



ClearCut kW Package-Free Fiber Bragg Grating (PFCG Series)

Rev 11C

Description

The ClearCut kW Package-Free Fiber Bragg Grating products are ultra low insertion loss fiber bragg gratings for high power fiber lasers. With AFR's ClearCut design and special process, the FBG can handle kilowatt level pump power and signal power with recoated only.

Key Features

- High Power Handling
- Low Temperature Slope
- Exceptional Reliability

Applications

- Fiber Laser

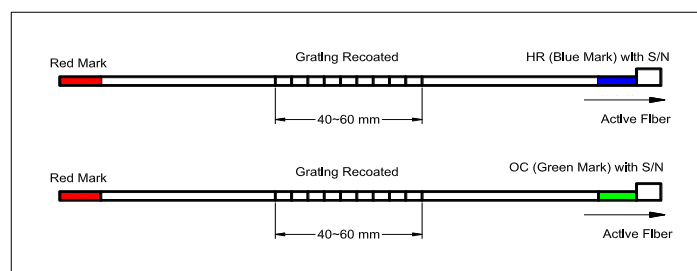
Specifications

Parameter	Unit	Value			
Center Wavelength	nm	1018, 1030, 1064, 1070, 1080, 1090			
Tolerance on Center Wavelength	nm	± 1.0			
Max. Wavelength Mismatch (OC Relative HR)	nm	0.2			
High Reflector (HR) / Output Coupler (OC)	/	HR		OC	
Peak Reflectivity	%	≥ 99.0		(5.0 - 30.0) ± 2.0	
Reflection Bandwidth at 95%	nm	1.5 - 4.0		/	
Reflection Bandwidth at 50%	nm	/		0.2 - 2.0	
Tolerance on Reflection Bandwidth	nm	0.1 - 0.4		0.1 - 0.2	
Min. Side Mode Suppression Ratio	dB	20		10	
Fiber Core/Cladding Dimension	μm	10/125	14/250	20/400	25/400
Temperature Slope Suspended in Air ¹	°C/W	≤ 0.1	≤ 0.03	≤ 0.02	
Max. Core Signal Power Handling ²	W	300	1000	3000	
Max. Clad Pump Power Handling	W	450	1500	3000	
Fiber Type	/	PM or Non-PM			
Recoating Length	mm	40 - 60			
Storage Temperature	°C	- 40 to + 85			

¹For total power: the signal power in the core and the pump power in the cladding. (The slope efficiency is about 70%)

²The grating area should be kept on active cooling plates. (The cooling temperature ≤ 25 °C)

Package Dimensions



Ordering Information

PFCG-①①①①.①-②.②/②.②-③③-④④/④④④-⑤-P⑥⑥⑥⑥-⑦

①①①①.①: Center Wavelength

XXXX.X - XXXX.X nm

SSSS.S - Specify

②.②/②.②: Reflectivity Bandwidth HR/OC

X.X/X.X - X.X nm HR/X.X nm OC

S.S/S.S - Specify

③③: Peak Reflectivity of OC

XX - XX%

SS - Specify

④④/④④④: Fiber Core/Cladding Dimension

XX/XXX - XX μ m/XXX μ m

SS/SSS - Specify

⑤: Fiber Type

N - Non-PM

P - PM

⑥⑥⑥⑥: Pump Power Handling

XXXX - XXXX W

SSSS - Specify

⑦: Pigtails Length (Each Side)

A - 1 m

B - 1.2 m

C - 1.4 m

S - Specify (≤ 1.7 m)

¹ClearCut is a product trade mark of AFR representing an unique technology used in its FBG products.



ClearCut Raman Scattering Suppressor Fiber Bragg Grating (RSS-FBG Series)

Rev 11E

Description

The ClearCut Raman Scattering Suppressor Fiber Bragg Grating products are ultra low insertion loss fiber bragg gratings for high power fiber lasers. With AFR's ClearCut designing and special process, the devices can handle kilowatt level pump power and signal power with recoated only. It is the only cost-effective solution that eliminates the SRS at its source and enables immunity from back reflection from the work piece.

Key Features

- High Power Handling
- Low Temperature Slope
- Exceptional Reliability

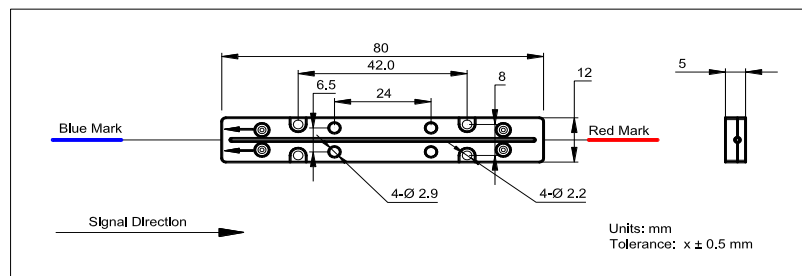
Applications

- Fiber Laser

Specifications

Parameter	Unit	Value			
Passband Center Wavelength	nm	1070		1080	
RSS Wavelength	nm	1123		1132	
Tolerance on RSS Center Wavelength	nm	± 2			
Bandwidth of RSS Wavelength at 95%	nm	≥ 20			
Max. Insertion Loss (Passband Center Wavelength)	dB	0.2			
Min. Attenuation (RSS Wavelength)	dB	20			
Min. Return Loss (RSS Wavelength)	dB	25			
Fiber Core Dimension	μm	10	14	20	25
Max. Core Signal Power Handling	W	300	2000	3000	4000
Max. Core RSS Power Handling	W	3	20	30	40
Fiber Cladding Dimension	μm	125	250		400
Max. Clad Pump Power Handling	W	300	2000		3000
Package Dimensions	mm	80 (L) × 12 (W) × 5 (H)			
Storage Temperature	°C	- 40 to + 85			

Package Dimensions



Ordering Information

TFBG-①①①①-②②②②-③-④④④/④④④-P⑤⑤⑤⑤-⑥

①①①①: RSS Wavelength

1132 - 1132 nm

SSSS - Specify

②②②②: Passband Center Wavelength

1080 - 1080 nm

SSSS - Specify

③: Fiber Type

N - Non-PM

P - PM

④④/④④④: Fiber Core/Cladding Dimension

20/400 - 20 μm/400 μm

SS/SSS - Specify

⑤⑤⑤⑤: Signal Power Handling

3000 - 3000 W

SSSS - Specify

⑥: Pigtails Length (Each Side)

A - 1 m

B - 1.2 m

C - 1.4 m

S - Specify (≤ 1.7 m)

¹ClearCut is a product trade mark of AFR representing an unique technology used in its FBG products.



N × 1 High Power Laser Combiner (HPLC Series)

Rev 11

Description

The High Power N × 1 Laser Combiner is designed for combining the power from N units of kW class fiber laser with high efficiency. The laser combiner is available for different fiber types.

Key Features

- Low Brightness Loss
- High Power Handling

Applications

- Fiber Lasers

Specifications

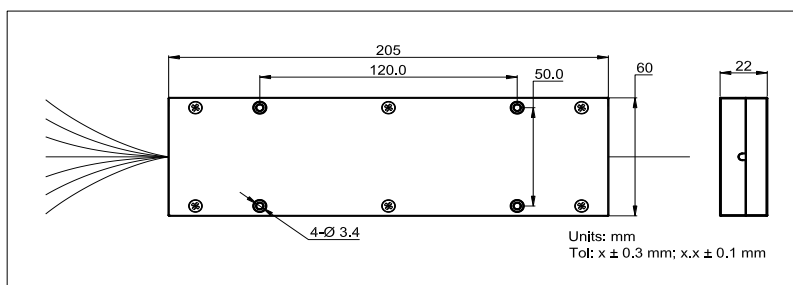
Parameter	Unit	Value
Product Type ¹	-	3 × 1 or 4 × 1 or 7 × 1
Laser Wavelength Range	nm	1060 - 1080
Fiber Type for Input	-	20/130, 0.08/0.46 NA
Fiber Type for Output	-	100/120/360, 0.22 NA or 50/70/360, 0.22 NA
Input Power Handling per Port	W	3000
Max. Backward Power Handling ²	W	1000
Min. Power Transfer Efficiency ²	%	97
Max. Beam Parameter Product (BPP)	mm mrad	4
Package Dimensions	mm	205 × 60 × 22
Operating Temperature (Active Cooling Required)	°C	0 to + 65
Storage Temperature	°C	- 40 to + 85

¹If you have special product type requirements, please contact sales.

²The power in the core of the fiber.

³Do not operate without proper high power termination (QBH cable, for example).

Package Dimensions



Ordering Information

HPLC-N x 1-①①①①-②②/②②②-③③③/③③③-④

①①①①: Laser Wavelength	②②/②②②: Fiber Type for Input	③③③/③③③: Fiber Type for Output	④: Fiber Length
1080 - 1080 nm	20/130, 0.08/0.46 NA	050/360, 0.22 NA	1 - 1 m
SSSS - Specify	SS/SSS - Specify	100/360, 0.22 NA	2 - 2 m
		SSS/SSS - Specify	S - Specify



1064 nm 500 W Fiber to Free Space Isolator

Spec. Review No. SR34396 Date: Dec. 25, 2025

Description

AFR's high power fiber to free-space isolator (HPFSI) is the best choice for high power industrial pulse fiber lasers. With unique patented technology, the power handling capacity was elevated to 500 W average laser power and with very competitive cost-effectiveness.

