOC-40GT4T3-5M			5			
	SV-AOC-40GT4T3-7M			7			
	SV-AOC-40GT4T3-10M			10			

Direct Attach Cable

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
40 Gb/s	SV-DAC-40GT4T4-1M			1			
	SV-DAC-40GT4T4-3M			3			
	SV-DAC-40GT4T4-5M			5			
	SV-DAC-40GT4T4-7M			7			
	SV-DAC-40GT4T4-10M			10			
4x10.3125 Gb/s	SV-DAC-40GT4T4-3M			1			
	SV-DAC-40GT4T4-5M			3			
	SV-DAC-40GT4T4-7M			5			
	SV-AOC-40GT4T3-7M			7			

C Band DWDM Dual Fiber Strands QSFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
40 Gb/s	SV-QSFP-40G ZXD8D##	SM	DWDM Wavelength	80	-1.0 to 3.0	-27.0 to 4.0	26.0

denotes DWDM 100GHz Spacing Wavelength Guide on page 102

Dual Fiber Strands QSFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-QSFP-40G-PSR4	MM	850	0.15	-7.6 to 1.0	-9.5 to 2.4	1.9
	SV-QSFP-40G-PESR4	MM	850	0.3	-7.3 to 1.0	-9.9 to 2.4	2.6
	SV-QSFP-40G-PLR4L	SM	CWDM Lite	1.4	-5.5 to 1.5	-11.5 to 1.5	6.0
	SV-QSFP-40G-LR4L	SM	CWDM Lite	2	-7.0 to 2.3	-11.7 to 2.3	4.7
40 Gb/s	SV-QSFP-40G-PLR4	SM	1310	10	-5.5 to 1.5	-12.6 to 1.5	7.1
	SV-QSFP-40G-LR4	SM	CWDM	10	-7.0 to 2.3	-13.7 to 2.3	6.7
	SV-QSFP-40G-LR4F*	SM	CWDM	10	-7.0 to 2.3	-11.5 to 2.3	4.5
	SV-QSFP-40G-ER4	SM	CWDM	40	-2.7 to 4.5	-21.2 to -4.5	18.5

*F denotes dual rate 40GE and OTU-3

Single Fiber Strand QSFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
40 Gb/s	SV-QSFP-40G-SR2	MM	850nm - 900nm	0.15	-4.0 to 5.0	-30.0 to -12.0	26



25G SFP28

Small Form Pluggable 28 Transceiver Modules



AOC



SFP28 Modules

Features

- Compliant to IEEE802.3by 25GBASE-SR
- 25Gb/s optical interface
- Supports various wavelengths such as 850nm, 1310nm and CWDM, and distances up to 40km
- 25G PIN photo-detector
- 2-wire interface for management specifications compliant with SFF-8472 digital diagnostic monitoring interface for optical transceivers
- 25G electrical interface (OIF CEI-28G-VSR)
- Advanced firmware allow customer system encryption information to be stored in transceiver
- RoHS compliant

Applications

- 25G Ethernet
- 5G Network
- High-speed storage area networks
- Computer cluster cross-connect
- Custom high-speed data pipes
- Wireless base station system

Specifications

Standards	IEEE 802.3 by 25GBASE-LR
Dimensions	Width: 0.71" [18 mm] Depth: 3.07" [78 mm] Height: 0.33" [8 mm]
Power	MM 3.6 V SM 3.3 V
Power Consumption	MM 1.0 Watts SM 1.5 Watts
Connector Type	LC
Environment	-40°C – 85°C; 0°C – 70°C
Compliance	SFF-8472 IEEE802.3by 25GBASE-SR
Warranty	2 year

Standard temperature:
0°C to +70°C

Ordering Information

Active Optical Cables

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
	SV-AOC-25GT5T5-1M			1			
	SV-AOC-25GT5T5-3M			3			
25 Gb/s	SV-AOC-25GT5T5-5M			5			
	SV-AOC-25GT5T5-7M			7			
	SV-AOC-25GT5T5-10M			10			

Direct Attach Cable

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
	SV-DAC-25GT5T5-1M			1			
25 Gb/s	SV-DAC-25GT5T5-3M			3			
	SV-DAC-25GT5T5-5M			5			

Dual Fiber SFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
25 Gb/s	SV-SFP28-SRD	MM	850	0.1	-8.4 to 2.4	-10.3 to 2.4	1.9
	SV-SFP28-LRD1	SM	1310	10	-7.0 to 2.0	-14.0 to -11.3	7.0
	SV-SFP28-LRD2	SM	1310	20	-7.0 to 2.0	-14.0 to -11.3	7.0
	SV-SFP28-LRD4	SM	1310	40	-1.0 to 6.0	-14.5 to 2.5	15.5
	SV-SFP28-ZRD	SM	1300	80	2.0 to 7.0	-25.5 to -6.0	27.5
Fiber Channel	SV-SFP28-32GSRD	MM	850	0.1	-6.2 to 2.0	-30.0 to -10.2	20.8
8G/16G/32 Gb/s	SV-SFP28-32GLRD1	SM	1310	10	-5.0 to 2.0	-11.4 to 2.0	6.4

CWDM Dual Fiber Strands SFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
25 Gb/s	SV-SFP28-LRD1C##	SM	1270 ~ 1330	10	-6.5 to 6	-14.0 to 2.5	7.5
	SV-SFP28-LRD4C##	SM	1271 ~ 1331	40	0 to 6	-19.0 to 3.0	19.0

denotes wavelength range from 1270~1610nm.

27 = 1270nm, 29=1290nm, 31=1310nm, 33=1330nm, 35=1350nm, 37=1370nm, 39=1390nm, 41=1410nm, 43=1430nm, 45=1450nm, 47=1470nm, 49=1490nm, 51=1510nm, 53=1530nm, 55=1550nm,57=1570nm, 59=1590nm, 61=1610nm

Single Fiber Strand SFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
25 Gb/s	SV-SFP28-LRD11	SM	1270 TX 1330 RX	10	-7.0 to -2.0	-12.0 to 2.0	5.0
	SV-SFP28-LRD12	SM	1330 TX 1270 RX	10	-7.0 to -2.0	-12.0 to 2.0	5.0

C Band DWDM Dual Fiber Strands SFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
25 Gb/s	SV-SFP28-LRD1D##	SM	DWDM Wavelength	10	-3.0 to 2.0	-10.0 to 2.0	7.0

denotes DWDM 100GHz Spacing Wavelength Guide on page 102

Industrial temperature:
-40°C to +85°C

Dual Fiber SFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
25 Gb/s	SV-SFP28-LRD1H	SM	1310	10	-7.0 to 2.0	-14.0 to 11.3	7.0
	SV-SFP28-LRD2H	SM	1310	20	1.0 to 6.0	-14.5 to 2.5	15.5
	SV-SFP28-LRD4H	SM	1550	40	-1.0 to 6.0	-21.0 to -4.0	20.0
	SV-SFP28-ZRDH	SM	1300	80	2.0 to 7.0	-25.5 to -6.0	27.5

Single Fiber Strand SFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
25 Gb/s	SV-SFP28-LRD11H	SM	1270 TX 1330 RX	10	-4.0 to 2.2	-12.0 to 2.0	5.0
	SV-SFP28-LRD12H	SM	1330 TX 1270 RX	10	-4.0 to 2.2	-12.0 to 2.0	5.0
	SV-SFP28-LRD21H	SM	1270 TX 1330 RX	20	1.0 to 6.0	-12.0 to 2.0	5.0
	SV-SFP28-LRD22H	SM	1330 TX 1270 RX	20	1.0 to 6.0	-12.0 to 2.0	5.0
	SV-SFP28-LRD31H	SM	1270 TX 1330 RX	30	-1.0 to 6.0	-12.0 to 2.0	5.0
	SV-SFP28-LRD32H	SM	1330 TX 1270 RX	30	-1.0 to 6.0	-12.0 to 2.0	5.0
	SV-SFP28-LRD41H	SM	1270 TX 1330 RX	40	-1.0 to 6.0	-12.0 to 2.0	5.0
	SV-SFP28-LRD42H	SM	1330 TX 1270 RX	40	-1.0 to 6.0	-12.0 to 2.0	5.0

CWDM Dual Fiber Strands SFP28 Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
25 Gb/s	SV-SFP28-LRD1C##H	SM	1270 ~ 1330	10	-6.5 to 6	-14.0 to 2.5	7.5

denotes wavelength range from 1270~1610nm.

27 = 1270nm, 29=1290nm, 31=1310nm, 33=1330nm, 35=1350nm, 37=1370nm, 39=1390nm, 41=1410nm, 43=1430nm, 45=1450nm, 47=1470nm, 49=1490nm, 51=1510nm, 53=1530nm, 55=1550nm, 57=1570nm, 59=1590nm, 61=1610nm



10G SFP+

Small Form Pluggable Plus



Features

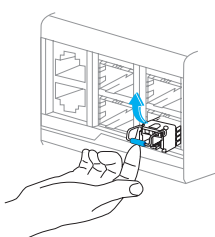
- Hot-Pluggable SFP+ Footprint
- Duplex/ Simplex LC Optical Transceiver
- Digital Diagnostic Function
- Class 1 Laser International Safety
- Standard IEC-60825 Compliant
- Compatible with SFP+ Multi-Sourcing Agreement (MSA)
- Dual Fiber Strands SFP+ Modules
- CWDM Dual Strands SFP+ Modules
- C Band DWDM Dual Fiber Strands SFP+ Modules
- Single Fiber Strand (Bi-Di) SFP+ Modules

Applications

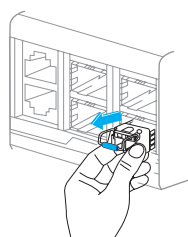
- OC192/STM64
- 1/10G Ethernet
- 1/2/4/8G Fiber Channel
- CPRI and OBSAI (1.25Gbps to 6.25Gbps)

Specifications

Standards	IEEE 802.3 2003; ANSI X3.297-1997
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V
Power Consumption	0.66 Watts (fiber) 1.0 Watts (copper)
Connector Type	LC
Environment	SFP+ -5°C – 85°C; 0°C – 70°C
Compliance	IEC-60825; FDA 21;CFR 1040.10 and 1040.11
Warranty	2 year



Step 1



Step 2

Step 1: Open the bale clasp on the SFP module with your index finger in a downward direction

Step 2: Grasp the SFP module between your thumb and index finger, and carefully remove it from the switching module port

Standard temperature:
0°C to +70°C

Ordering Information

Active Optical Cables

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
	SV-AOC-10GT3T3-1M			1			
	SV-AOC-10GT3T3-3M			3			
1/10 GbE	SV-AOC-10GT3T3-5M			5			
1/2/4/8 (FC)	SV-AOC-10GT3T3-7M			7			
	SV-AOC-10GT3T3-10M			10			

Direct Attach Cable

Data Rate	Part Number	Type	Wavelength	Length	TX Power	RX Sens.	Fiber Budget
			nm	m	dBm	dBm	dB
	SV-DAC-10GT3T3-1M			1			
1/10 GbE	SV-DAC-10GT3T3-1M			3			
1/2/4/8 (FC)	SV-DAC-10GT3T3-1M			5			
	SV-DAC-10GT3T3-1M			7			

Single Fiber Strand SFP+ Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFPP-10GLRD11	SM	1270 TX 1330 RX	10	-6.0 to -1.0	-14.4 to 0.5	8.4
	SV-SFPP-10GLRD12	SM	1330 TX 1270 RX	10	-6.0 to -1.0	-14.4 to 0.5	8.4
	SV-SFPP-10GLRD21	SM	1270 TX 1330 RX	20	-6.0 to -0.5	-15.0 to 0.5	9.0
1/10 GbE	SV-SFPP-10GLRD22	SM	1330 TX 1270 RX	20	-6.0 to -0.5	-15.0 to 0.5	9.0
1/2/4/8 (FC)	SV-SFPP-10GLRD41	SM	1270 TX 1330 RX	40	0 to 5.0	-15.0 to 0.5	15.0
	SV-SFPP-10GLRD42	SM	1330 TX 1270 RX	40	0 to 5.0	-15.0 to 0.5	15.0
	SV-SFPP-10GLRD61	SM	1270 TX 1330 RX	60	0 to 5.0	-20.0 to -6.0	20.0
	SV-SFPP-10GLRD62	SM	1330 TX 1270 RX	60	0 to 5.0	-20.0 to -6.0	20.0
	SV-SFPP-10GLRD85	SM	1550 TX 1490 RX	80	0 to 5.0	-23.0 to -6.0	23.0
	SV-SFPP-10GLRD86	SM	1490 TX 1550 RX	80	0 to 5.0	-23.0 to -6.0	23.0

Dual Fiber Strands SFP+ Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFPP-8GSRD	MM	850	0.15	-6.0 to -1.0	-10.0 to 0.5	1.0
	SV-SFPP-8GESRD	MM	1300	0.22	-6.5 to 0.5	-10.0 to 1.5	0.5
Fiber Channel	SV-SFPP-8GLRD1	SM	1310	10	-6.0 to -1.0	-15.0 to 0.5	9.0
1/2/ 4/ 8 (FC)	SV-SFPP-8GLRD2	SM	1310	20	-6.0 to -1.0	-15.0 to 0.5	9.0
	SV-SFPP-8GERD4	SM	1550	40	-1.0 to 3.0	-16.0 to 0.5	15.0
	SV-SFPP-8GZRD8	SM	1550	80	0 to 4.0	-23.0 to -6.0	23.0
	SV-SFPP-10GSRD	MM	850	0.3	-6.0 to -1.0	-10.0 to 0.5	1.0
	SV-SFPP-10GESRD	MM	1300	0.22	-6.5 to 0.5	-10.0 to 1.5	0.5
	SV-SFPP-10GLRD	SM	1310	2	-8.2 to 0.5	-14.4 to 0.5	6.2
1/10 GbE	SV-SFPP-10GLRD1	SM	1310	10	-6.0 to -1.0	-14.4 to 0.5	8.4
1/2/ 4/ 8 (FC)	SV-SFPP-10GLRD2	SM	1310	20	-6.0 to -1.0	-14.4 to 0.5	8.4
	SV-SFPP-10GERD4	SM	1550	40	-1.0 to 3.0	-15.8 to 0.5	14.8
	SV-SFPP-10GERD4(LP)*	SM	1550	40	-1.0 to 3.0	-15.8 to 0.5	14.8
	SV-SFPP-10GERD8	SM	1550	80	0 to 4.0	-23.0 to -7.0	23.0
	SV-SFPP-10GERD8(LP)*	SM	1550	80	0 to 4.0	-23.0 to -7.0	23.0
	SV-SFPP-10GERD10	SM	1550	100	1.5 to 5.0	-24.5 to -8.0	26.0
	SV-SFPP-10GERD12	SM	1550	120	2.0 to 6.0	-26.0 to -8.0	28.0
Fiber Channel	SV-SFPP-16GSRD	MM	850	0.1	-7.8 to 0	-10.5 to 0	2.7
4/ 8/ 16 (FC)	SV-SFPP-16GLRD1	SM	1310	10	-5 to 2.0	-12 to 2.0	7.0
	SV-SFPP-16GLRD4	SM	1550	40	0 to 4.0	-26 to -4.0	26.0

*LP denotes low power consumption

Copper SFP+ Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFPP-T3A			0.03			
10 GbE	SV-SFPP-T3C			0.03			
Multi-rate	SV-SFPP-T3A-M			0.03			

C Band DWDM Dual Fiber Strands SFP+ Modules
50GHz Spacing Wavelength

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
1/10 GbE	SV-SFPP-10GERD4AD##	SM	DWDM Wavelength	40	-1.0 to 3.0	-15.8 to 0.5	14.8
1/2/ 4/ 8 (FC)	SV-SFPP-10GERD8AD##	SM	DWDM Wavelength	80	-1.0 to 4.0	-23.0 to -6.0	22.0
	SV-SFPP-ZXDA8DT	SM	Tunable DWDM Wavelength	80	-1.0 to 3.0	-27.0 to -6.0	26.0

denotes DWDM 50GHz Spacing Wavelength Guide on page 103

CWDM Dual Fiber Strands SFP+ Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
1/10 GbE	SV-SFPP-10GERD4C##	SM	1270 ~ 1610	40	-1.0 to 3.0	-15.0 to 0.5	14.0
1/2/4/8 (FC)	SV-SFPP-10GERD8C##	SM	1470 ~ 1610	80	0 to 4.0	-23.0 to -7.0	23.0
4/8/16 (FC)	SV-SFPP-16GERD4C##	SM	1470 ~ 1610	40	0 to 4.0	-26.0 to -14.0	26.0

denotes wavelength range from 1270~1610nm.

27 = 1270nm, 29=1290nm, 31=1310nm, 33=1330nm, 35=1350nm, 37=1370nm, 39=1390nm, 41=1410nm, 43=1430nm, 45=1450nm, 47=1470nm, 49=1490nm, 51=1510nm, 53=1530nm, 55=1550nm, 57=1570nm, 59=1590nm, 61=1610nm

C Band DWDM Dual Fiber Strands SFP+ Modules
100GHz Spacing Wavelength

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
1/10 GbE	SV-SFPP-10GERD4D##	SM	DWDM Wavelength	40	-1.0 to 3.0	-15.8 to 0.5	14.8
1/2/4/8 (FC)	SV-SFPP-10GERD8D##	SM	DWDM Wavelength	80	0 to 4.0	-23.0 to -7.0	23.0

denotes DWDM 100GHz Spacing Wavelength Guide on page 102

Industrialtemperature:

-5°C to +85°C

Dual Fiber Strands SFP+ Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
Fiber Channel	SV-SFPP-8GLRD1H	SM	1310	10	-6.0 to -1.0	-15.0 to 0.5	9.0
1/2/4/8 (FC)	SV-SFPP-8GLRD2H	SM	1310	20	-6.0 to -1.0	-15 to 0.5	9.0
	SV-SFPP-8GERD4H	SM	1550	40	-1.0 to 3.0	-16 to 0.5	15.0
	SV-SFPP-8GZRD8H	SM	1550	80	0 to 4.0	-23 to -6	23.0
	SV-SFPP-10GLRDH	SM	1310	2	-8.2 to 0.5	-14.4 to 0.5	6.2
1/10 GbE	SV-SFPP-10GLRD1H	SM	1310	10	-6.0 to -1.0	-14.4 to 0.5	8.4
1/2/4/8 (FC)	SV-SFPP-10GLRD2H	SM	1310	20	-6.0 to -1.0	-14.4 to 0.5	8.4
	SV-SFPP-10GERD4H	SM	1550	40	-1.0 to 3.0	-15.8 to 0.5	14.8
	SV-SFPP-10GERD8H	SM	1550	80	0 to 4.0	-23.0 to -7.0	23.0

Copper SFP+ Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
10 GbE	SV-SFPP-T3AH			0.03			

CWDM Dual Fiber Strands SFP+ Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
1/10 GbE	SV-SFPP-10GERD4C##H	SM	1470 ~ 1610	40	-1.0 to 3.0	-15.0 to 0.5	14.0
1/2/4/8 (FC)	SV-SFPP-10GERD8C##H	SM	1470 ~ 1610	80	0 to 4.0	-23.0 to -7.0	23.0

denotes wavelength range from 1270~1610nm.

27 = 1270nm, 29=1290nm, 31=1310nm, 33=1330nm, 35=1350nm, 37=1370nm, 39=1390nm, 41=1410nm, 43=1430nm, 45=1450nm, 47=1470nm, 49=1490nm, 51=1510nm, 53=1530nm, 55=1550nm, 57=1570nm, 59=1590nm, 61=1610nm

Single Fiber Strand SFP+ Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFPP-10GLRD11H	SM	1270 TX 1330 RX	10	-6.0 to -1.0	-14.4 to 0.5	8.4
	SV-SFPP-10GLRD12H	SM	1330 TX 1270 RX	10	-6.0 to -1.0	-14.4 to 0.5	8.4
	SV-SFPP-10GLRD21H	SM	1270 TX 1330 RX	20	-6.0 to -0.5	-15.0 to 0.5	9.0
1/10 GbE	SV-SFPP-10GLRD22H	SM	1330 TX 1270 RX	20	-6.0 to -0.5	-15.0 to 0.5	9.0
1/2/4/8 (FC)	SV-SFPP-10GLRD41H	SM	1270 TX 1330 RX	40	0 to 5.0	-15.0 to 0.5	15.0
	SV-SFPP-10GLRD42H	SM	1330 TX 1270 RX	40	0 to 5.0	-15.0 to 0.5	15.0
	SV-SFPP-10GLRD61H	SM	1270 TX 1330 RX	60	0 to 5.0	-20.0 to -6.0	20.0
	SV-SFPP-10GLRD62H	SM	1330 TX 1270 RX	60	0 to 5.0	-20.0 to -6.0	20.0

CPRI Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFPP-6GSRDH	SM	850	0.3	-6.0 to -1.0	-15.0 to -1.0	6.0
Multi-rate	SV-SFPP-6GLRDH	SM	1310	2	-6.5 to 0.5	-14.4 to 0.5	7.9
1.25Gb/s to	SV-SFPP-6GLRD1H	SM	1310	10	-8.2 to 0.5	-14.4 to 0.5	6.2
6.25Gb/s	SV-SFPP-6GLRD2H	SM	1310	20	-8.2 to 0.5	-14.4 to 0.5	6.2
	SV-SFPP-6GLRD4H	SM	1550	40	-3.0 to 3.0	-14.1 to -1.0	11.1
	SV-SFPP-6GLRD8H	SM	1550	80	0 to 4.0	-24.0 to -7.0	24



1G SFP

Small Form Factor Pluggable



Features

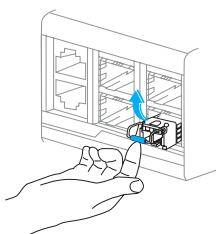
- Hot-Pluggable SFP Footprint
- Duplex/ Simplex LC Optical Transceiver
- Digital Diagnostic Function (optional)
- Class 1 Laser International Safety
- Standard IEC-60825 Compliant
- Compatible with SFP Multi-Sourcing Agreement (MSA)
- Copper SFP Modules
- Dual Fiber Strands SFP Modules
- CWDM Dual Fiber Strands SFP Modules
- C and L Band DWDM Dual Fiber Strands SFP Modules
- Single Fiber Strand (Bi-Di) SFP Modules

Applications

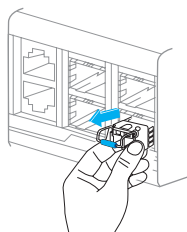
- Ethernet (100M/ 1G)
- 1G/ 2G/ 4G Fiber channel
- OC-3/12/48 or STM-1/4/16
- CPRI/ OBSAI
- Multi-rate 100Mbps to 1.25Gbps and 100Mbps to 4.25Gbps
- GPON OLT/ ONT (1.25/2.5Gbps)

Specifications

Standards	IEEE 802.3 2003; ANSI X3.297-1997
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V
Power Consumption	0.66 Watts (fiber) 1.0 Watts (copper)
Connector Type	LC
Environment	SFP -40°C – 85°C; 0°C – 70°C
Compliance	IEC-60825; FDA 21;CFR 1040.10 and 1040.11
Warranty	2 year



Step 1



Step 2

Step 1: Open the bale clasp on the SFP module with your index finger in a downward direction

Step 2: Grasp the SFP module between your thumb and index finger, and carefully remove it from the switching module port

Standard temperature:
0°C to +70°C

Ordering Information

Copper SFP Modules

Data Rate	Part Number	Equipment Compatibility	Distance	Interface Type	Link Auto	LOS Ground	Support TX Disable
			km				
	SV-SFP-T1A		0.1	SGMII	Yes	Yes	No
10/100/1000Mb/s	SV-SFP-T1B	CISCO ASR9K	0.1	SGMII	Yes	No	Yes
	SV-SFP-T1C	Alcatel SDH	0.1	SGMII	Yes	No	No
	SV-SFP-T2A		0.1	Serdes	No	No	No
1000Mb/s	SV-SFP-T2B	CISCO Nexus, Huawei	0.1	Serdes	No	Yes	Yes
2500Mb/s	SV-SFP-T2.5A		0.1	Serdes	No	Yes	Yes

Dual Fiber Strands SFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFP-OC3M8D	MM	850	2	-9.0 to -3.0	-24.0 to -6.0	12.0
	SV-SFP-OC3MD	MM	1310	2	-24.0 to -14.0	-28.0 to -8.0	5.0
	SV-SFP-OC3SD2	SM	1310	20	-15.0 to -8.0	-29.0 to -8.0	14.0
100 Mb/s	SV-SFP-OC3SD4	SM	1310	40	-7.0 to -2.0	-32.0 to -10.0	25.0
(FE / STM-1 / OC-3)	SV-SFP-OC3SD8	SM	1550	80	-5.0 to 0	-33.0 to -10.0	28.0
	SV-SFP-OC3SD12	SM	1550	120	-2.0 to 3.0	-34.0 to -10.0	32.0
	SV-SFP-OC3SD16	SM	1550	160	1.0 to 5.0	-37.0 to -10.0	36.0
	SV-SFP-OC12SD2	SM	1310	20	-15.0 to -8.0	-28.0 to -8.0	13.0
622 Mb/s	SV-SFP-OC12SD4	SM	1310	40	-5.0 to 0	-28.0 to -8.0	23.0
(STM-4 / OC-12)	SV-SFP-OC12SD8	SM	1550	80	-3.0 to 2.0	-28.0 to -8.0	25.0
	SV-SFP-OC12SD12	SM	1550	120	0 to 5.0	-31.0 to -8.0	31.0
	SV-SFP-SXD	MM	850	0.22	-9.0 to -3.0	-17.0 to 0	5.0
	SV-SFP-ESXD	MM	1300	2	-5.0 to 0	-20.0 to 0	15.0
	SV-SFP-LXD1	SM	1310	10	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD2	SM	1310	20	-9.0 to -3.0	-20.0 to -3.0	11.0
1.25 Gb/s	SV-SFP-LXD4	SM	1310	40	-5.0 to 0	-24.0 to -1.0	19.0
(Gbe / FC)	SV-SFP-ZXD6	SM	1550	60	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-ZXD8	SM	1550	80	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-ZXD12	SM	1550	120	0 to 5.0	-31.0 to -10.0	31.0
	SV-SFP-ZXD16	SM	1550	160	2.0 to 6.0	-34.0 to -10.0	36.0
	SV-SFP-2GSXD	MM	850	0.3	-10.0 to -3.0	-18.0 to -3.0	5.0
	SV-SFP-2GLXD	SM	1310	2	-9.0 to -3.0	-18.0 to -3.0	9.0
Multi-rate	SV-SFP-2GLXD1	SM	1310	10	-5.0 to 0	-19.0 to 0	14.0
100 Mb/s to 2.488 Gb/s	SV-SFP-2GLXD2	SM	1310	20	-5.0 to 0	-19.0 to 0	14.0
	SV-SFP-2GLXD4	SM	1310	40	-2.0 to 3.0	-19.0 to 0	17.0
	SV-SFP-2GZXD4	SM	1550	40	-2.0 to 3.0	-19.0 to 0	17.0
	SV-SFP-2GZXD8	SM	1550	80	0 to 5.0	-26.0 to -9.0	26.0
	SV-SFP-2GZXD12	SM	1550	120	2.0 to 6.0	-30.0 to -10.0	32.0
	SV-SFP-4GSXD	MM	850	0.55	-9.0 to -2.5	-16.0 to 0	4.0
	SV-SFP-4GLXD	SM	1310	2	-6.0 to -1.0	-18.0 to 0.5	12.0
Multi-rate	SV-SFP-4GLXD1	MM	1310	10	-6.0 to -1.0	-18.0 to 0.5	12.0
100 Mb/s to 4.25 Gb/s	SV-SFP-4GLXD2	SM	1310	20	-6.0 to -1.0	-18.0 to 0.5	12.0
	SV-SFP-4GLXD4	SM	1310	40	-1.0 to 4.0	-18.0 to 0.5	17.0

