# Fiber Tip Optic Retroreflector Non-Metal

## >95% reflection

DATASHEET

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The FTIR series Fiber-Optic Tip Retroreflector is engineered to return incident light back through the fiber with maximum efficiency. It is fabricated using ultra-precision surface polishing to achieve perfect end-face parallelism, combined with a >99% dielectric high-reflectivity coating for superior return loss performance. The device is designed for demanding environments, including high electrical magnetic field environments, high-temperature operation, and supports single-mode (SM), polarization-maintaining (PM), or multimode (MM) fibers. With exceptional optical quality and no moving parts, the retroreflector delivers stable long-term performance and supports high optical power handling up to 5 W.

## Applications

- MR Scan
- CT Scan
- Fiber Interferometer
- Fiberoptic Sensor
- Fiber Instruments

## Features

- Low Insertion Loss
- High Power
- High Reliability
- Low Cost
- Environmental Stability

## Specifications

| Parameter | | Min | Typical | Max | Unit |
|---|---|---|---|---|---|
| Central Wavelength (λc) | | 630 | | 2200 | nm |
| Typical Spectral Width (Δλ) | | ± 30 | | ± 50 | nm |
| Typical Insertion Loss (λc, 23°C, no connector) | | 0.35 | | 1 | dB |
| Polarization Extinction Ratio (PM Fiber) | | 22 | | 30 | dB |
| Reflection Percentage | | 96 | | 99 | % |
| PDL (λc, 23°C) | | ≤ 0.10 | | | dB |
| Operating Temperature | Regular | -5 | | 70 | °C |
| | Rugged | -40 | | 250 | |
| Storage Temperature | | -40 | | +85 | °C |
| Optical Power Handling | | 0.2 | | 5 | W |

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## Dimensions (mm)

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

## Ordering Information (Part Number)

| | ☐ | ☐ | ☐☐ | ☐ | ☐☐ | ☐ | ☐ | ☐ |
|---|---|---|---|---|---|---|---|---|
| **Prefix** | **Type** | **Wavelength** | **Reflection** | **Outer Protection** | **Fiber Type** | **Fiber Cover** | **Fiber Length** | **Connector [1][2]** |
| **FTIR-** | Regular = 1<br>Rugged = 2<br>Special = 0 | 1064nm = 1<br>1310nm = 3<br>1550nm = 5<br>1800nm = 2<br>850nm = 8<br>780nm = 7<br>980nm = 9<br>650nm = 6<br>460nm = 4<br>Special = 0 | 98% = 98<br>10% = 10<br>20% = 20<br>99% = 99<br>Special = 00 | Non = 1<br>Ø2mm stainless tube=1<br>Special = 0 | Choose below | 0.9mm Hydrel Tube = 9<br>2mm Hydrel Tube = 2<br>3mm Hydrel Tube =3<br>Bare Fiber = 1<br>Special = 0 | 0.25m = 1<br>0.5m = 2<br>1.0m = 3<br>Special = 0 | None = 1<br>FC/PC = 2<br>FC/APC = 3<br>SC/PC = 4<br>SC/APC = 5<br>ST/PC = 6<br>LC/PC = 7<br>LC/UPC = U<br>Special = 0 |

[1]. Regular fiber connector has PER ~22dB. Connector with PER >27 dB is available using special process

[2]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

***Fiber Type Selection Table:***

| | | | | | |
|---|---|---|---|---|---|
| 01 | SMF-28 | 34 | PM1550 | 71 | MM 50/125µm |
| 02 | SMF-28e | 35 | PM1950 | 72 | MM 62.5µm |
| 03 | Corning XB | 36 | PM1310 | 73 | 105/125µm |
| 04 | SM450 | 37 | PM400 | 74 | FG105LCA |
| 05 | SM1950 | 38 | PM480 | 75 | FG50LGA |
| 06 | SM600 | 39 | PM630 | 76 | STP 50/125 |
| 07 | Hi780 | 40 | PM850 | 80 | Polyimide SM28 |
| 08 | SM800 | 41 | PM980 | 81 | Polyimide PM1550 |
| 09 | SM980 | 42 | PM780 | 82 | Polyimide 50/125 |
| 10 | Hi1060 | 43 | PM350 | 83 | Polyimide 105/125 |



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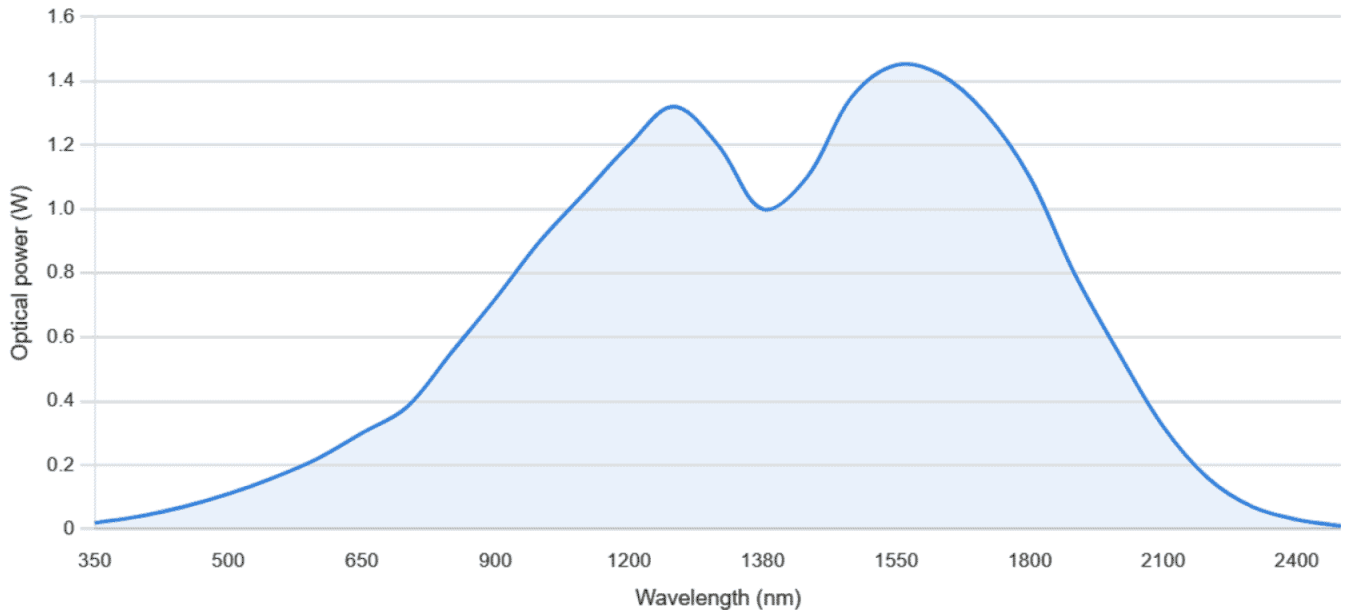
### Regular Single Mode / Polarization Maintaining Fiber Optical Power Handing vs Wavelength




Single mode fiber optical power is limited by nonlinear effects in addition to absorption that increase loss and generate heat. The curve shows the approximate safe CW power envelope for standard single-mode fiber. Actual limits depend on fiber design, core size, length, and laser characteristics. Specialty fibers can significantly increase the power limit.

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