Key Features

- High Power Handling
- Low Insertion Loss

Applications

- Fiber Laser
- Fiber Optic Instruments

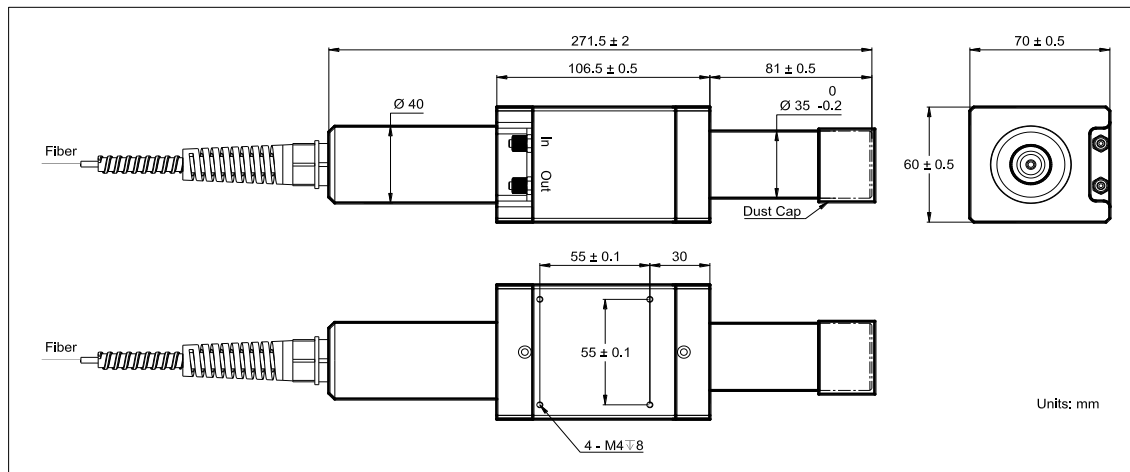
Specifications

Optical Parameter	Unit	Values
Operating Wavelength (λ_c)	nm	1064 $\pm$ 15
Max. Insertion Loss at 23 °C, λ_c	dB	0.4
Typ. Peak Isolation	dB	40
Min. Isolation at 28 °C	dB	30
Min. Return Loss	dB	50
Nominal Output Beam Diameter ($1/e^2$ @ 500 W) ¹	mm	7.0 $\pm$ 0.75 @ M2=1.3
Beam Circularity @ Focal Spot ¹	%	> 90
M ² Degradation	%	< 10
640 nm Transmission	%	> 20
Max. Focal Shift of Thermal Lens ¹	Z _R	$\leq$ 0.5
Typ. Focal Shift of Thermal Lens ¹	Z _R	0.2
Beam Divergence ¹	mrad	$\leq$ 0.5
Max. Average Optical Power	W	500
Max. Peak Power for ns Pulse	kW	50
Max. Average Optical Power from Cladding	W	5
Max. Tensile Load	N	5
Beam Offset	mm	< 0.7
Pointing Error	mrad	< 2.5

¹Measured by Laser Quality Monitor (LQM) at full power.

Fiber and conditions	Unit	Values
Fiber Type	-	Specified by ordering info
Cooling	-	Water
Water Quality	-	Purified or Distilled Water
Flow Rate	L/min	1.5 - 2.5
Water Pressure	Mpa	$\leq$ 0.3
Water Temperature	-	$\geq$ 5 °C above Dew Point Temperature
Water PH Value	-	6.2 - 7.9
Operating Temperature	°C	+ 10 to + 50
Storage Temperature	°C	- 10 to + 60

Package Dimensions



Ordering Information

SteadyBeam+500-①①①①-②-③-④-⑤-⑥-P

①①①①: Wavelength

1064 - 1064 nm

SSSS - Specify

②: Beam Diameter

7 - 7 mm

S - Specify

③: Jacket Type

10 - 10 mm Armoured cable

S - Specify

④: Jacket Length

5 - 5.0 m

S - Specify

⑤: Fiber Type

1 - CJGDF-30/250-062

2 - BrightCore 30/250-DC (NA 0.06/0.46)

S - Specify

⑥: Fiber Length

6.5 - 6.5 m

S - Specify



High Power Polarization Insensitive Isolator (HI Series)

Rev 11C

Description

The 1064 nm High Power Polarization Insensitive Isolator is characterized with low insertion loss, high isolation, high power handling, high return loss, excellent environmental stability and reliability. The High Power Polarization Insensitive Isolator is ideal for fiber lasers and instrumentation applications.

Key Features

- Low Insertion Loss
- High Isolation
- High Return Loss

Applications

- Fiber Lasers
- Fiber Optic Instruments

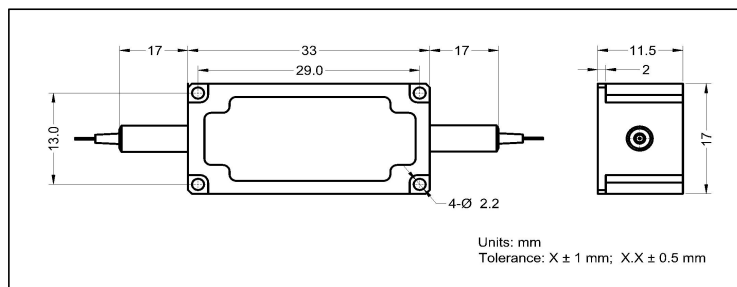
Specifications

Parameter	Unit	Value
Center Wavelength (λ_c)	nm	1064
Typ. Peak Isolation	dB	35
Min. Isolation, λ_c , @ All Polarization States, 23 °C	dB	28
Typ. Insertion Loss, 23 °C	dB	1.7
Max. Insertion Loss and Input Power @ 300 mW, 23 °C	dB	2.0
Max. Insertion Loss and Input Power @ 1 W, 23 °C	dB	2.5
Max. Insertion Loss and Input Power @ 2 W, 23 °C	dB	3.0
Min. Return Loss (Input/Output)	dB	50/50
Max. Polarization Dependent Loss	dB	0.2
Max. Average Optical Power	W	2
Max. Peak Power (Pulse Width, 10 ns)	kW	10
Max. Tensile Load	N	5
Fiber Type	-	HI1060
Operating Temperature	°C	+ 10 to + 50
Storage Temperature	°C	0 to + 60

¹IL is 0.5 dB higher, and RL is 5 dB lower for each connector added.

²The optical power handling capability will be max 1 W when the isolator is terminated with connectors.

Package Dimensions



Ordering Information

HI-①①-②②-③-④-⑤-⑥-⑦

①①: Wavelength

06 - 1064 nm

SS - Specify

②②: Handling Power

01 - 1 W

02 - 2 W

③: Connector Type

1 - FC/UPC

2 - FC/APC

N - None

3 - SC/UPC

4 - SC/APC

S - Specify

④: Fiber Jacket

B - 250 µm Bare Fiber

L - 900 µm Loose Tube

S - Specify

⑤: Fiber Length

1 - 1.0 m

S - Specify

⑥: Fiber Type

1 - HI1060 Fiber

S - Specify

⑦: Power Type

P - Pulsed

C - Continuous Wave



LaseGuard Series

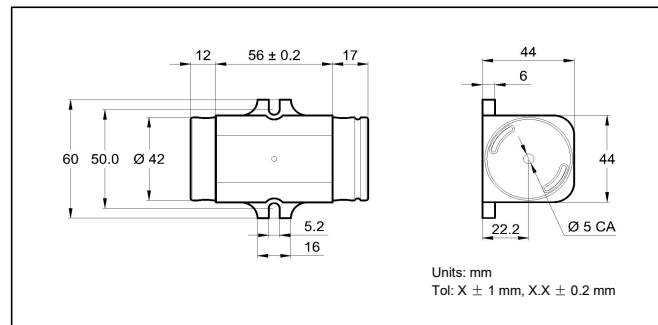
Spec. Review No.: SR17342 Date: Mar. 7, 2018

AFR's LaseGuard series are designed for preventing back reflection. The high isolation, low insertion loss and large aperture features make it flexible to fit different applications.

Specifications

Parameter	Unit	Value
Operating Range	nm	1030 - 1060
Peak Transmission	%	> 92
Peak Isolation (λ_c)	dB	> 33
Input Polarization	-	Specified by Ordering Info
Output Polarization	-	Specified by Ordering Info
Minimum. Optical Average Power	W	200
Damage Threshold	-	10 J/cm ² @ 10 ns
	-	1 J/cm ² @ 8 ps
Operating Temperature	°C	10 to 30
Storage Temperature	°C	0 to 60

Package Dimensions



Ordering Information

LaseGuard-①-②-③③③-④④④④-⑤-⑥-⑦⑦-⑧⑧

①: Type I - Isolator R - Rotator	②: Bandwidth F - Fixed Narrowband S - Specified	③③③: SteadiBeam STB - with SteadiBeam Non - without SteadiBeam	④④④④: Wavelength 1030 - 1030 nm SSSS - Specify
⑤: Aperture 5 - Φ 5.0 mm 8 - Φ 8.0 mm S - Specify	⑥: Power Handling 200 - 200 W S - Specified	⑦⑦: Input Polarization 00 - 0 Degree (Horizontal) 45 - 45 Degree 90 - 90 Degree (Vertical) SS - Specify	⑧⑧: Output Polarization 00 - 0 Degree (Horizontal) 45 - 45 Degree 90 - 90 Degree (Vertical) SS - Specify



Mini High Power Polarization Insensitive Isolator with Bandpass Filter (HIBP-M Series)

Spec Review No.:SR31596 Date: Oct. 10, 2024

Description

The Mini High Power Polarization Insensitive Isolator is characterized with low insertion loss, high isolation, high power handling, high return loss, excellent environmental stability and reliability.

Key Features

- High Power Handling
- Low Insertion Loss

Applications

- Fiber Laser
- Fiber Optic Instruments

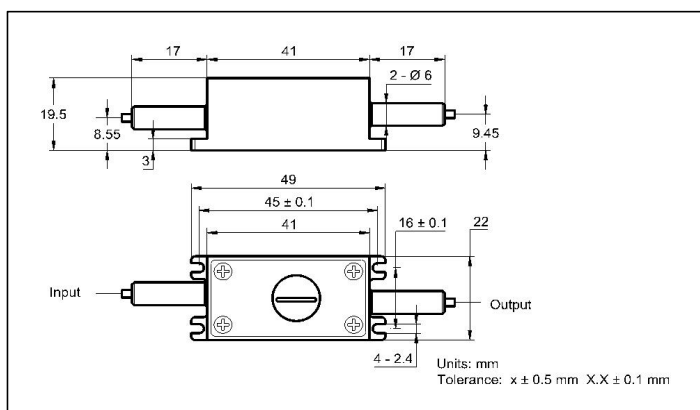
Specifications

Parameters	Unit	Values
Center Wavelength (λ_c)	nm	1064
Operating Wavelength Range	nm	$\lambda_c \pm 10$
Min. Isolation, λ_c , @ 23 °C	dB	30
Typ. Insertion Loss, λ_c , @ 23 °C	dB	0.7
Max. Insertion Loss, λ_c , @ 23 °C	dB	1
Min. Return Loss (Input/Output)	dB	50/50
Filter Center Wavelength (λ_{fc})	nm	1061
Filter Wavelength Range	nm	$\lambda_{fc} \pm 1$
Filter Pass Band, @ 0.5 dB	nm	25
Wavelength suppression (950 - 1042 & 1086 - 1200 nm)	dB	25
Max.Average Optical Power	W	20
Max. Peak Power for ns pulse	kW	10
Max. Tensile Load	N	5
Fiber Type	-	Specified by ordering info
Operating Temperature	°C	+ 5 to + 50
Storage Temperature	°C	- 20 to + 65

¹ IL is 0.5 dB higher, and RL is 5 dB lower for each connector added.