Single Fiber Strand SFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget	
			nm	km	dBm	dBm	dB	
100 Mb/s (FE / STM-1 / OC-3)	SV-SFP-OC3SD21	SM	1310 TX 1550 RX	20	-15.0 to -7.0	-28.0 to -8.0	13.0	
	SV-SFP-OC3SD22	SM	1550 TX 1310 RX	20	-15.0 to -7.0	-28.0 to -8.0	13.0	
	SV-SFP-OC3SD41	SM	1310 TX 1550 RX	40	-7.0 to -2.0	-32.0 to -8.0	25.0	
	SV-SFP-OC3SD42	SM	1550 TX 1310 RX	40	-7.0 to -2.0	-32.0 to -8.0	25.0	
	SV-SFP-OC3SD61	SM	1310 TX 1550 RX	60	-3.0 to +3.0	-32.0 to -3.0	29.0	
	SV-SFP-OC3SD62	SM	1550 TX 1310 RX	60	-3.0 to +3.0	-32.0 to -3.0	29.0	
	SV-SFP-OC3SD83	SM	1490 TX 1550 RX	80	-5.0 to 0	-33.0 to -8.0	28.0	
	SV-SFP-OC3SD84	SM	1550 TX 1490 RX	80	-5.0 to 0	-33.0 to -8.0	28.0	
	SV-SFP-OC3SD123	SM	1490 TX 1550 RX	120	-2.0 to 3.0	-34.0 to -10.0	32.0	
	SV-SFP-OC3SD124	SM	1550 TX 1490 RX	120	-2.0 to 3.0	-34.0 to -10.0	32.0	
	SV-SFP-OC3SD163	SM	1490 TX 1550 RX	160	0 to 5.0	-35.0 to -10.0	35.0	
	SV-SFP-OC3SD164	SM	1550 TX 1490 RX	160	0 to 5.0	-35.0 to -10.0	35.0	
	1.25 Gb/s (Gbe)	SV-SFP-ESXD1	MM	1310 TX 1550 RX	2	-11.0 to -3.0	-19.0 to -3.0	8.0
		SV-SFP-ESXD2	MM	1550 TX 1310 RX	2	-11.0 to -3.0	-19.0 to -3.0	8.0
SV-SFP-LXD11		SM	1310 TX 1550 RX	10	-9.0 to -3.0	-20.0 to -3.0	11.0	
SV-SFP-LXD12		SM	1550 TX 1310 RX	10	-9.0 to -3.0	-20.0 to -3.0	11.0	
SV-SFP-LXD13		SM	1310 TX 1490 RX	10	-9.0 to -3.0	-20.0 to -3.0	11.0	
SV-SFP-LXD14		SM	1490 TX 1310 RX	10	-9.0 to -3.0	-20.0 to -3.0	11.0	
SV-SFP-LXD21		SM	1310 TX 1550 RX	20	-9.0 to -3.0	-20.0 to -3.0	11.0	
SV-SFP-LXD22		SM	1550 TX 1310 RX	20	-9.0 to -3.0	-20.0 to -3.0	11.0	
SV-SFP-LXD23		SM	1310 TX 1490 RX	20	-9.0 to -3.0	-20.0 to -3.0	11.0	
SV-SFP-LXD24		SM	1490 TX 1310 RX	20	-9.0 to -3.0	-20.0 to -3.0	11.0	
SV-SFP-LXD41		SM	1310 TX 1550 RX	40	-5.0 to 0	-24.0 to 1.0	19.0	
SV-SFP-LXD42		SM	1550 TX 1310 RX	40	-5.0 to 0	-24.0 to 1.0	19.0	
SV-SFP-LXD43		SM	1310 TX 1490 RX	40	-5.0 to 0	-24.0 to 1.0	19.0	
SV-SFP-LXD44		SM	1490 TX 1310 RX	40	-5.0 to 0	-24.0 to 1.0	19.0	
SV-SFP-LXD61		SM	1310 TX 1550 RX	60	0 to 5.0	-26.0 to -3.0	26.0	
SV-SFP-LXD62		SM	1550 TX 1310 RX	60	0 to 5.0	-26.0 to -3.0	26.0	
SV-SFP-LXD81		SM	1310 TX 1550 RX	80	0 to 5.0	-26.0 to -3.0	26.0	
SV-SFP-LXD82		SM	1550 TX 1310 RX	80	0 to 5.0	-26.0 to -3.0	26.0	
SV-SFP-LXD85	SM	1550 TX 1490 RX	80	0 to 5.0	-26.0 to -3.0	26.0		
SV-SFP-LXD86	SM	1490 TX 1550 RX	80	0 to 5.0	-26.0 to -3.0	26.0		
Multi-rate 100 Mb/s to 2.67 Gb/s	SV-SFP-LXD125	SM	1550 TX 1490 RX	120	0 to 5.0	-31.0 to -10.0	31.0	
	SV-SFP-LXD126	SM	1490 TX 1550 RX	120	0 to 5.0	-31.0 to -10.0	31.0	
	SV-SFP-2GLXD21	SM	1310 TX 1550 RX	20	-5.0 to 0	-19.0 to -1.0	14.0	
	SV-SFP-2GLXD22	SM	1550 TX 1310 RX	20	-5.0 to 0	-19.0 to -1.0	14.0	
	SV-SFP-2GLXD41	SM	1310 TX 1550 RX	40	-2.0 to 3.0	-19.0 to 0	17.0	
	SV-SFP-2GLXD42	SM	1550 TX 1310 RX	40	-2.0 to 3.0	-19.0 to 0	17.0	
	SV-SFP-2GLXD85	SM	1490 TX 1550 RX	80	0 to 5.0	-26.0 to -8.0	26.0	
	SV-SFP-2GLXD86	SM	1550 TX 1490 RX	80	0 to 5.0	-26.0 to -8.0	26.0	

C Band DWDM Dual Fiber Strands SFP Modules 100GHz Spacing Wavelength

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
Multi-rate	SV-SFP-ZXD8D##	SM	DWDM Wavelength	80	0 to 4.0	-26.0 to -10.0	26.0
100 Mb/s to 1.25 Gb/s	SV-SFP-ZXD12D##	SM	DWDM Wavelength	120	0 to 5.0	-30.0 to -10.0	30.0
Multi-rate	SV-SFP-2GZXD8D##	SM	DWDM Wavelength	80	0 to 4.0	-28.0 to -10.0	28.0
100 Mb/s to 2.67 Gb/s	SV-SFP-2GZXD12D##	SM	DWDM Wavelength	120	0 to 5.0	-29.0 to -9.0	29.0

denotes DWDM 100GHz Spacing Wavelength Guide on page 102

C Band DWDM Dual Fiber Strands SFP Modules 50GHz Spacing Wavelength

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
Multi-rate	SV-SFP-ZXD8AD##	SM	DWDM Wavelength	80	0 to 4.0	-26.0 to -3.0	26.0
100 Mb/s to 1.25 Gb/s	SV-SFP-ZXD12AD##	SM	DWDM Wavelength	120	0 to 5.0	-30.0 to -6.0	30.0
Multi-rate	SV-SFP-2GZXD8AD##	SM	DWDM Wavelength	80	0 to 4.0	-28.0 to -10.0	28.0
100 Mb/s to 2.67 Gb/s	SV-SFP-2GZXD12AD##	SM	DWDM Wavelength	120	0 to 5.0	-29.0 to -9.0	29.0

denotes DWDM 50GHz Spacing Wavelength Guide on page 103

CWDM Dual Fiber Strands SFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Mb/s	SV-SFP-OC3SD12C##	SM	1470nm ~ 1610nm	120	-2.0 to 3.0	-34.0 to -10.0	32.0
(FE / STM-1 / OC-3)	SV-SFP-OC3SD16C##	SM	1450nm ~ 1610nm	160	0 to 5.0	-35.0 to -10.0	35.0
	SV-SFP-ZXD4C##	SM	1270nm ~ 1610nm	40	-5.0 to 0	-24.0 to -1.0	19.0
1.25 Gb/s	SV-SFP-ZXD8C##	SM	1270nm ~ 1610nm	80	0 to 5.0	-26.0 to -3.0	26.0
(Gbe / FC)	SV-SFP-ZXD12C##	SM	1470nm ~ 1610nm	120	0 to 5.0	-32.0 to -10.0	32.0
	SV-SFP-ZXD16C##	SM	1470nm ~ 1610nm	160	2.0 to 6.0	-34.0 to -10.0	36.0
	SV-SFP-2GZX4CD##	SM	1270nm ~ 1610nm	40	-2.0 to 3.0	-19.0 to 0	17.0
Multi-rate	SV-SFP-2GZX8CD##	SM	1270nm ~ 1610nm	80	0 to 5.0	-28.0 to -9.0	28.0
100 Mb/s to 2.488 Gb/s	SV-SFP-2GZX12CD##	SM	1470nm ~ 1610nm	120	2.0 to 6.0	-30.0 to -10.0	32.0
100 Mb/s to 4.25 Gb/s	SV-SFP-4GZXD4C##	SM	1310nm ~ 1610nm	40	-1.0 to 4.0	-18.0 to 0.5	17.0

denotes wavelength range from 1270~1610nm.

27 = 1270nm, 29=1290nm, 31=1310nm, 33=1330nm, 35=1350nm, 37=1370nm, 39=1390nm, 41=1410nm, 43=1430nm, 45=1450nm, 47=1470nm, 49=1490nm, 51=1510nm, 53=1530nm, 55=1550nm,57=1570nm, 59=1590nm, 61=1610nm

SGMII SFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Mb/s	SV-SFP-SGLXD2		1310nm	20.0	-15.0 to -8.0	-31.0 to -8.0	16.0
	SV-SFP-SGLXD4		1310nm	40.0	-5.0 to 0	-34.0 to 0	29.0

SGMII SFP Modules - Single Fiber Strand SFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Mb/s	SV-SFP-SGLXD41		1310 TX 1550 RX	40.0	-8.0 to -3.0	-32.0 to -8.0	24.0
	SV-SFP-SGLXD42		1550 RX 1310RX	40.0	-8.0 to -3.0	-32.0 to -8.0	24.0

Industrial temperature:
-40°C to +85°C

Dual Fiber Strands SFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFP-OC3M8DH	MM	850	2	-9.0 to -3.0	-24.0 to -6.0	12.0
	SV-SFP-OC3MDH	MM	1310	2	-24.0 to -14.0	-28.0 to -8.0	5.0
	SV-SFP-OC3SD2H	SM	1310	20	-15.0 to -8.0	-29.0 to -8.0	14.0
100 Mb/s	SV-SFP-OC3SD4H	SM	1310	40	-7.0 to -2.0	-32.0 to -10.0	25.0
(FE / STM-1 / OC-3)	SV-SFP-OC3SD8H	SM	1550	80	-5.0 to 0.0	-33.0 to -10.0	28.0
	SV-SFP-OC3SD12H	SM	1550	120	-2.0 to 3.0	-34.0 to -10.0	32.0
	SV-SFP-OC3SD16H	SM	1550	160	1.0 to 5.0	-37.0 to -10.0	36.0
	SV-SFP-OC12SD2H	SM	1310	20	-15.0 to -8.0	-28.0 to -8.0	13.0
622 Mb/s	SV-SFP-OC12SD4H	SM	1310	40	-5.0 to 0	-28.0 to -8.0	23.0
(STM-4 / OC-12)	SV-SFP-OC12SD8H	SM	1550	80	-3.0 to 2.0	-28.0 to -8.0	25.0
	SV-SFP-OC12SD12H	SM	1550	120	0 to 5.0	-31.0 to -8.0	31.0
	SV-SFP-SXDH	MM	850	0.22	-9.0 to -3.0	-17.0 to 0	5.0
	SV-SFP-ESXDH	MM	1300	2	-5.0 to 0	-20.0 to 0	15.0
	SV-SFP-LXD1H	SM	1310	10	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD2H	SM	1310	20	-9.0 to -3.0	-20.0 to -3.0	11.0
1.25 Gb/s	SV-SFP-LXD4H	SM	1310	40	-5.0 to 0	-24.0 to -1.0	19.0
(Gbe / FC)	SV-SFP-ZXD6H	SM	1550	60	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-ZXD8H	SM	1550	80	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-ZXD12H	SM	1550	120	0 to 5.0	-31.0 to -10.0	31.0
	SV-SFP-ZXD16H	SM	1550	160	2.0 to 6.0	-34.0 to -10.0	36.0
	SV-SFP-2GSXDH	MM	850	0.30	-10.0 to -3.0	-18.0 to -3.0	5.0
Multi-rate	SV-SFP-2GLXDH	SM	1310	2	-9.0 to -3.0	-18.0 to -3.0	9.0
100 Mb/s to 2.488 Gb/s	SV-SFP-2GLXD1H	SM	1310	10	-5.0 to 0	-19.0 to 0	14.0

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
Multi-rate 100 Mb/s to 2.488 Gb/s	SV-SFP-2GLXD2H	SM	1310	20	-5.0 to 0	-19.0 to 0	14.0
	SV-SFP-2GZXD4H	SM	1550	40	-2.0 to 3.0	-19.0 to 0	17.0
	SV-SFP-2GZXD8H	SM	1550	80	0 to 5.0	-26.0 to -9.0	26.0
	SV-SFP-2GZXD12H	SM	1550	120	1.0 to 6.0	-30.0 to -6.0	31.0
Multi-rate 100 Mb/s to 4.25 Gb/s	SV-SFP-4GSXDH	MM	850	0.55	-9.0 to -2.5	-16.0 to 0	4.0
	SV-SFP-4GLXDH	SM	1310	2	-6.0 to -1.0	-18.0 to 0.5	12.0
	SV-SFP-4GLXD1H	MM	1310	10	-6.0 to -1.0	-18.0 to 0.5	12.0
	SV-SFP-4GLXD2H	SM	1310	20	-6.0 to -1.0	-18.0 to 0.5	12.0
	SV-SFP-4GLXD4H	SM	1310	40	-1.0 to 4.0	-18.0 to 0.5	17.0

Copper SFP Modules

Data Rate	Part Number	Equipment Compatibility	Distance	Interface Type	Link Auto	LOS Ground	Support TX Disable
			km				
10/100/1000Mb/s	SV-SFP-T1AH		0.1	SGMII	Yes	Yes	No
	SV-SFP-T1BH	CISCO ASR9K	0.1	SGMII	Yes	No	Yes
	SV-SFP-T1CH	Alcatel SDH	0.1	SGMII	Yes	No	No
1000Mb/s	SV-SFP-T2AH		0.1	Serdes	No	No	No
	SV-SFP-T2BH	CISCO Nexus, Huawei	0.1	Serdes	No	Yes	Yes

Single Fiber Strand SFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
100 Mb/s (FE / STM-1 / OC-3)	SV-SFP-OC3SD21H	SM	1310 TX 1550 RX	20	-15.0 to -7.0	-28.0 to -8.0	13.0
	SV-SFP-OC3SD22H	SM	1550 TX 1310 RX	20	-15.0 to -7.0	-28.0 to -8.0	13.0
	SV-SFP-OC3SD41H	SM	1310 TX 1550 RX	40	-7.0 to -2.0	-32.0 to -8.0	25.0
	SV-SFP-OC3SD42H	SM	1550 TX 1310 RX	40	-7.0 to -2.0	-32.0 to -8.0	25.0
	SV-SFP-OC3SD61H	SM	1310 TX 1550 RX	60	-3.0 to 3.0	-32.0 to -3.0	29.0
	SV-SFP-OC3SD62H	SM	1550 TX 1310 RX	60	-3.0 to 3.0	-32.0 to -3.0	29.0
	SV-SFP-OC3SD83H	SM	1490 TX 1550 RX	80	-5.0 to 0	-33.0 to -8.0	28.0
	SV-SFP-OC3SD84H	SM	1550 TX 1490 RX	80	-5.0 to 0	-33.0 to -8.0	28.0
	SV-SFP-OC3SD123H	SM	1490 TX 1550 RX	120	-2.0 to 3.0	-34.0 to -10.0	32.0
	SV-SFP-OC3SD124H	SM	1550 TX 1490 RX	120	-2.0 to 3.0	-34.0 to -10.0	32.0
1.25 Gb/s (Gbe)	SV-SFP-ESXD1H	MM	1310 TX 1550 RX	2	-11.0 to -3.0	-19.0 to -3.0	8.0
	SV-SFP-ESXD2H	MM	1550 TX 1310 RX	2	-11.0 to -3.0	-19.0 to -3.0	8.0
	SV-SFP-LXD11H	SM	1310 TX 1550 RX	10	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD12H	SM	1550 TX 1310 RX	10	-9.0 to -3.0	-20.0 to -3.0	11.0

Single Fiber Strand SFP Modules

Data Rate	Part Number	Type	Wavelength	Distance	TX Power	RX Sens.	Fiber Budget
			nm	km	dBm	dBm	dB
	SV-SFP-LXD13H	SM	1310 TX 1490 RX	10	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD14H	SM	1490 TX 1310 RX	10	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD21H	SM	1310 TX 1550 RX	20	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD22H	SM	1550 TX 1310 RX	20	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD23H	SM	1310 TX 1490 RX	20	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD24H	SM	1490 TX 1310 RX	20	-9.0 to -3.0	-20.0 to -3.0	11.0
	SV-SFP-LXD41H	SM	1310 TX 1550 RX	40	-5.0 to 0	-24.0 to 1.0	19.0
1.25 Gb/s	SV-SFP-LXD42H	SM	1550 TX 1310 RX	40	-5.0 to 0	-24.0 to 1.0	19.0
(Gbe)	SV-SFP-LXD43H	SM	1310 TX 1490 RX	40	-5.0 to 0	-24.0 to 1.0	19.0
	SV-SFP-LXD44H	SM	1490 TX 1310 RX	40	-5.0 to 0	-24.0 to 1.0	19.0
	SV-SFP-LXD61H	SM	1310 TX 1550 RX	60	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-LXD62H	SM	1550 TX 1310 RX	60	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-LXD81H	SM	1310 TX 1550 RX	80	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-LXD82H	SM	1550 TX 1310 RX	80	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-LXD85H	SM	1550 TX 1490 RX	80	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-LXD86H	SM	1490 TX 1550 RX	80	0 to 5.0	-26.0 to -3.0	26.0
	SV-SFP-LXD125H	SM	1550 TX 1490 RX	120	0 to 5.0	-31.0 to -10.0	31.0
	SV-SFP-LXD126H	SM	1490 TX 1550 RX	120	0 to 5.0	-31.0 to -10.0	31.0
	SV-SFP-2GLXD21H	SM	1310 TX 1550 RX	20	-5.0 to 0	-19.0 to -1.0	14.0
	SV-SFP-2GLXD22H	SM	1550 TX 1310 RX	20	-5.0 to 0	-19.0 to -1.0	14.0
Multi-rate	SV-SFP-2GLXD41H	SM	1310 TX 1550 RX	40	-2.0 to 3.0	-19.0 to 0	17.0
100 Mb/s to 2.67 Gb/s	SV-SFP-2GLXD42H	SM	1550 TX 1310 RX	40	-2.0 to 3.0	-19.0 to 0	17.0
	SV-SFP-2GLXD85H	SM	1490 TX 1550 RX	80	0 to 5.0	-26.0 to -8.0	26.0
	SV-SFP-2GLXD86H	SM	1550 TX 1490 RX	80	0 to 5.0	-26.0 to -8.0	26.0

STARMUX

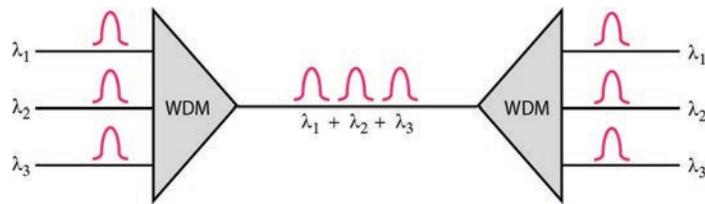
Starview CWDM Mux/Demux



- Cost Effective
- Duplex/ Simplex WAN Fiber connection
- Metallic casing and connectors
- Passive Equipment suitable for outdoor enclosure
- Compact Enclosure
- Low insertion loss
- Maximize Fiber Usage
- Maximum 9 CH CWDM for Rack Mount Enclosure Module
- Maximum 18 CH CWDM for 19" Rack Mount able unit

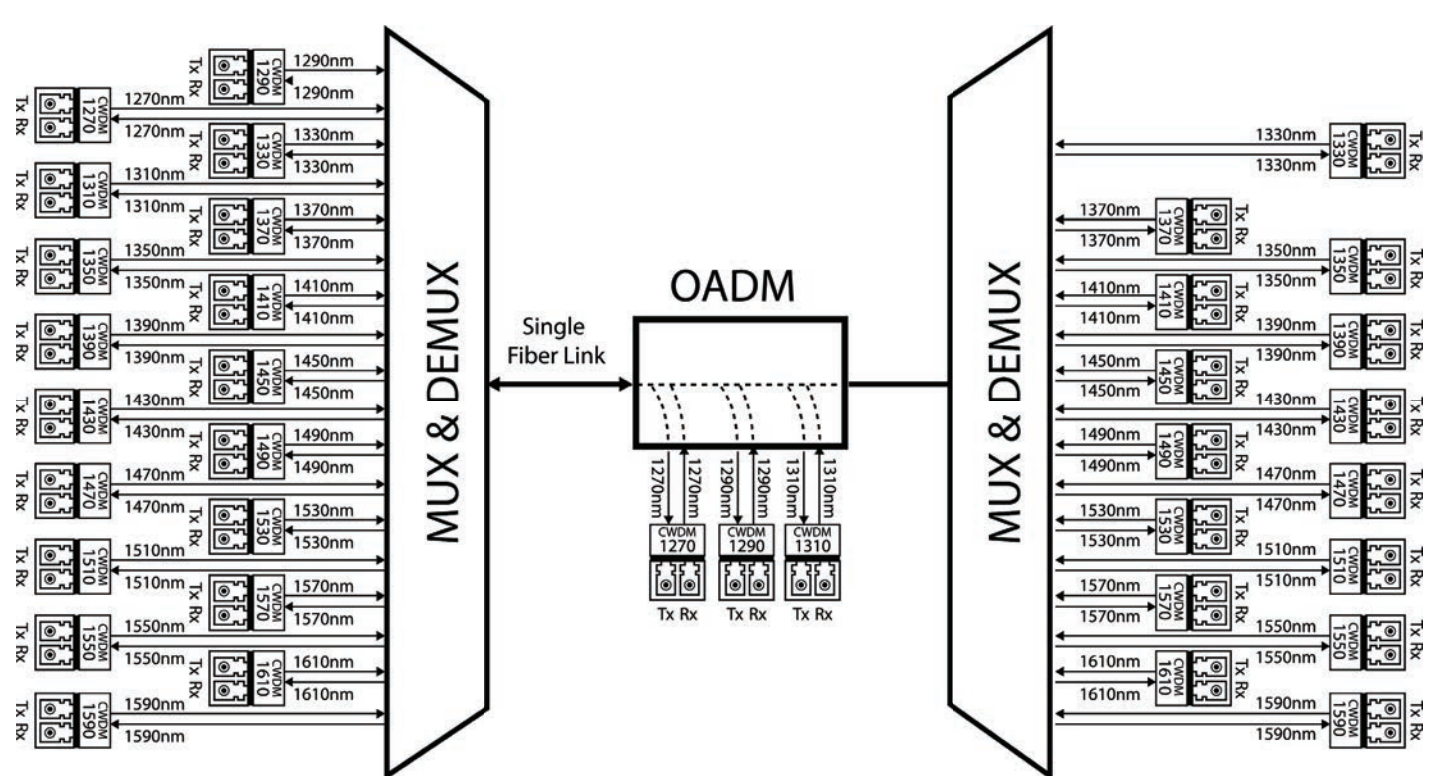
What is WDM?

