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Inhaltsverzeichnis

SFM -S85-01x02
Multimode Band Couplers

Description:

Multimode Band Couplers are ultra reliable devices featuring low backreflection, low insertion loss, and high port isolation over wide ranges of temperature and wavelength. The Multimode Band Couplers are designed to divide and/or combine different optical signals in optical fiber systems. With its innovative Fused Technology process, series SFM Band Couplers have proven to provide exceptional characteristics for all applications demanding critical performance. Splitting ratios can be customer specified in range 1%:99% and 50%:50%. Available in a wide variety of packaging configurations, these SFM series are operable in 850 nm and 1300 nm wavelength range. Various types of pigtailing and connector terminations are available to meet your requirements.

Features:

- Low insertion loss
- High port isolation
- Custom defined specifications
- Environmentally stable

Applications:

- Telecommunications
- Local area network
- Fiber to the home
- Video transmission
- Fiber optic sensing
- Testing instruments
- CATV

Coupling Ratio vs. Insertion Loss

Coupling Ratio (%)	Insertion Loss (dB)	
	Super Grade (S)	High Grade (H)
50 / 50	3.9	4.3
40 / 60	4.9 / 3.0	5.4 / 3.5
30 / 70	6.2 / 2.3	6.7 /2.7
20 / 80	8.0 / 1.6	8.7 / 2.1
10 / 90	11.3 / 1.1	12.2 / 1.6
5 / 95	14.9 / 0.9	16.2 / 1.3
1 / 99	22.1 / 0.7	22.7 / 1.0
Other ratio	To be confirmed	

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Performance specifications:

ITEM	**Multimode Band Couplers**	
Operating Wavelength, nm	800 or 1300	
Grade	Super (S)	High (H)
Coupling Ratio Tolerance (%)	5	7
Uniformity, dB (50:50)	0.5	
Thermal Stability, dB (peak-peak)	< 0.2	< 0.3
Port Configuration	1 x 2 or 2 x 2	
Coupling Ratio	1:99 to 50:50, (50:50 standard)	
Insertion Loss, dB	Refer to the Coupling ratio vs. Insertion loss chart	
Directivity, dB	> 40	
Operating Temperature*, °C	-25 to +70	
Storage Temperature*, °C	-40 to +85	

*) Conditioned by the cable type

Ordering Code:

SFMX - S85 - 01 x 02 - XX - XXX - NC-NC

SFM5 MM 50/125
SFM6 MM 62.5/125

grade + wavelength
(S – super)
S85 850 nm
S13 1300 nm

 # port
01 x 02
02 x 02

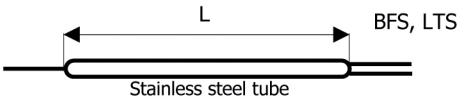
coupling ratio
50 50/50
40 40/60
30 30/70
20 20/80
10 10/90
05 5/95
other

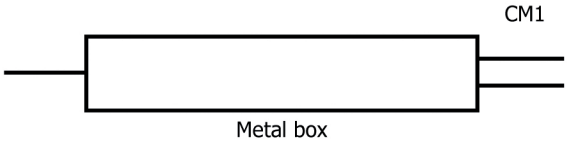
no input and output connectors
connector type:
-can be defined following CON_14-01
(Jumper Ordering Code)

Note: standard fiber/cable length = 1 m

package option I

BFS Bare fiber 250 µm, standard tube
(stainless steel tube Ø 3 mm, L=54 mm)
CM1 Cable 3 mm, metal box 100x15x9 mm





package option II

CAPM Optokon cassette
RM rack mounted unit (MCNP-1U)
WM wall mounted box (MPIC-4)
SC splice cassette (TC251S-1X)
SA stand alone (plastic box)

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Inhaltsverzeichnis

SFMx -85/13-01x02
Multimode Dual Window Couplers/Splitters

Description:

Multimode Dual Window Couplers are ultra reliable devices featuring low backreflection, low insertion loss, and high port isolation over wide ranges of temperature and wavelength. The Multimode Dual Window Couplers are designed to divide and/or combine different optical signals in optical fiber systems. With its innovative Fused Technology process, series SFM Dual Window Couplers have proven to provide exceptional characteristics for all applications demanding critical performance. Splitting ratios can be customer specified in range 1%:99% and 50%:50%. Available in a wide variety of packaging configurations, these SFM series are operable in 850 nm and 1300 nm wavelength range. Various types of pigtailing and connector terminations are available to meet your requirements.

Features:

- Low insertion loss
- 850/1300 nm wavelength
- High port isolation
- Custom defined specifications
- Environmentally stable

Applications:

- Telecommunications
- Local area network
- Fiber to the home
- Video transmission
- Fiber optic sensing
- Testing instruments

Coupling Ratio vs. Insertion Loss

Coupling Ratio (%)	Insertion Loss (dB)							
	MM 62.5/125 µm				MM 50/125 µm			
	850 nm		1300 nm		850 nm		1300 nm	
50 / 50	4.3	4.3	3.5	3.5	5.0	5.0	4.0	4.0
40 / 60	5.2	3.3	4.6	2.6	6.6	4.7	5.6	3.7
30 / 70	6.5	2.6	5.9	1.9	8.0	3.9	7.0	2.9
20 / 80	8.3	1.9	7.8	1.2	10.0	3.2	9.0	2.3
10 / 90	11.6	1.4	11.2	0.7	13.5	2.7	12.8	1.8
5 / 95	15.5	1.2	15.0	0.5	17.1	2.3	17.4	1.3
Other ratio	To be confirmed							

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Inhaltsverzeichnis

Performance specifications:

ITEM	**Multimode Dual Window**			
Optical fiber	MM 62.5/125 µm		MM 50/125 µm	
Operating Wavelength, nm	850 & 1300		850 & 1300	
Pass bandwidth, nm	± 20			
☐ nm	850	1300	850	1300
Additional loss, dB	0.8	0.4	1.0	0.8
Uniformity, dB (50:50)	0.8		0.8	
Port Configuration	1 x 2 or 2 x 2			
Coupling Ratio	1:99 to 50:50, (50:50 standard)			
Insertion Loss, dB	Refer to the Coupling ratio vs. Insertion loss chart			
Directivity, dB	≥ 40			
Operating Temperature*,	-25 to +70 °C			
Storage Temperature*,	-40 to +85 °C			

*) Conditioned by the cable type

Ordering Code:

SFMX - 85/13 - 01 x 02 - XX - XXX - NC-NC

SFM5 MM 50/125
SFM6 MM 62.5/125

wavelength
85/13 850 + 1300 nm

 # port
01 x 02
02 x 02

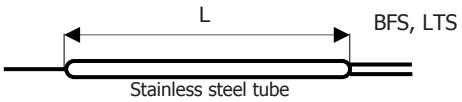
coupling ratio
50 50/50
40 40/60
30 30/70
20 20/80
10 10/90
05 5/95
other

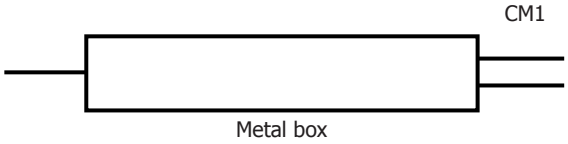
no input and output connectors
connector type:
-can be defined following CON_14-01 (Jumper Ordering Code)

Note: standard fiber/cable length = 1 m

package option I

BFS Bare fiber 250 µm, standard tube
(stainless steel tube Ø 3 mm, L=54 mm)
CM1 Cable 3 mm, metal box 100x15x9 mm





package option II

CAPM OPTOKON cassette
RM rack mounted unit (MCNP-1U)
WM wall mounted box (MPIC-4)
SC splice cassette
Other on request

Herausgeber:
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Inhaltsverzeichnis

SFM-V85-01x02
Multimode Splitter, VCSEL optimized

Description:

The SFM-V85 are multimode splitters optimized for operation with VCSEL 850 nm laser sources, featuring low backreflection, low insertion loss, and high port isolation over wide ranges of temperature. The SFM-V85 splitters are designed to divide and/or combine different optical signals in optical fiber systems. With its innovative Fused Technology process, series SFM splitters have proven to provide exceptional characteristics for all applications demanding critical performance. Various splitting ratio can meet the customer specifications. Available in a wide variety of packaging configurations, these SFM series are operable in 850 nm wavelength range. Various types of pigtailing and connector terminations are available to meet your requirements.

Features:

- Low insertion loss
- High port isolation
- Custom defined specifications
- Environmentally stable

Applications:

- Telecommunications
- Local area network
- Fiber to the home
- Video transmission
- Fiber optic sensing
- Testing instruments

Coupling Ratio vs. Insertion Loss

Coupling Ratio (%)	Insertion Loss (dB)
50 / 50	3.8 / 3.8
20 / 80	8.3 / 1.9
10 / 90	11.6 / 1.4

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Inhaltsverzeichnis

Performance specifications:

Parameters[1]	**Multimode Splitters**
Operating Wavelength, nm	850
Operating bandwidth, nm	±20 (VCSEL 850 Light Source)
Insertion Loss, dB	Refer to the Coupling ratio vs. Insertion loss chart
Uniformity, dB (50:50)	0.5
Excess loss (typ.), dB	0.8
Return Loss, dB	> 40
Operating Power, W	5
Operating Temperature[2], °C	-25 to +70
Storage Temperature[2], °C	-40 to +85

Note: 1) without connectors
2) conditioned by fiber/cable parameters

Ordering Code:

SFMX - V85 - 01 x 02 - XX - XXX - NC-NC

SFM5	MM 50/125
SFM6	MM 62.5/125

 # port
01 x 02

coupling ratio	
50	50/50
20	20/80
10	10/90

no input and output connectors
connector type:
-can be defined following CON_14-01
(Jumper Ordering Code)

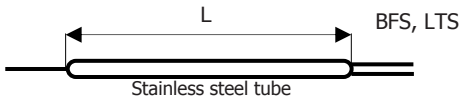
Note: standard fiber/cable length = 1 m

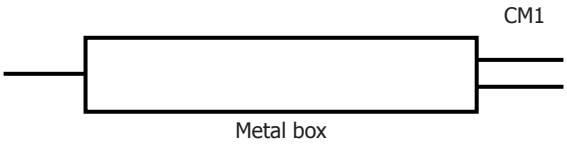
package option I

BFS	Bare fiber 250 µm, standard tube (stainless steel tube Ø 3 mm, L=54 mm)
CM1	Cable 3 mm, metal box 100x15x9 mm

package option II

CAPM	OPTOKON cassette
RM	rack mounted unit (MCNP-1U)
WM	wall mounted box (MPIC-4)
SC	splice cassette





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Inhaltsverzeichnis

SFT 01x02 Singlemode Couplers

SFT-SWB Wavelength Independent
SFT-S35 Dual Windows Wideband

Description:

OPTOKON SFT-SWB wavelength independent couplers/splitters are designed to transmit optical signals within the full CWDM wavelength spectrum. With its innovative Fused Technology Process, the SFT series couplers have proven to provide exceptional characteristics for all applications demanding critical performance. These ultra reliable devices feature low backreflection, low insertion loss, and high port isolation over wide temperature and wavelength ranges. The SFT couplers are designed to divide and/or combine different optical signals in optical fiber systems. Splitting ratios can be customer specified between 1%:99% and 50%:50%. Various types of pigtailing and connector terminations are available to meet your requirements. Available in a wide variety of packaging configurations

The OPTOKON SFT-S35 dual windows wideband series are operable in both 1310 nm and 1550 nm wavelength range.

