

STARMUX

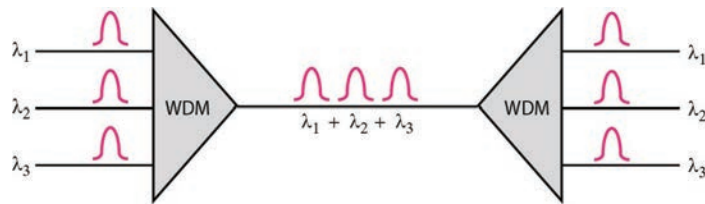
Starview CWDM Mux/Demux



- 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

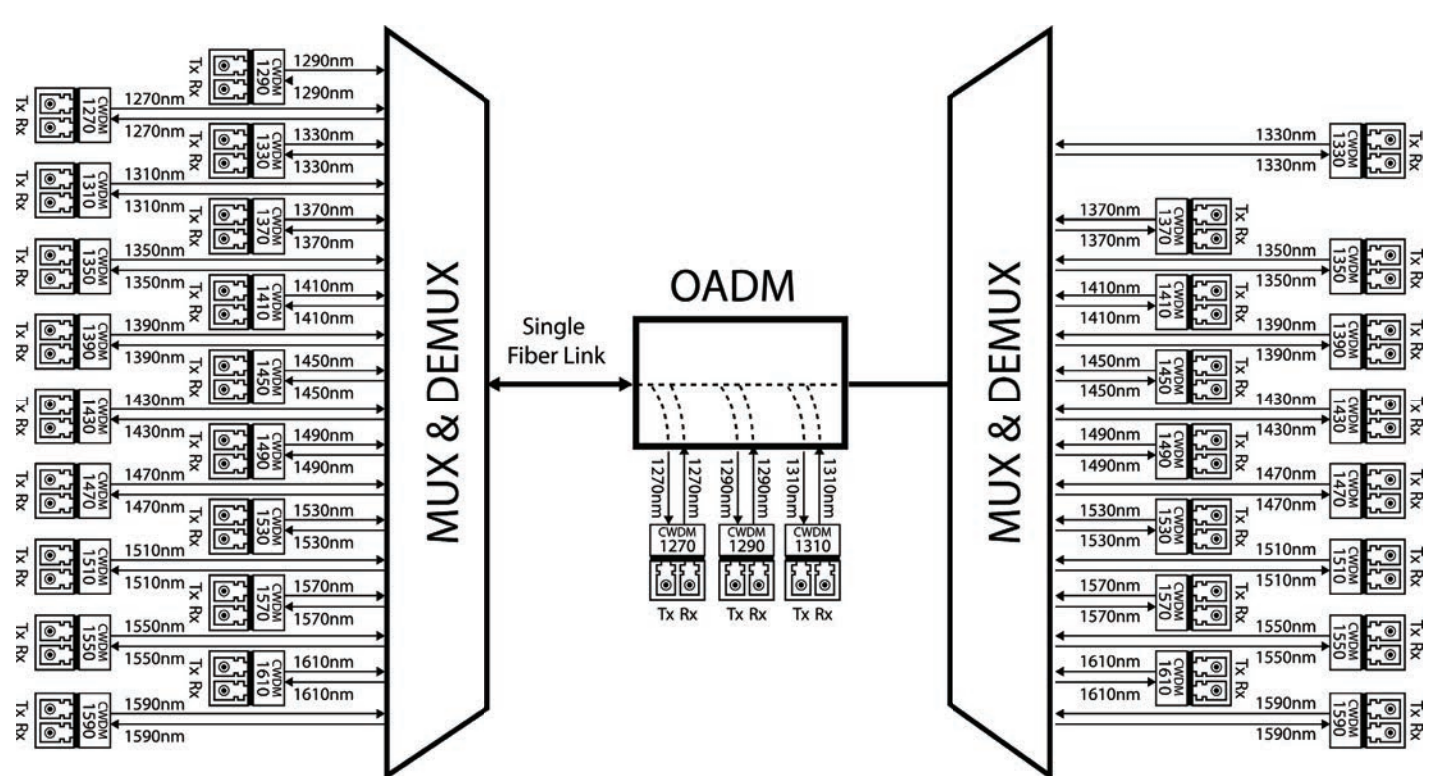
What is WDM?