² The optical power handling capability will be max 1 W when the isolator is terminated with connectors.

Package Dimensions



Ordering Information

HIBP-M-①①①①-②②-③-④-⑤-⑥-⑦-⑧

①①①①: Wavelength

1064 - 1064 nm

SSSS - Specify

②②: Handling Power

20 - 20 W

SS - Specify

③: Connector Type^{1,2}

1 - FC/UPC

3 - SC/UPC

2 - FC/APC

4 - SC/APC

N - None

S - Specify

④: Fiber Jacket

B - 250 µm Bare Fiber

L - 900 µm Loose Tube

S - Specify

⑤: Fiber Length

1 - 1.0 m

S - Specify

⑥: Fiber Type

1 - Nufern LMA-GSF-10/125-M

2 - 睿芯10/125SC, NA0.075光纤

3 - YOFC GDF-SC-10/125-0.08NA

4 - Nufern, FUD-3584, SM-GSF, 10/125, 0.075

S - Specify

⑦: Filter Location

O - Output Side

N - None

⑧: Power Type

P - Pulse Application

C - Continuous Wave



1064 nm Fiber to Free Space High Power Isolator

Spec. Review No. SR25385C Date: Oct. 16, 2024

The 1064 nm Fiber to Free Space High Power Isolator is characterized with low insertion loss, high isolation, high power handling, high return loss, and excellent environmental stability and reliability. It is ideal for fiber amplifier, fiber laser output isolation.

Key Features

- High Power Handling
- High Isolation

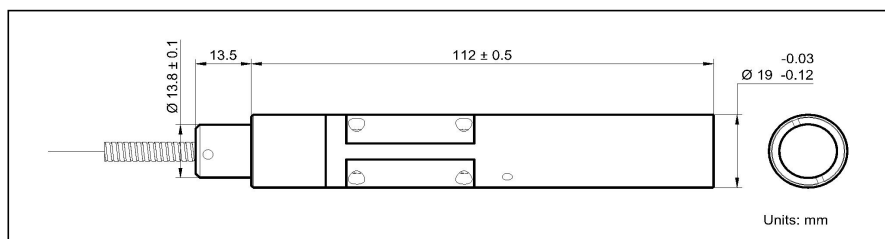
Applications

- High Power Fiber Laser
- High Power Instrumentation Applications

Specifications

Parameter	Unit	Value
Center Wavelength (λ_c)	nm	1067
Max. Average Optical Power	W	55
Max. Peak Power for ns pulse	kW	10
Typ. Peak Isolation	dB	30
Isolation at 23 °C, λ_c	dB	30
Isolation at 5 °C, λ_c	dB	20
Isolation at 40 °C, λ_c	dB	20
Transmission at 23 °C, λ_c	%	93
Min. Return Loss	dB	50
Output Beam Diameter	mm	7.3 (> 6.5, < 8.0)
Beam Roundness	%	≥ 90
650nm Transmission	%	≥ 20
Beam Divergence Angle	mrاد	0.35
Beam offset	mm	0.5
Beam pointing error	mrاد	10
M ² Degradation	%	< 10
Operating Temperature	°C	+ 5 to + 50
Storage Temperature	°C	- 20 to + 65

Package Dimensions



CBeam-M-①①①①-②②-③-④-⑤-⑥-⑦-⑧

①①①①: Wavelength

1067 - 1067 nm

S - Specify

②②: Handling Power

55 - 55 W

S - Specify

③: Beam Diameter

7.3 - 7.3 mm

S - Specify

④: Jacket Type

6 - 6 mm Armoured cable
with yellow PVC tube

⑤: Jacket Length

0.85 - 0.85 m

3 - 3.0 m

S - Specify

⑥: Fiber Type

1 - BrightCore GDF-SC-30/250

2 - YOFC-GDF-SC-30/250-0.065

3 - YOFC-GDF-DC30/250-0.065

S - Specify

⑦: Fiber Length

1.5 - 1.5 m

3.7 - 3.7 m

S - Specify

⑧: Power Type

P - Pulse Application

C - Continuous Wave



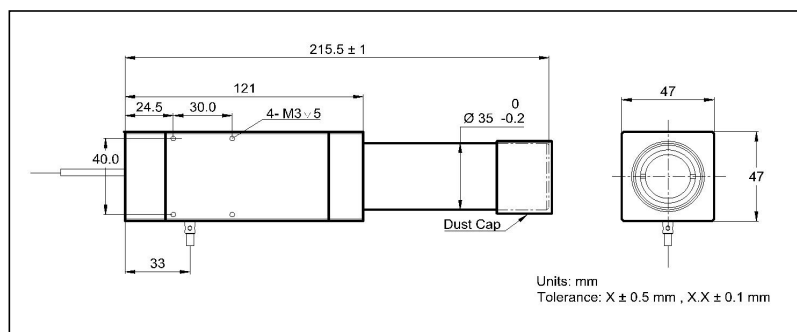
Fiber to Free Space High Power Isolator with WDM (HPFSIWDM Series)

Spec Review No.: SR31925 Date: Oct. 23, 2024

Specifications

Parameter	Unit	Value
Signal Center Wavelength (λ_c)	nm	1064
Operating Wavelength Range	nm	$\lambda_c \pm 10$
Max. Insertion Loss, 23 °C, (Input to Output)	dB	0.1
Min. Isolation, 23 °C, λ_c all Polarization States	dB	30
Nominal Output Beam Diameter ($1/e^2$)	mm	7.0 ± 0.5
M^2	-	< 1.3
Beam Roundness at 0~1000 mm From Output Face	%	> 92
Min. Return Loss (Input Port)	dB	50
Pump Wavelength	nm	976
Max. Insertion Loss, 23 °C, (Pump to Input)	dB	0.1
Max. Average Optical Power (Signal)	W	150
Max. Average Optical Power (Pump)	W	200
Fiber Type (Input Port)	-	YDF 30/250 DC
Fiber Type (Pump Port)	-	MM-S135/155-22FA
Fiber Type (Output Port)	-	Free Space
Max. Peak Power for ns Pulse	kW	200
Max. Tensile Load	N	5
Operating Temperature	°C	+ 10 to + 45
Storage Temperature	°C	0 to + 60

Package Dimensions



Ordering Information

HPFSIWDM-①①①①-②-③-④-⑤-⑥-⑦

①①①①: Wavelength

1064 - 1064 nm

SS - Specify

②: Handling Power

150 - 150 W

S - Specify

③: Beam Diameter

7 - 7 mm

S - Specify

④: Jacket Type

B - Bare fiber

S - Specify

⑤: Fiber Length of Input port

3.0 - 3.0 m

S - Specify

⑥: Fiber Length of Pump port

1.5 - 1.5 m

S - Specify

⑦: Power Type

P - Pulse Application

C - Continuous Wave



1064nm Fiber to Free Space High Power Isolator

Spec. Review No. SR34331 Date: Jan. 16, 2026

Description

The 1064nm Fiber to Free Space High Power Isolator is characterized with low insertion loss, high isolation, high power handling, high return loss, and excellent environmental stability and reliability. It is ideal for fiber amplifier, fiber laser output isolation.

Key Features

- High Power Handling
- High Isolation

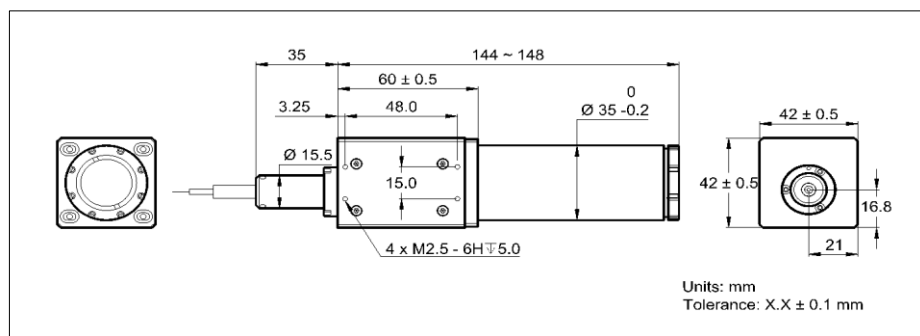
Applications

- High Power Fiber Laser
- High Power Instrumentation Applications

Specifications

Parameter	Unit	Value
Center Wavelength (λ_c)	nm	1064nm or specify
Typ. Peak Isolation	dB	50
Min. Isolation at 23 °C, λ_c All Polarization States	dB	45
Max. Insertion Loss at 23 °C, λ_c	dB	0.55
Max. Polarization Dependent Loss	dB	0.1
M ² Degradation	%	< 10
Beam Roundness	%	> 90
Min. Return Loss	dB	55
D-Value of Transmittance with 9 mm Aperture (10 W & 100 W)	%	< 5
640 nm Transmission	%	> 5
Max. Average Optical Power	W	Specified by Ordering Info
Max. Peak Power for ns pulse	kW	10
Max. Tensile Load	N	5
Fiber Type (Input Port)		Specified by Ordering Info
Fiber Type (Output Port)		Free Space
Nominal Output Beam Diameter (1/e ²)	mm	7.0 ± 0.5
Operating Temperature	°C	+ 10 to + 50
Storage Temperature	°C	0 to + 60

Package Dimensions



Ordering Information

iBeam-D-①①①①-②-③-④-⑤-⑥-⑦-⑧

①①①①: Wavelength

1064 - 1064 nm

S - Specify

②: Handling Power

60 - 60 W

30 - 30 W

S - Specify

③: Beam Diameter

7.0 - 7.0 mm

S - Specify

④: Jacket Type

6 - 6 mm Armoured Cable
with Yellow PVC Tube

7 - 7 mm Armoured Cable
with Yellow PVC Tube

7.8 - 7.8 mm Armoured Cable
with Yellow PVC Tube

⑤: Jacket Length

2 - 2.0 m

S - Specify

⑥: Fiber Type

1- Nufern LMA-GDF-30/250-M

S - Specify

⑦: Fiber Length

3 - 3.0 m

S - Specify

⑧: Power Type

P - Pulse Application

C - Continuous Wave



High Power Polarization Insensitive Dual Stage Isolator (HPDI Series)

Spec. Review No. SR34332 Date: Jan. 15, 2026

Description

The Dual-Port Co-Directional In-line Polarization Insensitive Dual Stage Isolator is characterized with low insertion loss, high isolation, high power handling, high return loss, excellent environmental stability and reliability.

