

# DFT Series Fiber Photoelectric Amplifiers



## Compact rectangular plastic DIN-rail mount with Teach function - DC

- DIN-rail mounting
- Bargraph signal-strength indicator
- NPN or PNP, Light-on/Dark-on selectable outputs
- Red LED with visible spot
- IP64 rated



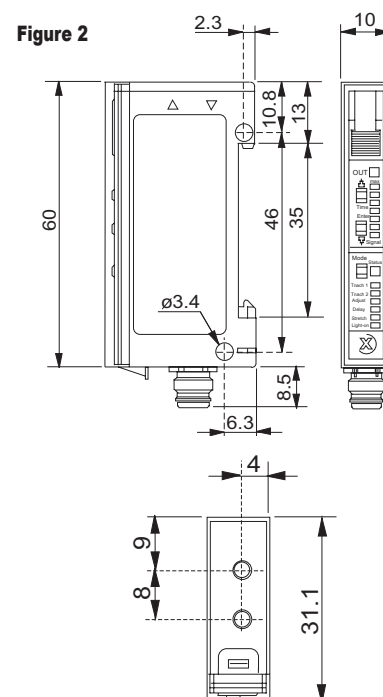
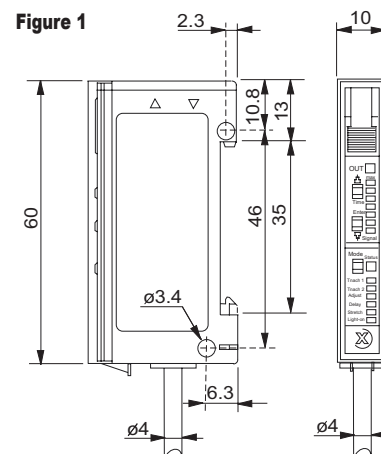
| DFT Series Fiber Photoelectric Amplifier Selection Chart |          |                            |                         |       |                         |           |            |
|----------------------------------------------------------|----------|----------------------------|-------------------------|-------|-------------------------|-----------|------------|
| Part Number                                              | Price    | Sensing Range              | Output State            | Logic | Connection              | Wiring    | Dimensions |
| <a href="#">DFT-AN-1A</a>                                | \$172.00 | Optical fiber<br>Dependent | N.O./N.C.<br>selectable | NPN   | 2m [6.5 ft] axial cable | Diagram 1 | Figure 1   |
| <a href="#">DFT-AN-1F</a>                                | \$172.00 |                            |                         |       | M8 [8mm] connector      | Diagram 1 | Figure 2   |
| <a href="#">DFT-AP-1A</a>                                | \$172.00 |                            |                         | PNP   | 2m [6.5 ft] axial cable | Diagram 2 | Figure 1   |
| <a href="#">DFT-AP-1F</a>                                | \$172.00 |                            |                         |       | M8 [8mm] connector      | Diagram 2 | Figure 2   |

| Specifications                      |                                                                            |                                                                            |
|-------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Type                                | DFT-AN-1*                                                                  | DFT-AP-1*                                                                  |
| Sensing Distance                    | See Optical Fibers Table                                                   |                                                                            |
| Light Spot Diameter                 | N/A                                                                        |                                                                            |
| Emission                            | red (680nm)                                                                |                                                                            |
| Sensitivity                         | Dual Teach function                                                        |                                                                            |
| Output Type                         | NPN Light-on or Dark-on Selectable<br>Output delay or stretch programmable | PNP Light-on or Dark-on Selectable<br>Output delay or stretch programmable |
| Operating Voltage                   | 10-30VDC                                                                   |                                                                            |
| No-Load Supply Current              | ≤ 25mA                                                                     |                                                                            |
| Operating (Load) Current            | ≤ 200mA                                                                    |                                                                            |
| Off-state (Leakage) Current         | ≤ 0.1mA                                                                    |                                                                            |
| Voltage Drop                        | 2V maximum at 200mA                                                        |                                                                            |
| Switching Frequency                 | 1.5 kHz                                                                    |                                                                            |
| Ripple                              | m20%                                                                       |                                                                            |
| Time Delay Before Availability (tv) | 80ms                                                                       |                                                                            |
| Short-Circuit Protection            | Yes (switch auto-resets after overload is removed)                         |                                                                            |
| Operating Temperature               | -25 to 55°C [-13 to 131°F]                                                 |                                                                            |
| Protection Degree                   | IEC IP64                                                                   |                                                                            |
| LED Indicators -Switching Status    | Yellow (output energized)                                                  |                                                                            |
| Housing Material                    | PBT                                                                        |                                                                            |
| Lens Material                       | Acrylic                                                                    |                                                                            |
| Shock/Vibration                     | <a href="#">See terminology section</a>                                    |                                                                            |
| Tightening Torque                   | N/A                                                                        |                                                                            |
| Weight (cable/connector)            | 68g [2.39oz] / 17g [0.60oz]                                                |                                                                            |
| Connectors                          | 2m [6.5 ft] axial cable; M8 [8mm] connector                                |                                                                            |
| Agency Approvals                    | UL file E328811                                                            |                                                                            |

