

# Through-beam Type Fiber Optic Units



## FT/GT Series PRODUCT MANUAL

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

### Icon Overview



Standard:  
Fiber optic units for general purpose



Heat-resistant:  
Fiber optic units for the high-temperature environment (-60 to 350°C)



Vacuum-resistant:  
Fiber optic units for the high-temperature (-60 to 250°C) and vacuum environment



Bending-resistant (R5):  
Fiber optic units for withstanding repeated bending



Flexible (R1, R2):  
Fiber optic units for withstanding repeated flexing

### Through-beam Type Line Up

| Head shape          |  | Standard | Heat-resistant | Vacuum-resistant | Bending-resistant | Flexible |
|---------------------|--|----------|----------------|------------------|-------------------|----------|
| Threaded head       |  | Std.     |                |                  |                   |          |
| Cylindrical head    |  | Std.     |                |                  |                   |          |
| Flat head           |  |          |                |                  |                   |          |
| L-shaped head       |  | Std.     |                |                  |                   |          |
| Molded plastic head |  | Std.     |                |                  |                   |          |
| Perp. head          |  |          |                |                  |                   |          |
| SUS head            |  | Std.     |                |                  |                   |          |
| U-shaped head       |  |          |                |                  |                   |          |
| Wide area head      |  |          |                |                  |                   |          |

### Selection Guide

△ The installation method for the fiber optic units may vary depending on the fiber optic amplifiers. Be sure to refer to the 'Product manual' of the amplifiers you are using. For detailed information on the fiber optic units, refer to the 'Fiber optic sensor guide'.

#### 00. When using the vacuum-resistant fibers

Be sure to connect with the vacuum-resistant fiber, the fiber optic coupler, and the atmospheric side fiber.

#### 01. Model name

The model name starting with 'F' indicates plastic-type optical fibers, while starting with 'G' indicates glass-type optical fibers.

#### 02. Minimum target size

The minimum detectable target came out with the maximum sensitivity setting of the BF4 series.

#### 03. Sensing distance

The sensing distance of the optical fibers varies depending on the testing environments of each amplifier. Apply 10% of the BF4R□-□ sensing distance to the fiber optic amplifiers BF4G□-□ model.

Errors in the sensing distance may occur due to the sensing environment as below.

- Fiber optic units: Bend radius of cable, condition of cutting surface, amplifier insertion depth, etc.
- Detectable objects: Material, shape or inclination, bending, gloss, etc.

#### 04. FREE CUT

Be sure to cut the cable using the provided fiber cutter (FC-3) for FREE CUT type models.

#### 05. Adapter

Be sure to connect the provided adapter for the adapter-compatible models. When checking the product components or ordering the sold separately, refer to the marks below.

- : It is possible to use the Product Components and the adapter (sold separately).
- : Only the adapter included with the product is available and cannot be purchased separately.
- : The adapter is not supported.

#### 06. Dimensions

For detailed information on the drawings and dimensions, follow the Autonics website.

### Product Components

- Fiber optic units
- Adapter (for Adapter-compatible model)
- Fiber cutter (for FREE CUT type model)

### Sold Separately

- Included items for the vacuum-resistant fiber
  - Fiber optic coupler: FU-VC□
  - Atmospheric side fiber: FU-VA□
- Lens unit for increasing sensing distance: FTL-M□□
- Fiber cutter: FC-3
- Cable protection tube: FTH-□□
- Adapter