Key Features

- High Power Handling
- Low Insertion Loss

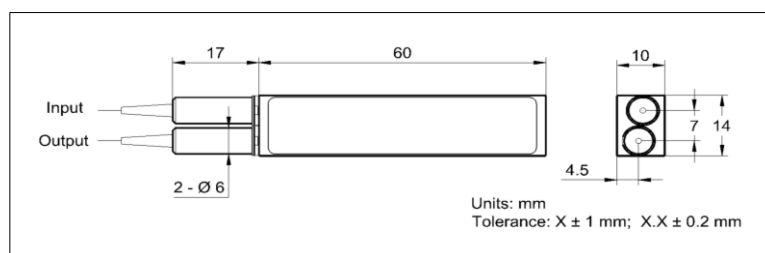
Applications

- Fiber Laser
- Fiber Optic Instruments

Specifications

Parameter	Unit	Value
Center Wavelength (λ_c)	nm	1064
Operating Wavelength Range	nm	$\lambda_c \pm 20$
Min. Isolation, λ_c , 23 °C	dB	45
Max. Insertion Loss, λ_c , 23 °C	dB	1.8
Max. Polarization Dependent Loss	dB	0.2
Min. Return Loss (Input/Output)	dB	50/50
Max. Optical Power	W	Specified by Ordering Info
Max. Peak Power for ns Pulse	kW	10
Max. Tensile Load	N	5
Fiber Type	-	Specified by Ordering Info
Operating Temperature	°C	+ 10 to + 50
Storage Temperature	°C	- 20 to + 65

Package Dimensions



HPDI-SF-①①①①-②②②-③-④-⑤

①①①①: Wavelength

1064 - 1064 nm

S - Specify

②②②②: Handling Power

10 - 10 W

5 - 5 W

S - Specify

③: Jacket Type

B - 250 μ m Bare Fiber

S - Specify

④: Fiber Type

1 - Nufern LMA-GDF-10/125-M

2 - Nufern FUD-3584

3 - YOFC GDF-SC-10/125-0.08NA

S - Specify

⑤: Fiber Length

Q - 0.75 m

1 - 1.0 m

S - Specify

⑥: Power Type

P - Pulse Application

C - Continuous Wave



High Power Polarization Insensitive Isolator (HPI Series)

Spec. Review No. SR34309 Date: Dec. 18, 2025

Description

The Dual-Port Co-Directional In-line Polarization Insensitive Isolator is characterized with low insertion loss, high isolation, high power handling, high return loss, excellent environmental stability and reliability.

Key Features

- High Power Handling
- Low Insertion Loss

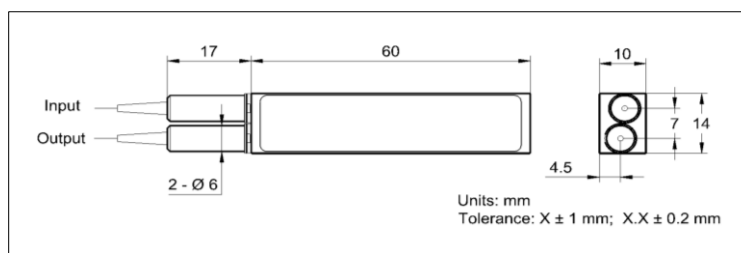
Applications

- Fiber Laser
- Fiber Optic Instruments

Specifications

Parameter	Unit	Value
Center Wavelength (λ_c)	nm	1064
Operating Wavelength Range	nm	$\lambda_c \pm 20$
Typ. Peak Isolation	dB	35
Min. Isolation, λ_c , 23 °C	dB	28
Max. Insertion Loss, λ_c , 23 °C	dB	1.0
Max. Polarization Dependent Loss	dB	0.2
Min. Return Loss (Input/Output)	dB	50/50
Max. Optical Power	W	Specified by Ordering Info
Max. Peak Power for ns Pulse	kW	10
Max. Tensile Load	N	5
Fiber Type	-	Specified by Ordering Info
Operating Temperature	°C	+ 10 to + 50
Storage Temperature	°C	- 20 to + 65

Package Dimensions



HPI-SF-①①①①-②②②-③-④-⑤

①①①①: Wavelength

1064 - 1064 nm

S - Specify

②②②: Handling Power

30 - 30 W

20 - 20 W

10 - 10 W

S - Specify

③: Jacket Type

B - 250 μ m Bare Fiber

S - Specify

④: Fiber Type

1 - Nufern LMA-GDF-10/125-M

2 - Nufern FUD-3584

3 - YOFC GDF-SC-10/125-0.08NA

S - Specify

⑤: Fiber Length

Q - 0.75 m

1 - 1.0 m

S - Specify

⑥: Power Type

P - Pulse Application

C - Continuous Wave



High Power Fiber Collimator (HPC Series)

Spec. Review No.:SR32182D Date:Sep.25, 2025

Description

AFR's HPC series provides QCS compatible connector for high power lasers up to 2 kW. Technologies incorporated in the products include cladding mode stripping and inert gas cooling.

Key Features

- Low Insertion Loss
- High Power Handling
- Inert Gas Cooling

Applications

- Fiber Laser
- Fiber Coupling

Specifications

Parameter	Unit	Value
Center Wavelength (λ_c)	nm	1080
Operating Wavelength Range	nm	$\lambda_c \pm 20$
Beam Diameter ($1/e^2$) @ 0 ~ 1 m ¹	mm	5 ± 1
Focal Length of Lens*	mm	$50 \pm 2\%$
Max. Transmission Loss of Fiber Core	%	2
Min. Return Loss*	dB	50
Max. Optical Power (CW)	W	2000
Beam Pointing Error	deg	≤ 0.5
Beam Offset from Central Axis	mm	≤ 0.8
Max. Backward Power Handling ^{a&*}	W	100 W Continuously
Max. Backward Power Handling ^{b&*}	W	N/A
Max. Tensile Load*	N	5
Operating Temperature	°C	+ 5 to + 50
Storage Temperature	°C	- 20 to + 70

a. With cladding power stripping.

b. Without cladding power stripping.

*.The parameters are guaranteed by design.

¹Beam diameter ($1/e^2$) @ 0 ~ 1 m.

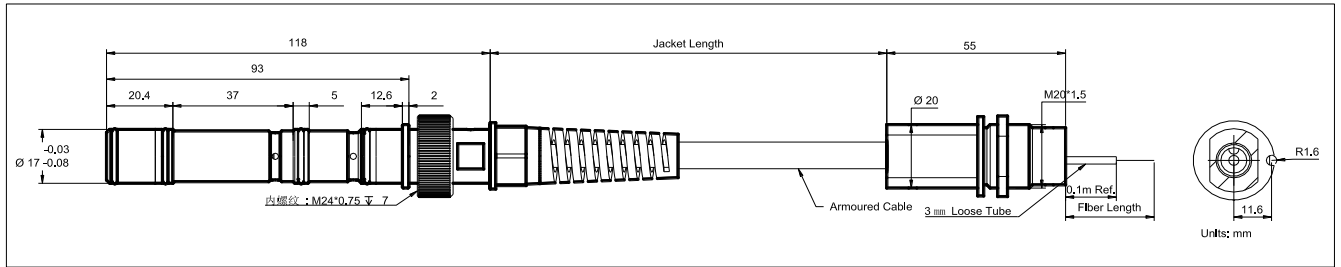
Fiber Type	Beam Diameter ($1/e^2$) @ 0 ~ 1 m	Beam Divergence (Full Angle)
20/400 NA0.065	4 ~ 6 mm @ $M^2 = 1.3$	< 0.7 mrad
25/400 NA0.1	4 ~ 6 mm @ $M^2 = 1.5$	< 0.7 mrad
50/400 NA0.12	1 ~ 6 mm @ $M^2 = 4$	< 1 mrad

Cooling Gas Requirements

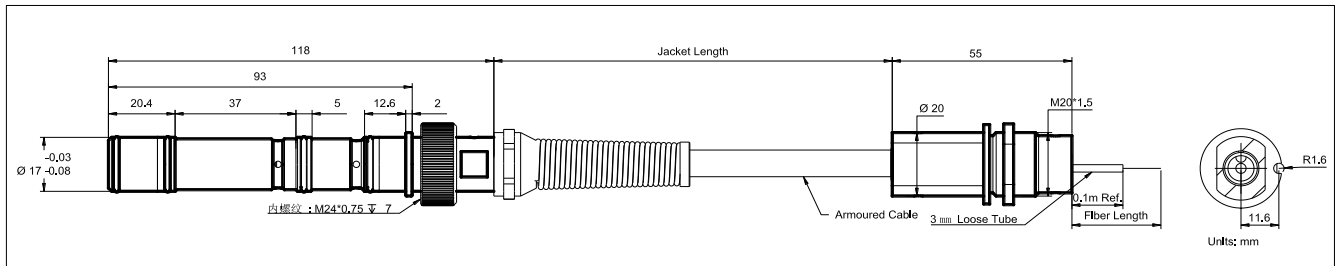
Gas Type	-	Inert Gas
Flow Rate	L/min	15 - 20
Max. Pressure	Mpa	0.8
Hose Diameter	mm	ID/OD = 4/6