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

## Dimensions

(mm)



## Wiring Diagrams

Diagram 1

NPN Output

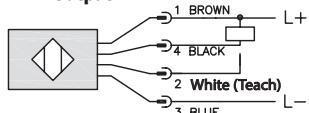
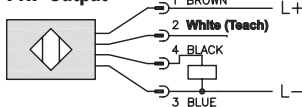


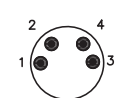
Diagram 2

PNP Output



Connector

M8 Connector



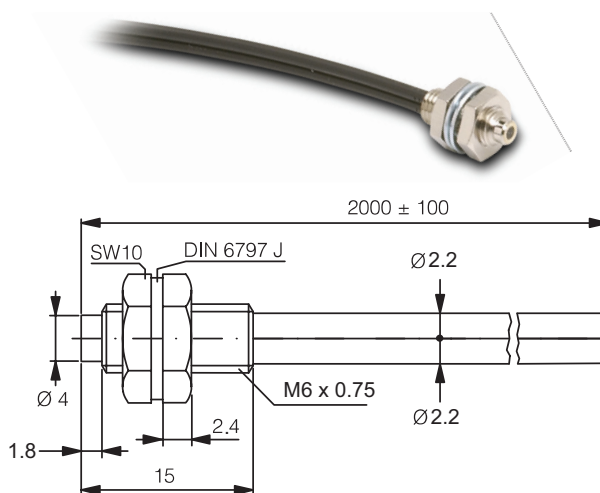
## Switching Element Function

|          | Through-beam and Reflective Models | Diffuse Reflective Models |
|----------|------------------------------------|---------------------------|
| Light-on | N.C.                               | N.O.                      |
| Dark-on  | N.O.                               | N.C.                      |

# Cuttable Optical Fibers (2.2 mm Diameter)

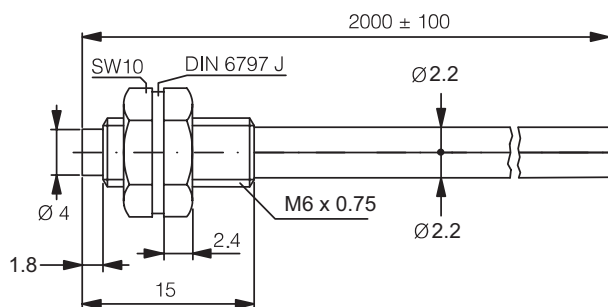
## CF-DB1-20 diffuse reflection

| CF-DB1-20 Specifications                 |                            |
|------------------------------------------|----------------------------|
| Part Number                              | CF-DB1-20                  |
| Price                                    | \$39.50                    |
| Optical Fiber Core Ø                     | 1 mm [0.039 in]            |
| Sensing Distance with DFT and DFP series | 200mm [7.87in]             |
| Fiber Length (L)                         | 2.0 m [78.74 in]           |
| Fiber Bending Radius                     | 25mm [0.98 in]             |
| Free Cut                                 | Yes                        |
| Head Size                                | M6                         |
| Thread Pitch                             | 0.75 mm                    |
| Protection Degree                        | IEC IP67                   |
| Agency Approvals                         | UL file 328811             |
| Temperature Range                        | -25 to 70°C [-13 to 158°F] |
| Fiber Materials                          | PMMA                       |
| Sleeve Materials                         | Polyethylene               |
| Head Materials                           | Nickel-plated brass        |