- Wavelength Division Multiplexing
- Technique where optical signals with different wavelengths are combined, transmitted together, and separated again. It is mostly used for optical fiber communications to transmit data in several (or even many) channel with slightly different wavelengths
- Widely used to increase capacity on routes with fiber exhaustion
- Inexpensive alternative to installing more fiber or leasing additional fibers



CWDM Mux/ Demux and OADM

CWDM	Mux / Demux	OADM
Abbreviations	Multiplexing and Demultiplexing	Optical Add and Drop Multiplexing
Components	Consists of Optical combiner and splitters	Consists of Optical circulators, combiners and splitters
Topology	Point to Point	Linear Add and Drop
Insertion loss	3.5dB per channel	1.7dB per channel





STARMUX Chassis



Bracket

Features

- Low insertion loss
- Wide pass band
- High channel Isolation
- High stability and reliability

Applications

- Line monitoring
- CWDM DWDM Add/Drop
- WDM network

- Rack mount up to 2 of the STARMUX modules in 1 unpowered shelf
- Space saving design: save rack space in low density deployments: 19" rack mount, 1RU high
- Reversible rack mount ears for either 19" or 23" rack mount installations
- Flexibility in design and deployment
- Deep enough to hold the external AC/DC power supply
- Securely mounts the STARMUX into the shelf

Specifications

Parameters	
Operating Temperature	-5°C to 75°C
Storage Temperature	-40°C to 85°C
Package Dimension	19" case packaging 500mm x 285mm x 85mm
Weight	Chassis: 1.47KG

Ordering Information

SVR-STARMUX-19R
Starview 19" Rack Mountable STARMUX chassis for up to 2 x STARMUX module

SVR-BRACKET-23
Starview L-Bracket - 23" RACK MOUNT EAR KIT for STARMUX and STARTAP chassis



STARMUX Indoor



Starview Mux/Demux Module



Starview Rack Mount Chassis

Features

- Increase bandwidth on existing fiber infrastructure
- Alleviate fiber exhaustion
- Transmit multiple protocols over an existing duplex fiber link by combining the fiber outputs of multiple media converters
- "Plug and play," no configuration of CWDM components
- Provide scalable bandwidth of up to 10Gbps per channel over existing fiber links
- Use existing standard optical ports on switches and routers

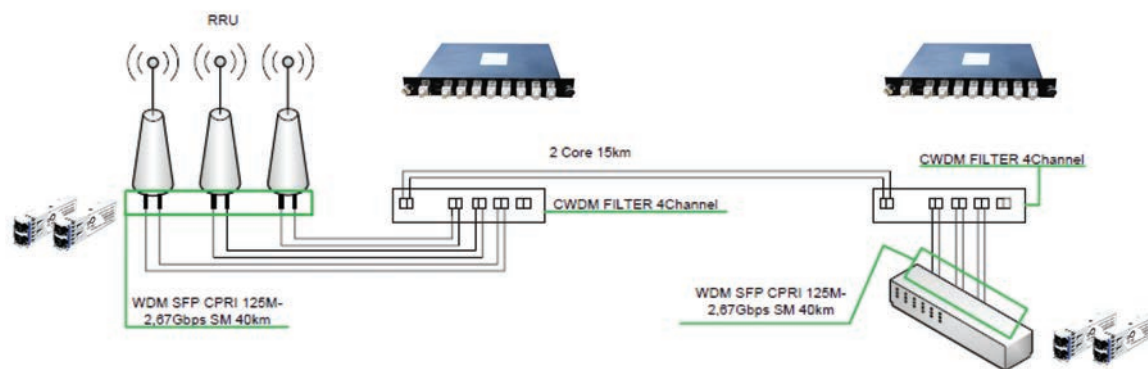
Applications

- Line Monitoring
- WDM Network
- Fiber Optical amplifie

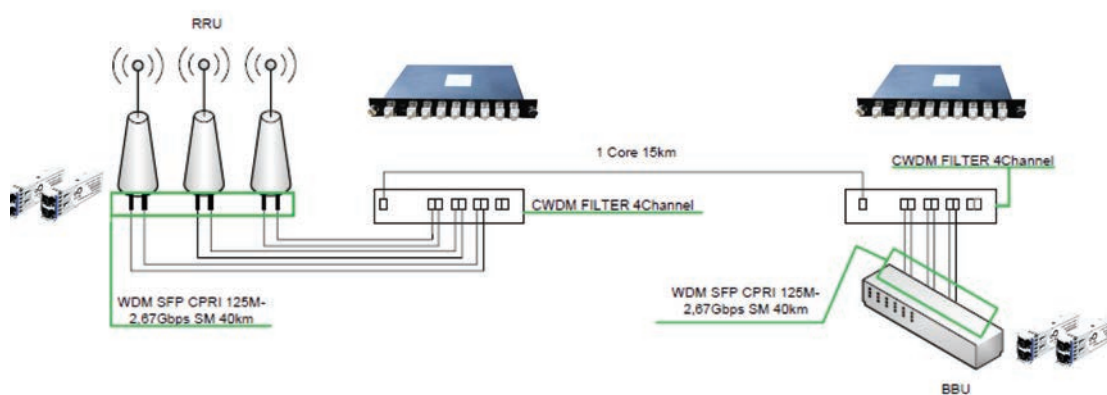
Specifications

Parameters	4 Channel	5 Channel	8 / 9 Channel	16 / 18 Channel
Operating Wavelength	1500nm ~ 1620nm	1500nm ~ 1620nm	1270nm ~ 1610nm	1270nm ~1610nm
Center Wavelength	1510nm ~ 1610nm	1510nm ~ 1610nm		
Max Insertion Loss	1.7 dB/channel	2.0 dB/channel	≤ 2.5 dB	≤ 3.5 dB
Channel Uniformity			≤1.0 dB	≤1.5 dB
Channel Ripple			0.3 dB	0.3 dB
Isolation Adjacent			>30 dB (Demux)	>30 dB (Demux)
Isolation Non-adjacent			>40 dB(Demux)	>40 dB (Demux)
Insertion Loss Temp. Sensitivity			<0.005 dB/°C	
Wavelength Temp. Shifting			<0.002 nm/°C	
Polarization Dependent Loss			<0.1 dB	
Polarization Mode Dispersion			<0.1 PS	
Directivity			>50 dB	
Return Loss			>45 dB	
Maximum Power Handling			500 mW	
Operating Temperature			-5°C to 75°C	
Storage Temperature			-40°C to 85°C	
Package Dimension	19"case packaging 500mm x 285mm x 85mm			
Weight			Chassis: 1.47KG	Module: 0.45KG

Applications – CWDM with dual fiber connection



Applications – CWDM with single fiber connection



Ordering Information

Accessory:

SVR-STARMUX-19R

Starview 19" Rack Mountable STARMUX chassis for up to 2 x STARMUX module

SVR-BRACKET-23

Starview L-Bracket - 23" RACK MOUNT EAR KIT for STARMUX and STARTAP chassis

Manufacturer: SVR: Chassis with CWDM (16/18Port)

SV: Mux/ Demux Module

Type: CWDM MUX/DEMUX

Channel 827: 8 Ch. 1270 ~ 1410nm

Configuration: 847: 8 Ch. 1470 ~ 1610nm

947: 9 Ch. 1470 ~ 1610nm+1310nm

1627: 16 Ch. 1270 ~ 1610nm

-1430nm-1450nm

1827: 18 Ch. 1270 ~ 1610nm

Fiber Type: S: Simplex Type D: Duplex Type

Connectors: LC: LC/PC SC: SC/PC

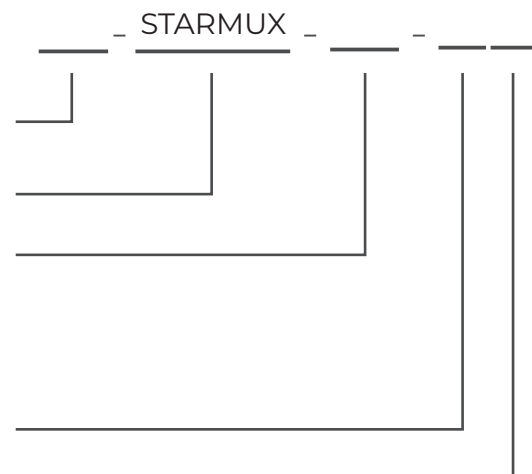
Example:

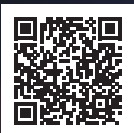
SVR-STARMUX-1627-DLC

Starview 19" Rack Mountable STARMUX chassis with 16 x CWDM wavelengths 1270/ 1290/ 1310/ 1330/ 1350/ 1370/ 1390/ 1410/ 1470/ 1490/1510/ 1530/ 1550/ 1570/ 1590/ 1610nm and 1 x Duplex LC/UPC COM port

SV-STARMUX-827-DLC

Starview STARMUX 8 Channel Mux/ Demux Module with CWDM wavelengths 1270/ 1290/ 1310/ 1330/ 1350/ 1370/ 1390/ 1410nm and 1 x Duplex LC/UPC COM port





Features

- Increase bandwidth on existing fiber infrastructure
- Alleviate fiber exhaustion
- Transmit multiple protocols over an existing duplex fiber link by combining the fiber outputs of multiple media converters
- "Plug and play," no configuration of CWDM components
- Provide scalable bandwidth of up to 10Gbps per channel over existing fiber links
- Use existing standard optical ports on switches and routers

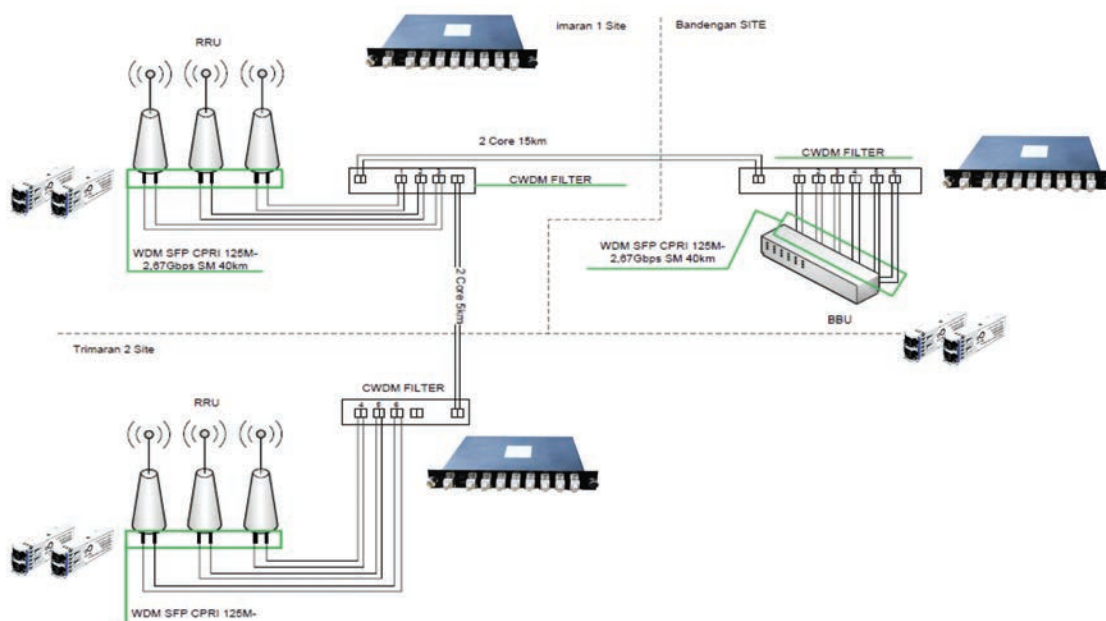
Applications

- Line Monitoring
- WDM Network
- Fiber Optical amplifier

Specifications

Parameters	4 Channel	5 Channel	8 / 9 Channel
Operating Wavelength	1500nm ~ 1620nm		1460nm ~ 1620nm
Center Wavelength	1510nm ~ 1610nm		1470nm ~ 1610nm
Add/Drop Ch. Max Insertion Loss	0.7 dB		0.7 dB
Pass Ch. Max Insertion Loss	1.0 dB		1.0 dB
Insertion Loss Temp. Sensitivity	<0.005 dB/°C		
Wavelength Temp. Shifting	<0.002 nm/°C		
Polarization Dependent Loss	<0.1 dB		
Polarization Mode Dispersion	<0.1 PS		
Directivity	>50 dB		
Return Loss	>45 dB		
Maximum Power Handling	500 mW		
Operating Temperature	-5°C to 75°C		
Storage Temperature	-40°C to 85°C		
Weight	0.45KG		

Applications – CWDM with OADM fiber connection



Ordering Information

Accessory:

SVR-STARMUX-19R

Starview 19" Rack Mountable STARMUX chassis for up to 2 x STARMUX module

SVR-BRACKET-23

Starview L-Bracket - 23" RACK MOUNT EAR KIT for STARMUX and STARTAP chassis

Manufacturer: Starview

Type: CWDM MUX/DEMUX

Channel Configuration: 3: 3 Ch. 4: 4 Ch. 6: 6 Ch. 9: 9 Ch.

Client Ports	31: 1310 port	31: Add/Drop 1310 port
	33: 1330 port	33: Add/Drop 1330 port
	35: 1350 port	35: Add/Drop 1350 port
	37: 1370 port	37: Add/Drop 1370 port
	41: 1410 port	41: Add/Drop 1410 port
	43: 1430 port	43: Add/Drop 1430 port
	45: 1450 port	45: Add/Drop 1450 port
	47: 1470 port	47: Add/Drop 1470 port
	49: 1490 port	49: Add/Drop 1490 port
	51: 1510 port	51: Add/Drop 1510 port
	53: 1530 port	53: Add/Drop 1530 port
	55: 1550 port	55: Add/Drop 1550 port
	57: 1570 port	57: Add/Drop 1570 port
	59: 1590 port	59: Add/Drop 1590 port
	61: 1610 port	61: Add/Drop 1610 port

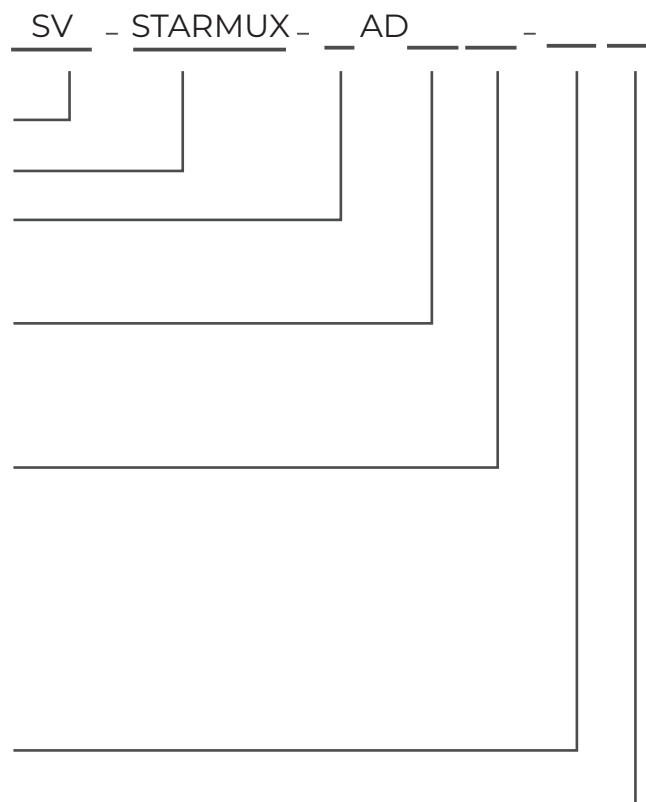
Line Port: S: Simplex Type D: Duplex Type

Connectors: LC: LC/PC SC: SC/PC

Example:

SV-STARMUX-3AD3149-DLC

Starview STARMUX Optical Add and Drop Module (OADM) with 3 Channel CWDM wavelengths 1310/ 1470/ 1490nm and 2 x Duplex LC/UPC COM ports





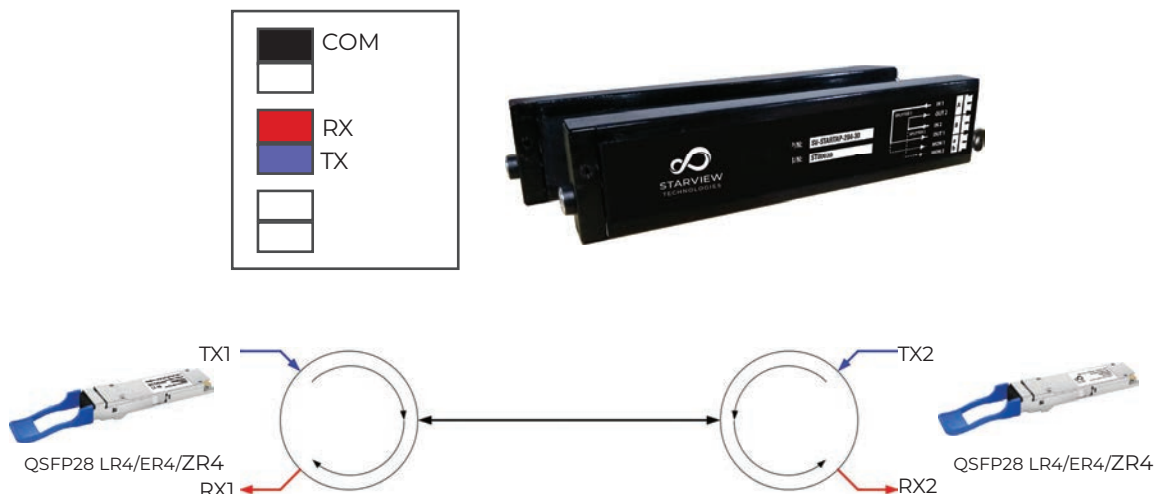
Business Challenges

STARMUX-Mini consists of a circulator that allows customer to use one single strand of Singlemode optical cable for connecting to a 100G LR4/ ER4/ ZR4 Singlemode optic module. The TX1 and RX1 of one end is connected to the TX and RX port of the module, and the COM port is connected to the optical cable for transmitting to the other end. On the other end of the device, the TX2 and RX2 is connected to the TX and RX port of the module, to achieve the single fiber transmission. Each of the STARMUX-Mini supports 1 link of the transmission device for single fiber transmission. The key advantage is it's modular design where customer can install a 1U rack cable of inserting up to 24 x STARMUX-Mini. The modules are front accessible and are independent of each module operation. The chassis can also combine with our STARTAP for splitter applications. The STARMUX-Mini has been designed specifically with the customer's application, space constraint and accessibility in mind.

Advantages

- STARMUX-Mini for transmitting 100GBase-LR4/ ER4/ ZR4 on one single fiber strand (Circulator)
- Supports 100Gbps LAN-WDM (LWDM) Singlemode wavelengths (1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1nm)
- Cost effective solution to save fiber capacity by 50%
- 19" rack mount to house up to 24 modules
- Passive device without affecting the traffic operation

Applications



Specifications

Parameters	Value
Configuration	Port 1 to Port 2 to Port 3
Operating Wavelength	1310nm±30
Insertion Loss Typical	0.6dB to 0.8dB
Insertion Loss Maximum	1.0dB
Channel Peak Isolation	≥ 48dB
Channel Minimum Isolation	≥ 40dB
Channel Cross Talk	≥ 50dB
PDL	≤ 0.15dB
PMD	≤ 0.1ps
Return loss	≥ 50dB
Power Handling	300mW
Operating Temperature	0°C ~ +70°C
Storage Temperature	-40°C ~ +85°C
Colour	Black
Chassis Dimension	44mm x 482mm x 240mm 1RU
Chassis Weight	2.8kg
Module Dimension	189mm x 40mm x 13mm
Module Weight	0.1kg

Ordering Information

Chassis:

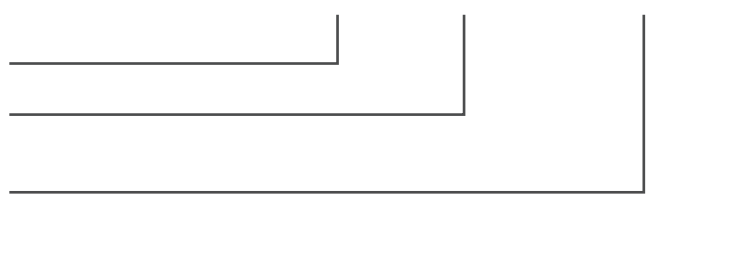
SV-STARTAP-19C

Starview 19" High Density 1U height STARTAP chassis. Allows upto 24 High Density STARTAP modules to be installed in a standard 19" rack

STAMUX-MINI Modules:

Manufacturer: Starview
 Type: Fiber Optic Circulator
 Wavelength: 1310nm +/- 30nm
 Connector Type: LC/APC

SV - STARMUX - 1310 - LC



Example:

SV-STARMUX-1310-LC

Starview 3 port High Density STARMUX-Mini 9/125um singlemode circulator with 2 x Input for TX and RX ports (LC/UPC) and 1 x COM (TX + RX) output port (LC/APC)



Features

- Easy installation and maintenance
- Wall and pole mountable
- IP65 enclosure suitable for outdoor use
- Increase bandwidth on existing fiber infrastructure
- Alleviate fiber exhaustion
- Transmit multiple protocols over an existing fiber link (Simplex or Duplex)
- Provide scalable bandwidth of up to 10Gbps per channel
- Plug and Play, no configuration of CWDM components

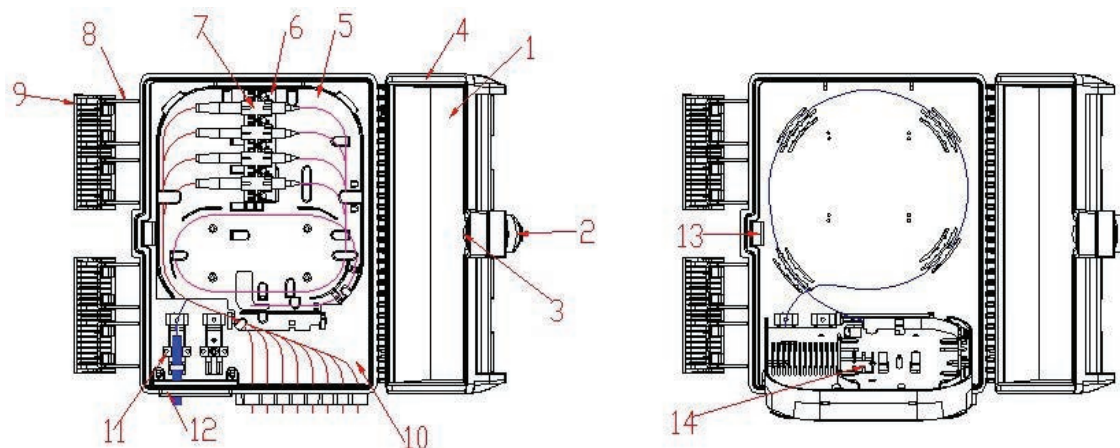
Applications

- Telecommunication Networks
- Cross connect or inter-connect
- Telecom: FTTx, Mobile network and transmission

Starview STARMUX Coarse Wavelength Division Multiplexing (CWDM) Outdoor Distribution Box (ODB) consists of Starview CWDM Mux/ Demux module with metallic LC/UPC connectors enclosed in a PC/ ABS enclosure. STARMUX CWDM uses passive technology that allows any protocol to be transported over the fiber link, as long as it is at a specific CWDM wavelength. The STARMUX provides a simple and affordable method to maximize existing fiber capacity with little or no increased cost.

Specifications

Physical Dimension	250mm x 190mm x 72mm
Installation Dimension	130mm x 82mm
Weight	2kg
Colour	White
Operating Temperature	-40°C to 85°C
Operating Humidity	10% to 95% (non-condensing)



No.	Description
1	Front Cover
2	Lock Cover
3	Lock
4	Seal
5	Fiber Flap
6	Fiber Adaptor
7	Fiber Coupler

No.	Description
8	Front Cover lever
9	Front Cover clip
10	Fiber Outlet
11	Fiber cable holder
12	Fiber Inlet
13	Front cover lock mechanism
14	Fiber distribution guide

Ordering Information

Manufacturer: Starview Outdoor STARMUX

Type: CWDM MUX/DEMUX

Channel Configuration: 4: 4 Ch. 8: 8 Ch. 9: 9 Ch.
16: 16 Ch. 18: 18 Ch.

Client Ports: 427: 4 Ch. 1270 ~ 1330nm
827: 8 Ch. 1270 ~ 1410nm
947: 9 Ch. 1470 ~ 1610nm+1310nm
1627: 16 Ch. 1270 ~ 1610nm
-1430nm-1450nm
1827: 18 Ch. 1270 ~ 1610nm

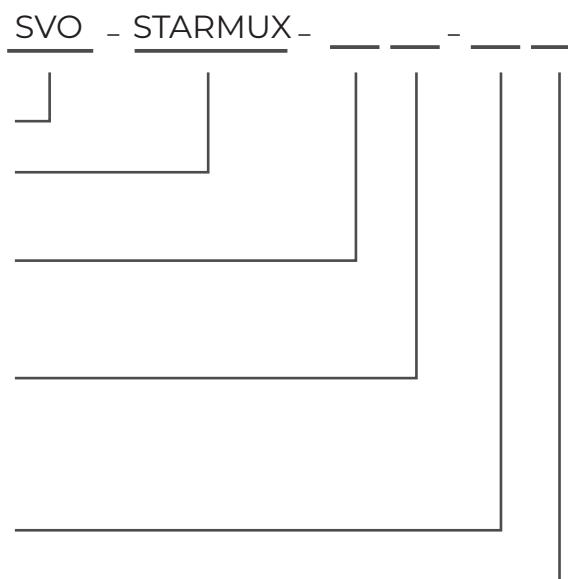
Line Port: S: Simplex Type D: Duplex Type

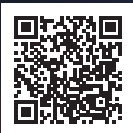
Connectors: LC: LC/PC SC: SC/PC

Example:

SVO-STARMUX-427-DLC

Starview Outdoor STARMUX wall and pole mountable IP65 enclosure with 4 x CWDM wavelengths 1270/ 1290/ 1310/ 1330nm and 1 x Duplex LC/UPC COM ports, come with front cover lock mechanism





Features

- Multi-channel number Low insertion
- Loss and PDL High channel isolation
- MUX and DEMUX functionality
- Qualified under RoHS compliant

Applications

- DWDM transmission Metro Area
- Networks Long Haul Networks Building
- Blocks for ROADM

Specifications

Parameter	Specifications			
	4Ch	8Ch	16Ch	40Ch
Channel Count	4Ch	8Ch	16Ch	40Ch
Channel Center Wavelength	ITU 100 GHz Grid			
Center wavelength Accuracy	± 0.05nm			
Channel Spacing	100GHz			
Channel Passband (@-0.5dB bandwidth)	≥ 0.22nm			
Insertion Loss	≤ 1.6	≤ 2.5	≤ 3.5	≤ 4.5
Channel Uniformity	≤ 0.6	≤ 1.0	≤ 1.5	≤ 1.2
Channel Ripple		0.3		/
Isolation Adjacent		> 30		> 25
Isolation Non-adjacent		> 40		> 30
Polarization Dependent Loss		< 0.1 dB		< 0.6 dB
Polarization Mode Dispersion		< 0.1 PS		< 0.5 PS
Directivity		> 50 dB		> -40 dB
Return Loss		> 45 dB		> -40 dB
Power Handling Max	500 mW			
Operating Temperature	-5°C ~ +75°C			
Storage Temperature	-40°C ~ +85°C			
Package Dimension	19"case packaging: 540mm x 320mm x 120mm			
Weight	Chassis: 1.47KG			

Remark: Above specification are for device without connector

Wavelength Plan

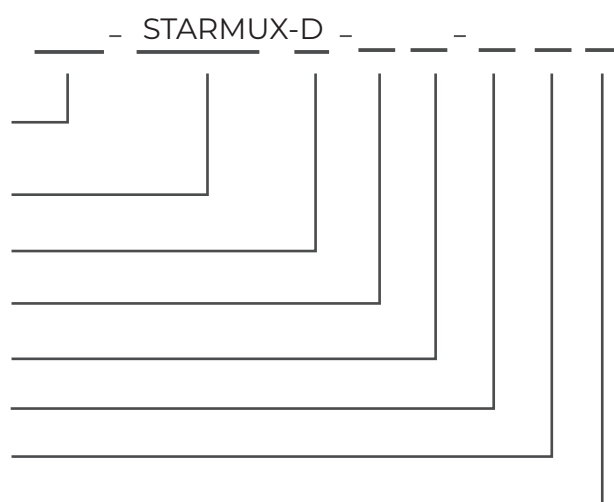
## ITU Channel	Wavelength	Frequency (THz)
21	1560.61	192.1
22	1559.79	192.2
23	1558.98	192.3
24	1558.17	192.4
25	1557.36	192.5
26	1556.55	192.6
27	1555.75	192.7
28	1554.94	192.8
29	1554.13	192.9
30	1553.33	193.0
31	1552.52	193.1
32	1551.72	193.2
33	1550.92	193.3