Package Dimensions

N - Nylon Gland



M - Metal Gland



Ordering Information

HPC-①①①①-②②-③③-④④④-⑤⑤-⑥⑥-⑦⑦-⑧⑧⑧-⑨-⑩⑩⑩-⑪

①①①①: Wavelength

1064 - 1064 nm

1080 - 1080 nm

②②: Handling Power

1.5 - 1500 W

02 - 2000 W

SS - Specify

③③: Beam Diameter

05 - 5 ± 1 mm

④④④: Armored Cable

08P - 8.3 mm PVC Armored Cable

SSS - Specify

⑤⑤: Cable Length

10 - 10 ± 0.2 m

SS - Specify

⑥⑥: Bare Fiber Length

02 - ≥ 2 m

SS - Specify

⑦⑦: Package Diameter

17 - 17 mm

⑧⑧⑧: Package Length

118 - 118 mm

⑨: Cladding Power Stripping (CPS)

Y - With Cladding Power Stripping

N - Without Cladding Power Stripping

⑩⑩⑩: Fiber Type

003 - BrightCore DZ027 20/400, 0.065NA

004 - BrightCore YZ035 50/400, 0.12NA

027 - BrightCore YZ001 25/400DC fiber, NA0.11/0.46

053 - YOFC, GDF_DC20/400-0.065

065- YOFC,GDF_DC-25/400,NA0.11

066- YOFC, GDF_DC 50/400-0.12

⑪: Gland Type

N - Nylon Gland

M - Metal Gland



Cavity Component for Fiber Laser (Backward) (HPCF Series)

Rev 11C

Description

The Backward pump (6+1)×1 High Power Combiner with ClearCut Fiber Bragg Grating enables highly efficient combining of the powers from up to 6 multimode pump diodes into an FBG with low insertion loss for high power fiber lasers. With AFR's ClearCut design and packaging, the devices can handle 3 kW pump power and 3 kW signal power.

Key Features

- Combiner and FBG Integrated
- Low Transmission Loss
- Exceptional Reliability

Applications

- Fiber Laser

Specifications

General Parameters

	Unit	Values
Operation Wavelength	nm	1080 ± 1
Max. Handling Signal Power	W	3000
Max. Signal Channel Insertion Loss (Total) ¹	dB	0.3
Storage Temperature	°C	- 40 to + 85
Operating Temperature	°C	0 to + 50
Cooling Bottom Plate Temperature	°C	≤ 25

Parameters for Combiner

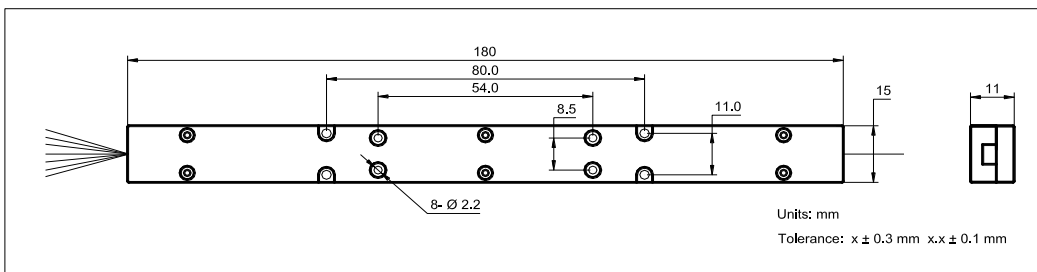
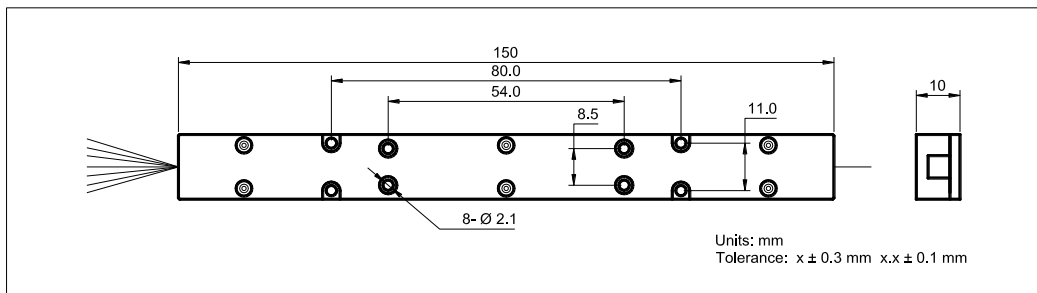
Product Type	-	Backward pump (6+1)×1
Pump Wavelength	nm	976
Fiber Type for Input (Pump Channel)	-	BrightCore MM200/220 DCF, 0.22 NA
Fiber Type for Input (Signal Channel)	-	20/400 DCF, 0.065 NA
Fiber Type for Output (Signal Channel)	-	Customization
Min. Pump Efficiency	%	97
Max. Input Signal Power	W	3000
Max. Input Pump Power	W	6 × 500
Max. Backward Power Handling	W	300
Package Dimensions Pump Power < 3 kW	mm	150 (L) × 15 (W) × 10 (H)
Pump Power ≥ 3 kW		180 (L) × 15 (W) × 11 (H)

Parameters for FBG (OC)

Fiber Type	-	20/400 DCF, 0.065 NA
Peak Reflectivity	%	(5.0 - 30.0) ± 2.0
Reflection Bandwidth at 50%	nm	0.2 - 2.0
Tolerance on Reflection Bandwidth	nm	0.1 - 0.2
Min. Side Mode Suppression Ratio	dB	10
Max. Wavelength Mismatch (OC Relative HR)	nm	0.3

¹Test with 1064 nm light source.

Package Dimensions



Ordering Information

HPCF-(6+1)×1-B-①①①①-②.②-③③.③-④-⑤-⑥-⑦-⑧-P⑨⑨⑨⑨

①①①①: Operation Wavelength

1080 - 1080 nm

SSSS - Specify

②.②: Reflectivity Bandwidth FBG

1.0 - 1.0 nm OC

S.S - Specify

③③.③: Peak Reflectivity of FBG

10.0 - 10.0%

SS.S - Specify

④: Length of Input Fiber (Signal)

Q - 0.75 m

1 - 1 m

S - Specify

⑤: Length of Output Fiber (Signal)

Q - 0.75 m

1 - 1 m

S - Specify

⑥: Length of Input Fiber (Pump)

Q - 0.75 m

1 - 1 m

S - Specify

⑦: Fiber Type for Input (Signal)

1 - Nufern LMA-GDF-20/400-HP-M

2 - Brightcore 20/400DCF, 0.065 NA

⑧: Fiber Type for Output

1 - Brightcore 20/250DC, 0.075 NA

2 - Brightcore YZ035 50/400DC, 0.12 NA

S - Specify

⑨⑨⑨⑨: Pump Power

2000 - 2000 W

3000 - 3000 W

SSSS - Specify



Cavity Component for Fiber Laser (Forward) (HPCF Series)

Rev 11C

Description

The (6+1)×1 High Power Combiner with ClearCut Fiber Bragg Grating enables highly efficient combining of the powers from up to 6 multimode pump diodes into an FBG with low insertion loss for high power fiber lasers. With AFR's ClearCut design and packaging, the devices can handle 3 kW pump power and 3 kW signal power.

Key Features

- Combiner and FBG Integrated
- Low Transmission Loss
- Exceptional Reliability

Applications

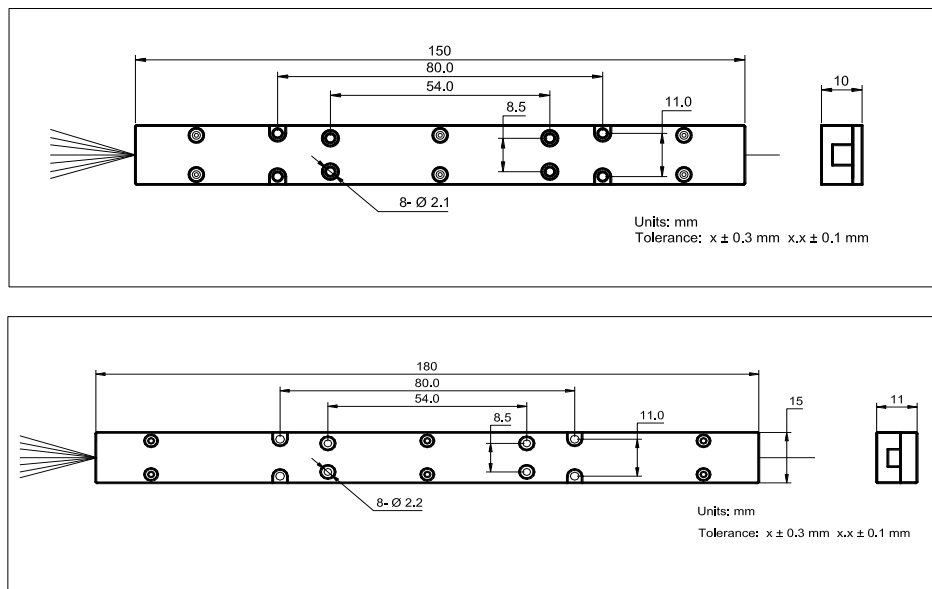
- Fiber Laser

Specifications

General Parameters	Unit	Values
Operation Wavelength	nm	1080 ± 1
Max. Handling Signal Power	W	3000
Max. Signal Channel Insertion Loss (Total) ¹	dB	1.0
Storage Temperature	°C	- 40 to + 85
Operating Temperature	°C	0 to + 50
Cooling Bottom Plate Temperature	°C	≤ 25
Parameters for Combiner		
Product Type		(6+1)×1
Pump Wavelength	nm	976
Fiber Type for Input (Pump Channel)	-	BrightCore MM200/220 DCF, 0.22 NA
Fiber Type for Input (Signal Channel)	-	Customization
Fiber Type for Output (Signal Channel)	-	20/400 DCF, 0.065 NA
Min. Pump Efficiency	%	97
Max. Input Pump Power	W	6 × 500
Package Dimensions Pump Power < 3 kW	mm	150 (L) × 15 (W) × 10 (H)
Pump Power ≥ 3 kW	mm	180 (L) × 15 (W) × 11 (H)
Parameters for FBG (HR)		
Fiber Type	-	20/400 DCF, 0.065 NA
Peak Reflectivity	%	≥ 99.0
Reflection Bandwidth at 95%	nm	1.5 - 4.0
Tolerance on Reflection Bandwidth	nm	0.1 - 0.4
Min. Side Mode Suppression Ratio	dB	20
Max. Wavelength Mismatch (OC Relative HR)	nm	0.3

¹Test with 1064 nm light source.