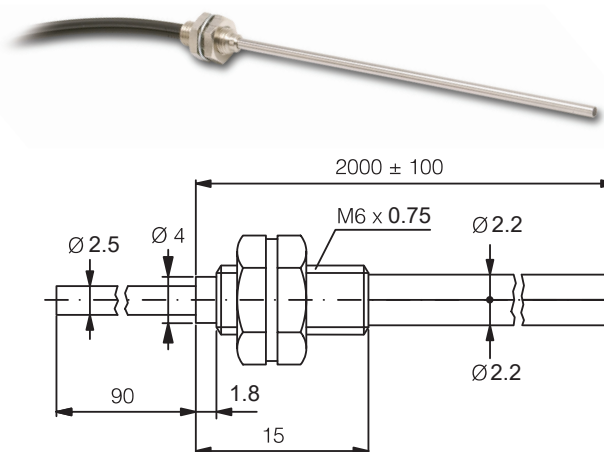
## CF-DB2-20 diffuse reflection

| CF-DB2-20 Specifications                 |                            |
|------------------------------------------|----------------------------|
| Part Number                              | CF-DB2-20                  |
| Price                                    | \$58.00                    |
| Optical Fiber Core Ø                     | 1.5 mm [0.06 in]           |
| Sensing Distance with DFT and DFP Series | 260mm [10.23 in]           |
| Fiber Length (L)                         | 2.0 m [78.74 in]           |
| Fiber Bending Radius                     | 40mm [1.57 in]             |
| Free Cut                                 | Yes                        |
| Head Size                                | M6                         |
| Thread Pitch                             | 0.75 mm                    |
| Protection Degree                        | IEC IP67                   |
| Agency Approvals                         | UL file 328811             |
| Temperature Range                        | -25 to 70°C [-13 to 158°F] |
| Fiber Materials                          | PMMA                       |
| Sleeve Materials                         | Polyethylene               |
| Head Materials                           | Nickel-plated brass        |



## CF-DB3-20 diffuse reflection

| CF-DB3-20 Specifications                 |                            |
|------------------------------------------|----------------------------|
| Part Number                              | CF-DB3-20                  |
| Price                                    | \$63.00                    |
| Optical Fiber Core Ø                     | 1 mm [0.039 in]            |
| Sensing Distance with DFT and DFP Series | 200 mm [7.87 in]           |
| Fiber Length (L)                         | 2.0 m [78.74 in]           |
| Fiber Bending Radius                     | 25 mm [0.98 in]            |
| Bendable light-outlet tube               | Yes, 25mm [0.98 in] radius |
| Free Cut                                 | Yes                        |
| Head Size                                | M6                         |
| Thread Pitch                             | 0.75 mm                    |
| Protection Degree                        | IEC IP67                   |
| Agency Approvals                         | UL file 328811             |
| Temperature Range                        | -25 to 70°C [-13 to 158°F] |
| Fiber Materials                          | PMMA                       |
| Sleeve Materials                         | Polyethylene               |
| Head Materials                           | Nickel-plated brass        |