Features:

- Low insertion loss
- High port isolation
- Custom defined specifications
- Environmentally stable
- Wavelength independent - full CWDM spectrum

Applications:

- Telecommunications
- Local area network
- FTTH - PON
- CATV
- Testing instruments

SFT-SWB-01x02-50-BFS-NC

Technical specifications:

ITEM	Dual Window Wideband Couplers
Operating Wavelength, nm	S35: 1310 ± 40 and 1550 ± 80 SWB: 1270 – 1630 (CWDM wavelength range)
Typical Excess Loss, dB	0.2
Uniformity, dB (50:50)	≤ 0.8
Thermal Stability, dB (peak-peak)	< 0.2
PDL, dB (50:50 coupling ratio)	< 0.15, PDL free (< 0.05) – on request
Port Configuration	1 x 2 or 2 x 2
Coupling Ratio	1:99 to 50:50, (50:50 standard)
Insertion Loss[1)], dB	Refer to the coupling ratio vs. Insertion loss chart
Directivity, dB	> 50
Return Loss, dB	> 50
Operating Temperature[2)], °C	-40 to +85
Storage Temperature[2)], °C	-50 to +85
WARNING	This product should never be installed in an optical network handling above Class I emissions

Note: 1) Without connectors
2) Conditioned by the cable type

Underwriters Laboratories approval, file number OBFA. E248452

Block diagram:

C1, C2, C3 – IN/OUT connectors

Herausgeber:
Betz & Limbach Projektkabel GmbH

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Coupling Ratio vs. Insertion Loss:		Coupling Ratio PDL Conversation Chart:	
Coupling Ratio (%)	**Insertion Loss (dB)**	**Coupling Ratio (%)**	**PDL (dB)**
50 / 50	3.6	> 40 %	0.15
40 / 60	4.8 / 2.7	30 to 39 %	0.20
33 / 67	5.7 / 2.2	10 to 29 %	0.30
30 / 70	6.2 / 1.9	1 to 9 %	0.35
20 / 80	8.3 / 1.3		
10 / 90	11.7 / 0.7		
5 / 95	15.2 / 0.4		
1 / 99	23.3 / 0.2		

Ordering Code:

SFT - XXX - 01 x 02 - XX - XXX - NC-NC

grade	wavelength
S35	1310/1550 nm
SWB[1]	1270 - 1630 nm

port
01 x 02
02 x 02

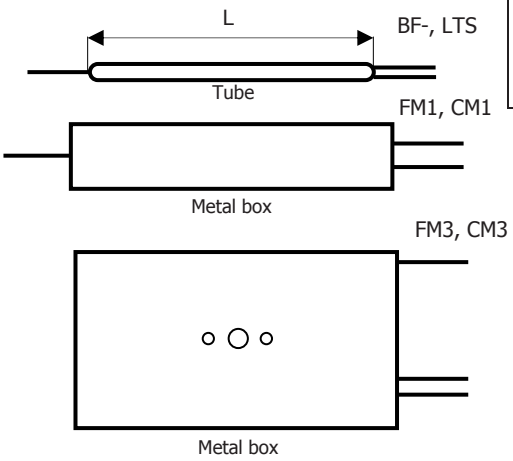
no input and output connectors[3]
connector type - according to CON_14-01
(Jumper Ordering Code)

Note:
1) ±0.3 dB tolerance
(1370, 1390, 1410 nm IL increased for 0.2-0.3 dB)
2) please define
3) standard fiber/cable length = 1 m

coupling ratio	
50	50/50
40	40/60
30	30/70
20	20/80
10	10/90
05	5/95
01	1/99
	other[2]

basic packaging	
BFS	bare fiber 250 µm, tube L=54, Ø=3 mm
BFM	bare fiber 250 µm, mini tube L=25, Ø=3 mm
LTS	Fiber 0.9 mm, tube L=54, Ø=3 mm
BFC	fiber 0.9 mm, compact tube L=70, Ø=4 mm
FM1	fiber type, metal box 100x15x9 mm
CM1	cable type, metal box 100x15x9 mm
FM3	fiber type, metal box 100x80x10, stackable
CM3	cable type, metal box 100x80x10, stackable

additional packaging	
CAPM	OPTOKON cassette
SC	splice cassette
SA	stand alone (plastic box)
RM	rack mounted unit (MCNP-1U)
WM	wall mounted box (MPIC-4)



Packaging variants:

SFT-SWB-01x02-50-BFS-NC

SFT-S35-01x02-50-BFC-NC

SFT-S35-01x02-50-CM1-NC

SFT-S35-01x02-50-CM3-NC-NC

2x SFT-S35-01x02-50-RM-NE2S

SFT-S35-01X02-WM-NE2S

Herausgeber:
Betz & Limbach Projektkabel GmbH

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Inhaltsverzeichnis

SFT- S35-01xN
SFT- SWB-01xN Wavelength Independent Singlemode Dual Windows Wideband Couplers

Description:

OPTOKON SFT-SWB wavelength independent couplers/splitters are designed to transmit optical signals within the full CWDM wavelength spectrum. The SFT Couplers/Splitters are ultra reliable devices featuring low backreflection, low insertion loss, and high port isolation over wide ranges of temperature and wavelength. The SFT Couplers/Splitters are designed to divide and/or combine different optical signals in optical fiber systems. With its innovative Fused Technology process, the SFT series Couplers/Splitters have proven to provide exceptional characteristics for all applications demanding critical performance. The splitting ratio can be customer specified to meet your needs. Available in a wide variety of packaging configurations, these SFT series are operable in all 1310 nm 1550 nm and 1625 nm wavelength ranges. Various types of pigtailing and connector terminations are available to meet your requirements.