Package Dimensions



Ordering Information

HPCF-(6+1)×1-①①①①-②.②-③③.③-④-⑤-⑥-⑦-⑧-P⑨⑨⑨⑨

①①①①: Operation Wavelength

1080 - 1080 nm

SSSS - Specify

②.②: Reflectivity Bandwidth FBG

3.0 - 3.0 nm HR

S.S/S.S - Specify

③③.③: Peak Reflectivity of FBG

99.0 - 99.0%

SS.S - Specify

④: Length of Input Fiber (Signal)

Q - 0.75 m

1 - 1 m

S - Specify

⑤: Length of Output Fiber (Signal)

Q - 0.75 m

1 - 1 m

S - Specify

⑥: Length of Input Fiber (Pump)

Q - 0.75 m

1 - 1 m

S - Specify

⑦: Fiber Type for Input (Signal)

1 - Brightcore 20/250 DC, 0.075 NA

2 - Brightcore 25/250 DC, 0.07 NA

S - Specify

⑧: Fiber Type for Output

1 - Nufern LMA-GDF-20/400-HP-M, 0.065 NA

2 - Brightcore 20/400DCF, 0.065 NA

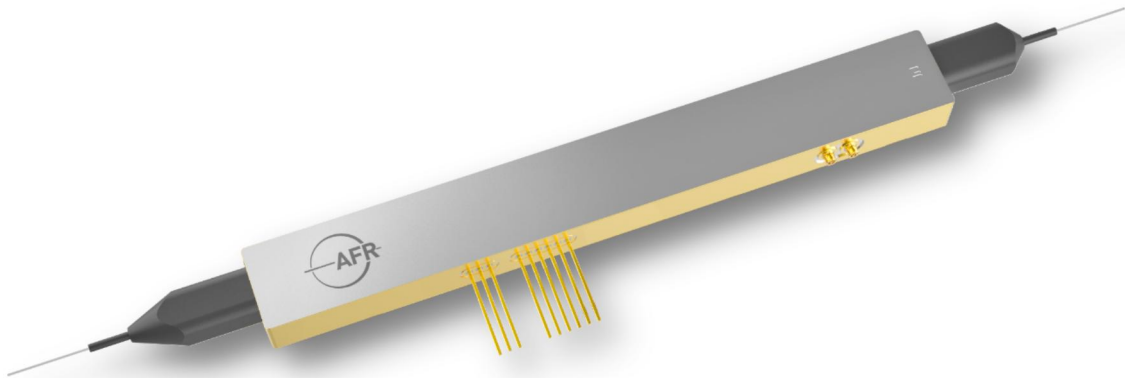
⑨⑨⑨⑨: Pump Power

2000 - 2000 W

3000 - 3000 W

SSSS - Specify

C-Band 20 GHz x 2 IQ Modulator 40G-IQ



AFR 40 GHz QPSK modulator design is based on a dual parallel structure of two Mach-Zehnder modulators (DP-MZM) embedded in a Mach Zehnder Super-Structure. Each internal modulator is designed to have EO bandwidth above 20 GHz. Monitor photodiode is provided for automatic bias control (ABC).

Key Features

- Nested Mach-Zehnder Modulators
- X-Cut Lithium Niobate
- Operating at 1525 - 1570 nm
- High Bandwidth operating > 30 GHz
- High Extinction Ratio
- Low Optical Insertion Loss
- Excellent Linearity

Applications

- OFDM Coding
- QPSK Coding
- QAM Coding
- CS-SSB (Carrier Suppressed Single Side Band)
- FMCW LiDAR

Absolute Maximum Ratings

Parameters	Operating Conditions ⁽¹⁾	Min.	Max.	Unit
Maximum Input Power (Electrical)	RF port AC coupled	-	10	V _{pk-pk}
Maximum Input Power (Optical)	CW	-	100	mW
DC Voltage at DC Port	-	- 40	40	V
Monitor Photodiode Reverse Current	-	-	< 2	mA
Monitor Photodiode Forward Current	-	-	< 10	mA
Monitor Photodiode Reverse Voltage	-	-	< 15	V
Operating Case Temperature	-	- 5	+ 75	°C
Maximum T _{op} Variation Rate	-	-	5	°C/min
Storage Temperature	-	-	+ 85	°C
Operating Humidity	Non-Condensing	5	85	%
Leads Soldering Temperature	-	-	250	°C
Leads Soldering Time	-	-	10	s

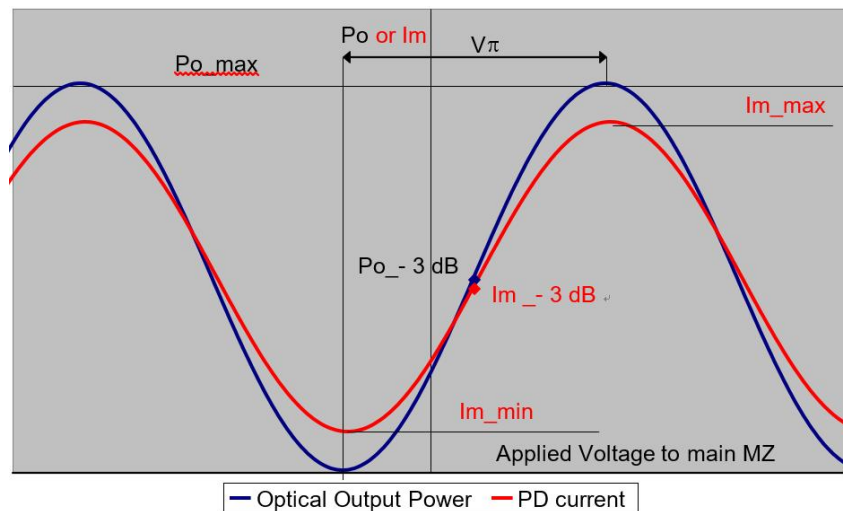
Specifications

Characterisitcs	Operating Conditions ⁽¹⁾	Min	Typical	Max	Unit
Optical					
Operating Wavelength Range	-	1525	-	1570	nm
Insertion Loss ⁽²⁾	EOL, - 5 to + 75 °C, over C-Band	-	5.0	7.0	dB
Phase-MZI Optical Extinction Ratio	Measured @ DC	24	-	-	dB
RF-MZI Optical Extinction Ratio	Measured @ DC	24	29	-	dB
Polarization Extinction Ratio	-	20	-	-	dB
Optical Return Loss	Input & Output	40	-	-	dB
Electrical RF Ports					
RF-MZI V _π	@ 1 kHz	-	5.0	7.0	V
RF-MZO - 3 dB E/O Bandwidth	wrt. 2 GHz	20	23	-	GHz
RF-MZI S ₂₁ Flatness	300 MHz - 20 GHz	- 1	-	1	dB
Amplitude difference between RF-MZIs (Difference between S _{21s})	-	- 1	-	1	dB
RF Delay between RF-MZIs	-	- 5	-	5	ps
RF-MZI Electrical Return Loss S11	40 MHz - 17 GHz	10	12	-	dB
	17 GHz - 30 GHz	8	10	-	

C-band 40 GHz QPSK (IQ) LiNbO₃ Modulator

Characterisitcs	Operating Conditions ⁽¹⁾	Min	Typical	Max	Unit
Electrical Bias Ports ⁽⁴⁾					
RF MZI Bias V_{π} Voltage	@ 1 kHz	-	7	8	V
Phase MZI Bias V_{π} Voltage	@ 1 kHz	-	7	8	V
RF and Phase MZI Bias V_{π} Voltage variation over Wavelength	C-Band wrt 1550 nm	- 5	-	5	%
Bias Port Impedance	@ DC	1	-	-	MΩ
Monitor Photodiode ⁽⁵⁾					
Responsivity ⁽⁶⁾	-	20	-	120	mA/W
Linearity	-	- 10	-	10	%
Phase Error ⁽⁷⁾⁽⁸⁾	PD is not inverting	- 5	-	5	Degree

- (1) $T_{op} = 25^{\circ}\text{C}$, BOL, wavelength at 1550 m, unless otherwise specified.
- (2) Insertion loss has to be measured at the maximum of the modulator's transfer function, and exclude connectors
- (3) Test set up to be agreed.
- (4) Each bias section has two control pins: to ensure EOL bias voltage range, during operation, bias electrode of all MZs should be supplied with differential voltage.
- (5) Single PD monitors overall output.
- (6) PD responsivity definition (see also picture below)
- Inner MZs set to maximum transmission.
 - The voltage is applied to the outer (phase) MZ
 - Responsivity: $R = (I_{m_ - 3\text{ dB}}) / (P_{out_ - 3\text{ dB}})$
 - $I_{m_ - 3\text{ dB}}$ is the photodiode current when output optical power is - 3 dB from maximum.
 - $P_{out_ - 3\text{ dB}}$ is the output optical power at - 3 dB from maximum.