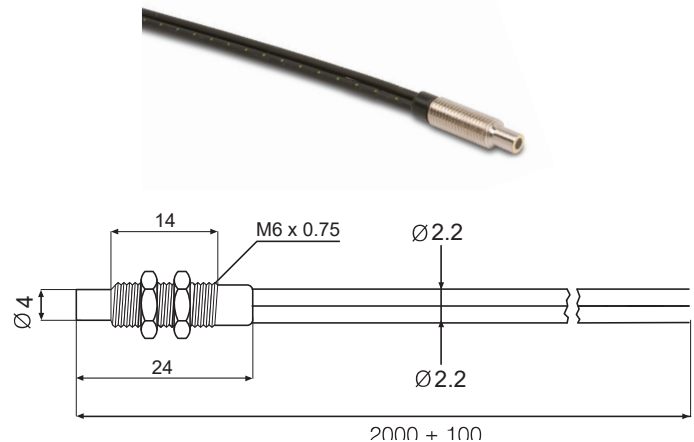


# Cuttable Optical Fibers (2.2 mm Diameter)

## CF-CB1-20 diffuse reflection

### CF-CB1-20 Specifications

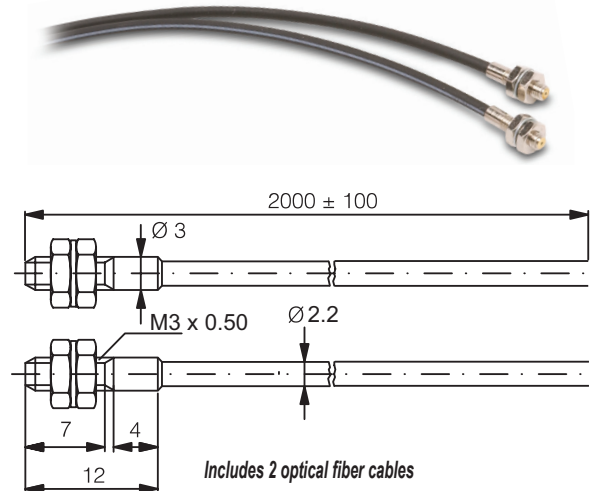
|                                         |                            |
|-----------------------------------------|----------------------------|
| <b>Part Number</b>                      | CF-CB1-20                  |
| <b>Price</b>                            | \$29.00                    |
| <b>Optical Fiber Core Ø</b>             | 1mm [0.039 in]             |
| <b>Sensing Distance with SSF Series</b> | 50mm [1.97 in]             |
| <b>Fiber Length (L)</b>                 | 2.0 m [78.74 in]           |
| <b>Fiber Bending Radius</b>             | 25mm [0.98 in]             |
| <b>Free Cut</b>                         | Yes                        |
| <b>Head Size</b>                        | M6                         |
| <b>Thread Pitch</b>                     | 0.75 mm                    |
| <b>Protection Degree</b>                | IEC IP67                   |
| <b>Temperature Range</b>                | -40 to 70°C [-40 to 158°F] |
| <b>Fiber Materials</b>                  | PMMA                       |
| <b>Sleeve Materials</b>                 | Polyethylene               |
| <b>Head Materials</b>                   | Nickel-plated brass        |



## CF-TB1-20 through-beam

### CF-TB1-20 Specifications

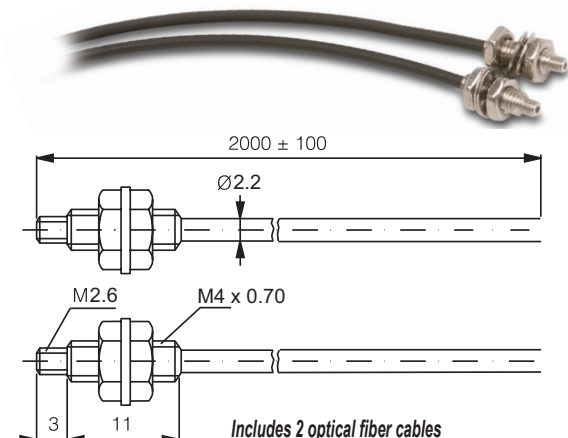
|                                                 |                            |
|-------------------------------------------------|----------------------------|
| <b>Part Number</b>                              | CF-TB1-20                  |
| <b>Price</b>                                    | \$39.50                    |
| <b>Optical Fiber Core Ø</b>                     | 0.5 mm [0.02 in]           |
| <b>Sensing Distance with DFT and DFP Series</b> | 200mm [7.87 in]            |
| <b>Fiber Length (L)</b>                         | 2.0 m [78.74 in] ea. piece |
| <b>Fiber Bending Radius</b>                     | 25mm [0.98 in]             |
| <b>Free Cut</b>                                 | Yes                        |
| <b>Head Size</b>                                | M3                         |
| <b>Thread Pitch</b>                             | 0.5 mm                     |
| <b>Protection Degree</b>                        | IEC IP67                   |
| <b>Agency Approvals</b>                         | UL file 328811             |
| <b>Temperature Range</b>                        | -25 to 70°C [-13 to 158°F] |
| <b>Fiber Materials</b>                          | PMMA                       |
| <b>Sleeve Materials</b>                         | Polyethylene               |
| <b>Head Materials</b>                           | Nickel-plated brass        |