Features:

- Wavelength independent
- Low insertion loss
- High port isolation
- Custom defined specifications
- Environmentally stable

Applications:

- Fiber to the home
- Telecommunications
- Local area network
- CATV
- Fiber optic sensing
- Testing instruments

Technical specifications:

ITEM				
Operating Wavelength, nm	S35: 1310 ± 40 and 1550 ± 80 / SWB: 1250 – 1630 (CWDM wavelength range)			
Port Configuration	1 x 3	1 x 4	1 x 5	1 x 6
Grade	S	S	S	S
Maximal Insertion loss, dB	6.1	7.2	8.5	9.4
Uniformity, dB (SWB: for 1310 and 1550)	0.9	1.0 / 0.8	1.4	1.6
PDL, dB	0.3	0.3	0.3	0.4
Thermal Stability, dB/°C	0.003	0.003	0.003	0.003
Directivity, dB	> 50, > 70 on request			
Operating Temperature*, °C	-40 to +70			
Storage Temperature*, °C	-40 to +85			
ITEM				
Operating Wavelength, nm	S35: 1310 ± 40 and 1550 ± 80 / SWB: 1250 – 1630 (CWDM wavelength range)			
Port Configuration	1 x 8	1 x 12	1 x 16	1 x 32
Grade	S	S	S	S
Maximal Insertion loss, dB	10.7	12.5	14.4	18.5
Uniformity, dB (SWB: for 1310 and 1550)	2.0 / 1.6	2.2	2.5	3.5 / 3.2
PDL, dB	0.5	0.6	0.6	0.8
Thermal Stability, dB/°C	0.004	0.005	0.005	0.006
Directivity, dB	> 50 standard, > 70 on request			
Operating Temperature*, °C	-40 to +70			
Storage Temperature*, °C	-40 to +85			

*) Conditioned by the cable type

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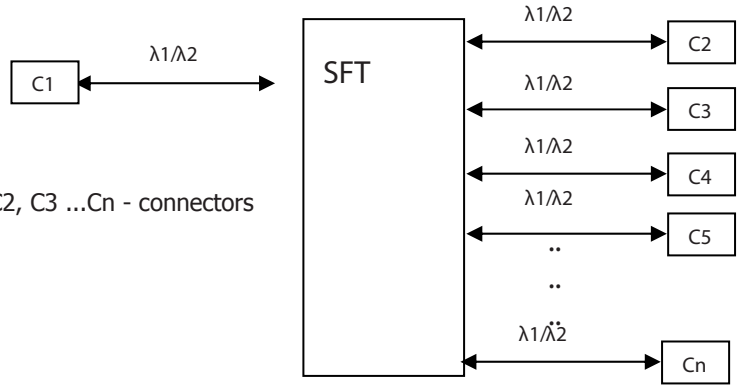
Block diagram:



C1, C2, C3 ...Cn - connectors

Ordering Code:

SFT - XXX - 01 x N - XX - XXX - NC-NC

grade	wavelength
S35	1310/1550 nm
SWB1[1)]	1270 – 1620 nm

packaging type	port configuration
CM3, FM3	01X03, 01X04
CM4, FM4	01X05, 01X06, 01X08
CM5	01X09, ...01x32
CAPM	01X03, 01X04, 01X05, 01X06
SA, RM, WM	up to 01x32

tolerance: 01x02 50/50 ±0.35 dB (1370,1390,1410 nm IL increased for 0.2-0.3 dB)
01x04 ±0.70 dB (1370,1390,1410 nm IL increased for 0.4-0.6 dB)
01x08 ±1.40 dB (1370,1390,1410 nm IL increased for 0.8-1.2 dB)
01x16 ±2.80 dB (1370,1390,1410 nm IL increased for 1.8-2.2 dB)

# port	ratio[2)]	
01 x 03	**33**	01 x 03
01 x 04	**25**	01 x 04
01 x 05	**20**	01 x 05
01 x 06	**16**	01 x 06
01 x 08	**12**	01 x 08
01 x 12	**08**	01 x 12
01 x 16	**06**	01 x 16
01 x 32	**03**	01 x 32

2) other on request

no input and output connectors
connector type:
-can be defined according to CON_14-01
(Jumper Ordering Code)

Note: standard fiber/cable length = 1 m

package option I

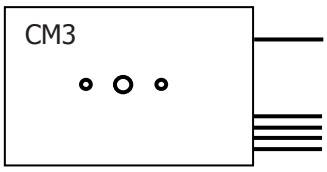
FM3 Fiber type, metal box 100x80x10 mm
CM3 Cable type, metal box 100x80x10 mm
FM4 Fiber type, metal box 140x110x10 mm
CM4 Cable type, metal box 140x110x10 mm
CM5 Cable type, metal box 140x110x20 mm

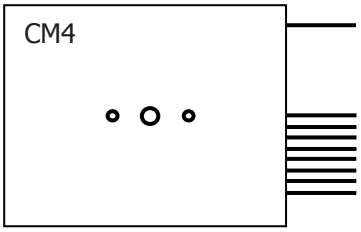
package option II

CAPM OPTOKON cassette
SC Splice cassette (TC251S-1X)
SA Stand alone (plastic box)
RM Rack mounted unit (MCNP-1U)[3)]
WM Wall mounted box (MPIC-4)[3)]

3) including CM3 – CM5 box or splice cassete

CM package option





Packaging variants:

SFT-S35-01X04-25-CM3-NE2S

SFT-S35-01X06-16-CM4-NC

SFT-S35-01X06-16-RM-NE2S

SFT-S35-01X06-16-WM-NE2S

SFT-S35-01X04-25-CAPM-USC

Herausgeber:
Betz & Limbach Projektkabel GmbH

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Inhaltsverzeichnis

SFT-TAP
Test Access Point splitter

Description:

The OPTOKON SFT-TAP splitter is designed for optical network monitoring during operation. According to the operatotor request it allows bi-directional or uni-directional monitoring of optical fiber in full CWDM wavelength range. The splitting ratio of TAP port can be customized in 1% – 50% rate. Wide range of the packaging types allows easy implementation into optical network which would be monitored. The SFT-Tap splitter can be installed directly into the system of optical distribution frames or delivered separately in boxes according to the operator demand.

Features:

- Passive access to fiber optic network
- Protocol and transmission speed independent
- High port isolation
- Custom defined specifications
- Environmentally stable
- Wavelength independent - full CWDM spectrum
- Up to 16 TAP modules in 1U rack mount cconfiguration

TAP splitter

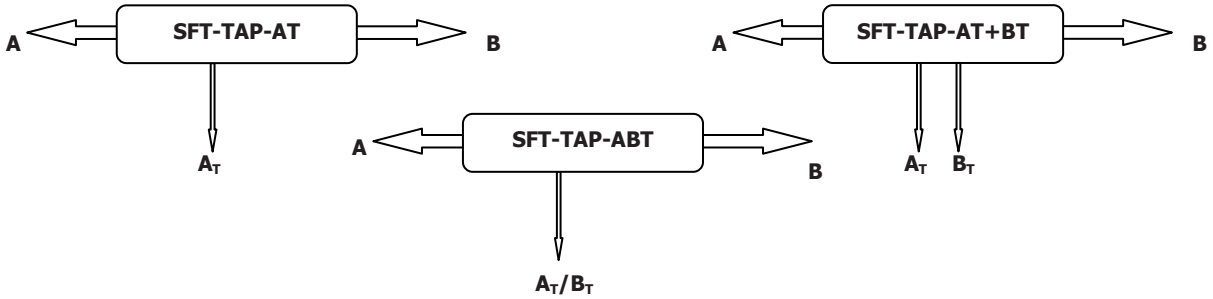
Technical specifications:

ITEM	Test Access Point splitter
Operating Wavelength, nm	1270 – 1630 (CWDM wavelength range)
Thermal Stability, dB (peak-peak)	< 0.2
PDL, dB	< 0.15, PDL free (< 0.05) – on request
Port Configuration	2 x 2 or 2 x 1
Coupling Ratio	1:99 to 10:90, (on request other)
Insertion Loss[1)], dB	Refer to the coupling ratio vs. Insertion loss chart
Directivity, dB	> 50
Return Loss, dB	> 50
Operating Temperature[2)], °C	-40 to +85
Storage Temperature[2)], °C	-50 to +85
WARNING	This product should never be installed in an optical network handling above Class I emissions

Note: 1) Without connectors
2) Conditioned by the cable type

Underwriters Laboratories approval, file number OBFA. E248452

Block diagram:



Herausgeber:
Betz & Limbach Projektkabel GmbH

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Coupling Ratio vs. Insertion Loss: AT, AT/BT		Coupling Ratio vs. Insertion Loss: AT+BT	
Coupling Ratio (%)	**Insertion Loss (dB)**	**Coupling Ratio (%)**	**Insertion Loss (dB)**
1 /99	24.3 / 0.2	1+1 / 98	24.3 + 24.3 / 0.3
10 / 90	12.0 / 0.7	2+2 / 96	20.6 +20.6 / 0.4
30 / 70	6.2 / 1.9	3+3 / 94	18.4 +18.4 / 0.5
50 / 50	3.6	5+5 / 90	15.7 +15.7 / 0.7

Ordering Code:

SFT - TAP - XXXX - XX - XXX - NC

type	wavelength
TAP[1)]	1270 - 1630 nm

TAP ports
AT
ABT
AT+BT
D duplex AT

coupling ratio

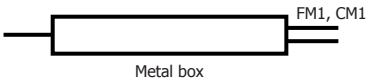
01	1/99
10	10/90
30	30/70
50	50/50
Other[2)]	

no input and output connectors[3)]
connector type - according to CON_14-01
(Jumper Ordering Code)

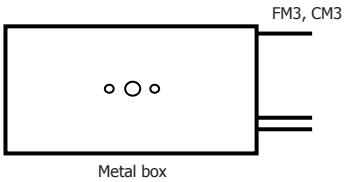
basic packaging
FM1 fiber type, metal box 100x15x9 mm[4)]
CM1 cable type, metal box 100x15x9 mm[4)]
FM3 fiber type, metal box 100x80x10, stackable
CM3 cable type, metal box 100x80x10, stackable
additional packaging
CAPM OPTOKON cassette
RM rack mount, MCNP-1U
PJ rack mount, MCPJ-1U
WM wall mount, MPIC-4

Note:
1) ±0.3 dB typ. tolerance A↔B
(1370, 1390, 1410 nm IL increased for 0.2-0.3 dB)
2) please define
3) standard fiber/cable length = 1 m
4) AT and AT/BT types

Packaging variants:

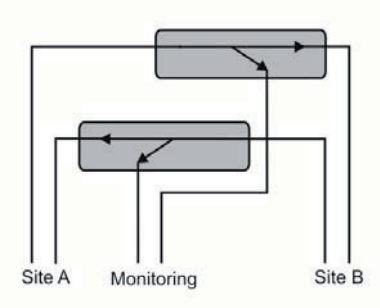


SFT-TAP-AT-10-CM1-NC

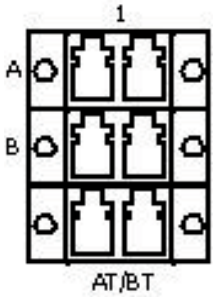


SFT-TAP-D-10-CAPM-SLCD

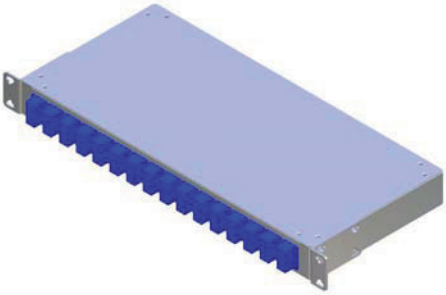
TAP-D configuration



Internal connection



Front panel marking


SFT-16xTAP-D-10-PJ1-SLCD

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Inhaltsverzeichnis

SFW-BS
FWDM Band splitter

Description:

The compact SFW-BS band splitter is designed to be used for FTTH projects in passive optical network infrastructures. It combines a data 1310+1490 nm from OLT with 1550 nm analog or digital CATV signal at central office. At subscriber ONU site it serves for splitting of CATV signal from data signal. Various types of pigtailing and connector terminations are available to meet your requirements.

SFW-BS-31-49/55-BFS-NC

Features:

- High port isolation
- Custom defined specifications
- Low insertion loss
- Low polarization dependent loss
- Transmission with high directivity
- Wide spectral channels
- Environmentally stable
- Wide range of packaging types

Applications:

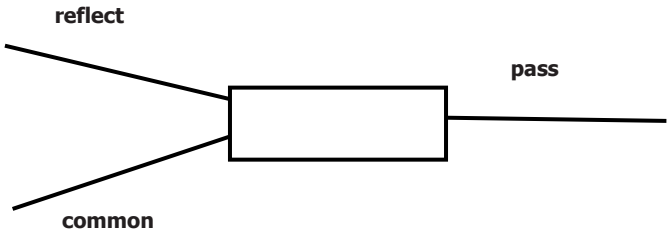
- FTTH – PON optical networks
- Coupling and splitting data and CATV signal

Technical specifications:

Parameters		Specification
Passband		1542.5 – 1620 nm
Rejection Band		1270 - 1537.5 nm
Insertion Loss [dB]	Pass Channel	< 0.8
	Reflect Channel	< 0.6
Isolation [dB]	Pass Channel	> 30
	Reflect Channel	> 18
Directivity [dB]		> 55
Return Loss [dB]		> 50
Dimensions [mm]		32 x 5.5

Note: Insertion loss without connectors

Block diagram:



Herausgeber:
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Inhaltsverzeichnis

SFW series
2 channels WDMs

Description:

The SFW series introduces a range of 2 wavelength division multiplexing (WDM) devices for high data rate applications requiring high wavelength isolation with a low insertion loss. The SFW series WDMs are designed to divide and/or combine different optical wavelengths by combining innovative fused technology. The SFW series are operable additional to the standard transmission windows 1310/1550 nm in wide range of wavelength combinations. Available in a wide variety of packaging configurations, various types of pigtailing and connector terminations are available to meet your requirements.

SFW-C35-BFS-NC

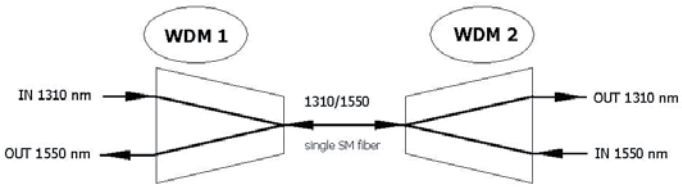
Applications:

- Telecommunications
- Data networks
- CATV
- Testing instruments
- RFTS
- Network monitoring

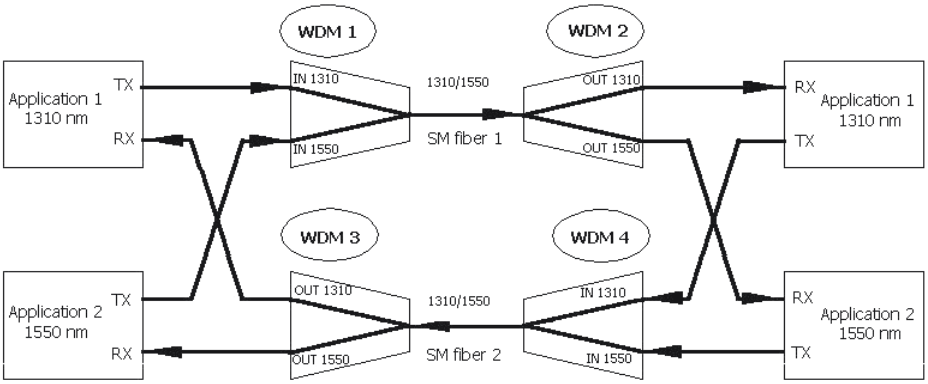
Features:

- High port isolation
- Custom defined specifications
- Low insertion loss
- Low polarization dependent loss
- Bi-directional transmission with high directivity
- Wide spectral channels
- Environmentally stable
- Wide range of packaging types

Typical applications:



One fiber



Pair of fibers

Technical specifications:

Polarization Dependent Loss, dB	≤ 0.1
Directivity, dB	> 55
Temperature Sensitivity (dB/°C)	≤ 0.002
Operating Temperature[1], °C	-40 to +85
Storage Temperature[1], °C	-55 to +85