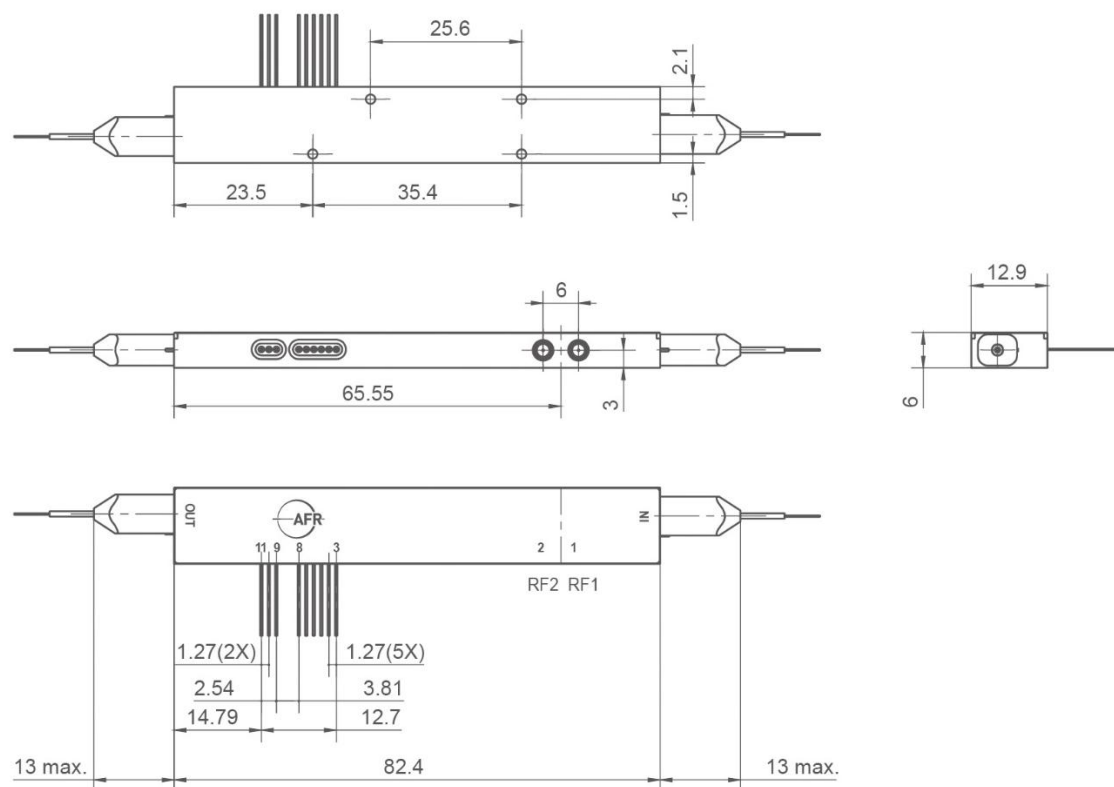


- (7) The PD phase error is the difference (in modulator phase) between the maximum/minimum of the PD output and the maximum/minimum of the modulator optical output.
- (8) PD phase error of $\pm 5^{\circ}$ correspond to a phase error of $\pm 2.8\%$.

Pin-Out and Fiber Specifications

RF Connector	SMPM male
Bias Ports	DC pins
Input Fiber	Polarization Maintaining Fiber, PMF - Panda (Corning/Fujikura PM15-U25D), 900 μm loose tube, > 1.5 m
Output Fiber	Polarization Maintaining Fiber, PMF - Panda (Corning/Fujikura PM15-U25D), 900 μm loose tube, > 1.5 m
Minimum Bending Radius of Fiber	15 mm

Mechanical Outline



All dimension measured in mm.

Pin-Out Information

Pin	Name/Description	Note	Pin	Name/Description	Note
1	RF. 1	RF Input (SMPM male)	7	Bias PH+	Bias Phase +V
2	RF. 2	RF Input (SMPM male)	8	Bias PH-	Bias Phase -V
3	BIAS 2+	Bias wrt RF.2 +V	9	PD Cathode	-ve
4	BIAS 2-	Bias wrt RF.2 -V	10	PD Anode	+ve
5	BIAS 1+	Bias wrt RF.1 +V	11	GND	Ground
6	BIAS 1-	Bias wrt RF.1 -V			

Note: The pin# 3&4, 5&6, 7&8 pin pair doesn't need to be exact as above table, but any pin pair just need to be of opposite voltage.

Electrostatic Discharge (ESD)

Caution : Use of controls or adjustments or performance of procedures other than those specified herein may result in electrical component failure.



RoHS Compliance

AFR is fully committed to environment protection and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substrates from all of its products. This product is RoHS compliant.

Reliability Requirements

This modulator is designed to meet Telcordia GR-468-Core requirements and hermetically sealed.

C-band 40 GHz QPSK (IQ) LiNbO₃ Modulator

Ordering Information:

For more information on this product, optional optical connectors and their availability, please contact your local AFR account manager or AFR directly at sales@fiber-resources.com.

Product Description	Part Number
40G QPSK, C-Band 40 GHz QPSK (IQ) LiNbO ₃ Modulator (PM fiber, 900 µm loose tube, > 1.5 m, no connectors)	792001590



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Tel: + 852 24932026

E-mail: sales@fiber-resources.com

1060 nm Extended Temperature Phase Modulator (PM0.2/2.5/10-1060-XT)



Revision History		
Rev	Rev Date	Description of Change
01	4/2023	Preliminary product specification
02	1/2024	Modify the requirement of label information
03	3/2024	Update the SPEC format

AFR broadband phase modulators combine high linearity with low driving voltage and small footprint, covering the modulation bandwidth up to 10 GHz, and wavelength range of 1025 - 1090 nm.

Key Features

- Operating at wavelength range of 1025 - 1090 nm
- Low drive voltage compatible with commercially available driver
- Low optical insertion loss
- Extended operating temperature from -55 to +85 °C

Applications

- Ultra-fast high-power laser
- Frequency shifting
- Phase shifting
- Laser linewidth broadening
- Laser beam combining

Absolute Maximum Ratings

Parameters	Symbol	Min.	Max.	Unit
RF Input Power	EP _{in}	-	33	dBm
Optical Input Power	OP _{in}	-	25	dBm
Operating Temperature	T _{op}	- 55	+ 85	°C
Storage Temperature	T _{st}	- 55	+ 85	°C
Operating Humidity	RH	5	85	%

Specifications

Parameters	Symbol	Conditions	Min.	Typical	Max.	Unit
Optical						
Operating Wavelength	λ	-	1025	-	1090	nm
Insertion Loss ¹ (W/O Connector)	IL	Standard	-	2.5	3.0	dB
		Premium	-	1.5	2.0	
Optical Return Loss	RL	-	40	-	-	dB
Polarization Dependent Loss ²	PDL	-	20	-	-	dB
Polarization Extinction Ratio ³	PER	-	20	-	-	dB
Electrical						
Electro-Optic Bandwidth ⁴	S ₂₁	PM0.2-1060-XT	0.2	-	-	GHz
		PM2.5-1060-XT	2.5	-	-	
		PM10-1060-XT	10	-	-	
S ₂₁ Ripple ⁴	ΔS_{21}	-	-	0.5	1.0	dB
Electrical Return Loss	S ₁₁	-	-	-	- 10	dB
V _{π} Voltage ⁴	V _{π}	@ 1 kHz	-	-	2	V
RF Input Impedance	Z _{in-RF}	-	-	50	-	Ω

¹ All specifications given at 25 °C, 1060 nm, unless differently specified. Consider an extra-loss up to 0.3 dB for each FC/APC optical connector.

² Values are measured with a polarization controller at input and an optical power meter at output.

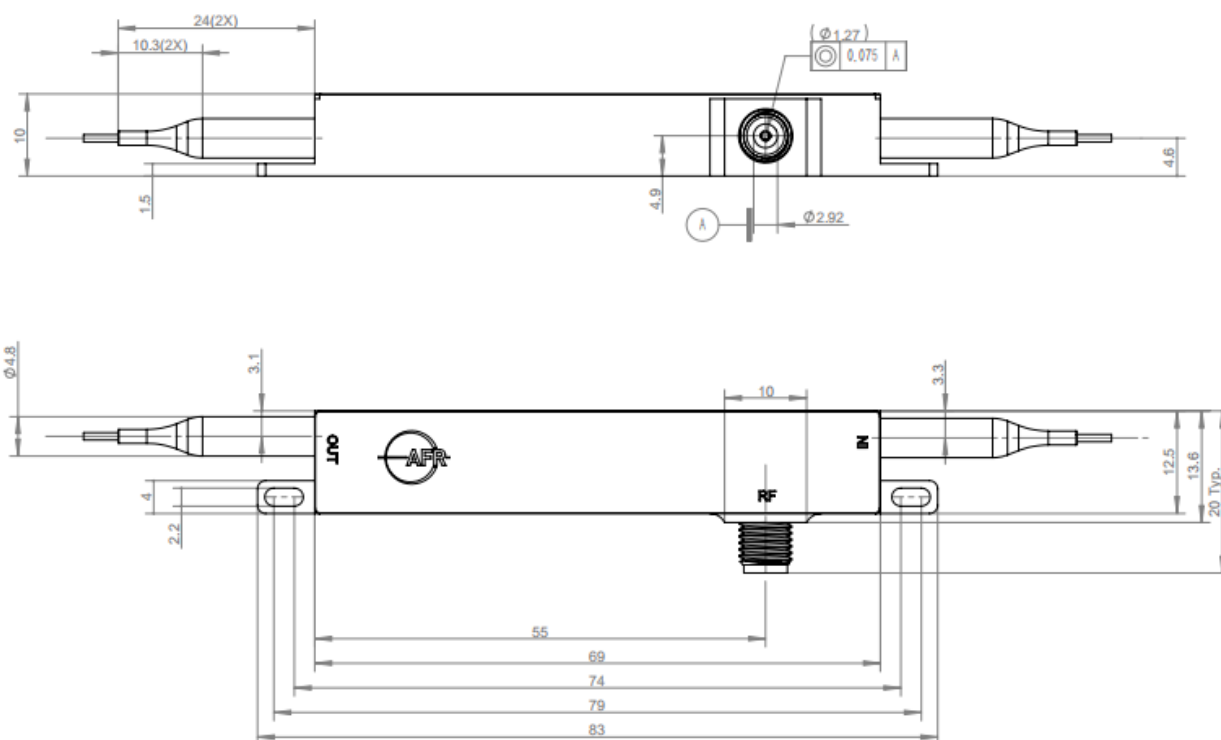
³ Values are measured with a polarization extinction ratio meter at output.

⁴ Values are measured on reference MZMs on the wafer.

Pinout and Fiber Specifications

RF Connector	2.92mm Female K-connector
Fiber Type	Corning PM98-U25D (PM980) with 900 μ m loose tube
Fiber Length	900 μ m loose tube > 1.5 m & bare fiber $\geq$ 5cm (W/O Connector)
	900 μ m loose tube > 1.4 m (With Connector)
Fiber Minimum Bending Radius	15 mm
Fiber Polarization Alignment	Slow axis for both input and output

Mechanical Outline



* All dimension measured in mm.

RoHS Compliance

This series of modulators are RoHS compliant.

Reliability Requirements

This series of modulators are designed to meet Telcordia GR-468-Core and GR-326 requirements.