## ITU Channel	Wavelength	Frequency (THz)
34	1550.12	193.4
35	1549.32	193.5
36	1548.51	193.6
37	1547.72	193.7
38	1546.92	193.8
39	1546.12	193.9
40	1545.32	194.0
41	1544.53	194.1
42	1543.73	194.2
43	1542.94	194.3
44	1542.14	194.4
45	1541.35	194.5
46	1540.56	194.6

## ITU Channel	Wavelength	Frequency (THz)
47	1539.77	194.7
48	1538.98	194.8
49	1538.19	194.9
50	1537.40	195.0
51	1536.61	195.1
52	1535.82	195.2
53	1535.04	195.3
54	1534.25	195.4
55	1533.47	195.5
56	1532.68	195.6
57	1531.90	195.7
58	1531.12	195.8
59	1530.33	195.9
60	1529.55	196.0

Ordering Information

Manufacturer:	SVR: Starview 19" Chassis
Type:	DWDM MUX/DEMUX
Channel #	4 / 8 / 16 / 40
First Channel #	21: Channel 21.....60: Channel 60
End Channel #	21: Channel 21.....60: Channel 60
Features:	M: Monitoring E: Expansion
Fiber Type:	S: Simplex Type D: Duplex Type
COM Connectors:	LCA: LC/APC LCU: LC/UPC



Example:

SVR-STARMUX-D8-2128-MESLCA

Starview 19" Rack Mountable STARMUX chassis with 8 x C-Band DWDM wavelengths, 100GHz spacing CH21 to CH28 (Duplex LC/UPC), with 1 x MON port (Duplex LC/UPC), 1 x Expansion port (Duplex LC/UPC) and 1 x Simplex LC/APC COM port



Features

- Low Insertion Loss
- Wide pass band
- High Channel Isolation
- High Stability and reliability

Applications

- Channel Add/Drop
- DWDM Network
- Fiber Optical Amplifier

Specifications

Parameter	Single Fiber OADM			Dual Fiber OADM			
	1 Ch Add/ Drop	2 Ch Add/ Drop	4 Ch Add/ Drop	1 Ch Add/ Drop	2 Ch Add/ Drop	4 Ch Add/ Drop	8 Ch Add/ Drop
Channel Wavelength	ITU 100 GHz Grid						
Center wavelength Accuracy	± 0.05 nm						
Channel Spacing	100 GHz						
Channel Passband	± 0.11 nm (@-0.5dB bandwidth)						
Insertion Loss with Connector	Uni-di: ≤ 1.0 dB Bi-di: ≤ 1.2 dB	Uni-di: ≤ 1.2 dB Bi-di: ≤ 1.8 dB	Uni-di: ≤ 1.8 dB Bi-di: ≤ 2.8 dB	Uni-di: ≤ 1.0 dB Bi-di: ≤ 1.2 dB	Uni-di: ≤ 1.8 dB Bi-di: ≤ 1.8 dB	Uni-di: ≤ 2.8 dB Bi-di: ≤ 2.8 dB	Uni-di: ≤ 3.5 dB Bi-di: ≤ 3.5 dB
Channel Uniformity	≤ 1.0 dB						
Channel Ripple	≤ 0.3 dB						
Isolation Adjacent	> 28 dB						
Isolation Non-adjacent	> 40 dB						
Polarization Dependent Loss	< 0.15 dB						
Polarization Mode Dispersion	< 0.1 PS						
Directivity	> 50 dB						
Return Loss	> 45 dB						
Maximum Power Handling	500 mW						
Operating Temperature	-20 °C ~ +70 °C						
Storage Temperature	-40 °C ~ +85 °C						
Packaging Dimension	19"case packaging: 540mm x 320mm x 120mm						
Weight	Chassis: 1.47KG						

Wavelength Plan

## ITU Channel	Wavelength	Frequency (THz)
21	1560.61	192.1
22	1559.79	192.2
23	1558.98	192.3
24	1558.17	192.4
25	1557.36	192.5
26	1556.55	192.6
27	1555.75	192.7
28	1554.94	192.8
29	1554.13	192.9
30	1553.33	193.0
31	1552.52	193.1
32	1551.72	193.2
33	1550.92	193.3

## ITU Channel	Wavelength	Frequency (THz)
34	1550.12	193.4
35	1549.32	193.5
36	1548.51	193.6
37	1547.72	193.7
38	1546.92	193.8
39	1546.12	193.9
40	1545.32	194.0
41	1544.53	194.1
42	1543.73	194.2
43	1542.94	194.3
44	1542.14	194.4
45	1541.35	194.5
46	1540.56	194.6

## ITU Channel	Wavelength	Frequency (THz)
47	1539.77	194.7
48	1538.98	194.8
49	1538.19	194.9
50	1537.40	195.0
51	1536.61	195.1
52	1535.82	195.2
53	1535.04	195.3
54	1534.25	195.4
55	1533.47	195.5
56	1532.68	195.6
57	1531.90	195.7
58	1531.12	195.8
59	1530.33	195.9
60	1529.55	196.0

Ordering Information

Accessory:

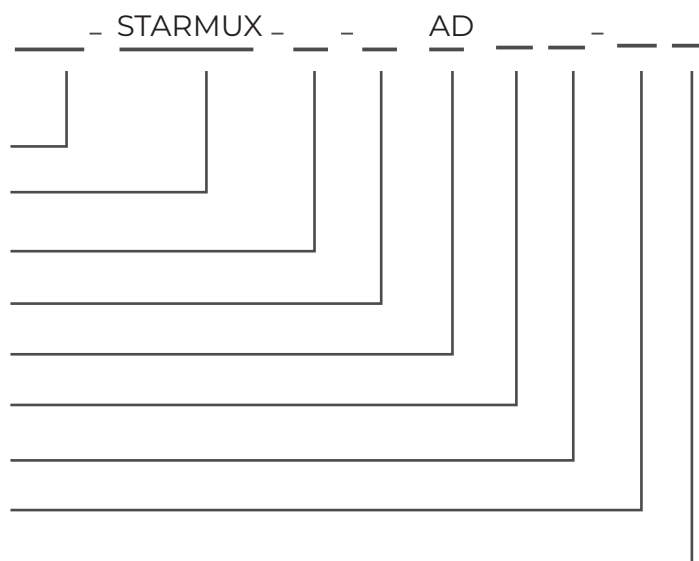
SVR-STARMUX-19R

Starview 19" Rack Mountable STARMUX chassis for up to 2 x STARMUX OADM module or STARMUX module

SVR-BRACKET-23

Starview L-Bracket - 23" RACK MOUNT EAR KIT for STARMUX and STARTAP chassis

- Manufacturer: SV: STARVIEW
- Type: DWDM MUX/DEMUX
- Direction: Uni-direction: UD Dual-direction: DD
- Channel # 1/2/4/8
- Type: Optical Add and Drop Module: AD
- First Channel # 21: Channel 21.....60: Channel 60
- End Channel # 21: Channel 21.....60: Channel 60
- Fiber Type: S: Simplex Type D: Duplex Type
- COM Connectors: LCA: LC/APC LCU: LC/UPC



Example:

SV-STARMUX-UD-8AD2128-DLCU

Starview STARMUX 8-Channel Uni-direction Optical Add and Drop Module (OADM) with 100GHz spacing DWDM CH21 to CH28 (Duplex LC/UPC) and 1 x Duplex LC/UPC COM ports

STARTAP

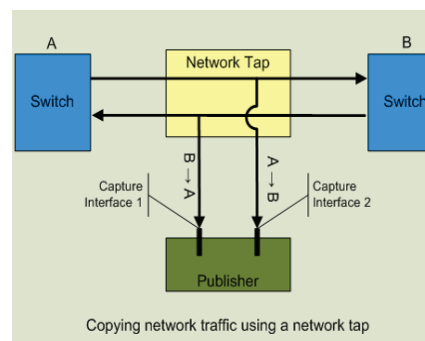
Starview Optical Network TAP



- Cost Effective
- Passive Equipment
- Compact Enclosure
- Low insertion loss
- User defined configuration for different split ratio and fiber optic types (SM/ MM)
- Flexible and Modular design with front access
- Maximum up to 24 links with monitoring ports in a 1RU chassis
- Industry standard color coding for fiber optic connectors

What is Network Tap?

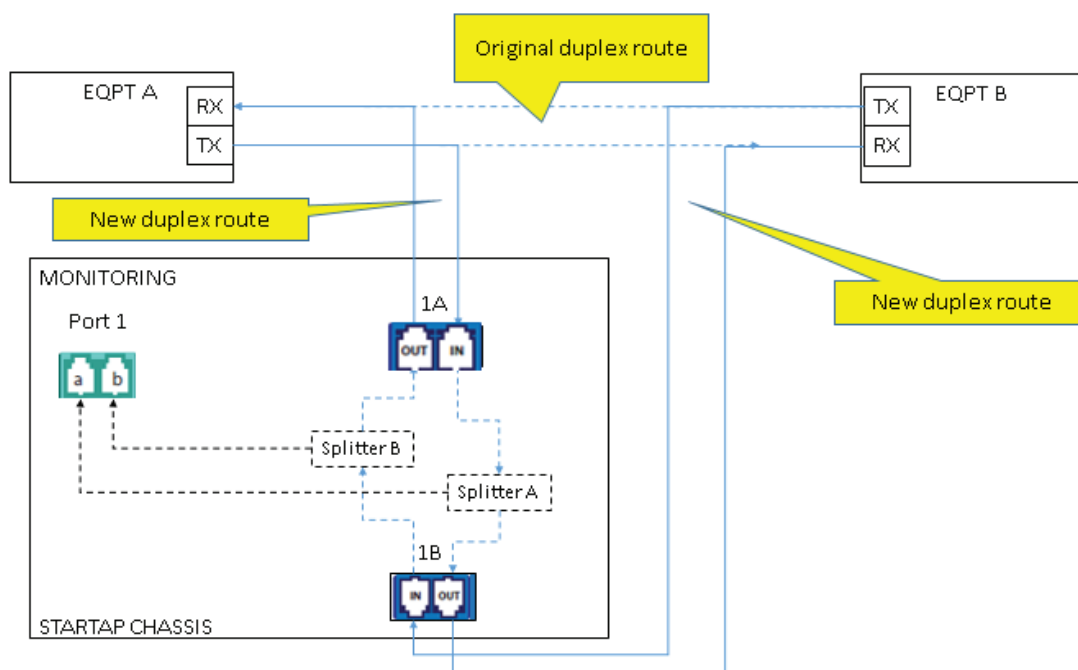
- Hardware device to provide a way to access the data flowing across a fiber optic network
- Consists of (at least) 3 ports: Port A from Equipment A TX port, Port B to Equipment B RX port, and a Monitoring Port
- In-line device to connect between 2 Transmission Network Equipment
- Protocol and Data rate transparent
- Available in Singlemode or Multimode taps



Types of Network Taps

Singlemode (SM)	Multimode (MM)
9/125um fiber optic splitter	50/125um or 60/125um fiber optic splitter
Supports CWDM, DWDM, 1310 or 1550nm SM wavelengths	Supports 850 or 1300nm MM wavelengths
Split Ratios available in 10/90, 20/80, 30/70, 40/60 or 50/50	
Passive component	
Insertion loss due to in line connection	

- STARview optical network TAP (STAR_{TAP})
- Passive Optical Network Tap
- Support multiple network protocols, including high speed voice, video and data communications for networking, storage and wireless applications
- Ideal for applications such as:
 - Intrusion Detection System
 - Application Performance Monitoring
 - Packet Capture
 - Data Forensic





Bracket

Starview STARTAP modular-24 splitters with chassis, comes with 24 modules of 6 x LC/UPC connectors each, enclosed in a 19" 1RU chassis. Each module is capable to equip 2 x 1:2 splitter ports, making it the most compact 1RU chassis to house up to 48 splitters altogether. Each Planar Lightwave Circuit (PLC) splitter performs optical power management fabricated using silica optical waveguide technology. It features small size, high reliability, wide operating wavelength range and good channel-to-channel uniformity, and is widely used in PON networks to realize optical signal power splitting.

Starview provides a whole series of 1xN splitter products that are tailored for specific applications. All products meet GR-1209-CORE and GR-1221-CORE requirements.

19" Rack Mount Enclosure, 1RU for up to 24 x STARTAP modules. Individual rack mount fiber modules organize, manage and protect fiber optic splitters. The enclosure is constructed of steel material and the front access is designed to easily remove for cabling and connector installation.

Specifications

Parameters	
Storage Temperature	-40°C to 85°C
Operating Temperature	-40°C to +85°C
Colour	Black
Chassis Dimension	44mm x 482mm x 240mm 1RU
Chassis Weight	2.8kg

Ordering Information

Chassis:

SVR-STARTAP-19C

Starview 19" High Density 1U height STARTAP chassis. Allows upto 24 High Density STARTAP modules to be installed in a standard 19" rack

SVR-BRACKET-23

Starview L-Bracket - 23" RACK MOUNT EAR KIT for STARMUX and STARTAP chassis



High Density STARTAP

Starview STARTAP modular -24 splitters with Chassis



Features

- Standard size, light weight and reasonable structure
- Front access for easy cable management
- Compact design for space saving
- Front mark on the plate is easy for identification and operation
- Easy for management and operation
- Supports Multimode and Singlemode fiber splitting
- Wide Operating Temperature from -40°C to 85°C
- High Reliability and Stability

Applications

- Transition from Backbone cabling to distribution switching
- Interconnect to active equipment in server cabinet
- Cross connect or inter-connect

Compliance

- Telcordia GR-1209-CORE
- Telcordia GR-1221-CORE
- RoHS

Specifications

Parameters		Singlemode	Multimode
Operating Wavelength		1310nm and 1550nm	850nm, 1300nm
Data Rate		100Mbps to 100Gbps	
	50/50	≤ 3.40 dB	≤ 3.70 dB
	40/60	≤ 4.40 / 2.50 dB	≤ 4.70 / 2.70 dB
Insertion Loss	30/70	≤ 5.70 / 1.80 dB	≤ 6.00 / 2.10 dB
	20/80	≤ 7.50 / 1.20 dB	≤ 7.80 / 1.40 dB
	10/90	≤ 10.80 / 0.70 dB	≤ 11.20 / 0.90 dB
Directivity		≥ 55 dB	≥ 40 dB
Operating Temperature		-40°C to +85°C	-40°C to +85°C
Colour		Black	
Chassis Dimension		44mm x 482mm x 240mm 1RU	
Chassis Weight		2.8kg	
Module Dimension		189mm x 40mm x 13mm	
Module Weight		0.1kg	

Note: The splitter configuration can be tailored with the input ports, monitoring ports and output ports according to customer's requirement.



Starview STARTAP modular-24 splitters with chassis, comes with 24 modules of 6 x LC/UPC connectors each, enclosed in a 19" 1RU chassis. Each module is capable to equip 2 x 1:2 splitter ports, making it the most compact 1RU chassis to house up to 48 splitters altogether. Each Planar Lightwave Circuit (PLC) splitter performs optical power management fabricated using silica optical waveguide technology. It features small size, high reliability, wide operating wavelength range and good channel-to-channel uniformity, and is widely used in PON networks to realize optical signal power splitting.

Starview provides a whole series of 1xN splitter products that are tailored for specific applications. All products meet GR-1209-CORE and GR-1221-CORE requirements.

19" Rack Mount Enclosure, 1RU for up to 24 x STARTAP modules. Individual rack mount fiber modules organize, manage and protect fiber optic splitters. The enclosure is constructed of steel material and the front access is designed to easily remove for cabling and connector installation.

Ordering Information

Chassis:

SVR-STARTAP-19C

Starview 19" High Density 1U height STARTAP chassis. Allows upto 24 High Density STARTAP modules to be installed in a standard 19" rack

SVR-BRACKET-23

Starview L-Bracket - 23" RACK MOUNT EAR KIT for STARMUX and STARTAP chassis

STARTAP High Density Modules:

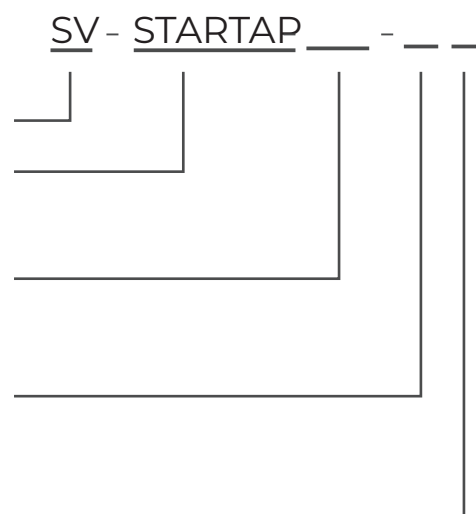
Manufacturer: Starview

Type: Optical Fiber Tap

Splitter: 104: 1 x 1:4 High Density STARTAP
204: 2 x 1:2 High Density STARTAP

MON Port Value: 10: 10%
20: 20%
30: 30%
.....

Fiber Type: _ : Singlemode
M3 : Multimode(OM3)
M4 : Multimode(OM4)



Example:

SV-STARTAP-204-50

Starview 2 x 4 High Density STARTAP 9/125um singlemode splitter with 2 x Input port (LC/ UPC) and 2 x 50% MON port (LC/ UPC) and 2 x 50% output ports (LC/ UPC)

Cables



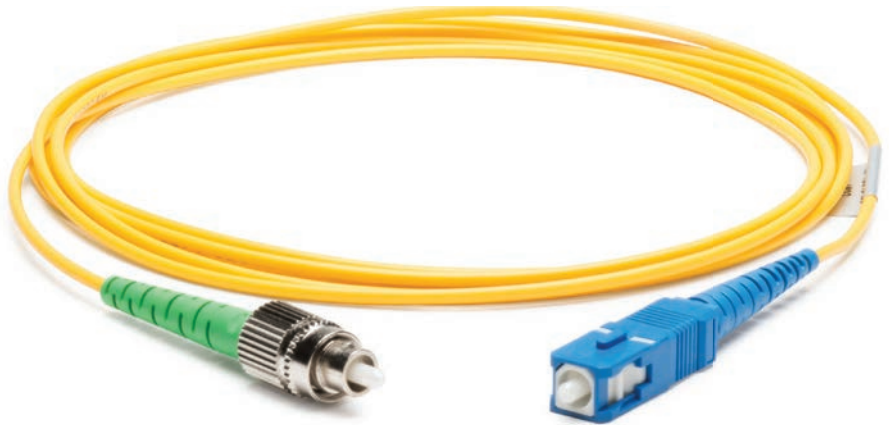
- Available with various optical connectors, i.e. LC, SC, FC, E2000, ST and APC or UPC type
- Bend-Insensitive Fiber with 2mm or 3mm type diameter
- Available with simplex and duplex fiber types include OM3/ OM4 multimode 50/125 μ m and Singlemode 9/125 μ m
- Factory terminated and 100% tested
- Individually packaged with test results included



LC APC 2mm



LC UPC 900µm



SC APC 2mm



SC UPC 900µm



FC APC 2mm



FC UPC 900µm

Features

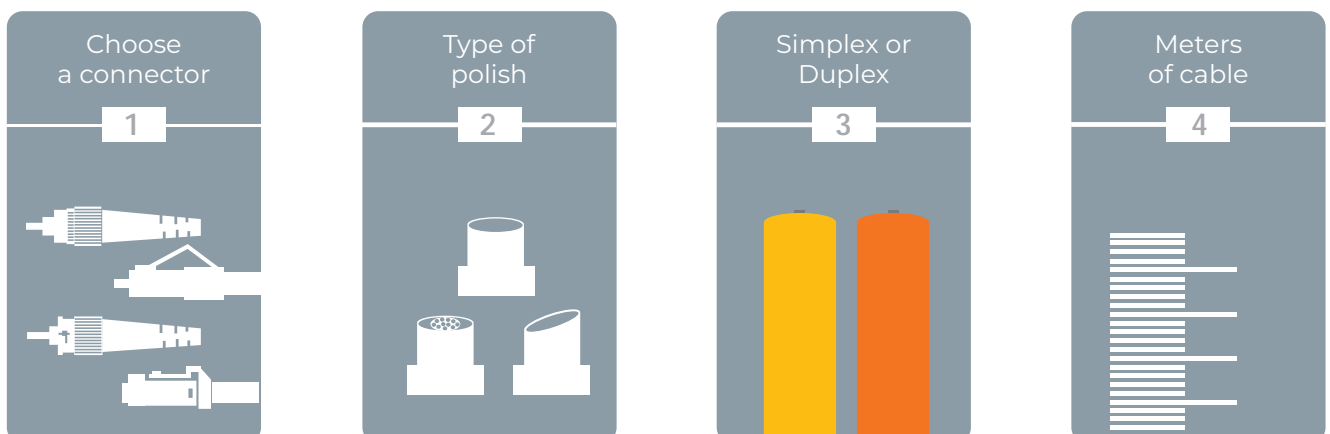
- Compliant with: IEEE 802.3u, IEC 60794, TIA/EIA-568.B.3
- Optical performance 100% factory tested.
- Standard lengths of SC and FC, ST assemblies in stock.
- Customized assemblies are available in a variety of lengths, connector styles and performance.
- Precision ceramic ferrule with end face geometry per IEC proposal.

Applications

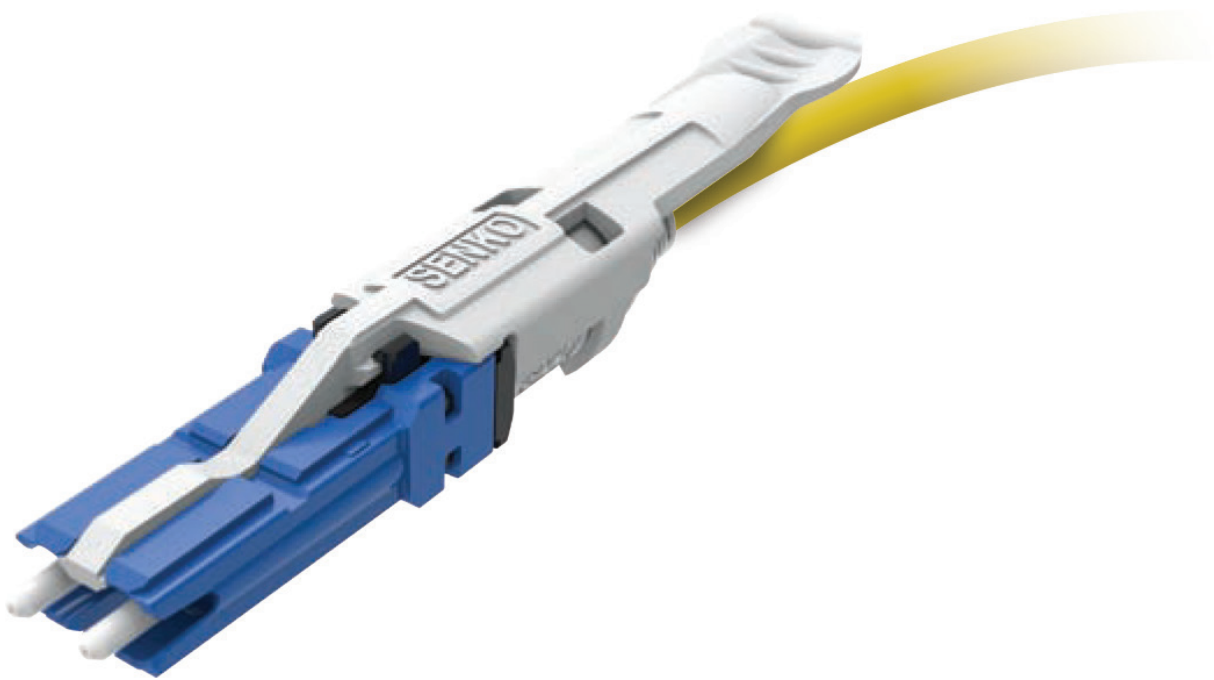
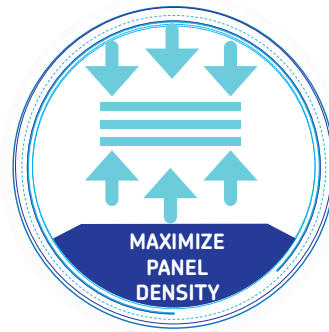
- Telecommunications network
- Active device termination
- CATV networks
- Local area networks

How to choose optical fiber patch cord

The Optical Fiber Patch cord is available for any kind of configurations you need.



CS-LC connector patch cord

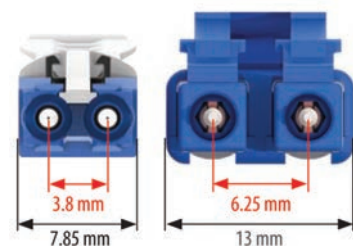


2 x 200G CWDM4
QSFP-DD/OSFP



2 Duplexes in 1 Transceiver

CS Connector VS. LC Duplex



CS Connector LC Duplex



CS-LC Duplex Single Mode Patch Cord

Features



- 40% size reduction compared to LC Duplex
- Connector adopted by QSFP-DD, OSFP and COBO
- Performance exceeds LC
- Push/Pull tab for a better usability in high density applications for a better usability in high density applications
- Double the density in patch panel compared to LC
- IEC random mating Grade B

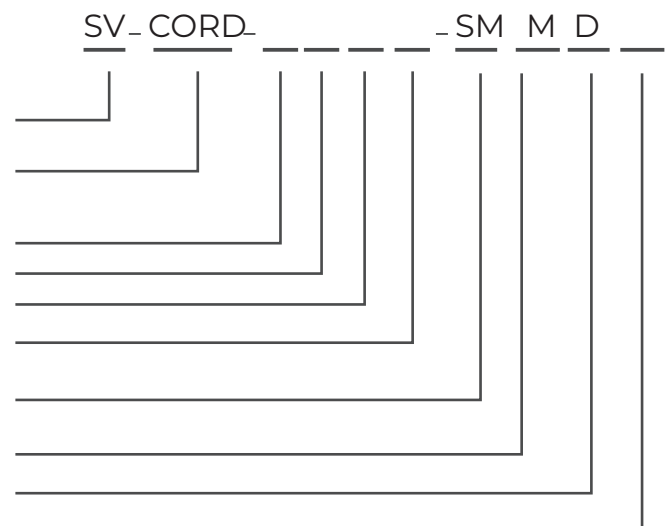
Application



Ordering Information

Example:
 SV-CORD-CSULCU-SMIMD2
 Starview Fiber Patchcord with CS/UPC to LC/UPCconnector, Singlemode
 9/125um 1 meter Duplex withtype 2mm bend-insensitive fiber

Manufacturer:	Starview
Type:	Optical Fber Patchcord
Connector Type #1:	CS:CS;
Polishing Grade #1:	U:UPC; A: APC
Connector Type #1:	LC:LC;
Polishing Grade #1:	U:UPC; A:APC
Fiber Type:	SM: Singlemode
Length:	(m) 1-99 M
Cord Type:	D: Duplex Type
Cord Diameter:	(mm) 2; 3;





Simplex Single Mode Patch Cord



Features

- The Single Mode Jumper construction is designed to support tough usage, high performance interconnections, easy installation, and saving time
- IEEE 802.3u, IEC 60794, TIA/EIA-568.B.3 compliant
- 9/125µm Single Mode that offers a great wide broadband
- Telcordia GR-326 and IEEE 802.3u/802.3x/802.3z/802.3j standards tested
- 9/125µm Single Mode Riser
- 2mm, and 3mm Simplex
- Fibers offers low insertion loss once joined to connector
- Different type of terminations SC to ST, LC to FC, etc.