## Threaded head: Standard

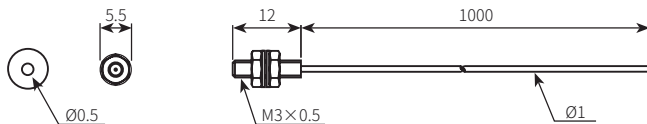
| Appearance                                                                        | Model     | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                         |                        | Adapter |
|-----------------------------------------------------------------------------------|-----------|-------------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------------------|------------------------|---------|
|                                                                                   |           | Length            | Bend radius |                     |                  | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R-□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|  | FT-310-05 | 1 m<br>(FREE CUT) | R10         | -40 to 70 °C        | Ø 0.5 mm         | U-FST                       | 45       | 55        | -                       | -                      | ●       |
|                                                                                   |           |                   |             |                     |                  | FAST                        | 75       | 95        |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | STD                         | 120      | 195       |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | LONG                        | 260      | 355       |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | U-LG / MAX.                 | 390      | 500       | 150                     | 25                     |         |
|  | FT-320-05 | 2 m<br>(FREE CUT) | R10         | -40 to 70 °C        | Ø 0.5 mm         | U-FST                       | 40       | 50        | -                       | -                      | ●       |
|                                                                                   |           |                   |             |                     |                  | FAST                        | 65       | 80        |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | STD                         | 115      | 170       |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | LONG                        | 245      | 315       |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | U-LG / MAX.                 | 360      | 425       | 150                     | 110                    |         |
|  | FT-420-10 | 2 m<br>(FREE CUT) | R25         | -40 to 70 °C        | Ø 1.0 mm         | U-FST                       | 185      | 220       | -                       | -                      | -       |
|                                                                                   |           |                   |             |                     |                  | FAST                        | 280      | 360       |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | STD                         | 475      | 715       |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | LONG                        | 1045     | 1560      |                         |                        |         |
|                                                                                   |           |                   |             |                     |                  | U-LG / MAX.                 | 1440     | 1960      | 500                     | 125                    |         |

01) When setting the maximum sensitivity for each amplifier.

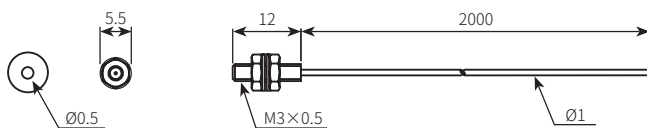
### ■ Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

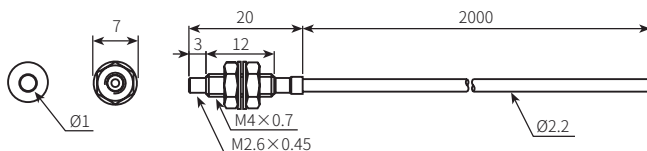
#### • FT-310-05



#### • FT-320-05



#### • FT-420-10



## Threaded head: Heat-resistant

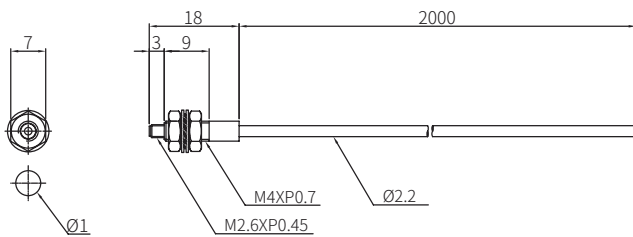
| Appearance                                                                        | Model       | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |      |          |           |                        | Adapter |
|-----------------------------------------------------------------------------------|-------------|-------------------|-------------|---------------------|------------------|-----------------------------|------|----------|-----------|------------------------|---------|
|                                                                                   |             | Length            | Bend radius |                     |                  | Mode                        | Amp. | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ <sup>01)</sup> |         |
|  | FT-420-10H  | 2 m<br>(FREE CUT) | R25         | -40 to 105 °C       | Ø 0.1 mm         | U-FST                       | 160  | 220      | -         | -                      | -       |
|                                                                                   |             |                   |             |                     |                  | FAST                        | 245  | 360      |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | STD                         | 410  | 760      |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | LONG                        | 940  | 1150     |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | U-LG / MAX.                 | 1375 | 1330     | 500       | 420                    |         |
|  | FT-420-15H1 | 2 m<br>(FREE CUT) | R35         | -40 to 150 °C       | Ø 0.2 mm         | U-FST                       | 180  | 260      | -         | -                      | -       |
|                                                                                   |             |                   |             |                     |                  | FAST                        | 280  | 410      |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | STD                         | 465  | 830      |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | LONG                        | 1070 | 1595     |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | U-LG / MAX.                 | 1515 | 2305     | 470       | 320                    |         |
|  | GT-420-13H2 | 2 m               | R25         | -40 to 250 °C       | Ø 0.15 mm        | U-FST                       | 155  | 235      | -         | -                      | -       |
|                                                                                   |             |                   |             |                     |                  | FAST                        | 235  | 370      |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | STD                         | 385  | 825      |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | LONG                        | 880  | 1510     |           |                        |         |
|                                                                                   |             |                   |             |                     |                  | U-LG / MAX.                 | 1255 | 2285     | 460       | N.A                    |         |

01) When setting the maximum sensitivity for each amplifier.