- 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

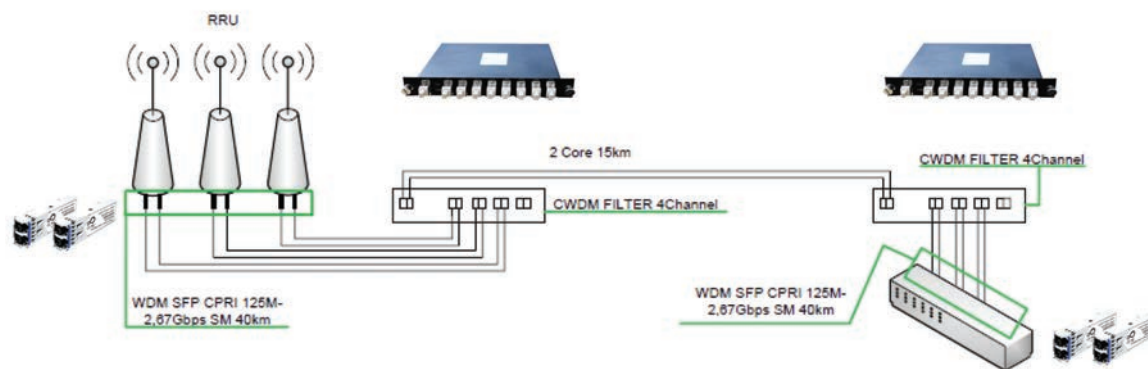
Applications

- Line Monitoring
- WDM Network
- Fiber Optical amplifie

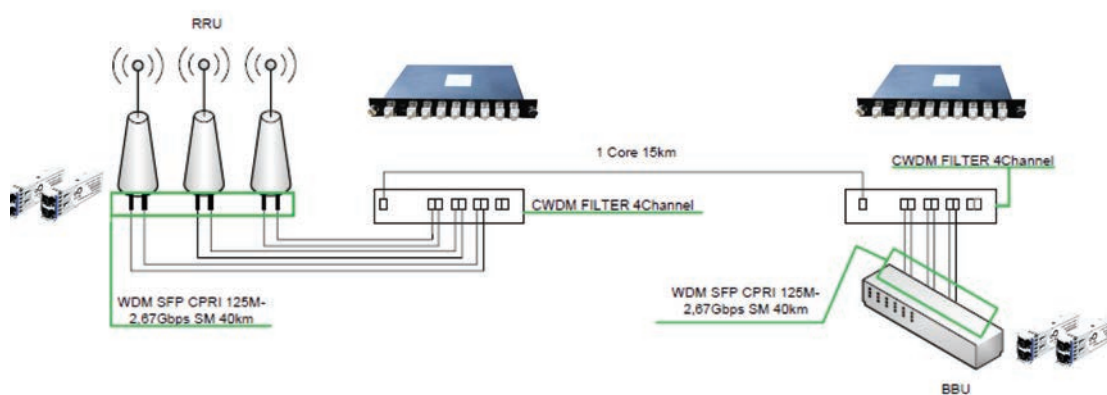
Specifications

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 Configuration:
827: 8 Ch. 1270 ~ 1410nm
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

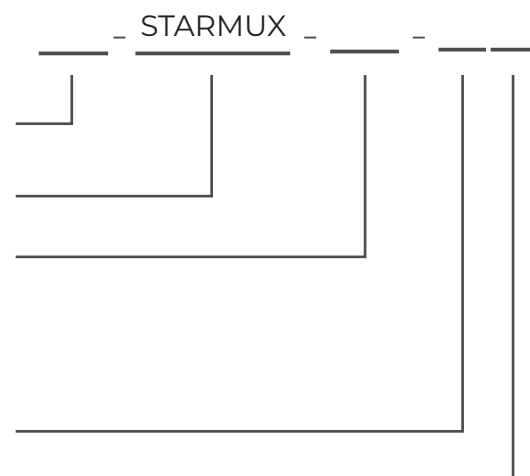
Example:

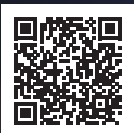
SVR-STARMUX-1627-DLC

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 per channel corresponding to the CWDM wavelength
- Use existing standard optical ports on switches and routers