Specifications

Norms and Standards	Telcordia GR-326, IEEE 802.3u/802.3x/802.3z/802.3j, IEC 60794, TIA/EIA-568.B.3		
Fiber Jacket	Diameter	3mm ± 0.05mm	2mm ± 0.05mm
	Thickness	0.80mm ± 0.80mm	0.60mm ± 0.50mm
Fiber optic	Temperature	-20°C up to 85°C	
	Core diameter	Fiber: 9/125µm	Value: ± ± 0.70mm
	Cladding diameter	125.0 ± 2.0µm	
	Core concentricity	≤ ± 1.5µm	
	Cladding concentricity	≤ ± 1.0%	
	Wavelength	Single mode:	1310 nm
Maximum value	dB/Km	≤ 0.4	≤ ± 0.3
Recommended Light source	Single mode:	Laser	

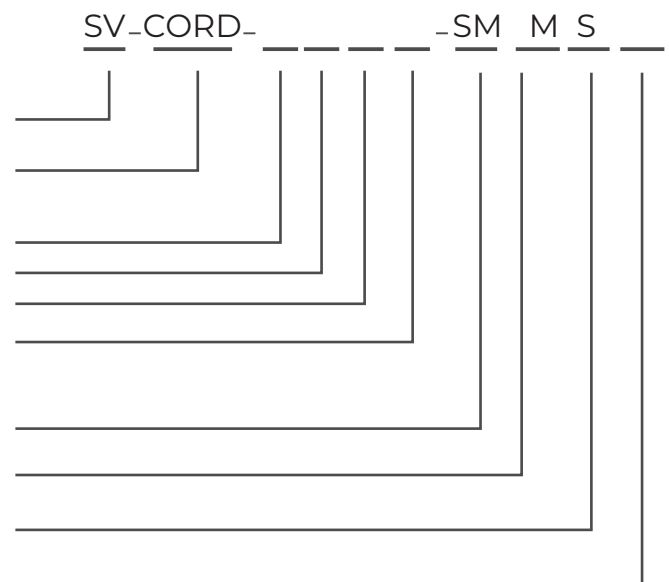
Ordering Information

Example:

SV-CORD-LCULCU-SMIMS2

Starview Fiber Patchcord with LC/UPC to LC/UPC connector, Singlemode 9/125um 1 meter Simplex with type 2mm bend-insensitive fiber

Manufacturer:	Starview
Type:	Optical Fber Patchcord
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC; U:UPC; A:APC
Polishing Grade #1:	
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC; U:UPC; A:APC
Polishing Grade #1:	
Fiber Type:	SM: Singlemode MM: Multimode
Length:	(m) 1-99 M
Cord Type:	S: Simplex Type D: Duplex Type
Cord Diameter:	(mm) 2; 3;





Simplex Multi Mode Patch Cord



Features

- Different type of terminations SC to ST, LC to FC, etc.
- ANSI/TIA/EIA-568.B.3 compliant
- 50/125µm Multimode Riser
- 2mm, and 3mm Simplex / Duplex
- IEEE 802.3u, IEC 60794, TIA/EIA-568.B.3 compliant
- Electric interference immune
- Fibers offers low insertion loss once joined to connector
- Telcordia GR-326 tested
- Lab connectorized, each jumpers includes a quality certificate to state measuring standards

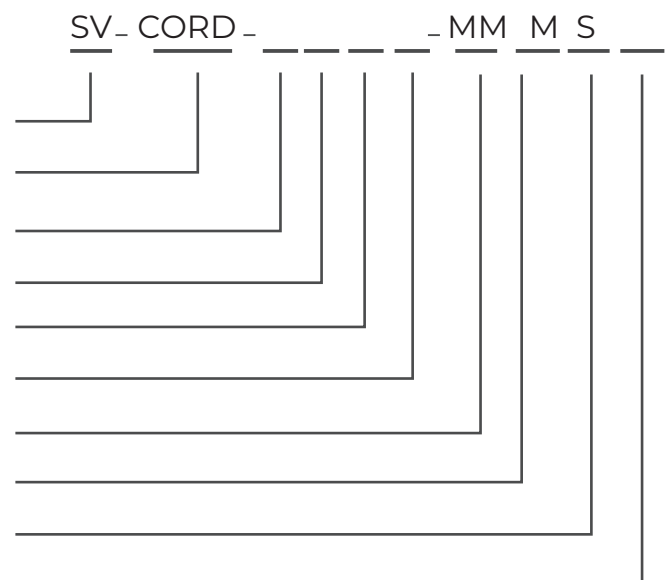
Specifications

Norms and Standards	Telcordia GR-326, IEEE 802.3u/802.3x/802.3z/802.3j, IEC 60794, TIA/EIA-568.B.3		
Fiber Jacket	Diameter	3mm ± 0.05mm	2mm ± 0.05mm
	Thickness	0.80mm ± 0.80mm	0.60mm ± 0.50mm
	Temperature	-20°C up to 85°C	
Fiber optic	Core diameter	Value: ± ± 0.70mm	Fiber: 50/125µm
	Cladding diameter	125.0 ± 2.0µm	
	Core concentricity	≤ ≤ 1.5µm	
	Cladding concentricity	≤ ≤ 1.0%	
Wavelength	Multimode:	850 nm	1300 nm
	Maximum value	dB/Km	≤ 3.5
Recommended Light source	Multimode:	LED or VCSEL	

Ordering Information

Example:
 SV-CORD-LCULCU-MM1MS2
 Starview Fiber Patchcord with LC/UPC to LC/UPC connector, Multimode
 50/125um 1 meter Simplex with type 2mm, OM3 bend-insensitive fiber

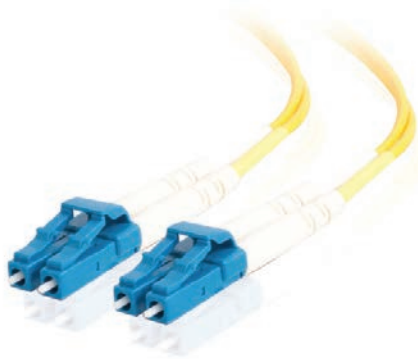
Manufacturer: Starview
 Type: Optical Fber Patchcord
 Connector Type #1: SC:SC; FC:FC; ST:ST; LC:LC;
 Polishing Grade #1: U:UPC; A: APC
 Connector Type #1: SC:SC; FC:FC; ST:ST; LC:LC;
 Polishing Grade #1: U:UPC; A:APC
 Fiber Type: SM: Singlemode MM: Multimode
 Length: (m) 1-99 M
 Cord Type: S: Simplex Type D: Duplex Type
 Cord Diameter: (mm) 2; 3;





Duplex Single Mode Patch Cord

Features



- Different type of terminations SC to ST, LC to FC, etc.
- ANSI/TIA/EIA-568.B.3 compliant
- 9/125µm Singlemode Riser
- 2mm, and 3mm Simplex / Duplex
- IEEE 802.3u, IEC 60794, TIA/EIA-568.B.3 compliant
- Electric interference immune
- Fibers offers low insertion loss once joined to connector
- Telcordia GR-326 tested
- Lab connectorized, each jumpers includes a quality certificate to state measuring standards

Specifications

Norms and Standards	Telcordia GR-326, IEEE 802.3u/802.3x/802.3z/802.3j, IEC 60794, TIA/EIA-568.B.3		
Fiber Jacket	Diameter	3mm ± 0.05mm	2mm ± 0.05mm
	Thickness	0.80mm ± 0.80mm	0.60mm ± 0.50mm
	Temperature	-20°C up to 85°C	
Fiber optic	Core diameter	Fiber: 9/125µm	Value: ± ± 0.70mm
	Cladding diameter	125.0 ± 2.0µm	
	Core concentricity	≤ ≤ 1.5µm	
	Cladding concentricity	≤ ≤ 1.0%	
Wavelength	Single mode:	1310 nm	1550 nm
	Maximum value	dB/Km	≤ 0.4
Recommended Light source	Single mode:	Laser	

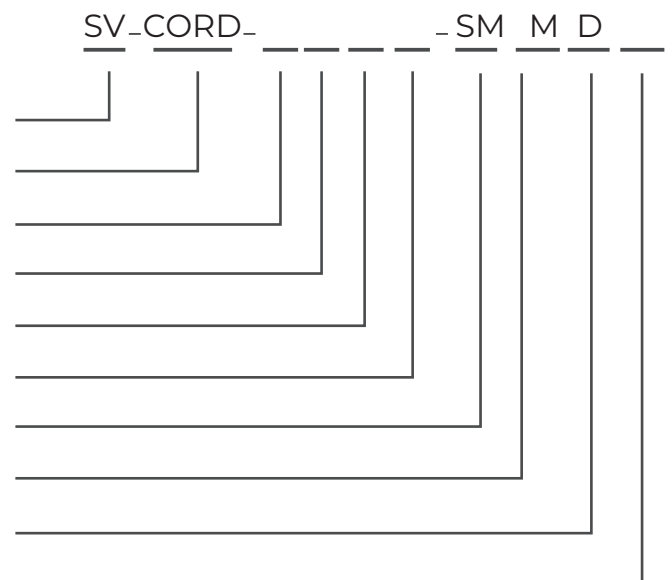
Ordering Information

Example:

SV-CORD-LCULCU-SMIMD2

Starview Fiber Patchcord with LC/UPC to LC/UPC connector, Singlemode 9/125um 1 meter Duplex with type 2mm bend-insensitive fiber

Manufacturer:	Starview
Type:	Optical Fber Patchcord
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade #1:	U:UPC; A: APC
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade #1:	U:UPC; A:APC
Fiber Type:	SM: Singlemode MM: Multimode
Length:	(m) 1-99 M
Cord Type:	S: Simplex Type D: Duplex Type
Cord Diameter:	(mm) 2; 3;





Duplex Multi Mode Patch Cord

Features



- Different type of terminations SC to ST, LC to FC, etc.
- ANSI/TIA/EIA-568.B.3 compliant
- 50/125µm Multimode Riser
- 2mm, and 3mm Simplex / Duplex
- IEEE 802.3u, IEC 60794, TIA/EIA-568.B.3 compliant
- Electric interference immune
- Fibers offers low insertion loss once joined to connector
- Telcordia GR-326 tested
- Lab connectorized, each jumpers includes a quality certificate to state measuring standards

Specifications

Norms and Standards	Telcordia GR-326, IEEE 802.3u/802.3x/802.3z/802.3j, IEC 60794, TIA/EIA-568.B.3		
Fiber Jacket	Diameter	3mm ± 0.05mm	2mm ± 0.05mm
	Thickness	0.80mm ± 0.80mm	0.60mm ± 0.50mm
	Temperature	-20°C up to 85°C	
Fiber optic	Core diameter	Value: ± 0.70mm	Fiber: 50/125µm,
	Cladding diameter	125.0 ± 2.0µm	
	Core concentricity	≤ ≤ 1.5µm	
	Cladding concentricity	≤ ≤ 1.0%	
	Wavelength	Multimode:	850 nm 1300 nm
	Maximum value	dB/Km	≤ 3.5 ≤ 1.5
	Recommended Light source	Multimode:	LED or VCSEL

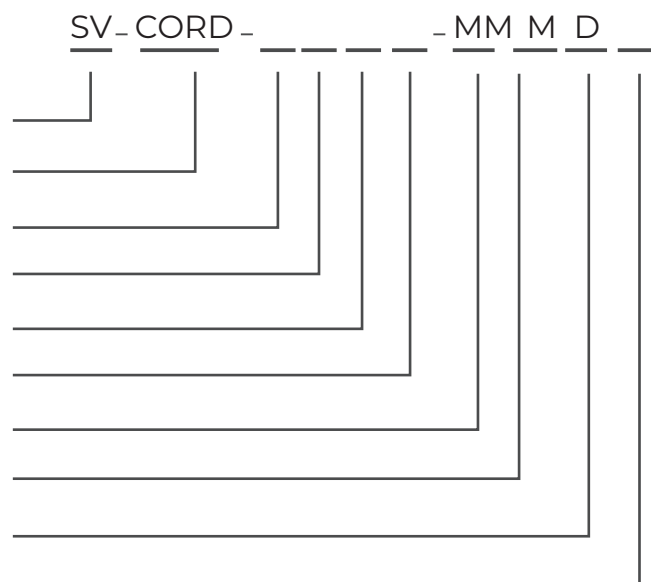
Ordering Information

Example:

SV-CORD-LCULCU-MM1MD23

Starview Fiber Patchcord with LC/UPC to LC/UPC connector, Multimode 50/125um 1 meter Duplex with type 2mm, OM3 bend-insensitive fiber

Manufacturer:	Starview
Type:	Optical Fber Patchcord
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade #1:	U:UPC; A:APC
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade #1:	U:UPC; A:APC
Fiber Type:	SM: Singlemode MM: Multimode
Length:	(m) 1-99 M
Cord Type:	S: Simplex Type D: Duplex Type
Cord Diameter:	(mm) 2; 3;





Copper Patch Cord

Features



- Snagless, molded boots provide strain relief and prevent kinking as well as snagless cable mining.
- All Cat5e cables tested to 350MHz; Cat6 cables tested to 250MHz.
- All have 4-pair, 24 AWG construction with RJ-45 connectors.
- Available in both straight or crossover pinning.

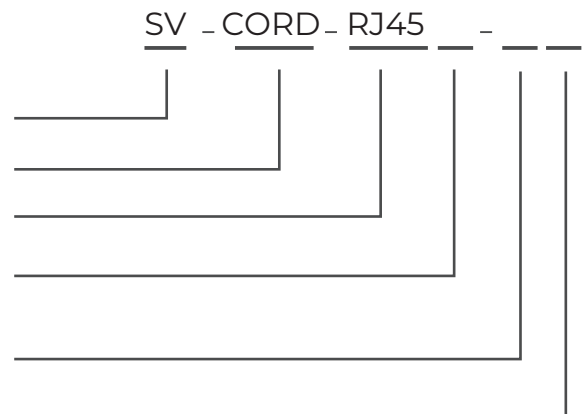
Specifications

Norms and Standards	Telcordia GR-326, IEEE 802.3u/802.3x/802.3z/802.3j, IEC 60794, TIA/EIA-568.B.3		
		CAT 5e	CAT 6
Cable Type		4-pair UTP	4-pair UTP
Core diameter		24 AWG, stranded	24 AWG, stranded
Jacket		PVC, 80C, OD=5.3 mm	PVC, 80C, OD=6.2 mm
Frequency		up to 350 MHz	up to 250 MHz
Impedance		100 ± 15 ohms	100 ± 15 ohms @ 100 MHz
Attenuation (max.)		24 dB/100 m @ 100 MHz; 49 dB/100 m @ 350 MHz;	24 dB/100 m @ 100 MHz; 39 dB/100 m @ 250 MHz
Temperature		-20°C up to 85°C	

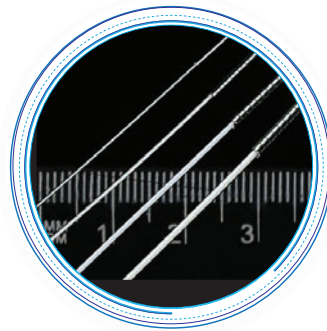
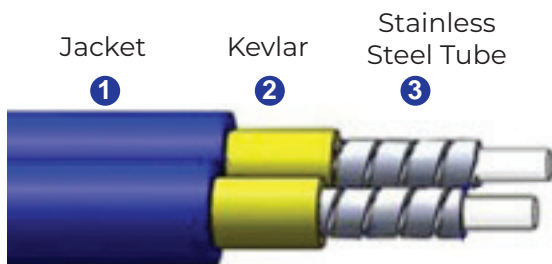
Ordering Information

Example:
 SV-CORD-RJ45S-CAT5E1M
 Starview Copper Patchcord (Straight) with RJ45 connectors, CAT5e, 1 meter

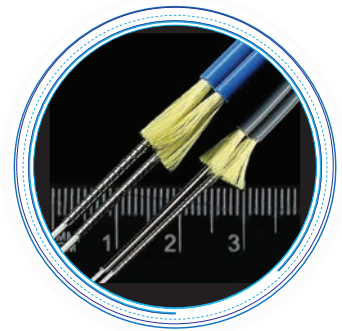
Manufacturer: Starview
 Type: Optical Fber Patchcord
 Connector Type: RJ-45
 Cable Type: S : straight -through
 C : crossover
 Cable Specs: CAT5E: CAT 5e
 CAT6: CAT 6
 Length: (m) 1-99 M



Armour Fiber Patchcord



Unit of the Armored Optical Fiber



Duplex Armored Optical Fiber Cable



Specifications

Norms and Standards	Telcordia GR-326, IEEE 802.3u/802.3x/802.3z/802.3j, IEC 60794, TIA/EIA-568.B.3			
Fiber Jacket	Diameter	3mm ± 0.05mm		
	Thickness	0.80mm ± 0.80mm		
	Temperature	-20°C up to 85°C		
Fiber optic	Core diameter	Fiber:	Value:	
		50/125µm; 9/125µm; 62.5/125µm	± 0.70mm	
	Cladding diameter	125.0 ± 2.0µm		
	Core concentricity	≤ 1.5µm		
	Cladding concentricity	≤ 1.0%		
	Wavelength	Multimode:	850 nm	1300 nm
		Single mode:	1310 nm	1550 nm
Maximum value	Multimode: dB/Km	≤ 3.5	≤ 1.5	
	Single mode: dB/Km	≤ 0.3	≤ 0.2	
Recommended Light source	Multimode:	LED or VCSEL		
	Single mode:	Laser		



Armour Fiber Patchcord



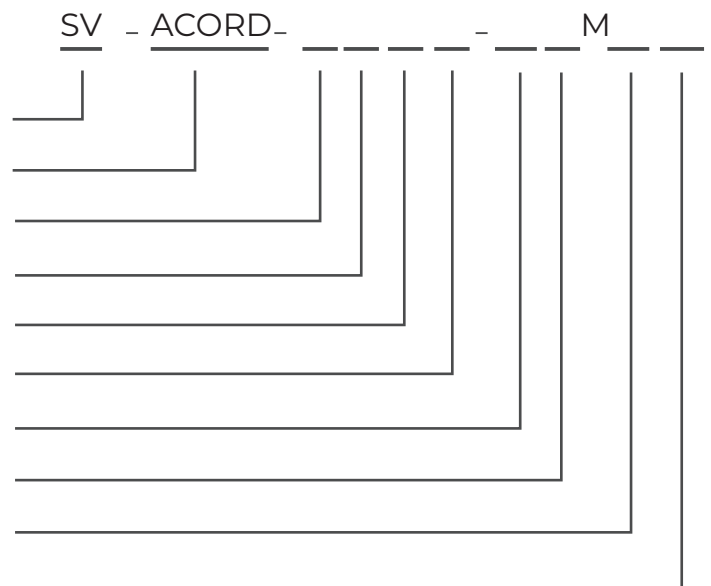
Features

- Resist damage by improper twist
- Resistance of pressure and rodent bite
- Fibers offers low insertion loss once joined to connector
- IEEE 802.3u, IEC 60794, TIA/EIA-568.B.3 compliant
- 50/125µm Multi Mode, 62.5/125µm Single Mode, 3mm Simplex
- Stainless steel tube inside the outer jacket
- Additional durability and protection as well as light weight.
- Different type of terminations SC to ST, LC to FC, etc.

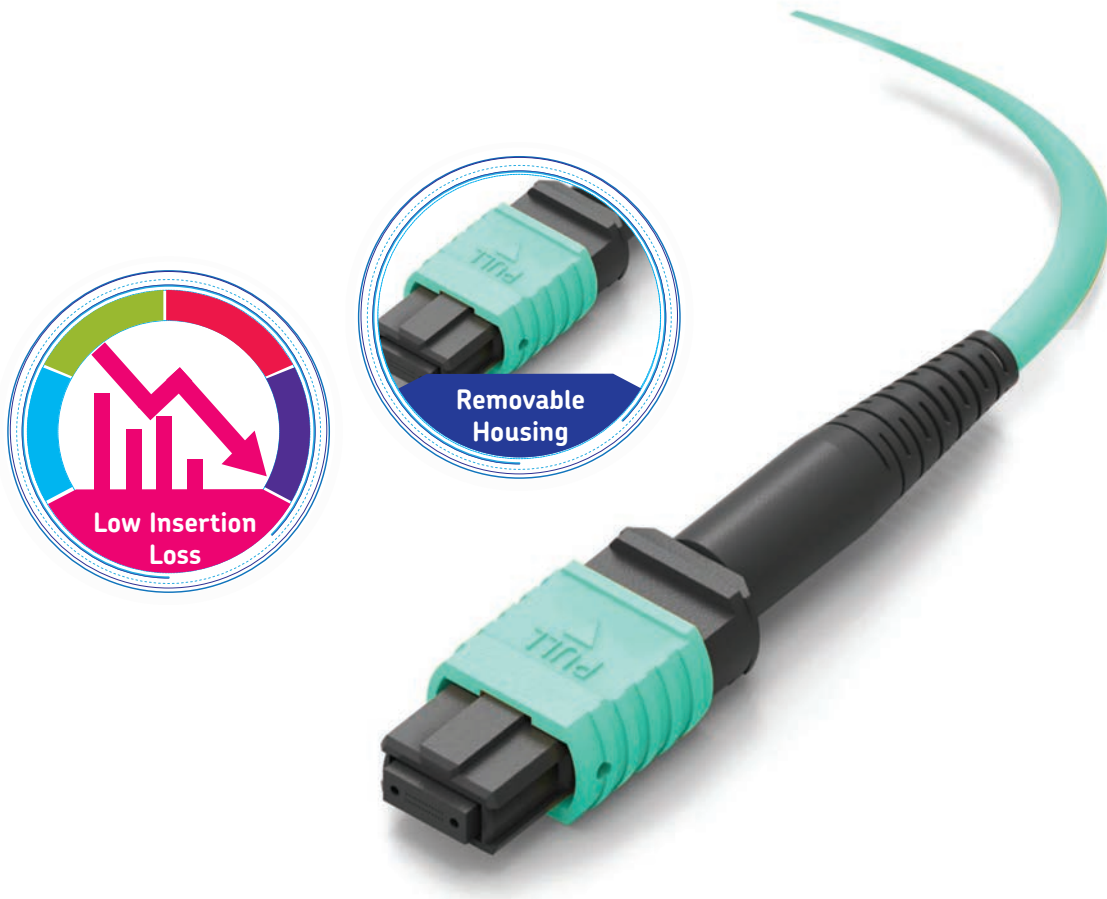
Ordering Information

Example:
 SV-ACORD-LCUFCU-SM3MD2
 Starview Armour Fiber Patchcord with LC/UPC to FC/UPC connector, Singlemode 9/125um 3 meter Duplex with type 2mm bend-insensitive fiber

Manufacturer:	Starview
Type:	Optical Fber Patchcord
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade #1:	U:UPC; A:APC
Connector Type #2:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade #2:	U:UPC; A:APC
Fiber Type:	SM: Singlemode MM: Multimode
Length:	(m) 1-99 M
Cord Type:	S: Simplex Type D: Duplex Type
Cord Diameter:	(mm) 2; 3;



MPO Cables



Specifications

Norms and Standards	Telcordia GR-326, IEEE 802.3u/802.3x/802.3z/802.3j, IEC 60794, TIA/EIA-568.B.3		
Fiber Jacket	Diameter	3mm ± 0.05mm	2mm ± 0.05mm
	Thickness	0.80mm ± 0.80mm	0.60mm ± 0.50mm
	Temperature	-20°C up to 85°C	
Fiber optic	Core diameter	Fiber: 50/125µm; 9/125µm	Value: ± 0.70mm
	Cladding diameter	125.0 ± 2.0µm	
	Core concentricity	≤ 1.5µm	
	Cladding concentricity	≤ 1.0%	
	Wavelength	Multimode:	850 nm 1300 nm
		Single mode:	1310 nm 1550 nm
	Maximum value	Multimode: dB/Km	≤ 3.5 ≤ 1.5
		Single mode: dB/Km	≤ 0.3 ≤ 0.2
	Recommended Light source	Multimode:	LED or VCSEL
		Single mode:	Laser



Features



- Female MPO (Multi Push Optics) connector
- Customize fiber optic cable length
- 12 and 24 core cable fiber types. Also available with MPO to LC/UPC breakout cable
- Uses 50/125um OM3 /OM4 multimode bend-insensitive fiber or singlemode 9/125um (G652D, G657A1) bend-insensitive fiber with 2mm diameter
- Comply with IEC 61754-7, Telecordia GR-1435-CORE
- Supports 40G/ 100G applications
- Factory terminated and 100% tested
- Individually packaged with test results included

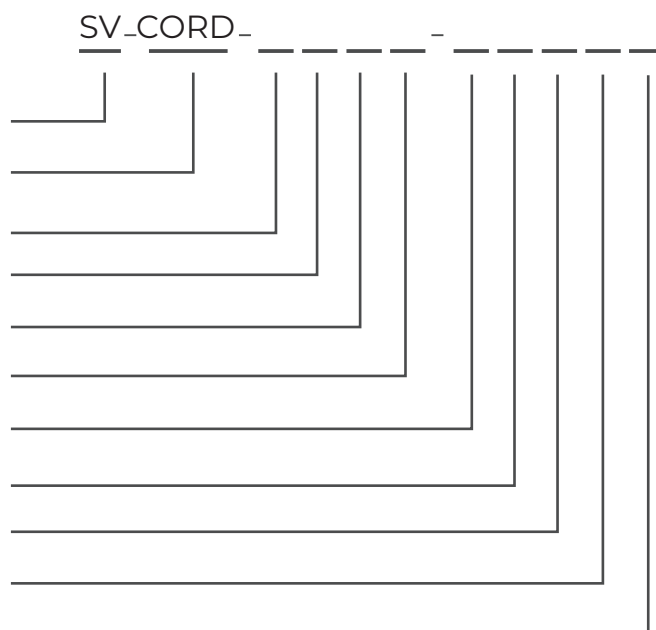
Ordering Information

Example:

SV-CORD-12MPF12MPF-MM1MD23

Starview Fiber Patchcord Female with MPO-12 (Female) to MPO-12 (Female), multimode 50/125um 1 meter with type 2mm OM3 bend-insensitive fiber

Manufacturer:	Starview
Type:	Optical Fiber Patchcord
Type #1:	12MP: MPO-12; 24MP: MPO-24
Connector Type #1:	F : female
Type #2:	12MP: MPO-12; 24MP: MPO-24
Connector Type #2:	F : female
Fiber Type:	SM: Singlemode MM: Multimode
Length:	(m) 1-99 M
Cord Type:	S: Simplex Type D: Duplex Type
Cord Diameter:	(mm) 2; 3;
Bend-insensitive:	3: OM3 4: OM4 5: OM5





MPO to LC Breakout Cable



Applications

- Data Centre Infrastructure
- Storage Area Network – Fiber Channel
- Parallel Optics
- 10Gbps, 25Gbps and emerging 40Gbps, 100Gbps Protocol

Features

- 0.35dB for all MM, SM Low Loss 0.35dB & Standard Loss 0.60dB
- 100% Interferometer Test
- IEC 61754-7 and TIA/EIA 604-5 Compliant for MPO interfaces

Standard Compliance

- EIA/TIA-455-21A
- TIA 604-5 (FOCIS 5)
- Telcordia GR-326-CORE
- IEC61754-7

MPO to 4 duplex LC breakout cable fan out a single 40Gbps connection from a 40GBase-SR4 QSFP+ optical transceiver module to four 10Gbps LC SFP+ optical transceiver modules, while 12 fiber type is used in 10G networks. The MPO to LC breakout cable is also an economical solution for a smaller network environment in which you don't need complicated equipment, because the MPO cable allows redistribution of various fibers into one round cable for short distance transmission, it offers 12, 24 and up to 144 fibers for these applications. To protect the cable in the harsh environment, armored cable is available.