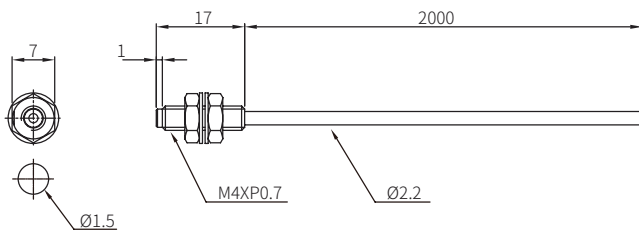
### ■ Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

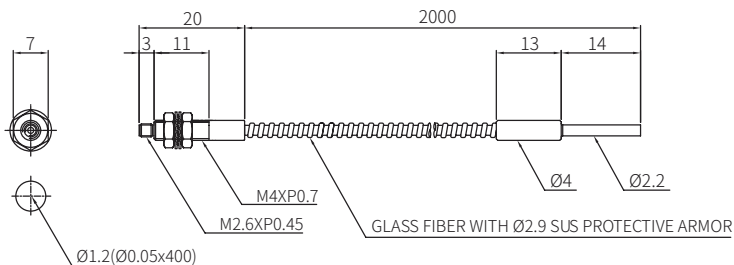
#### • FT-420-10H



#### • FT-320-15H1



#### • GT-420-13H2



## Threaded head: Vacuum-resistant

- Be sure to connect with the vacuum-resistant fiber, the fiber optic coupler, and the atmospheric side fiber.
- The sensing distance of the vacuum-resistant fiber unit is based on the installation of the atmospheric side fiber unit (FU-VA0□, sold separately).

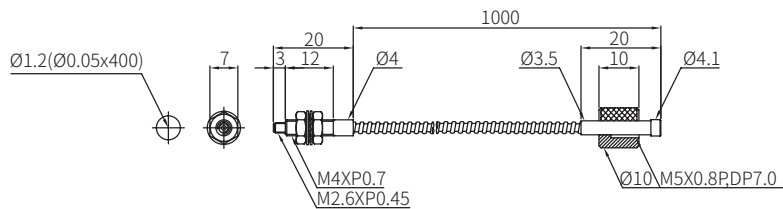
| Appearance                                                                        | Model       | Cable  |             | Ambient temperature | Min. target size         | Sensing distance (unit: mm) |          |           |                         |                        | Adapter |
|-----------------------------------------------------------------------------------|-------------|--------|-------------|---------------------|--------------------------|-----------------------------|----------|-----------|-------------------------|------------------------|---------|
|                                                                                   |             | Length | Bend radius |                     |                          | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R-□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|  | GT-410-12V2 | 1 m    | R25         | -60 to 250 °C       | Ø 0.15 mm<br>(+ FU-VA01) | U-FST                       | 80       | 130       |                         |                        | -       |
|                                                                                   |             |        |             |                     |                          | FAST                        | 120      | 210       |                         |                        |         |
|                                                                                   |             |        |             |                     |                          | STD                         | 210      | 420       |                         |                        |         |
|                                                                                   |             |        |             |                     |                          | LONG                        | 445      | 900       |                         |                        |         |
|                                                                                   |             |        |             |                     |                          | U-LG / MAX.                 | 675      | 1410      | 275                     | 220                    |         |
|                                                                                   |             |        |             |                     | Ø 0.2 mm<br>(+ FU-VA02)  | U-FST                       | 60       | 100       |                         |                        |         |
|                                                                                   |             |        |             |                     |                          | FAST                        | 100      | 170       |                         |                        |         |
|                                                                                   |             |        |             |                     |                          | STD                         | 165      | 340       |                         |                        |         |
|                                                                                   |             |        |             |                     |                          | LONG                        | 340      | 670       |                         |                        |         |
|                                                                                   |             |        |             |                     |                          | U-LG / MAX.                 | 495      | 1060      | 175                     | 165                    |         |