Ordering Information:

For more information on this product, optional optical connectors and their availability, please contact your local AFR account manager or AFR directly at sales@fiber-resources.com

Product Description	Part Number
PM0.2-1060-XT, 1060 nm 0.2 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), 900 µm loose tube fiber > 1.5 m & bare fiber ≥ 5cm)	103076100010
PM0.2-1060-XT, 1060 nm 0.2 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), >1.4 m 900 µm loose tube fiber with FC/APC connectors)	103076100015
PM2.5-1060-XT, 1060 nm 2.5 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), 900 µm loose tube fiber > 1.5 m & bare fiber ≥ 5cm)	103076100011
PM2.5-1060-XT, 1060 nm 2.5 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), >1.4 m 900 µm loose tube fiber with FC/APC connectors)	103076100013
PM10-1060-XT, 1060 nm 10 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), 900 µm loose tube fiber > 1.5 m & bare fiber ≥ 5cm)	103076100012
PM10-1060-XT, 1060 nm 10 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), >1.4 m 900 µm loose tube fiber with FC/APC connectors)	103076100014
PM0.2-1060-XT, Premium 1060 nm 0.2 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), 900 µm loose tube fiber > 1.5 m & bare fiber ≥ 5cm)	103076100016
PM0.2-1060-XT, Premium 1060 nm 0.2 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), >1.4 m 900 µm loose tube fiber with FC/APC connectors)	103076100017
PM2.5-1060-XT, Premium 1060 nm 2.5 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), 900 µm loose tube fiber > 1.5 m & bare fiber ≥ 5cm)	103076100018
PM2.5-1060-XT, Premium 1060 nm 2.5 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), >1.4 m 900 µm loose tube fiber with FC/APC connectors)	103076100019
PM10-1060-XT, Premium 1060 nm 10 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), 900 µm loose tube fiber > 1.5 m & bare fiber ≥ 5cm)	103076100020
PM10-1060-XT, Premium 1060 nm 10 GHz LiNbO ₃ Phase Modulator (Corning PM98-U25D, flame retardant (compliant V0), >1.4 m 900 µm loose tube fiber with FC/APC connectors)	103076100021

Data Report Requirements

Supply the final inspection report (FIR) with the following information:

- Supplier part number and serial number
- Serial number barcode
- Specification and revision number
- Shipping number
- Product type
- V_π Voltage @ 1kHz
- PER
- IL
- S
- Test wavelength
- Test temperature

Modulator Label Information

The label information should contain:

- Supplier part number and serial number
- Serial number barcode
- Specification and revision number
- Input port location sign
- Output port location sign
- RF location sign

Label template as below:

OUT		1060 nm Extended Temperature Phase Modulator (PM10-1060-XT)		RF
		PN: XXXXXXXXXXXXX Spec: Z0004 Rev.: 03	SN: XXXXXXXXX	
OUT		1060 nm Extended Temperature Phase Modulator (PM2.5-1060-XT)		RF
		PN: XXXXXXXXXXXXX Spec: Z0004 Rev.: 03	SN: XXXXXXXXX	
OUT		1060 nm Extended Temperature Phase Modulator (PM0.2-1060-XT)		RF
		PN: XXXXXXXXXXXXX Spec: Z0004 Rev.: 03	SN: XXXXXXXXX	



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Low Power Pulsed Laser

V1.0

Description

The Low Power Pulsed Laser series is a 1550 nm eye-safe LiDAR source with a MOPA architecture, offering high peak power, nanosecond pulse widths, and a wide repetition rate. Its compact, thermally-optimized design ensures reliability across a - 40 °C to + 105 °C range with low power consumption, making it ideal for LiDAR, ADAS, mapping, and 3D scanning applications.

Key Features

- Eye-Safe at 1550 nm
- High Beam Quality ($M^2 < 1.2$)
- Low Power Consumption
- Integrated Temperature Control System
- High Reliability and Stability

Applications

- ADAS
- Mapping
- Range-Detecting
- 3D Dcanning
- Fiber Sensor

Specifications

Optical Parameter	Unit	Value
Center Wavelength ¹	nm	1550
Max. Line Width (3 dB)	nm	0.2
Pulse Width (FWHM)	ns	2 - 5
Repetition Rate	MHz	0.2 - 2
Average Power (Main Output)	W	0.95 - 1.05
Peak Power	W	500 - 700
Min. OSNR	dB	35
Polarization	-	Random
Fiber Type (Main Output)	-	SMF
Fiber Length (Main Output) ²	m	0.7 - 1.3
Fiber Length (Reference) ²	m	0.7 - 1.3
Fiber Connector Type	-	FC/APC
Max. E-O Delay	ms	1.5

¹For working temperature - 40 to + 105 °C

²With 900 μm loose tube

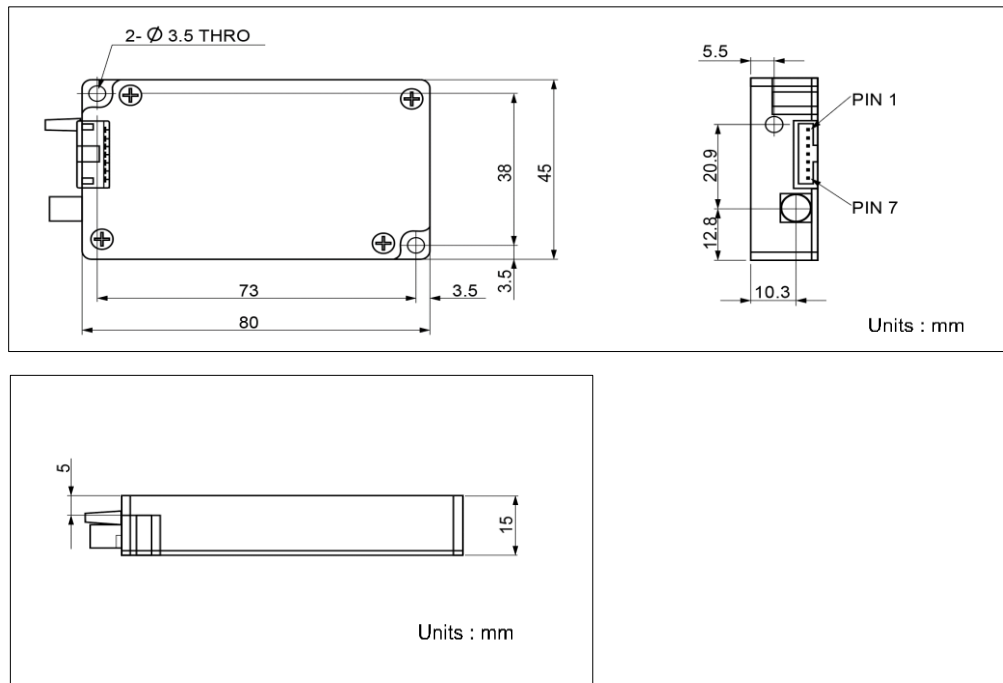
Mechanical and Electrical Parameter

Size (L × W × H)	mm ³	≤ 80 × 45 × 15
Typ. Power Consumption	W	11
Max. Power Consumption	W	12
Typ. Supply Voltage	V	12
Supply Voltage	V	9 - 13
Electrical Strength	V	500
Trigger	NA	External

Environment Requirement

Operating Case Temperature	°C	- 40 to + 105
Storage Case Temperature	°C	- 40 to + 125
Humidity	%	5 - 95
RoHS	-	Satisfy with RoHS 6

Package Dimensions



Electric Definition

PIN	Function	Details
1	VCC	+ 12 V
2	GND	-
3	GND	-
4	Tx	3.3 V-TTL, Pull-Up with 4.75 k Resistor
5	Rx	3.3 V-TTL, Pull-Up with 4.75 k Resistor
6	EN	3.3 V-TTL, Pull-Up with 4.75 k Resistor
7	NC	-

- Connector Type: 7-pin connector

Swept Tunable Laser Module

Arcadia Optronix's Swept Tunable Laser Module, based on independent intellectual property rights, featuring accurate wavelength, stable power and fast scanning speed, is widely used in fiber grating demodulation system and optical passive device test system. Under 1 GHz scanning step, it can achieve 2 kHz scanning in 40 nm range, and meanwhile, the scanning frequency can be changed by adjusting the scanning step and scanning range.

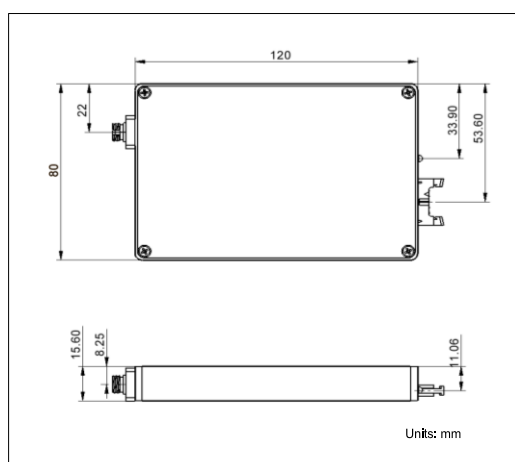
Key Features

- Wavelength Range: 1528 - 1568 nm
- Fast Sweep up to 2 kHz
- Optical Power: 20 mW
- Wavelength Stability: < 1 pm

Specifications

Parameter	Unit	Value
Wavelength Range	nm	1528 - 1568
Sweep Speed	Hz	≤ 2000
Sweep Step	GHz	≥ 1
Absolute Wavelength Accuracy	pm	< 5
Relative Wavelength Accuracy	pm	< 2
Wavelength Stability	pm	< 1
Optical Power	mW	≤ 20
Power Stability	dB	≤ 0.05
Power Flatness	dB	≤ 0.5
Side Mode Suppression Ratio	dB	≥ 40
Relative Intensity Noise	dB/Hz	< -135
Linewidth	MHz	< 5
Operating Temperature	°C	-15 to +55
Power Consumption	W	≤ 5
Dimensions	mm	120 × 80 × 15.6

Dimensions



Ordering Information

GC-76001C-①①①①-②-③

①①①①: Sweep Speed (Hz)

0 - 1

1 - 5

2 - 10

3 - 50

4 - 100

5 - 500

6 - 1000

7 - 2000

S - Customized

②: Controller Interface

T - 3.3 V TTL

R - RS232

③: Connector Type

A - FC/APC

U - FC/UPC

S - Customized