OM3 & OM4 types MPO-LC breakout cable are very popular in markets. You might see both aqua and magenta colors are used for OM4 cable, it's just choice by different markets. MPO breakout cable offers up to 144 fibers, but most common versions are 12 and 24.

Optical Properties

Fiber Mode	Single Mode	Multi Mode
Attenuation (dB/km)	≤ 0.32 at 1310nm, ≤ 0.18 at 1550nm	≤ 2.3 at 850nm, ≤ 0.6 at 1300nm
Insertion Loss (dB)	Elite: ≤ 0.35, Standard: ≤ 0.75	Elite: ≤ 0.35, Standard: ≤ 0.6
Return Loss (dB)	UPC: ≥ 50	UPC: ≥ 20
Connector Type	LC	
Fiber Mode	Single Mode	Multi Mode
Insertion Loss (dB)	UPC: ≤ 0.25	UPC: ≤ 0.25
Return Loss (dB)	UPC: ≥ 50	UPC: ≥ 30

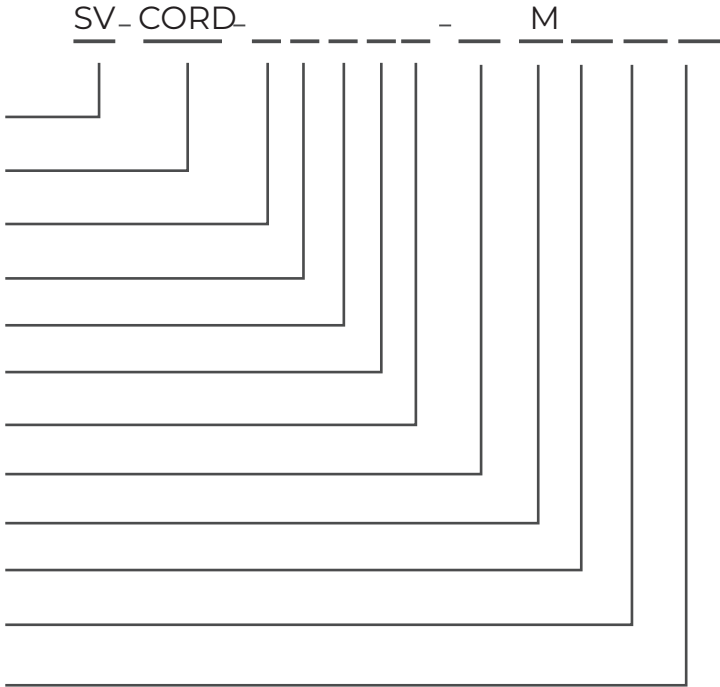
Specifications

Fiber Mode	Single Mode: OS2 9/125µm Multimode: OM4, OM3, OM2 50/125µm, OM1 62.5/125µm	
Connector A	MPO Female, Male	
Connector B	LC	
Polish Type	Single Mode: UPC Multi Mode: UPC	
Cable Jacket	LSZH, PVC	
Cable Type	Round, Ribbon	
Cable Diameter	3.0mm	
Breakout	0.9/2.0mm	
Breakout Length	0.5M	
Transmission Distance	OM4: 150m @40/100G, 400m @10G	OM3: 100m @40/100G, 300m @10G

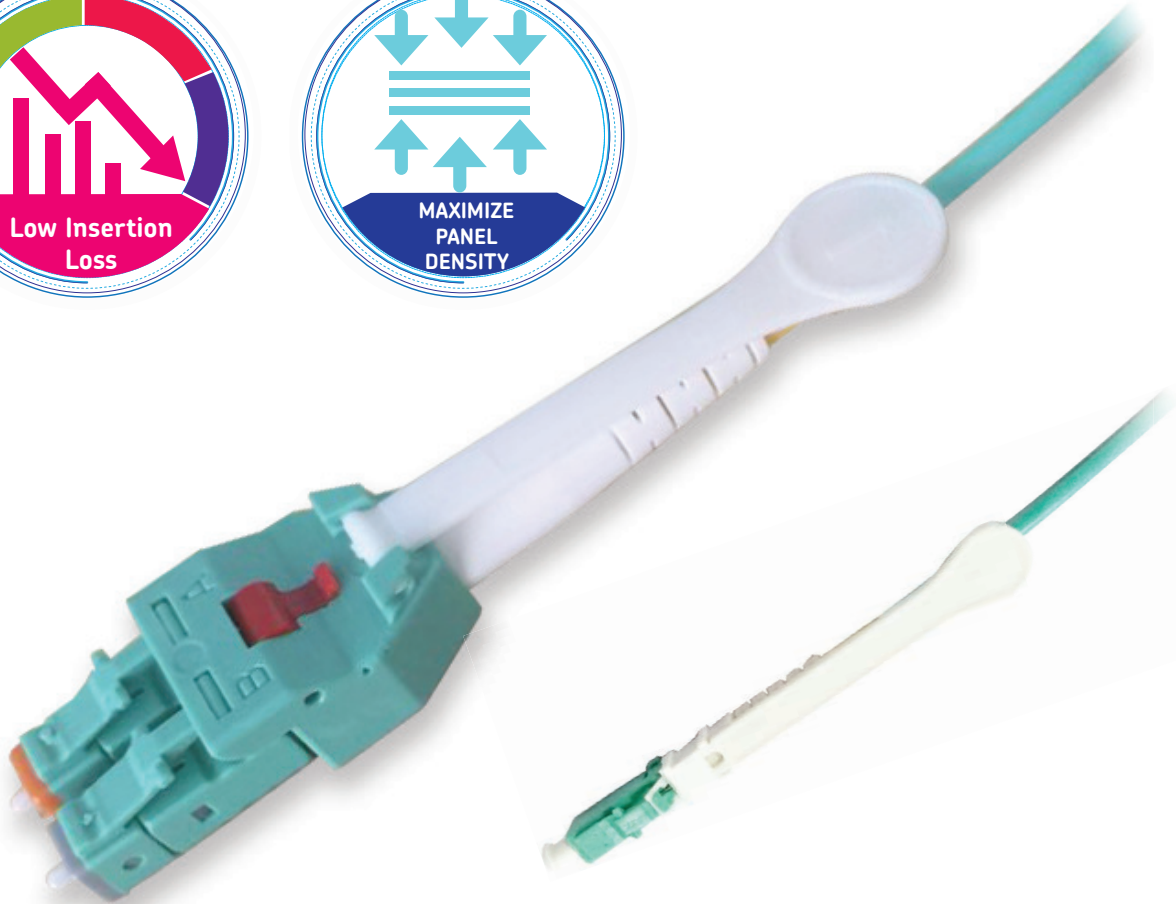
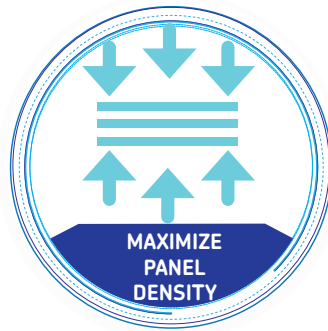
Ordering Information

Example:
 SV-CORD-12MPF4LCU-SM1MD3
 Starview Breakout Fiber Optic cable, MPO-12 (female) to 4 x duplex LC/UPC (male) Singlemode 9/125um 1 meter Duplex with type 3mm

- Manufacturer: Starview
- Type: Breakout Fiber Optic cable
- Connector type #1: 12MP: MPO-12 24MP: MPO-24
- Connector type #1 : Female, Male;
- Fiber Number #: 4;10;24
- Connector Type #2: Female, Male;
- Polishing Grade #2: LCU:UPC;
- Fiber Type: SM: Singlemode MM: Multimode
- Length: (m) 1-99 M
- Cord Type: S: Simplex Type D: Duplex Type
- Cord Diameter: (mm) 3;
- Fiber Mode 3: OM3 4: OM4 5: OM5



LC-HD High Density LC connector patch cord



Easy to release trigger connector

The LC-HD's lever design utilizes a flexible "pull-tab" allowing for the connector to be disengaged easily from densely loaded panels without the need for special tools. "Pull-Tabs" are available in three standard lengths and multiple colors.



Stackable adapters

The LC adapter spacing was limited by the room required to reach LC connectors with the human fingers or with special tools. The overall height of standard LC connectors also required a small vertical space above and below the LC adapters. The low profile Senko LC-HD, together with its pull tab allow the LC adapter to be stacked with absolutely no vertical space.



60% increase in density

The LC-HD connector can be removed using a simple pull tab, it eliminates the need for finger access to the LC connectors latch mechanism, therefore LC adapters can now be mounted much closer than spacing required in the past.



LC-HD High Density LC connector patch cord



Applications

- LC-HD's lever design utilizes a flexible "pull-tab" allowing for the connector to be disengaged easily from densely loaded panels without the need for special tools.
- IEEE 802.3u, IEC 60794, TIA/EIA-568.B.3 compliant
- 9/125µm Single Mode that offers a great wide broadband
- Telcordia GR-326 and IEEE 802.3u/802.3x/802.3z/802.3j standards tested
- 9/125µm Single Mode
- 2mm, and 3mm Simplex

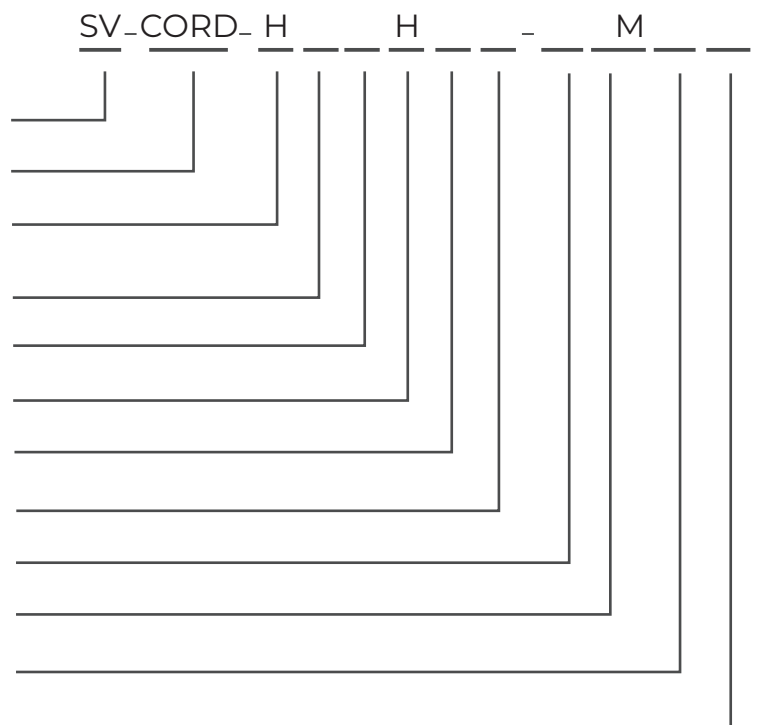
Ordering Information

Example:

SV-CORD-HLCUHLUCU-MM2MS2

Starview Fiber Patchcord with High Density LC/UPC to High Density LC/UPC connector, Multimode 50/125um 2 meter Simplex with type 2mm, OM3 bend-insensitive fiber

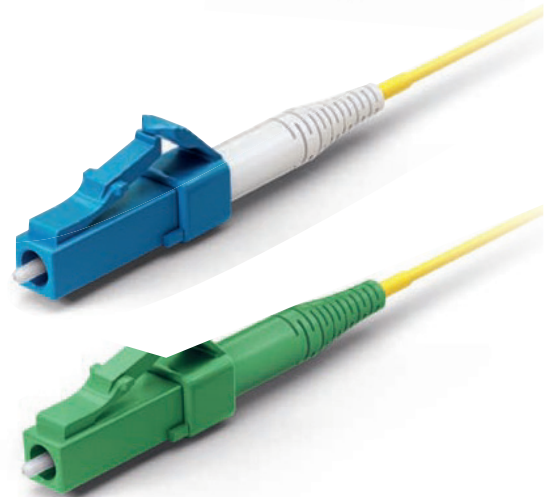
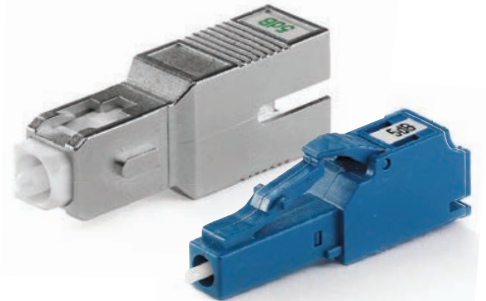
Manufacturer:	Starview
Type:	Optical Fber Patchcord
Type:	high density fiber patch cord
Connector Type #1:	LC:LC;
Polishing Grade #1:	U:UPC;
Type:	high density fiber patch cord
Connector Type #1:	LC:LC;
Polishing Grade #1:	U:UPC;
Fiber Type:	SM: Singlemode MM: Multimode
Length:	(m) 1-99 M
Cord Type:	S: Simplex Type D: Duplex Type
Cord Diameter:	(mm) 2; 3;



Accessories

Optical Connector
Optical Attenuators
Optical Adapters

Highest quality
and performance



- Cost Effective and fast lead time
- Low insertion loss
- Customized cable length and connectors
- Factory terminated and 100% tested
- Individually packaged with test results included



Features

- SC; LC; FC; ST Simplex or Duplex
- ANSI, IEC, TIA/EIA, NTT and JIS standard compatible
- Precision mechanical dimensions
- Zirconia ferrule PC or 8 degree APC diameter 125~128 μm high concentricity
- Single mode, Multimode and Angle PC
- Multi-piece type or one-piece type is available
- All parts compliant with ROHS

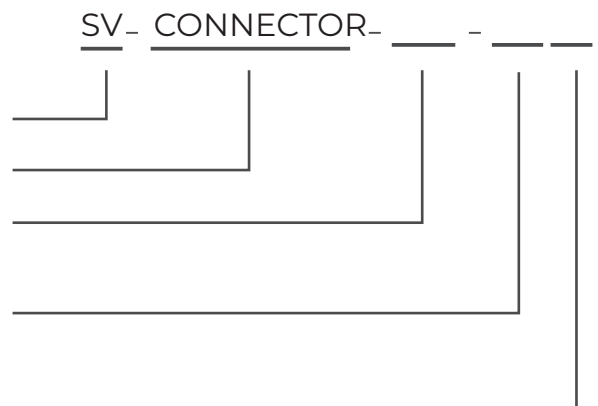
Applications

- Telecommunications network
- Active device termination
- CATV networks
- Local area networks.
- Broadband
- FTTH

Ordering Information

Example:
 SV-CONNECTOR-LC-SMD
 Starview Singlemode LC connector, Simplex Type.

Manufacturer:	Starview
Type:	Optical Connector
Connector Type:	SC:SC; FC:FC; ST:ST; LC:LC;
Ferrule:	SM: Singlemode MM: Multimode AP: Apc
Type:	S: Simplex Type D: Duplex Type



Highest quality and performance



LC UPC 900µm



FC UPC 900µm



SC UPC 900µm



LC APC 2mm



FC APC 2mm



SC APC 2mm

Specifications

Parameters	SC	LC	FC	ST
Fastening	Push-pull	Plug-in	Threaded coupling	Bayonet fitting
Body	Plastic	Plastic	Metallic	Metallic
Ferrule	Ceramic	Ceramic	Ceramic	Ceramic
Ferrule diameter	2.5mm	1.5mm	2.5mm	2.5mm
Polish	PC/UPC/APC	PC/UPC	PC/UPC/APC	PC/UPC
Ferrule tolerance	125.0 ± 1µm	125.0 ± 1µm	125.0 ± 1µm	125.0 ± 1µm
	126.0 ± 1µm MM	126.0 ± 1µm MM	126.0 ± 1µm MM	126.0 ± 1µm MM
Insertion loss	≤ 0.20 dB PC	≤ 0.20 dB PC	≤ 0.20 dB PC	≤ 0.20 dB PC
	≤ 0.30 dB UPC	≤ 0.30 dB UPC	≤ 0.30 dB UPC	≤ 0.30 dB UPC
	≤ 0.45 dB APC		≤ 0.45 dB APC	
Return loss	≤ 0.45 dB UPC	≤ 0.45 dB UPC	≤ 0.45 dB PC	≤ 0.45 dB PC
	≤ 0.50 dB APC		≤ 0.50 dB APC	
Temperature	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C
Durability	± 1db 500	± 1db 500	± 1db 500	± 1db 500
	Insertions	Insertions	Insertions	Insertions



Features

- Types: FC-LC, FC-SC, FC-ST, SC-ST...
- Low insertion loss, high return loss
- Good compatibility
- High precision of mechanical dimensions
- High reliability & stability
- Ceramic or Bronze Sleeve
- PC;APC;UPC optional
- Simplex / Duplex

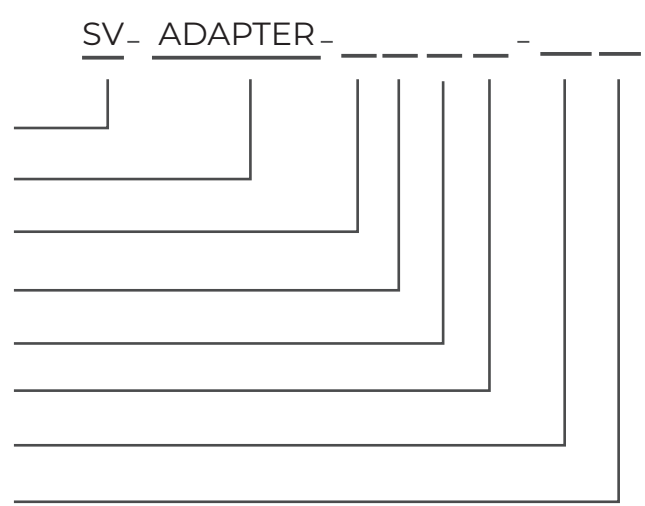
Applications

- Local Area Network
- CATV System
- Telecommunication Networks
- Equipment Test

Ordering Information

Example:
 SV-ADAPTER-LCULCU-SMS
 Starview adapter with LC/UPC (Female) to LC/UPC (Female), Singlemode type Simplex connector

Manufacturer:	Starview
Type:	Optical Adapter
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade #1:	U:UPC; A: APC
Connector Type #1:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade #1:	U:UPC; A:APC
Ferrule:	SM: Singlemode MM: Multimode
Type:	S: Simplex Type D: Duplex Type



Optical Attenuator



SC-LC Adapter



SC-LC Adapter



FC-LC Adapter



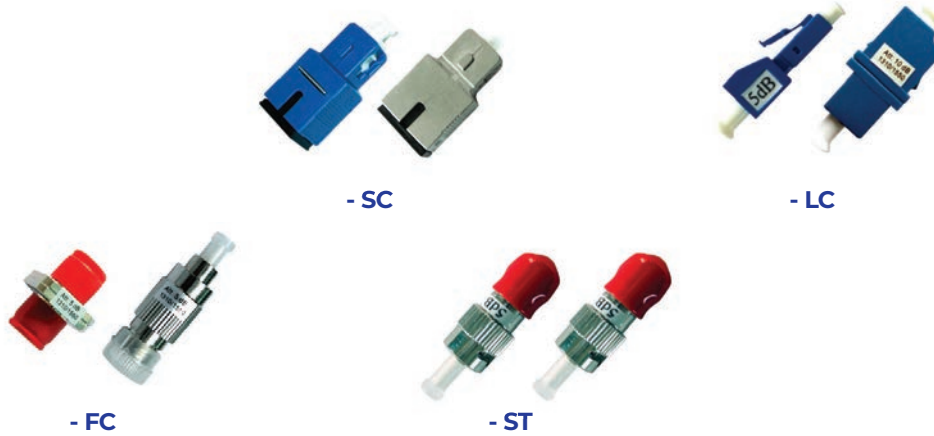
FC-LC Adapter



ST-LC Adapter

Specifications

Fastening	LC, SC, FC, ST, SC-ST, FC-ST, FC-SC, FC-LC,			
Body	SM			MM
Ferrule	PC	UPC	APC	PC
Insertion Loss (Typical)	≤ 0.3dB	≤ 0.2dB	≤ 0.3dB	≤ 0.2dB
Return Loss	≥ 45dB	≥ 50dB	≥ 60dB	≥ 30dB
Exchangeability	≤ 0.2dB			
Repeatability	≤ 0.2dB			
Temperature	-40°C to 85°C			



Features

- Low back reflection and Low PDL
- High precision attenuation value
- Precision control of attenuation range
- Wide attenuation range
- Precision ceramic ferrule
- FC, SC, ST, LC ... optional
- Plastic or metal housing material

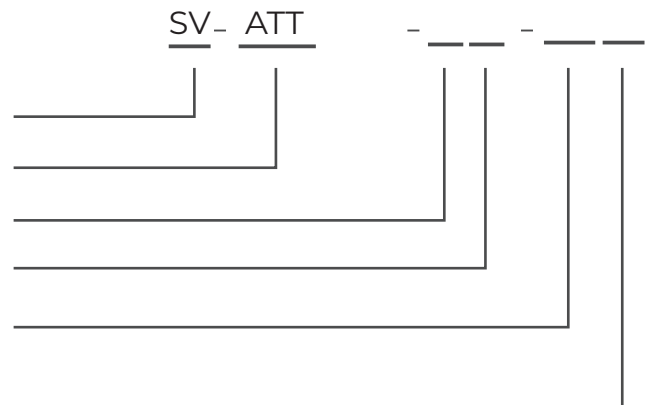
Applications

- Fiber optical telecommunication system
- Fiber optical CATV
- Fiber optical sensor
- Testing equipment

Ordering Information

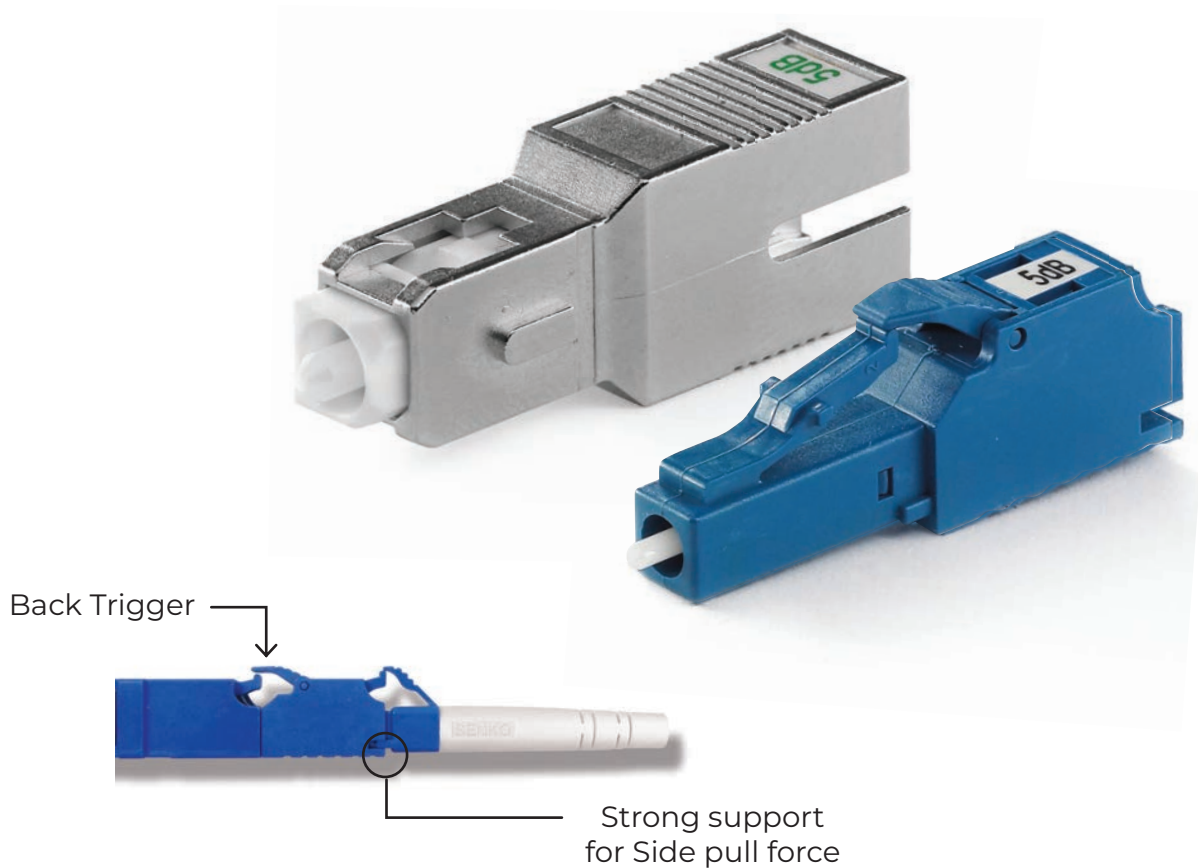
Example:
 SV-ATT-LCU-SM1
 Starview Attenuator with LC/UPC connector, Singlemode type 1dB Attenuation