01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

#### • GT-410-12V2



## Threaded head: Bending-resistant

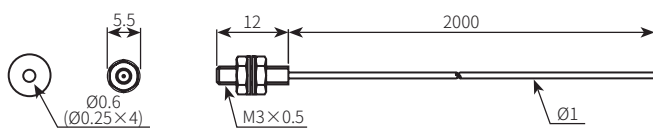
| Appearance                                                                        | Model      | Cable          |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |             |             | Adapter |
|-----------------------------------------------------------------------------------|------------|----------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------|-------------|---------|
|                                                                                   |            | Length         | Bend radius |                     |                  | Amp. Mode                   | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ 01) | BF3RX-□ 01) |         |
|  | FT-320-06B | 2 m (FREE CUT) | R5          | -40 to 60 °C        | Ø 0.3 mm         | U-FST                       | 55       | 50        | -           | -           | -       |
|                                                                                   |            |                |             |                     |                  | FAST                        | 80       | 80        |             |             |         |
|                                                                                   |            |                |             |                     |                  | STD                         | 140      | 110       |             |             |         |
|                                                                                   |            |                |             |                     |                  | LONG                        | 280      | 300       |             |             |         |
|                                                                                   |            |                |             |                     |                  | U-LG / MAX.                 | 400      | 440       | 100         | 20          |         |
|  | FT-420-13B | 2 m (FREE CUT) | R5          | -40 to 60 °C        | Ø 0.6 mm         | U-FST                       | 170      | 130       | -           | -           | -       |
|                                                                                   |            |                |             |                     |                  | FAST                        | 255      | 210       |             |             |         |
|                                                                                   |            |                |             |                     |                  | STD                         | 430      | 400       |             |             |         |
|                                                                                   |            |                |             |                     |                  | LONG                        | 975      | 950       |             |             |         |
|                                                                                   |            |                |             |                     |                  | U-LG / MAX.                 | 1465     | 1360      | 405         | 100         |         |

01) When setting the maximum sensitivity for each amplifier.

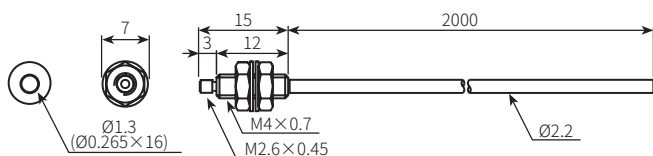
### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FT-320-06B



#### • FT-420-13B



## Threaded head: Flexible

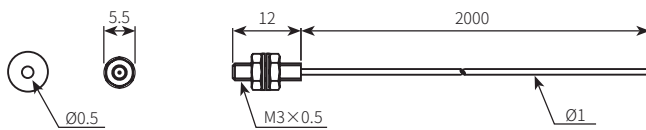
| Appearance                                                                        | Model      | Cable          |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                         |                        | Adapter |
|-----------------------------------------------------------------------------------|------------|----------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------------------|------------------------|---------|
|                                                                                   |            | Length         | Bend radius |                     |                  | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R-□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|  | FT-320-05R | 2 m (FREE CUT) | R1          | -40 to 60 °C        | Ø 0.3 mm         | U-FST                       | 20       | 40        |                         |                        | ●       |
|                                                                                   |            |                |             |                     |                  | FAST                        | 45       | 65        |                         |                        |         |
|                                                                                   |            |                |             |                     |                  | STD                         | 80       | 110       |                         |                        |         |
|                                                                                   |            |                |             |                     |                  | LONG                        | 135      | 260       |                         |                        |         |
|                                                                                   |            |                |             |                     |                  | U-LG / MAX.                 | 185      | 385       | 120                     | 10                     |         |
|  | FT-420-10R | 2 m (FREE CUT) | R1          | -40 to 60 °C        | Ø 0.5 mm         | U-FST                       | 180      | 180       |                         |                        | -       |
|                                                                                   |            |                |             |                     |                  | FAST                        | 275      | 285       |                         |                        |         |
|                                                                                   |            |                |             |                     |                  | STD                         | 455      | 500       |                         |                        |         |
|                                                                                   |            |                |             |                     |                  | LONG                        | 945      | 1120      |                         |                        |         |
|                                                                                   |            |                |             |                     |                  | U-LG / MAX.                 | 1380     | 1495      | 460                     | 60                     |         |

01) When setting the maximum sensitivity for each amplifier.