Note: 1) Conditioned by the cable type

Herausgeber:
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Wavelength combinations:

	Δ λ						Δ λ					
	120 nm	140 nm	160 nm				180 nm	200 nm	240 nm			
λ (nm)	1290/1410 1310/1430 1330/1450 1350/1470 1370/1490 1390/1510 1410/1530 1430/1550 1450/1570 1470/1590 1510/1625	1290/1430 1310/1450 1330/1470 1350/1490 1370/1510 1390/1530 1410/1550 1430/1570 1450/1590 1470/1610 1490/1625	1290/1450 1310/1470 1330/1490 1350/1510 1370/1530 1390/1550 1410/1570 1430/1590 1450/1610 1470/1625	bandwidth ±10 nm	IL ≤ 0.5 dB	Isolation ≥15 dB	1290/1470 1310/1490 1330/1510 1350/1530 1370/1550 1390/1570 1410/1590 1430/1610	1290/1490 1310/1510 1330/1530 1350/1550 1370/1570 1390/1590 1410/1610 1430/1625	1290/1530 1330/1570 1350/1590 1370/1610	bandwidth ±15 nm	IL ≤ 0.3 dB	Isolation ≥17 dB

Transmission parameters:

ITEM	**WDMs**			
Operating Wavelength, nm	1310/1550			1480/1550
Stage	C	D	E	C
Insertion Loss[1], dB	≤ 0.3	≤ 0.7	≤ 1.0	≤ 0.4
Isolation, dB	≥ 17	≥ 30	≥ 40	≥ 12
Bandwidth, nm	± 15			± 5

Note: 1) without connectors

Ordering Code:

SFW - XXX - XXX - NC-NC

grade		**wavelength[1] (nm)**	
CXX	standard	X**35**	1310/1550
DXX	2 stage	X**45**	1480/1550
EXX	3 stage		

no input and output connectors
connector type can be defined according to:
CON_13-01 (Jumper Ordering Code)

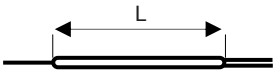
standard fiber/cable length = 1 m

package version I (basic type)	
BFS	Bare fiber 250 µm, standard tube[2] L=54, Ø3 mm
BFC	Fiber 0.9 mm, compact tube L=70, Ø4 mm
LTS	Fiber 0.9 mm, standard tube[2] L=54, Ø3 mm
FM1	Fiber type, metal box 100x15x9 mm
CM1	Cable type, metal box 100x15x9 mm
FM3	Fiber type, metal box 100x80x10 mm, stackable
CM3	Cable type, metal box 100x80x10 mm, stackable

package version II (optional)	
CAPM	OPTOKON cassette
SC	splice cassette (TC251S-1X)
SA	stand alone (plastic box)
RM	Rack mounted unit (MCNP-1U)
WM	Wall mounted box (MPIC-4)

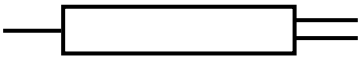
Note:
1) Other λ combination on demand: 29/41 for 1290 and 1410 nm, etc.
2) Other tube dimensions on demand

package variants:
SFW-C: BFS, BFC, LTS, FM1, CM1
SFW-D, E: FM3, CM3



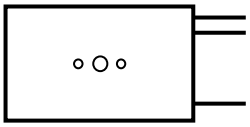
Stainless steel tube

BFS, BFC
LTS



Metal box

FM1, CM1



Metal box

FM3, CM3

Packaging options:

SFW-E35-CM3-NC

SFW-D47/59-CAPM-NE2S

2x SFW-D35-RM-NE2S

Herausgeber:
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Inhaltsverzeichnis

SFW-C
Coarse Wavelength Division Multiplexer (CWDM)

Description:

SFW-C series coarse wavelength division multiplexer and demultiplexer (CWDM) modules are reliable, cost effective solutions to multiservice applications. They multiply the capacity of existing singlemode fibers, by combining up to 16 ITU-T G.694.2 compatible (20 nm) channels in metropolitan, access and enterprise networks and for Cable TV applications. They are a low cost approach for systems that use uncooled laser sources, and are an alternative to more expensive DWDM components based on 100 GHz or 200 GHz channel spacing.

Features:

- High port isolation
- Custom defined specifications
- Low insertion loss
- Low polarization dependent loss
- Transmission with high directivity
- Wide spectral channels
- Environmentally stable
- Wide range of packaging types – min. bend radius protection

SFW-C-6D-A1-CAPD-NE2S

Applications:

- Optical networks
- Telecommunication systems
- Data communication systems
- CATV

Technical specifications:

CWDM Type	Center wavelengths* (nm)
CWDM 4 A (A+1)	1510/1530/1550/1570 (+1310)
CWDM 6 A (A+1)	1490/1510/1530/1550/1570/1590 (+1310)
CWDM 8 A (A+1)	1470/1490/1510/1530/1550/1570/1590/1610 (+1310)
CWDM 16 A	1310/1330/1350/1370/1390/1410/1430/1450/1470/1490/1510/1530/1550/1570/1590/1610
CWDM 16 A2	1270/1290/1310/1330/1350/1410/1430/1450/1470/1490/1510/1530/1550/1570/1590/1610
Add/Drop	upon customer specification

*) various channel wavelengths combination available on request

Feature	Specification	Feature	Specification
Channel spacing	20 nm	PDL	≤ 0.1 dB
Pass bandwidth	Typ. 14 nm	Max. optical power	300 mW
Pass band flatness	0.3 dB	Operating temperature (Conditioned by the cable type)	-10 to +70 °C
Min Isolation	≥ 40 dB non-adjacent channel ≥ 30 dB adjacent channel	Storage temperature (Conditioned by the cable type)	-40 to +85 °C
Return loss	≥ 50 dB	Package dimensions	Refer to ord. code
Directivity	≥ 50 dB		
WARNING	This product should never be installed in an optical network handling above Class I emissions		