Manufacturer:	Starview
Type:	Optical attenuator
Connector Type:	SC:SC; FC:FC; ST:ST; LC:LC;
Polishing Grade:	U:UPC; A: APC
Type:	SM: Singlemode MM: Multi mode
Attenuating Vaule:	01: 1db 03: 3db 05: 5db 10: 10db 15: 15db 20: 20db



**SC-APC
 LC-UPC
 Attenuators**

Highest quality and performance



Specifications

Parameters	SC	LC	FC	ST
Fastening	1310nm/1550nm	1310nm/1550nm	1310nm/1550nm	1310nm/1550nm
Body	1-10dB(1dB step),	1-10dB(1dB step),	1-10dB(1dB step),	1-10dB(1dB step),
Ferrule	15, 20, 25, 30dB	15, 20, 25, 30dB	15, 20, 25, 30dB	15, 20, 25, 30dB
Ferrule diameter	≥ 50 dB PC	≥ 50 dB PC	≥ 50 dB PC	≥ 50 dB PC
Polish	≥ 55 dB UPC	≥ 55 dB UPC	≥ 55 dB UPC	≥ 55 dB UPC
Ferrule tolerance	≥ 60 dB APC	≥ 60 dB APC	≥ 60 dB APC	≥ 60 dB APC
Insertion loss	≤ 1.0 (11-30dB)	≤ 1.0 (11-30dB)	≤ 1.0 (11-30dB)	≤ 1.0 (11-30dB)
Temperature	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C

Smart cleaner

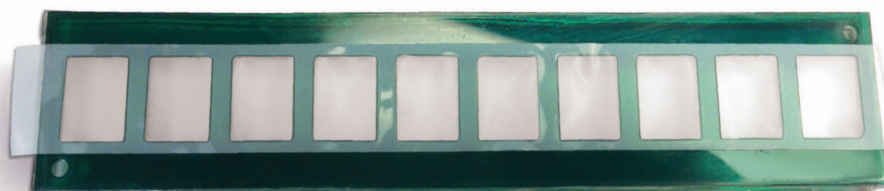
MPO Cleaners
Fiber Optic Cleaners
Transceiver Cleaners



Fiber Optic Cleaners



Transceiver Cleaners



MPO Cleaners



Smart cleaner

Fiber Optical Connector Cleaners



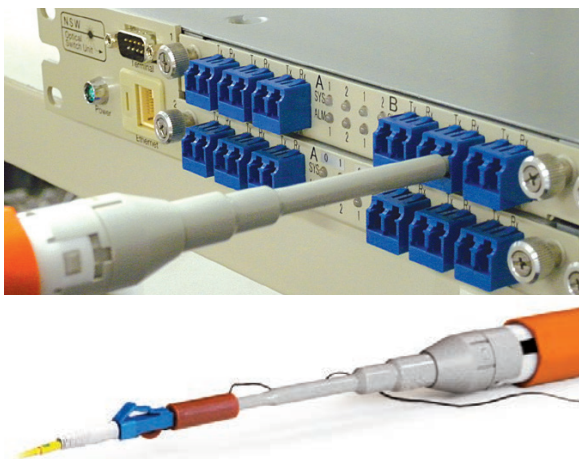
SC/LC Connector Cleaners
Replaceable Cartridge Type



MPO Connector Cleaner
Increase Equipment Reliability

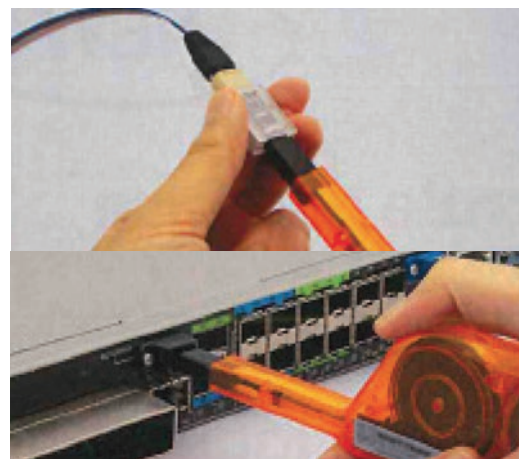
Specifications

750 times + CLEANINGS FOR EACH CARTRIDGE		
Compatible	LC	SC
Connectors	PC and APC	PC and APC



Specifications

600 times + CLEANINGS	
Compatible	MPO Connectors, MTP
Connectors	Connectors® Plug and Port



The Smart Cleaners are dry cloth cleaners specially designed to clean single fiber connectors residing in an adapter, faceplate or bulkhead. The Smart Cleaners are simple to use and highly effective at removing oil and dust contaminants that can negatively impact optical performance.

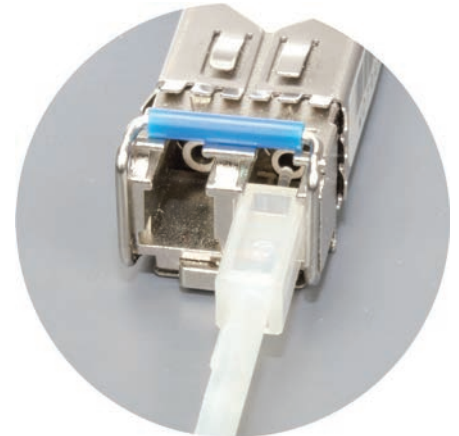
In response to the special cleaning needs of multi-fiber optical connectors, We are introducing a new cleaner for MPO optical connectors. By further expanding its lineup of optical connector cleaners, We are able to respond to an even wider range of its customers needs.

Ordering Information

SV-CLEANER-LC	Starview Cleaner for LC Connector, tape width 1.25mm, come with 1 x replaceable cartridge
SV-CARTRIDGE-LC	Starview Replaceable Cartridge for SV-CLEANER-LC, 3pcs per set
SV-CLEANER-SC	Starview Cleaner for SC Connector, tape width 2.5mm, come with 1 x replaceable cartridge
SV-CARTRIDGE-SC	Starview Replaceable Cartridge for SV-CLEANER-SC, 3pcs per set

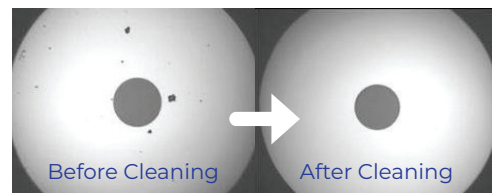


**For Cleaning SFP Transceivers
with Adhesive Technology**



Features

- Designed to clean fiber stub inside SFP transceiver port
- Adhesive technology leaves no scratches or residue on fiber stub surface
- Anti-static materials to protect transceivers from ESD
- Can be used for the other LC connector compliant transceivers



Design

The absorption element accesses to fiber stub inside SFP transceiver port and removes dust and residue which cannot be cleaned by wipe type cleaners.

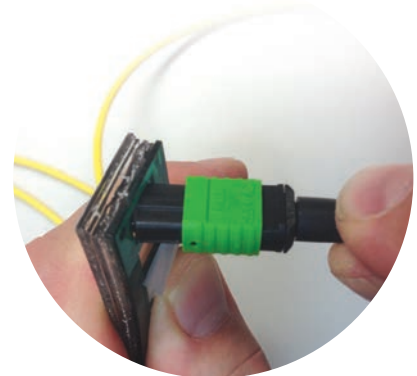
Usage

Insert the tip of the cleaner into transceiver port. Push the stick until the tip touches the surface.

Ordering Information



For Cleaning the Entire MPO Endface Pin to Pin



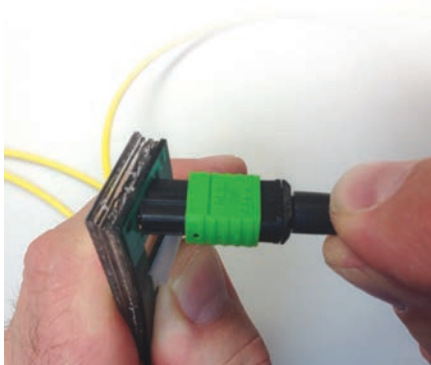
Features

- Cleans entire MPO Endface including PIN area's
- No solvent needed
- Cleans Oil, Dust and Dirt Particulates
- Easy to use, PUSH on, and release to clean

Usage

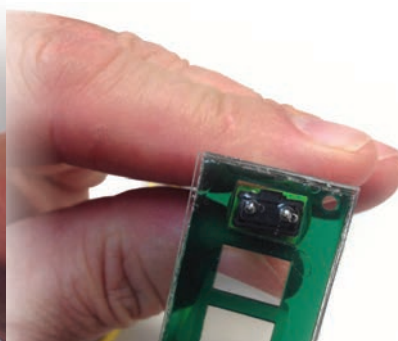
Step 1:

Sticker cleaner contains 10 "Stick" cleaning area



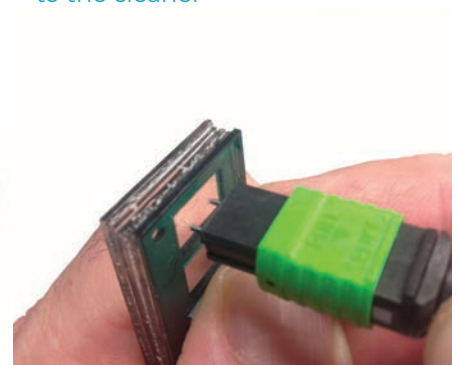
Step 2:

PUSH MT Ferrule against the stick surface for cleaner



Step 3:

Remove the MT Ferrule, dirt and oil will be transferred from the ferrule to the cleaner



Effective for removing oil, dust, and dirt particulates that can have a negative impact on fiber optic performance.

Ordering Information

SV-CLEANER-MPO	Starview Endface cleaner for MPO Connector, designed to clean single fiber connectors residing in an adapter, faceplate or bulkhead
SV-CLEANER-MPO-STICK	Starview Sticker Cleaner containing 10 "Stick" cleaning area for cleaning entire MPO Endface including PIN area



PoE Extender

Outdoor use weather-proof Single port PoE extender

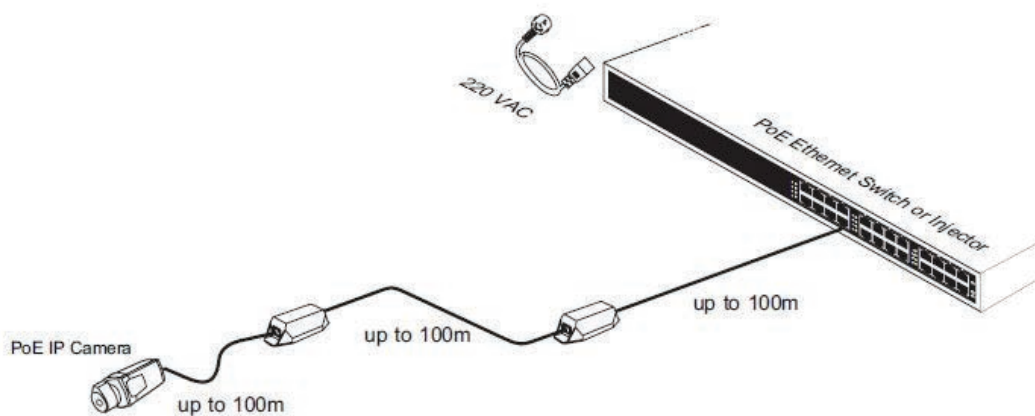


Features

- Industrial Grade -40 to 70°C
- Mini-size, wall mounting
- Requires no external power supply
- Low power consumption, only 1.2W
- Auto-sensing PoE devices
- Compatibility with 802.3at and 802.3af

Outdoor use weather-proof Single port PoE extender-a quality product for PoE network point-to-point up to 500m. Works with PoE standards IEEE802.3af and IEEE802.3at. This device serves as a data switch port that is powered by PoE, and transmits it further on another 100m together with the data. Depending on the amount of power consumption. may use up to 4 extensions in the same chain, thereby increasing transmission distance up to 500m (1 class 82.3af, see table. "Maximum distance")

Typical connection diagram



PoE Device (PD)	PoE Injector or Switch IEEE802.3af (max 15.4W)	PoE Plus Injector or Switch IEEE802.3at (max 30W)
IEEE802.3af class 1 no more than 4W	400m (3pcs PoE Extender)	500m (4pcs PoE Extender)
IEEE802.3af class 2 no more than 6W	300m (2pcs PoE Extender)	400m (3pcs PoE Extender)
IEEE802.3af class 0&3 no more than 12W	200m (1pcs PoE Extender)	300m (2pcs PoE Extender)
IEEE802.3at no more than 22W	Not applicable	200m (1pcs PoE Extender)

Ordering Information

SV-EXT-POE+	Starview Outdoor 10/100/1000Base-T1-port PoE+ enabled Extender
-------------	--

Technical characteristics

Item	Description
No. of channels	1
Pass Through Data Rates	10/100/1000 Mbps half / full duplex
PoE input	Pin Assignment and Polarity: Both 1/2 (-), 3/6 (+) and 7/8 (-), 4/5 (+)
PoE output	Pin Assignment and Polarity: 1/2 (-), 3/6 (+) Output Power: up to 22W
Indicators	Power indicator: PoE enabled Network indicator: Link/Act
Connectors	Shielded RJ-45, EIA 568A and 568B
Network cables	Shielded category 5 (or higher)
Dimensions	185mm x 45mm x 45mm
Weight	0.22Kg
Mounting	Wall of shelf
Environment	Indoor or Outdoor
Environmental Conditions	Operating Ambient Temperature: -25 to 55°C Storage Temperature: -30 to 70°C
Compliance	IEEE802.3af (POE), IEEE802.3at (POE+)

Maximum Distances for Power Sources

Multiple PoE Extenders can be connected every 100 meters to obtain greater distances. The actual figures depend on operating conditions. The range is over 24 AWG or heavier Cat-5e or Cat-6 cable except where specified.

Examples for medium power PoE Devices (that are PoE Class 2, or require under 6 watts)

PoE Source			
PoE switch (802.3af, Output voltages 50V)	15W mid-span (802.3af, Output voltages 50V)	PoE+ switch (802.3at, Output voltages 50V)	30W mid-span (802.3at, Output voltages 50V)
Maximum Distances			
300m	300m	400m	400m

Examples for full power PoE Devices (that are PoE Class 0 or 3, or require under 12 watts)

PoE Source			
PoE switch (802.3af, Output voltages 50V)	15W mid-span (802.3af, Output voltages 50V)	PoE+ switch (802.3at, Output voltages 50V)	30W mid-span (802.3at, Output voltages 50V)
Maximum Distances			
200m	200m	300m	300m

Examples for PoE+ Devices (that are PoE Class 4 that under 22 watts, or 802.3at compliant)

PoE Source			
PoE switch (802.3af, Output voltages 50V)	15W mid-span (802.3af, Output voltages 50V)	PoE+ switch (802.3at, Output voltages 50V)	30W mid-span (802.3at, Output voltages 50V)
Maximum Distances			
Not applicable	Not applicable	200m	200m



Applications

- VoIP Telephones; IP Security Cameras
- Wireless Network Access Points and Bridges
- Any other PoE powered device

Features

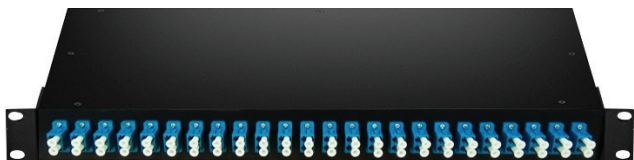
- Compact design with interlocking installation
- Full Protection OCP, OVP
- Non-Vented Case
- Gigabit Compatible
- Supports IEEE 802.3 bt/at/af
- Continuous flow of power with NO detection

Technical characteristics

Item	Description
Data LAN	10/100/1000T RJ-45 female
Ports	Single Port data & power out
Cable	EIA/TIA-568 100-ohm (100m) ; 10T: 4-pair UTP/STP Cat.3, 4, 5; 100TX: 2 and 4-pair UTP/STP Cat.5; 1000T: 4-pair UTP/STP Cat.5
Data&Power Out	Power Feed Pins: 1/2-, 3/6+; & 4/5+,7/8- Data on Pins: full duplex;
Output Voltage	48-56VDC
Output Current Max	1.7A
Rated power	90Watt
Input Voltage	100~240VAC±10% 47~63Hz
Input Inrush Current(Typ)	20A Max (Cold start@25°C,at AC input 230V)
Input Connector	IEC320-C8 inlet (2 pin) or IEC320-C6 inlet (3 pin)
Indicator LED	Input power (Green);
Protection	Recovers automatically after fault conditions is removed
	Overload protection@145~160%above peak rating
	Shut down o/p voltage.re-power on to recover
Environmental Conditions	Working Temp: -20°C ~ +60°C (-4°F to 140°F) Working Humidity: 10~90%RH no-condensing Storage Temp Humidity: -40°C~ +70°C (-40°F to 158°F) Storage Humidity: 8~90%RH
Safety& EMC	Safety Standards: CE LVD/ EN60950
	Withstand Voltage: I/P-O/P:3.0KVAC IP-GND:3.0KVAC
	EMC EMI Compliant: EN55022, EN55024; FCC PART15 SUBPART B2010
	RoHS Compliant: Yes
MTBF	50,000 hrs
Dimension	147(172) mm x 62mm x 30mm (L*W*H)
Weight	240g

Ordering Information

SV-PSE-POE++	Starview 10/100/1000Base-T 1-port PoE++ Injector, with external AC power cord
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Applications

Starview 19-inch Rack-mount Fiber Optic Distribution Frame for FC,SC,ST,LC adapters. The enclosure is constructed of steel material and its front panel is designed to easily remove for cabling and connector installation.

Features

- Standard size, light weight and reasonable structure
- Compact design for space saving
- Front mark on the plate is easy for identification and operation
- Easy for management and operation
- Supports Multimode and Singlemode fiber splitting
- Wide Operating Temperature: From -40°C to 85°C
- High Reliability and Stability

Applications

- Transition from Backbone cabling to distribution switching
- Interconnect to active equipment in server cabinet
- Cross connect or inter-connect

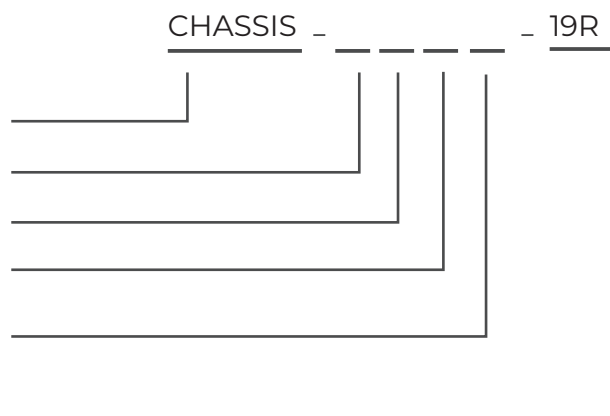
Specifications

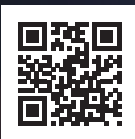
Type	Dimension	Max capacity	Remark
Drawer type 19" rack mounted	430mmx300mmx1U	SC/FC/ST 12	Cold rolled steel sheet,with electrostatic spraying,suitable for FC,SC,ST,LC adapters.IP grade: IP20 ; compliant: ROHS
	430mmx300mmx1U	FC/ST 24	
	430mmx300mmx1U	2SC 48	
	430mmx300mmx2U	FC/ST 48	
	430mmx300mmx4U	2SC 144	

Ordering Information

Example:
 CHASSIS-24SCUS-19R
 Drawer type patch panel with 24 x SC simplex adapter, 19" 1RU Rack w/o pigtails.

Type: Drawer type patch panel
 Cores: 12;24;48;96;
 Connector Type: SC:SC; LC:LC;
 Polishing Grade: U:UPC; A: APC
 Fibre Type: SM: Singlemode
 MM: Multimode
 19-inch Rack-mount
 Fiber Optic Distribution Frame





Media Converter



10/100/1000M



100M/1G/10G



Multi-rate 1/ 2.5/ 5/ 10G

Elevate network performance with a comprehensive range of media converters, catering to diverse connectivity needs. 1G media converters provide efficient solutions for standard network requirements, seamlessly transforming signals for optimal transmission. For high-speed demands, explore 10G media converters designed to meet the robust needs of advanced networks. Additionally, versatile 1Gbps to 10Gbps media converters offer a flexible bridge between different speeds, ensuring smooth transitions and future-proofing network infrastructure. Choose reliability, performance, and adaptability with a suite of media converters tailored to enhance connectivity experience.

Technical characteristics

Item	Description
Functional Standards	IEEE802.3, IEEE 802.3an, IEEE 802.3ae, IEEE 802.3az
Support	1000Base-T: Cat5 UTP/STP. MAX 100m; 2.5GBase-T: Cat5e UTP/STP. MAX 50m; 5GBase-T: Cat5e UTP/STP. MAX 50m; 10G Base-T: Cat6a UTP/STP. MAX 50m;
Safety& EMC	Safety Standards: CE LVD/ EN60950
Operating Temperature	0°C~ +50°C
Operating Humidity	10% to 95% (non-condensing)
Storage Temperature	-15°C~ +65°C

Ordering Information

GE-SFP-SAC	10/100/1000Base-TX (RJ45) to 1000Base-X (SFP) standalone media converter, with AC power adapter
10GE-SFPP-SAC	100M/1G/10GBase-TX (RJ45) to 1000Base-X (SFP) or 10GBase-X (SFP+) standalone media converter, with AC power adapter
10GE-M-SFPP-SAC	Multi-rate 1/ 2.5/ 5/ 10GBase-TX (RJ45) to 1/ 2.5/ 5/ 10G (SFP/ SFP+) standalone media converter, with AC power adapter

Maintenance Package for Transceiver Modules

Starview Maintenance package for transceiver modules provide value added RMA and advance replacement services to assist the customer's service operation, improve operational efficiency , and reduce the CAPEX and OPEX. We provide:

- Repair and Return(R&R)Service
- 24X7 spare parts replacement
- Logistical service for replacement

Starview maintenance package Repair & Return(R&R) process:

- Module will be one to one replaced on site or in starview office.
- Check the existing module performance characteristics.
- Ensure module performance within manufacturer's specifications.
- Replace module with Starview part if it is confirmed defective.
- Starview module warrant 2 years against manufacturing defect.
- Clean module TX/RX lenses if module is not defective.
- Return customer's module on the next two(2) business day.
- Starview warrants its replacement module to work with major equipment vendor

100GHz Spacing Wavelength

## ITU Channel	Wavelength	Frequency (THz)	## ITU Channel	Wavelength	Frequency (THz)	## ITU Channel	Wavelength	Frequency (THz)	## ITU Channel	Wavelength	Frequency (THz)
17	1563.86	191.7	40	1545.32	194.0	62	1563.86	191.7	91	1585.36	189.1
18	1563.05	191.8	41	1544.53	194.1	63	1563.05	191.8	92	1584.53	189.2
19	1562.23	191.9	42	1543.73	194.2	64	1562.23	191.9	93	1583.69	189.3
20	1561.42	192.0	43	1542.94	194.3	65	1561.42	192.0	94	1582.85	189.4
21	1560.61	192.1	44	1542.14	194.4	66	1560.61	192.1	95	1582.02	189.5
22	1559.79	192.2	45	1541.35	194.5	67	1559.79	192.2	96	1580.18	189.6
23	1558.98	192.3	46	1540.56	194.6	68	1558.98	192.3	97	1580.35	189.7
24	1558.17	192.4	47	1539.77	194.7	69	1558.17	192.4	98	1579.52	189.8
25	1557.36	192.5	48	1538.98	194.8	70	1557.36	192.5	00	1578.69	190.0
26	1556.55	192.6	49	1538.19	194.9	71	1556.55	192.6	01	1577.86	190.1
27	1555.75	192.7	50	1537.40	195.0	72	1555.75	192.7	02	1577.03	190.2
28	1554.94	192.8	51	1536.61	195.1	73	1554.94	192.8	03	1576.20	190.3
29	1554.13	192.9	52	1535.82	195.2	74	1554.13	192.9	04	1575.37	190.4
30	1553.33	193.0	53	1535.04	195.3	75	1553.33	193.0	05	1574.54	190.5
31	1552.52	193.1	54	1534.25	195.4	76	1552.52	193.1	06	1573.71	190.6
32	1551.72	193.2	55	1533.47	195.5	77	1551.72	193.2	07	1572.06	190.7
33	1550.92	193.3	56	1532.68	195.6	78	1550.92	193.3	08	1571.24	190.8
34	1550.12	193.4	57	1531.90	195.7	79	1550.12	193.4	09	1570.42	190.9
35	1549.32	193.5	58	1531.12	195.8	80	1549.32	193.5	10	1569.59	191.0
36	1548.51	193.6	59	1530.33	195.9	81	1548.51	193.6	11	1568.77	191.1
37	1547.72	193.7	60	1529.55	196.0	82	1547.72	193.7	12	1567.95	191.2
38	1546.92	193.8	61	1528.77	196.1	83	1546.92	193.8	13	1567.13	191.3
39	1546.12	193.9				84	1546.12	193.9	14	1566.31	191.4
						89	1587.04	188.9	15	1565.50	191.5
						90	1586.20	189.0	16	1564.68	191.6

50GHz Spacing Wavelength

## ITU Channel	Wavelength	Frequency (THz)
17	1563.86	191.70
17.5	1563.45	191.75
18	1563.05	191.80
18.5	1562.64	191.85
19	1562.23	191.90
19.5	1561.83	191.95
20	1561.42	192.0
20.5	1561.01	192.05
21	1560.61	192.10
21.5	1560.20	192.15
22	1559.79	192.20
22.5	1559.39	192.25
23	1558.98	192.30
23.5	1558.58	192.35
24	1558.17	192.40
24.5	1557.77	192.45
25	1557.36	192.50
25.5	1556.96	192.55
26	1556.55	192.60
26.5	1556.15	192.65
27	1555.75	192.70
27.5	1555.34	192.75
28	1554.94	192.80
28.5	1554.54	192.85
29	1554.13	192.90
29.5	1553.73	192.95
30	1553.33	193.0
30.5	1552.93	193.05
31	1552.52	193.10

## ITU Channel	Wavelength	Frequency (THz)
31.5	1552.12	193.15
32	1551.72	193.20
32.5	1551.32	193.25
33	1550.92	193.30
33.5	1550.52	193.35
34	1550.12	193.40
34.5	1549.72	193.45
35	1549.32	193.50
35.5	1548.91	193.55
36	1548.51	193.60
36.5	1548.11	193.65
37	1547.72	193.70
37.5	1547.32	193.75
38	1546.92	193.80
38.5	1546.52	193.85
39	1546.12	193.90
39.5	1545.72	193.95
40	1545.32	194.0
40.5	1544.92	194.05
41	1544.53	194.10
41.5	1544.13	194.15
42	1543.73	194.20
42.5	1543.33	194.25
43	1542.94	194.30
43.5	1542.54	194.35
44	1542.14	194.40
44.5	1541.75	194.45
45	1541.35	194.50
45.5	1540.95	194.55

## ITU Channel	Wavelength	Frequency (THz)
46	1540.56	194.60
46.5	1540.16	194.65
47	1539.77	194.70
47.5	1539.37	194.75
48	1538.98	194.80
48.5	1538.58	194.85
49	1538.19	194.90
49.5	1537.79	194.95
50	1537.40	195.0
50.5	1537.00	195.05
51	1536.61	195.10
51.5	1536.22	195.15
52	1535.82	195.20
52.5	1535.43	195.25
53	1535.04	195.30
53.5	1534.64	195.35
54	1534.25	195.40
54.5	1533.86	195.45
55	1533.47	195.50
55.5	1533.07	195.55
56	1532.68	195.60
56.5	1532.29	195.65
57	1531.90	195.70
57.5	1531.51	195.75
58	1531.12	195.80
58.5	1530.72	195.85
59	1530.33	195.90
59.5	1529.94	195.95
60	1529.55	196.0
60.5	1529.16	196.05

Calculating Fiber Loss & Distance Estimates

Estimate Total Link Loss

This calculation will estimate the total link loss through a particular fiber optic link where the fiber length, as well as the number of splices and connectors, are known. This calculation is simply the sum of all worst-case loss variables in the link:

$$\begin{aligned} \text{Link Loss} = & [\text{fiber length (km)} \times \text{fiber attenuation per km}] \\ & + [\text{splice loss} \times \text{\# of splices}] \\ & + [\text{connector loss} \times \text{\# of connectors}] + [\text{safety margin}] \end{aligned}$$

For example: Assume a 40 km single mode link at 1310nm with 2 connector pairs and 5 splices.

$$\text{Link Loss} = [40 \text{ km} \times 0.4 \text{ dB/km}] + [0.3 \text{ dB} \times 5] + [0.75 \text{ dB} \times 2] + [3.0 \text{ dB}] = 21.0 \text{ dB}$$

In this example, an estimated 21.0 dB of power would be required to transmit across this link. Of course, it is very important to

measure and verify the actual link loss values once the link is established to identify any potential performance issues.