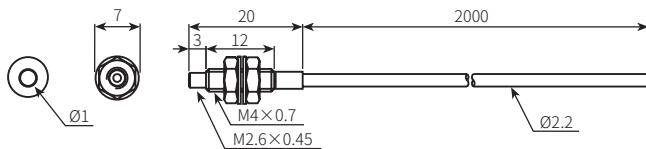
### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FT-320-05R



#### • FT-420-10R



## Cylindrical head: Standard

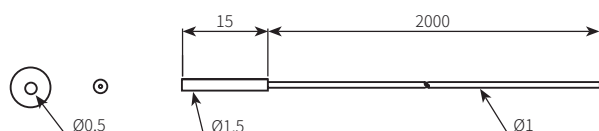
| Appearance                                                                        | Model       | Cable          |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |             |             | Adapter |
|-----------------------------------------------------------------------------------|-------------|----------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------|-------------|---------|
|                                                                                   |             | Length         | Bend radius |                     |                  | Amp. Mode                   | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ 01) | BF3RX-□ 01) |         |
|  | FTC-1520-05 | 2 m (FREE CUT) | R10         | -40 to 70 °C        | Ø 0.5 mm         | U-FST                       | 45       | 40        | -           | -           | ●       |
|                                                                                   |             |                |             |                     |                  | FAST                        | 70       | 70        |             |             |         |
|                                                                                   |             |                |             |                     |                  | STD                         | 115      | 145       |             |             |         |
|                                                                                   |             |                |             |                     |                  | LONG                        | 255      | 275       |             |             |         |
|                                                                                   |             |                |             |                     |                  | U-LG / MAX.                 | 380      | 425       | 150         | 20          |         |
|  | FTC-220-05  | 2 m (FREE CUT) | R10         | -40 to 70 °C        | Ø 0.5 mm         | U-FST                       | 55       | 60        | -           | -           | ●       |
|                                                                                   |             |                |             |                     |                  | FAST                        | 80       | 100       |             |             |         |
|                                                                                   |             |                |             |                     |                  | STD                         | 140      | 205       |             |             |         |
|                                                                                   |             |                |             |                     |                  | LONG                        | 305      | 365       |             |             |         |
|                                                                                   |             |                |             |                     |                  | U-LG / MAX.                 | 410      | 550       | 150         | 20          |         |
|  | FTC-320-10  | 2 m (FREE CUT) | R30         | -40 to 70 °C        | Ø 1.0 mm         | U-FST                       | 160      | 200       | -           | -           | -       |
|                                                                                   |             |                |             |                     |                  | FAST                        | 240      | 330       |             |             |         |
|                                                                                   |             |                |             |                     |                  | STD                         | 400      | 660       |             |             |         |
|                                                                                   |             |                |             |                     |                  | LONG                        | 875      | 1440      |             |             |         |
|                                                                                   |             |                |             |                     |                  | U-LG / MAX.                 | 1290     | 1815      | 150         | 160         |         |

01) When setting the maximum sensitivity for each amplifier.

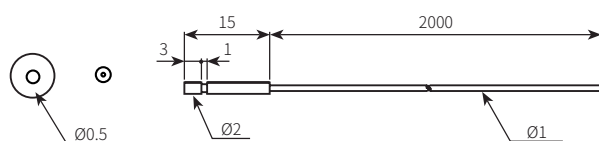
### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

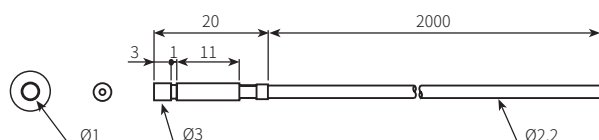
#### • FTC-1520-05



#### • FTC-220-05



#### • FTC-320-10



## Cylindrical head: Bending-resistant

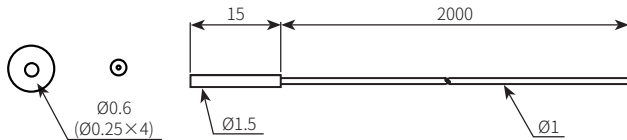
| Appearance                                                                        | Model        | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                        |                        | Adapter |
|-----------------------------------------------------------------------------------|--------------|-------------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|------------------------|------------------------|---------|
|                                                                                   |              | Length            | Bend radius |                     |                  | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|  | FTC-1520-06B | 2 m<br>(FREE CUT) | R5          | -40 to 60 °C        | Ø 0.3 mm         | U-FST                       | 50       | 60        |                        |                        | -       |
|                                                                                   |              |                   |             |                     |                  | FAST                        | 75       | 90        |                        |                        |         |
|                                                                                   |              |                   |             |                     |                  | STD                         | 135      | 185       |                        |                        |         |
|                                                                                   |              |                   |             |                     |                  | LONG                        | 280      | 340       |                        |                        |         |
|                                                                                   |              |                   |             |                     |                  | U-LG / MAX.                 | 380      | 495       | 110                    | 15                     |         |