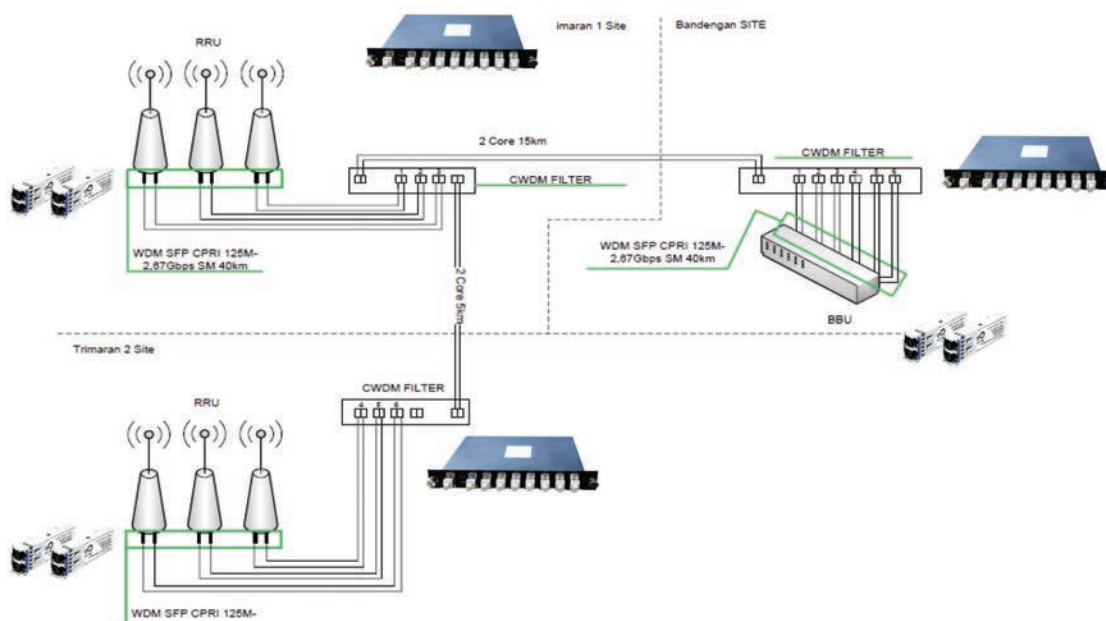
Applications

- 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

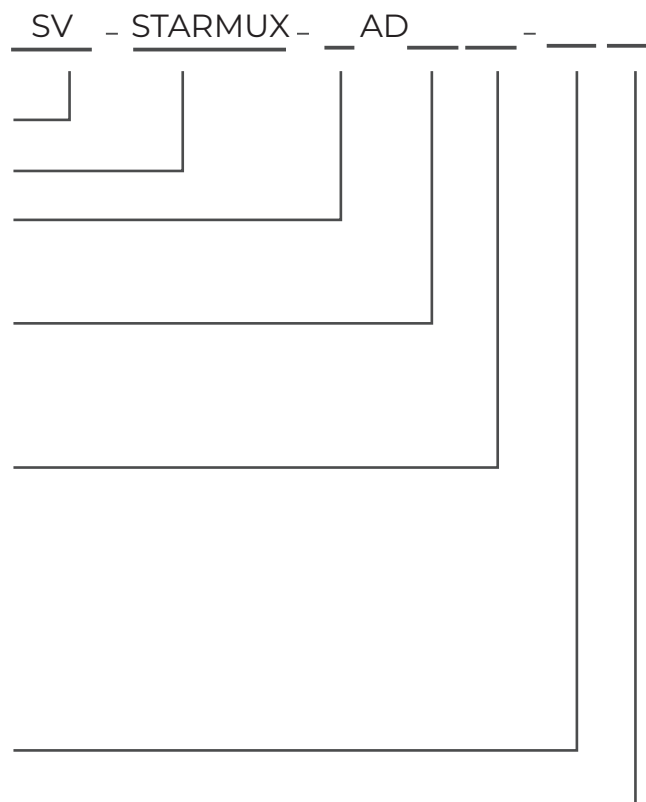
Line Port: S: Simplex Type D: Duplex Type