## CF-TB2-20 through-beam

### CF-TB2-20

|                                                 |                            |
|-------------------------------------------------|----------------------------|
| <b>Part Number</b>                              | CF-TB2-20                  |
| <b>Price</b>                                    | \$39.50                    |
| <b>Optical Fiber Core Ø</b>                     | 1mm [0.039 in]             |
| <b>Sensing Distance with DFT and DFP Series</b> | 700mm [27.56 in]           |
| <b>Fiber Length (L)</b>                         | 2.0 m [78.74 in] ea. piece |
| <b>Fiber Bending Radius</b>                     | 25mm [0.98 in]             |
| <b>Free Cut</b>                                 | Yes                        |
| <b>Head Size</b>                                | M4                         |
| <b>Thread Pitch</b>                             | 0.7 mm                     |
| <b>Protection Degree</b>                        | IEC IP67                   |
| <b>Agency Approvals</b>                         | UL file E328811            |
| <b>Temperature Range</b>                        | -25 to 70°C [-13 to 158°F] |
| <b>Fiber Materials</b>                          | PMMA                       |
| <b>Sleeve Materials</b>                         | Polyethylene               |
| <b>Head Materials</b>                           | Nickel-plated brass        |

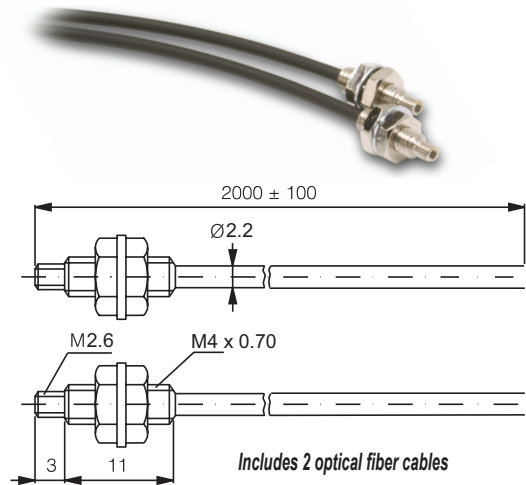


# Cuttable Optical Fibers (2.2 mm Diameter)

## CF-TB3-20 through-beam

### CF-TB3-20 Specifications

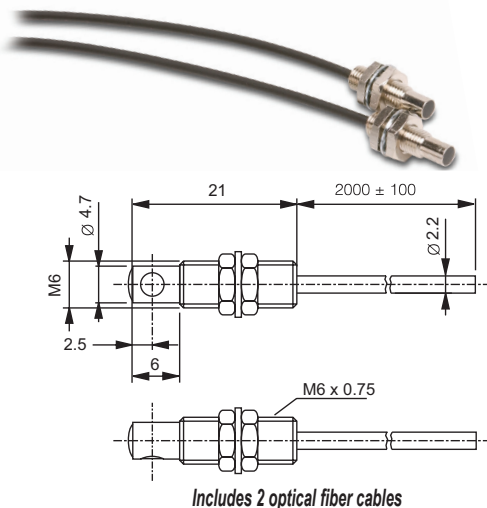
|                                          |                            |
|------------------------------------------|----------------------------|
| Part Number                              | CF-TB3-20                  |
| Price                                    | \$63.00                    |
| Optical Fiber Core Ø                     | 1.5 mm [0.06 in]           |
| Sensing Distance with DFT and DFP Series | 900mm [35.43 in]           |
| Fiber Length (L)                         | 2.0 m [78.74 in] ea. piece |
| Fiber Bending Radius                     | 40mm [1.57 in]             |
| Free Cut                                 | Yes                        |
| Head Size                                | M4                         |
| Thread Pitch                             | 0.7 mm                     |
| Protection Degree                        | IEC IP67                   |
| Agency Approvals                         | UL file E328811            |
| Temperature Range                        | -25 to 70°C [-13 to 158°F] |
| Fiber Materials                          | PMMA                       |
| Sleeve Materials                         | Polyethylene               |
| Head Materials                           | Nickel-plated brass        |