Underwriters Laboratories approval, file number OBFA. E248452

Insertion loss (dB)* (without connectors)													
CWDM 4 A		CWDM 4 A+1		CWDM 6 A		CWDM 6 A+1		CWDM 8 A		CWDM 8 A+1		CWDM 16	
Typ.	M+D	Typ.	M+D	Typ.	M+D	Typ.	M+D	Typ.	M+D	Typ.	M+D	Typ.	M+D
1.5	2.5	1.7	3.0	2.1	3.7	2.3	4.1	2.5	4.5	2.7	4.9	4.8	8.8

*) M+D: Insertion loss Multiplexer+ Demultiplexer

Herausgeber:
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Inhaltsverzeichnis

Ordering Code:

SFW - C - XX - X - XXX - AAA

4M	4 channels mux
4D	4 channels demux
6M	6 channels mux
6D	6 channels demux
8M	8 channels mux
8D	8 channels demux
16M	16 channels mux
16D	16 channels demux

wavelength combination

A[1]	standard
A1	A + 1310 nm

package version I (basic type)[2]

CM4	Cable type, metal box (up to 8A1), 140x110x10 mm
CM5	Cable type, metal box, 140x110x20 mm

package version II (optional)

CAPM	OPTOKON cassette (up to 4A1)
CAPD	OPTOKON double cassette
SA	Stand alone (plastic box)
RM	Rack mount unit (MCNP-1U)
WM	Wall mount box (MPIC-4)

AAA – input and output connectors
Standard connector types:[3]

Code	Description
SPC	FC/SPC
UPC	FC/UPC
NPC	FC/APC (2.05 standard)
SSC	SC/SPC
USC	SC/USC
NSC	SC/APC
SE2	LSH (E2000)/SPC
NE2S	LSH (E2000)/APC standard
NE2P	LSH (E2000)/APC premium
SLC	LC/SPC
ULC	LC/UPC
NLC	LC/APC
SSL	ST/SPC
NC	no connectors

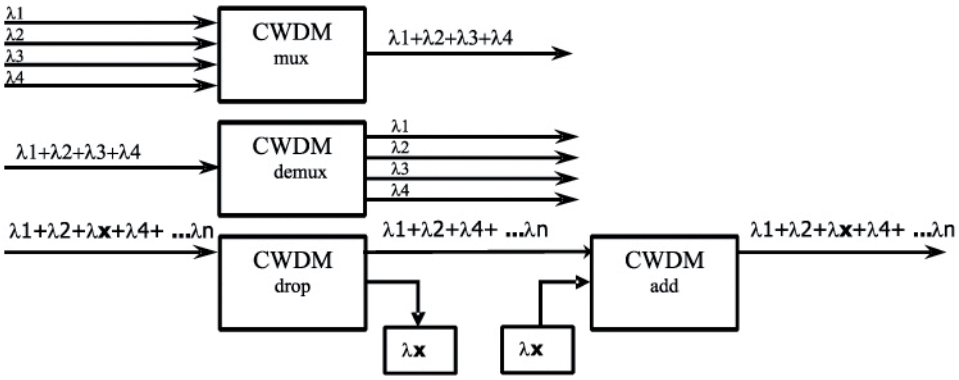
Note:
1) Other λ combination on request
2) Standard cable length = 1 m
3) The other connector types
– refer to CON_13-01_EN - ORD_CODE

Block diagram of typical applications

MUX multiplexer

DEMUX demultiplexer

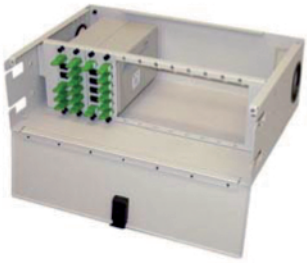
A/D add/drop



Packaging variants:

SFW-C-4D-A-CM4-NC

SFW-C-8M-A1-CAPD-NE2S



SFW-C-8D-A1-CAPD-NE2S, SFCW-6D-A1-CAPD-NE2S

SFW-C-6D-A-RM-NE2S

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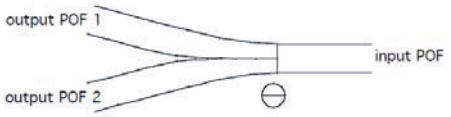
Inhaltsverzeichnis

SFT-POF-01x02
Plastic Optical Fiber (POF) Splitter

Description:

Assembled from two branches of partially polished standard POF (1 mm POF, NA =0.5) this optical power splitter component splits up the light of the input POF to two equal portions (50:50 symmetry) in the output branches. 2.2 mm outside diameter ferrules terminate the input and output ports. Coupling elements for the connection with standard POF cables are available.

For special applications a thin metal layer is deposited in the polished parts to increase the cross talk between both output branches. These low cross talk splitters are useful in sensor applications and data transmission systems that use one fiber only for bidirectional, full duplex operation.



Specifications:

type	splitting ratio (%) typical	excess loss (dB) min.	typ.	max.	cross talk (dB) typical
standard splitter	50 : 50 (± 20%)	0.6	1.3	2.5	22
low cross talk splitter	50 : 50 (± 20%)	0.8	1.2	1.5	50
standard splitter	10 : 90 (± 20%)	0.6	1.3	2.5	22
low cross talk splitter	10 : 90 (± 20%)	0.8	1.2	1.5	50

Customer specific modifications are feasible:

- unsymmetric splitters comprising an unsymmetry up to 75:25 splitting ratio,
- extension of the output fiber length up to 50 cm,
- bidirectional system test splitter modules.