Estimate Fiber Distance

This calculation will estimate the maximum distance of a particular fiber optic link given the optical budget and the number of

connectors and splices contained in the link:

$$\text{fiber Length} = \frac{[\text{Optical budget}] - [\text{link loss}]}{[\text{fiber loss/km}]}$$

$$\text{Fiber Length} = \frac{\{[(\text{min. TX PWR}) - (\text{RX sensitivity})] - [\text{splice loss} \times \text{\# of splices}] - [\text{connector loss} \times \text{\# of connectors}] - [\text{safety margin}]\}}{[\text{fiber loss/km}]}$$

For example: Assume a Fast Ethernet Single mode link at 1310nm with 2 connector pairs and 5 splices.

$$\text{Fiber Length} = \frac{[26.0 \text{ dB}] - [0.5 \text{ dB}] - [1.5 \text{ dB}] - [3.0 \text{ dB}]}{[0.4 \text{ dB/km}]} = 52.5 \text{ km}$$

Estimate fiber link budget(dB) = Tx Power(min) - Rx sensitivity(max)

Estimate fiber link distance(km) = Link budget / Fiber attenuation*

*Multimode fiber needs to add 3dB link margin

In this example, an estimated 52.5 km distance is possible before dissipating the optical power to a value below the RX sensitivity.

As always, it is very important to measure and verify the actual link loss values once the link is established to identify any potential

performance issues. Actual maximum distances will very depending on:

- Actual optical fiber attenuation per km
- Optical fiber design and age
- Quality of connectors and actual loss per pair
- Quality of splices and actual loss per splice
- Quantity of splices and connectors in the link

Calculating Fiber Loss and Distance Estimates

Fiber Type	Wavelength	Fiber attenuation / km*	Fiber attenuation / km #	Connector Loss	Splice Loss
Multimode 50/125 μm	850nm	3.5 dB	2.5 dB	0.75 dB	0.3 dB
	1300nm	1.5 dB	0.8 dB	0.75 dB	0.3 dB
Multimode 62.5/125 μm	850nm	3.5 dB	3.0 dB	0.75 dB	0.3 dB
	1300nm	1.5 dB	0.7 dB	0.75 dB	0.3 dB
Single Mode 9 μm	1310nm	0.4 dB	0.35 dB	0.75 dB	0.3 dB
Single Mode 9 μm	1550nm	0.3 dB	0.22 dB	0.75 dB	0.3 dB

*These values are per TIA/EIA and other industry specifications and are the values used by Starview International in all link loss calculations.

#These values are one example of the performance that can be obtained with a new fiber installation.

Fiber Optic Definitions

Maximum Transmit Power

The maximum output power in dBm(decibels relative to 1mW) of the optical transmitter/transceiver.

Minimum Transmit Power

The minimum output power in dBm (decibels relative to 1mW) of the optical transmitter/transceiver.

Launch Power

The actual output power in dBm (decibels relative to 1mW) of the optical transmitter/transceiver. This value will reside somewhere within the max. and min. transmit power levels listed.

Receive Sensitivity

The minimum input power in dBm (decibels relative to 1mW) necessary to correctly drive the optical receiver.

Maximum Receive Power

The maximum input power in dBm (decibels relative to 1mW) the optical receiver can safely accept without overdriving the receiver.

Link Budget

The amount of power available for dissipation over the fiber link between end devices. It is calculated using worst case assumptions by subtracting the receive sensitivity from the minimum transmit power.

Link Loss

The total amount of power dissipation over the fiber link between end devices. It is calculated using maximum loss values for distance, splices and connectors.

Splice Loss

The amount of power loss attributable to a fiber optic spliced connection.

Connector Loss

The amount of power loss attributable to a fiber optic connector pair.

Attenuation

The amount of power loss per kilometer over the fiber link. Attenuation is wavelength specific and will depend greatly on type and condition of the optical fiber found in the link.

Safety Margin

It is common practice to add a couple of dB loss as a safety buffer to account for items such as fiber aging, splice and connector degradation over time and environmental factors such as temperature and humidity.

The IEEE also recommends maximum cable distances as defined in the table below:

Standard	Data Rate (Mbps)	Cable Type	IEEE Standard Distance
10BASE-FL	10	850nm Multimode 50/125 μ m or 62.5/125 μ m	2 km
100BASE-FX	100	1300nm Multimode 50/125 μ m or 62.5/125 μ m	2 km
100BASE-SX	100	850nm Multimode 50/125 μ m or 62.5/125 μ m	300 m
1000BASE-SX	1000	850nm Multimode 50/125 μ m	550 m
		850nm Multimode 62.5/125 μ m	220 m
1000BASE-LX	1000	1300nm Multimode 50/125 μ m or 62.5/125 μ m	550 m
		1310nm Single mode 9/125 μ m	5 km
1000BASE-LH	1000	1550nm Single mode 9/125 μ m	70 km

Starview International assumes the multimode standard distances defined by IEEE for all of its products.

Transceivers FAQ

1. What is the difference between Starview Technologies SFP and Original Vendor SFP?

In reality, there is no difference. Original vendor SFP are much higher in cost as they claim to be of much better quality. Most if not all, network equipment vendors do not produce their own SFP modules. These productions are outsourced to contract manufacturer and then labeled as their specific brand

2. Is it true that key equipment vendors, such as Cisco and Alcatel, only allow their SFP ports to be used by their in-house modules?

No, vendors are supposed to allow third party SFP to be used on their equipment as the SFP transceiver is specified by a multi-source agreement (MSA) between competing vendors. MSA specifies the physical dimensions, connectors, and signaling used in the SFP module so that multiple vendors can build compatible products at competitive costs. All Starview International SFP are produced with high precision in conjunction to the MSA and are compatible to use on equipments specified as a SFP port. See the SFF committee's INF-8074i specification Rev 1.0 for details. Please note that Starview Technologies SFP is not the vendor's OEM brand SFP modules.

3. How do we define a good quality SFP?

It is a misconception that SFP depends only on optical budget. Stability and reliability is an important aspect. The performance of the optical specifications changes with temperature and aging due to time. During production, it is possible for manufacturers to increase the optical budget by purposely adjusting the optical transmit power during the calibration process. This cause the TOSA to over-perform and will have a significant impact on the stated SFP lifespan.

Our factory produces all individual components required in the SFP modules, including the TOSA and ROSA. Every stage of the SFP assembly undergoes strict quality assurance policy with uncompromising standards. Design considerations of each SFP modules are done by experienced R&D engineers in this field. We are able to provide full detailed test reports, for each product part number, with optical budget measurement, digital eye diagrams, MTBF and thermal chamber test.

4. Why some third-party SFP "refuse" to work on the equipment when the original SFP from the same equipment vendors work fine?

SFP enjoys such a huge popularity success in the industry that certain equipment vendors attempt to prevent their customers from making choices. The firmware in the equipment will check for an identifying data in the SFP's memory, and if the data does not belong to the equipment vendor, the equipment refuses to enable that slot. Most vendor explanation for this "feature" is that it represents a symbol of product quality and ensures that the transceiver module is certified and tested by the original vendors.

The original idea of having "ID" in the SFF-8472 was actually meant for network management software to 'inventory' the pluggable modules. However some vendors used this to lock out all other third party. This allows vendor to monopolize the transceivers for their equipment and charge at premium prices for "better" quality products.

5. Can end-user re-use Starview Technologies SFP on other equipment vendor after first using the SFP on a particular equipment vendor?

Yes. As Starview Technologies is the original SFP manufacturer, we have the equipment and technical know-how to reprogram the data in the SFP, if necessary, to be compatible with a new equipment vendor. This can be performed for a nominal sum of fee. Please contact our sales staff for more information on this.

Please note that Starview Technologies SFP is not the vendor's OEM brand SFP modules.

6. Does using Starview Technologies SFP voids the warranty of the equipment it is used on?

No. If the equipment is defective, the vendors are obliged to fulfill the terms of the warranty because Starview Technologies SFP are fully compliant to MSA, unless it can be verified that it is the use of Starview Technologies SFP that damaged the equipment.

It is unlikely that SFP will induce damages to the slot on equipment by itself because:

- SFP converts electrical data from the equipment to optical signal. There is no incoming power surge from optical ports to damage the equipment.
- SFP draws voltage/power from the equipment and it is more likely that the equipment damaged the SFP. All current and voltage required are as per MSA and the equipment should be able to support the power requirements for each SFP ports.
- SFP size will fit accordingly to any MSA compliant device without damaging the electrical circuitry on the equipment.
- If installations of SFP modules are handled by personnel who are properly grounded, there is no electrostatic damage to the equipment circuitry.

Some vendor does try to protect the sales revenue of their SFP by denying support if the serial number does not match their record. In this case, Starview Technologies will offer tech support if it is a physical layer 1 problem. If the problem is not on the physical layer but exists on a higher protocol layer, it is your right as a customer to demand support from the equipment vendor.

7. What is the warranty coverage for using Starview Technologies SFP?

Starview Technologies SFP offers standard 2 year warranty. Extended warranty and maintenance services are available. It may be interesting to note that some vendors such as Cisco offers only 90days warranty on their SFP.

8. Why should customers consider using Starview Technologies?

Key advantages that Starview Technologies can bring to our customers are price competitiveness, quality/reliable, fast response, compatibility, large range of optical transceivers, quick lead time and maintenance services.

In addition, as most network equipment vendors do not produce the SFP themselves, the range of optics options they are able to produce are limited. Cisco offers only 8 CWDM wavelengths instead of 16. Cisco also does not have single fiber solution for more than 10km. Starview Technologies offers much more complete optics options for project needs.

9. Why Starview Technologies can offer Starview International SFPs at much lower cost than the original hardware vendors?

In reality, most if not all, network equipment vendors do not produce their own SFP modules. The productions are outsource to contract vendors and labeled as their specific brand. Hence, these SFP are higher in cost because of additional margins at each party.

Starview Technologies is an in-house product for Starview International with our production house in China. This allows end-user to bypass the in-between parties and allow customer to purchase straight from the production source. We also have a large customer base and are able to mass produce at a cost-effective level.

10. Why are there some SFP suppliers on the market who are able to provide at more competitive prices?

In general, these suppliers with ultra-low cost SFP have low regards for quality as they take their SFP from sources that provide the lowest price. The specifications for their SFP may keep varying as to what is stated as the source of their SFP depends on price and they have 2-3 suppliers for the same product. Some possible sources of ultra-low cost SFP comes below.

- Some factory source low-grade components from different parties and only performs assemblies. The finished products are of varying quality and have no strict quality control as they lack necessary test tools.
- Contract manufacturers tend to over produce the required amount during production to replace out the low quality yields. Some customer may also return rejected batches which failed to meet their expectations. The "leftover" pieces are consolidated and released to companies with low budgets.
- Purchase of stocks that are kept over an extended period of time.
- Refurnished/RMA products that are repackaged and sold as brand-new

These suppliers also have unusual huge amount of stocks and are able to deliver at any time. In truth, manufacturers produce on demands or forecast and keep only limited stocks on fast-moving products.

11. Other than SFP, what other form factors does Starview Technologies offers?

Starview Technologies provides form factors modules such as GBIC, SFP, SFP plus, Xenpak, X2 and XFP. QSFP for 40G data-rate are also available.

In addition, we can offer a wide range of transceivers supporting protocols such as FE/GE, Fiber-Channels, SDH/SONET, 10GE and 40G. Optics options include single-fiber, SGMII, PON, CWDM/ DWDM.

12. What is the typical lead-time for Starview Technologies SFP?

7-14 days depending on the requested items and quantities. We are also able to produce and keep in stock if there is a committed forecast from the customer.

13. How do I choose a SFP for my application?

Basic key considerations when selecting an SFP are as followings:

- Protocol/data rate used on the equipment
- Optical transmitting wavelength preference
- Optical transmission distance. Note: 60km and above, we recommend user to specify the optical budget required for the link instead.
- Type of fiber used: Singlemode /Multimode, Dual Fiber/Single Fiber
- Form Factor: GBIC, SFP*, SFP+,XFP, etc
- DDM preference

For other unique application, please contact our sales staff.

* Please note that SFP is also commonly known as mini-gbic.

14. What is Digital Diagnostic Monitoring (DDM) feature?

DDM is also known as digital optical monitoring (DOM) or Digital Monitoring Interface (DMI). Modern optical SFP support DDM functions according to the industry-standard SFF-8472. The SFP MSA defines a memory map describing the transceiver's capabilities, standard interfaces, vendor, and other information. This feature gives the end user the ability to monitor real-time parameters of the SFP, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

15. Is a SFP module hot swappable?

Yes, Starview Technologies SFP is hot swappable, however, the equipment SFP port must be specified as hot-swappable as well. Please note that some equipment such as Cisco takes some time enable the physical port after inserting a new module. Also, when the physical module is removed, the equipment may enter a error disable state for a configurable period of time ranging from 30sec to 24hours. During the error disable period, even when the fault is recovered, the data link cannot be established. The results are the same even if you use the original vendor version of SFP.

16. Is SFP protocol transparent?

SFP are totally transparent to Ethernet/IP protocols and have no constraint on the transmission frame size. All Starview Technologies SFP supports wire-rate data transmission at full-duplex mode. Higher layer level protocol issues are restricted to the equipment itself.

The reason is because SFP connects to the electrical circuitry of the equipment and only converts electrical data to an optical signal with no modifications in the protocol/frames. Hence, SFPs are operating solely on physical layer translation but the SFP in use must match the data-rate of the protocol specified on the equipment SFP port.

However, the use of poor quality SFP does induces additional transmission errors on the optical port such as CRC, frame slip, jitter, bit-error, etc. This is exceptional true on long distance transmission.

17. How do you reprogram the CISCO switches?

The following procedure is offered on a trial basis and is not guaranteed to work successfully on all CISCO switches and firmware revisions. It is recommended that you update the firmware on the switch first to make sure the latest revision is installed, increasing the likelihood of success with this procedure. The switch model tested are 2960, 2970G, 3560, 3560G, 3750.

- a. Connect to the switch console port and log on in "enabled" mode to allow privileged commands
- b. Once enabled, enter "config t" to allow configuration from the terminal
- c. Specify which port you would like to configure by entering the command "Interface Gigabit ?/?" where ?/? is the unit and port number you are trying to re-configure
- d. After entering that information, enter "service unsupported-transceiver"
- e. Enter "Shutdown". The switch will respond with a message stating that the port is administratively down.
- f. Enter "no shutdown". You may get a warning(s) about using "Unsupported Transceivers", but once the messages are done, the port will come online and function normally with the Starview Technologies SFP.

STARPOD FAQ

1. Why is it called STARPOD?

STARPOD stands for Starview Programmable Optical Device. It allows programming of the Starview Transceiver modules remotely by the user themselves. Traditionally all Transceiver modules are programmed in factory during production. However when user decides to change or upgrade their network equipment to a different vendor, the transceiver module is not reusable.

2. Who are the main users of STARPOD?

STARPOD is suitable for all network users that uses Transceiver modules in their networking devices. STARPOD gives them the flexibility and versatility of deploying Transceiver modules to any of their network equipment, thus saving time and money. Nowadays Transceiver modules form a major cost to the total Cost of Ownership. STARPOD has the potential to overcome the cost of investment and allows flexibility of usage of the transceiver modules to work with any manufacturers' networking equipment.

3. What are the advantages of using STARPOD?

The advantages of using STARPOD are:

- a) Allows flexibility of reprogramming Starview transceiver modules remotely
- b) Faster response time to integrate the existing transceiver modules to support various network equipment
- c) Better Return of Investment for Transceiver modules
- d) Ease of use and do not require any trained personnel

4. What is the use of STARPOD?

STARPOD allows programming of the Starview Transceiver module to work with major equipment vendor. Most of the Network Equipment Vendor will encode information into the EEPROM of the Transceiver module so that it will reject any 3rd party devices. STARPOD is able to decode and overwrite the information into the EEPROM of the Starview Transceiver module so that these Network Equipment vendors will see the Transceiver module corresponds to their equipment coding to work normally.

5. What are the equipment vendors supported by STARPOD?

STARPOD supports equipment coding such as CISCO, Juniper, Alcatel Lucent, Extreme Networks, Huawei, Force 10, ZTE, HP, Arista Networks, ADVA Optical Networking, BTI, Intel, EXFO, JDSU, ATI, Tellabs NSN, Netscount, Brocade, Adtran, Ericsson, RAD, Avaya, Cyan and many more. If the equipment is not within this list, Starview is able to decode an original transceiver module to re-program into the Starview Technologies module.

6. Does STARPOD only support Starview Transceiver modules?

Every manufacturer has their own password protection on their transceiver modules. Likewise Starview has our own password protection of our EEPROM embedded in the Transceiver module. The password protection on the EEPROM is to disallow any change of the Transceiver information by unauthorized access. Hence the STARPOD can only be programmed the Starview Transceiver modules, or any other Transceiver modules that does not have password protection on their EEPROM.

7. How does STARPOD do the reprogramming of the Transceiver module?

The user must ensure that the STARPOD is connected to the computer and has a valid internet link. During the operation of STARPOD, the device will tally the transceiver module part number and serial number with our Starview database via the internet link. This is to ascertain that it belongs to the part of our production supply. Upon successful matching with our database, the transceiver coding will then be downloaded from the internet and be programmed into the EEPROM.

8. What must the user do at first when they want to re-program the Transceiver module?

The user must send a request via email or telephone call to any of our Starview authorized agent or reseller to provide the following information:

- Equipment vendor and part no of the Network Equipment to be used
- Part no and Serial no of the transceiver module to be reprogrammed

Upon receiving this information, a license key shall be generated within the same business day. The Starview authorized agent or reseller will contact the user and send the license key via email. The user will simply key in the license key via the STARPOD software to download the equipment coding into the transceiver module. The reprogramming process will take less than 1 minute.

9. What happens if the user wants to revert to the previous coding or if the coding that was sent will not work in the networking equipment?

Should the user wants to revert to the previous code, the same process of requesting the license key apply. Each license key is only valid for one time use, and is not reversible. If the coding programmed into the transceiver module does not work, Starview will resend the license key (not chargeable) to ensure that the transceiver module works with the vendor's network equipment unit. Else money back will be guaranteed.

10. How does the license key works?

The license key can be purchased via the Starview authorized agent or reseller in advance or at the point of usage. It comes at the price of 1, bundle of 10 and bundle of 100. The license keys will be tracked by Starview Technologies when it is used. Each license key is valid for only 1 equipment coding. The license key is only valid as a one-time usage. When the user requests for the equipment coding, Starview will upload the code into the cloud encrypted by a license key. Each license key will carry the coding information of the network equipment vendor, part no and serial no of the transceiver module to be re-programmed, and it is stored inside the network cloud. Once the license key is used, it will not be able to reuse.

11. Does STARPOD re-programming require that the Starview Transceiver module remains under warranty?

No, STARPOD does not require that the Starview transceiver module is within the warranty period in order to do re-programming. As long as the Transceiver module is still in good working condition, the STARPOD is use to access the EEPROM to program the transceiver module to work with the network equipment vendor.

12. What is the difference between STARPOD and other manufacturer's programming board?

STARPOD provides a license key to download the complete coding file into the EEPROM of the Starview transceiver module. It overwrites the existing file completely. Other manufacturer's programming board requires user to check the HEX code at each manufacturer's code destination in the EEPROM file, and change it manually. In addition, there is a checksum to ensure that it corresponds to Vendor's network equipment. Overall it takes a lot of understanding to study the coding in the EEPROM file.

13. Why Starview is able to decode so many manufacturers' network equipment coding while others are not?

Starview has a team of trained engineers with many years of experience to decode the manufacturers' network equipment code. We have understood the mechanism of various network equipment manufacturers on their coding process and is able to re-construct the coding into our STARPOD. Other competitors may have a NDA signed with the original manufacturer, or does not have trained engineers to understand the codes.

14. What are the modules supported by STARPOD?

Currently STARPOD supports SFP, SFP+ and XFP transceiver modules. STARPOD does not matter if the transceiver module is copper, Singlemode, multimode or WDM. STARPOD will re-program the EEPROM in these transceiver modules as long as it is supported by the form factor.

15. Can STARPOD be used on Apple computers?

Currently STARPOD only works on Windows platform and it is not supported by Apple.

16. Does STARPOD affect the transmission characteristics of the Transceiver module?

No. STARPOD only accesses the information in the EEPROM and does not affect the configurations of the TOSA and ROSA components of the Transceiver module.

17. How does the user know the functionality of the Transceiver module is End of Life (EOL)?

STARPOD is not able to determine the EOL of the transceiver module. It basically re-programs the coding of the transceiver module EEPROM to work with the vendor's networking equipment.

18. How is STARPOD information or software upgrade being updated?

All STARPOD information shall be updated in our website <https://starviewtech.net> whenever a new update is released. The Starview authorized agent or reseller will constantly be updated on any new release and these information will be sent to the user..

Transceiver 3rd Party FAQ

1. What are 3rd party transceiver modules?

3rd party transceiver modules originate from manufacturers who are Original Equipment Manufacturers (OEMs) that supplies to brand owners such as Cisco, Juniper, HP, Huawei, ALE etc. None of these brand owners manufactures their own transceivers, but relabel them for resale.

2. Why can some OEMs make cheap transceivers?

There is always a huge margin on transceivers made by the big brand owners. For the same quality of transceivers, sourcing direct from the OEM saves money. Among the OEMs, prices can also vary widely. Different OEMs sources have different quality and prices of components; have different manufacturing processes and different quality control processes. This will invariably result in different quality of end products, e.g. without proper heat dissipation or EMI isolation. It is important to source transceivers from reliable OEMs. Some low-quality transceivers have short life spans, and may last just 1 to 2 years, just enough for the warranty period to expire. We have also found smaller OEMs repackaging used transceivers to be sold as new, or lower manufacturing QC or specifications to increase manufacturing yield. Caveat emptor!

3. I can find many online websites that offer transceivers at affordable prices and ready stocks. Are they reliable?

Prices and stocks can readily be available from the internet. However, you cannot be sure of the quality or reliability. Many of these sites are not operated by the OEMs. You buy at your own risks. You must also know what you are buying, because product returns may not be offered, or even if they are offered, you have to pay for return shipping which is often expensive. Transceivers have firmware built-in, so technical support is crucial when things do not work. Communication and language is another issue when the supplier is not proficient in English.

4. I have a reliable agent in China who sources direct from OEMs. Why should I source from Starview?

Great that you have a reliable agent, because you may not have direct access to the OEM because you cannot commit to high volumes. Just make sure that they do not change the source OEM without your knowledge, and that they are able to provide after-sales technical support if things do not work.

5. The transceivers are so cheap. Isn't it better to replace them with new ones when they do not work?

In the first place, transceivers should last their intended life-span of at least 5 years. When good quality transceivers do not work after deployment, it is usually the result of contaminated optics between the path of transmitter to receiver. A good engineer should have the proper tools to find and clean the source of the contamination.

6. I just want the lowest price and do not care about the support

Due to industry competitiveness, prices are still the main decisive factor. However if you consider the Total Cost of Ownership (TCO), savings on CAPEX can eventually result in higher OPEX, e.g. engineering support, traveling and downtime. Choosing a reliable vendor with good after-sales support will eliminate many technical issues later

7. I am offered a programming board. Isn't this similar to STARPOD?

The programming board is used to alter the firmware of the transceivers. This is a very low level board down to bit and bytes in the registers. It requires very deep technical knowledge to operate the boards. STARPOD is designed by STARVIEW to simplify the entire process. It can be used by any field engineer with very little training. It can also be used in the field as a diagnostic tool to allow STARVIEW to provide remote support in a timely fashion.

8. Why should I consider Starview when there are so many vendors out there that I can easily purchase the modules?

Starview is based in Singapore, and is reputable company supplying reliable transceiver modules to major customers such as telecom operators and large data centers. Starview can offer up to 5 years warranty, with good technical knowledge and efficient after-sales support. Starview also has the knowledge to advise customer on the correct transceiver module to use, as well as the expertise to provide interoperability of transceiver modules to work with major networking equipment.

9. What can I gain by using Starview transceiver modules comparing with those I get from other vendors?

- a) Excellent 24x7 technical support and after-sales service
- b) Trouble ticketing system to log customer's issue, which the customer can share with their other engineers in future
- c) Remote diagnostic tool to capture the module interoperability issue
- d) Competitive prices and fast delivery lead time
- e) Wide choice of transceiver modules to select
- f) Ease of mind during deployment and troubleshooting
- g) Strong references with major telcos/ data centers
- h) MSA compliant Transceiver modules
- i) Reprogramming of the modules can be done on site by untrained/ non-technical personnel to interwork with various networking equipment vendors
- j) Starview is a solution provider that can complement many other networking products as a niche and cost effective solution

10. I am happy with my current vendor and have no problem using them

Great!! If at any time you are reconsidering another source, please keep us in mind.



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Value-Added Resellers