## CF-TB4-20 90° through-beam

### CF-TB4-20 Specifications

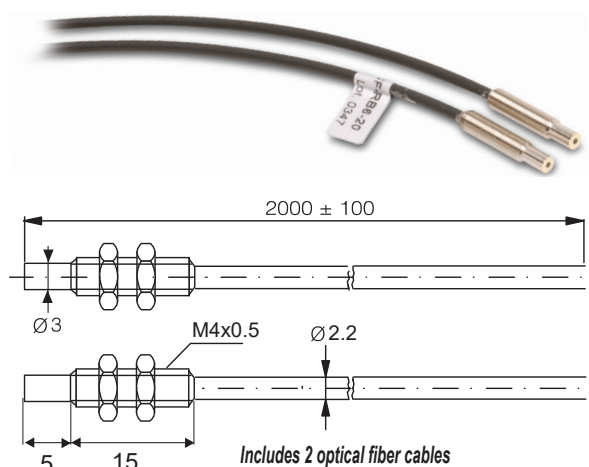
|                                          |                            |
|------------------------------------------|----------------------------|
| Part Number                              | CF-TB4-20                  |
| Price                                    | \$79.00                    |
| Optical Fiber Core Ø                     | 1.0 mm [0.039 in]          |
| Sensing Distance with DFT and DFP Series | 1800mm [70.87 in]          |
| Fiber Length (L)                         | 2.0 m [78.74 in] ea. piece |
| Fiber Bending Radius                     | 25mm [0.98 in]             |
| Free Cut                                 | Yes                        |
| Head Size                                | M6                         |
| Thread Pitch                             | 0.75 mm                    |
| Protection Degree                        | IEC IP67                   |
| Agency Approvals                         | UL file E328811            |
| Temperature Range                        | -25 to 70°C [-13 to 158°F] |
| Fiber Materials                          | PMMA                       |
| Sleeve Materials                         | Polyethylene               |
| Head Materials                           | Nickel-plated brass        |



## CF-RB6-20 through beam

### CF-RB6-20 Specifications

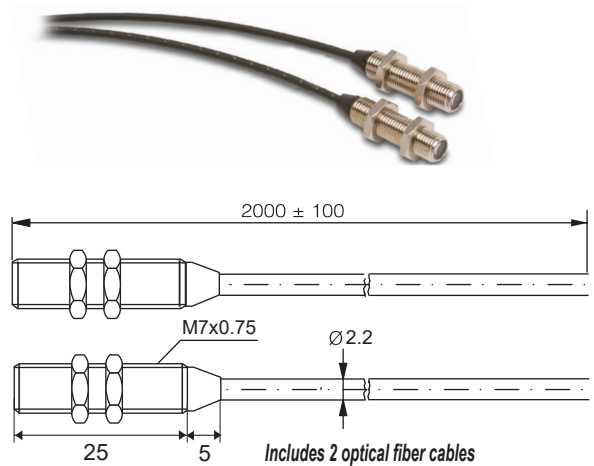
|                                  |                            |
|----------------------------------|----------------------------|
| Part Number                      | CF-RB6-20                  |
| Price                            | \$29.00                    |
| Optical Fiber Core Ø             | 1.0 mm [0.039 in]          |
| Sensing Distance with SSF Series | 120mm [4.72 in]            |
| Fiber Length (L)                 | 2.0 m [78.74 in] ea. piece |
| Fiber Bending Radius             | 25mm [0.98 in]             |
| Free Cut                         | Yes                        |
| Head Size                        | M4                         |
| Thread Pitch                     | 0.50 mm                    |
| Protection Degree                | IEC IP67                   |
| Temperature Range                | -40 to 70°C [-40 to 158°F] |
| Fiber Materials                  | PMMA                       |
| Sleeve Materials                 | Polyethylene               |
| Head Materials                   | Nickel-plated brass        |



# Cuttable Optical Fibers (2.2 mm Diameter)

## CF-RBA-20 through-beam with lenses

| CF-RBA-20 Specifications         |                            |
|----------------------------------|----------------------------|
| Part Number                      | CF-RBA-20                  |
| Price                            | \$50.00                    |
| Optical Fiber Core Ø             | 1.0 mm [0.039 in]          |
| Sensing Distance with SSF series | 1200mm [47.24 in]          |
| Fiber Length (L)                 | 2.0 m [78.74 in] ea. piece |
| Fiber Bending Radius             | 25mm [0.98 in]             |
| Free Cut                         | Yes                        |
| Head Size                        | M7                         |
| Thread Pitch                     | 0.75 mm                    |
| Protection Degree                | IEC IP67                   |
| Temperature Range                | -40 to 70°C [-40 to 158°F] |
| Fiber Materials                  | PMMA                       |
| Sleeve Materials                 | Polyethylene               |
| Head Materials                   | Nickel-plated brass        |



## Characteristic Curves