01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FTC-1520-06B



## Cylindrical head: Flexible

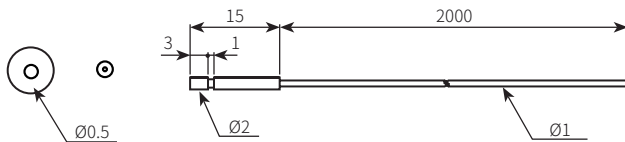
| Appearance                                                                        | Model       | Cable          |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |             |             | Adapter                                                                             |
|-----------------------------------------------------------------------------------|-------------|----------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------|-------------|-------------------------------------------------------------------------------------|
|                                                                                   |             | Length         | Bend radius |                     |                  | Amp. Mode                   | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ 01) | BF3RX-□ 01) |                                                                                     |
|  | FTC-220-05R | 2 m (FREE CUT) | R1          | -40 to 60 °C        | Ø 0.3 mm         | U-FST                       | 35       | 45        | -           | -           |  |
|                                                                                   |             |                |             |                     |                  | FAST                        | 50       | 75        |             |             |                                                                                     |
|                                                                                   |             |                |             |                     |                  | STD                         | 90       | 110       |             |             |                                                                                     |
|                                                                                   |             |                |             |                     |                  | LONG                        | 200      | 300       |             |             |                                                                                     |
|                                                                                   |             |                |             |                     |                  | U-LG / MAX.                 | 305      | 445       | 165         | 15          |                                                                                     |

01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FTC-220-05R



## Flat head: Flexible

| Appearance                                                                          | Model         | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                         |                        | Adapter |
|-------------------------------------------------------------------------------------|---------------|-------------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------------------|------------------------|---------|
|                                                                                     |               | Length            | Bend radius |                     |                  | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R-□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|    | FTF-210-05R   | 1 m<br>(FREE CUT) | R1          | -40 to 60 °C        | Ø 0.04 mm        | U-FST                       | 10       | 15        | -                       | -                      | ●       |
|                                                                                     |               |                   |             |                     |                  | FAST                        | 20       | 30        |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | STD                         | 40       | 100       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | LONG                        | 95       | 105       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | U-LG / MAX.                 | 135      | 150       | 50                      | 40                     |         |
|    | FTFB-210-05R  | 1 m<br>(FREE CUT) | R1          | -40 to 60 °C        | Ø 0.04 mm        | U-FST                       | 20       | 25        | -                       | -                      | ●       |
|                                                                                     |               |                   |             |                     |                  | FAST                        | 30       | 40        |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | STD                         | 65       | 110       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | LONG                        | 120      | 150       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | U-LG / MAX.                 | 200      | 215       | 105                     | 80                     |         |
|    | FTFN-210-05R  | 1 m<br>(FREE CUT) | R1          | -40 to 60 °C        | Ø 0.04 mm        | U-FST                       | 50       | 45        | -                       | -                      | ●       |
|                                                                                     |               |                   |             |                     |                  | FAST                        | 80       | 75        |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | STD                         | 130      | 110       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | LONG                        | 290      | 295       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | U-LG / MAX.                 | 420      | 440       | 60                      | 85                     |         |
|    | FTFU-210-05R  | 1 m<br>(FREE CUT) | R1          | -40 to 60 °C        | Ø 0.04 mm        | U-FST                       | 25       | 30        | -                       | -                      | ●       |
|                                                                                     |               |                   |             |                     |                  | FAST                        | 40       | 50        |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | STD                         | 80       | 110       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | LONG                        | 160      | 190       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | U-LG / MAX.                 | 240      | 280       | 95                      | 85                     |         |
|    | FTLU-310-10R  | 1 m<br>(FREE CUT) | R1          | -40 to 60 °C        | Ø 0.06 mm        | U-FST                       | 80       | 195       | -                       | -                      | -       |
|                                                                                     |               |                   |             |                     |                  | FAST                        | 120      | 320       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | STD                         | 195      | 500       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | LONG                        | 420      | 880       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | U-LG / MAX.                 | 660      | 1005      | 185                     | 100                    |         |
|  | FTLU1-310-10R | 1 m<br>(FREE CUT) | R1          | -40 to 60 °C        | Ø 0.06 mm        | U-FST                       | 165      | 160       | -                       | -                      | -       |
|                                                                                     |               |                   |             |                     |                  | FAST                        | 245      | 270       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | STD                         | 420      | 500       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | LONG                        | 890      | 840       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | U-LG / MAX.                 | 1250     | 990       | 295                     | 120                    |         |
|  | FTLU2-310-10R | 1 m<br>(FREE CUT) | R1          | -40 to 60 °C        | Ø 0.06 mm        | U-FST                       | 140      | 180       | -                       | -                      | -       |
|                                                                                     |               |                   |             |                     |                  | FAST                        | 215      | 305       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | STD                         | 365      | 500       |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | LONG                        | 785      | 1120      |                         |                        |         |
|                                                                                     |               |                   |             |                     |                  | U-LG / MAX.                 | 1100     | 1380      | 275                     | 160                    |         |