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





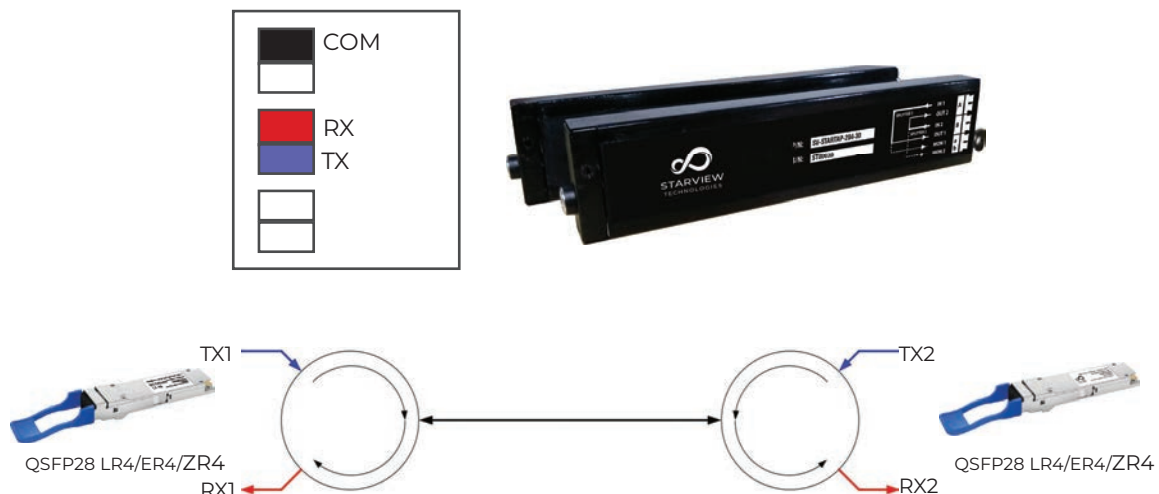
Business Challenges

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:

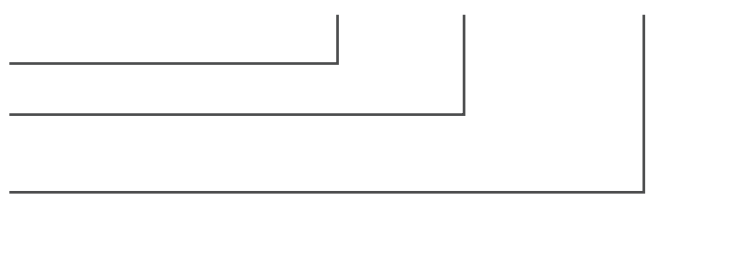
SV-STARTAP-19C

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 per channel corresponding to the CWDM wavelength
- Plug and Play, no configuration of CWDM components

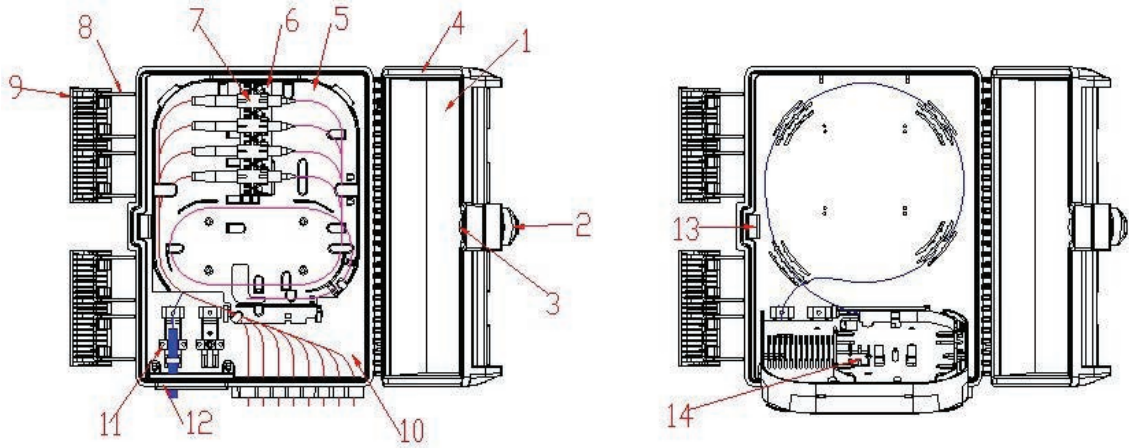
Applications

- 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

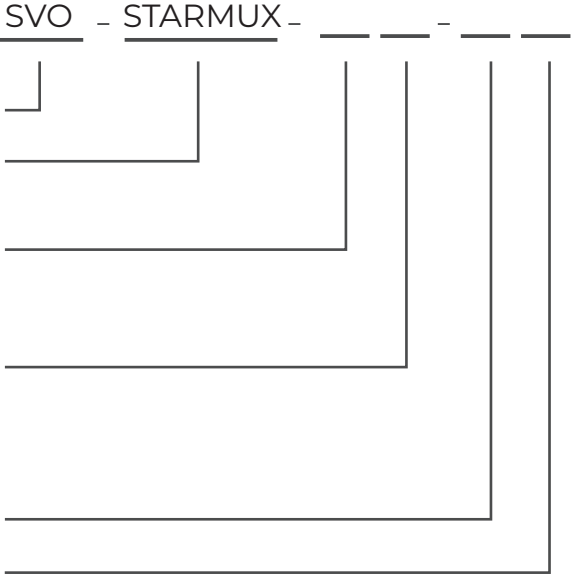
Manufacturer: Starview Outdoor STARMUX
 Type: CWDM MUX/DEMUX

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