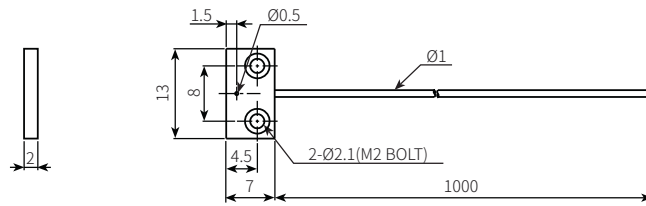
01) When setting the maximum sensitivity for each amplifier.

## ■ Dimensions

- Unit: mm, For the detailed drawing, follow the Autonics website.

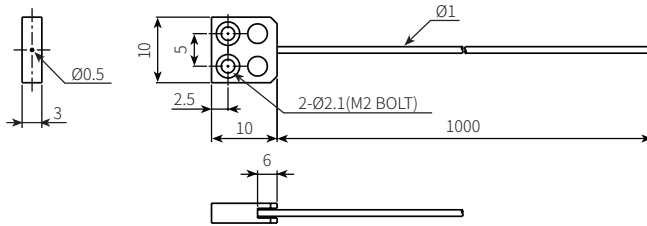
### • FTF-210-05R

Hood material: SUS303, flat view



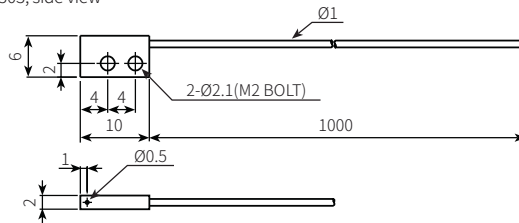
### • FTFB-210-05R

Hood material: AL, side view + top view (Bending)



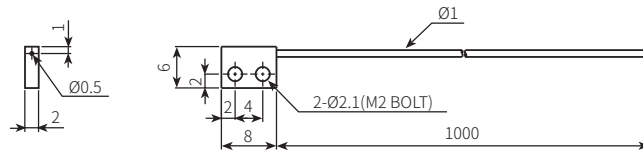
### • FTFN-210-05R

Hood material: SUS303, side view



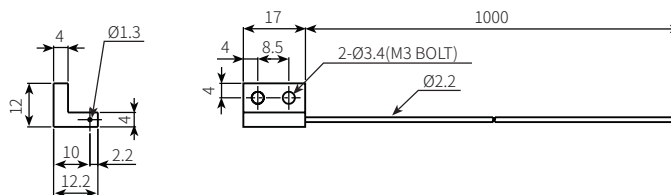
### • FTFU-210-05R

Hood material: SUS303, top view



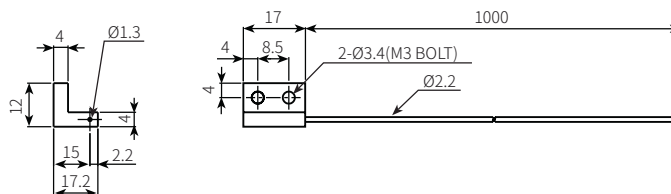
### • FTLU-310-10R

Hood material: AL, top view



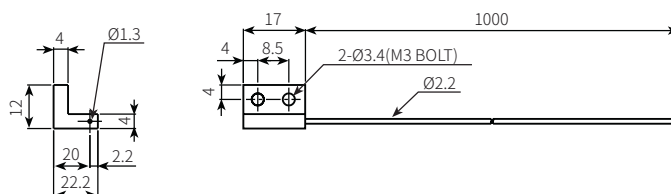
### • FTLU1-310-10R

Hood material: AL, top view



### • FTLU2-310-10R

Hood material: AL, top view



## L-Shaped head: Standard

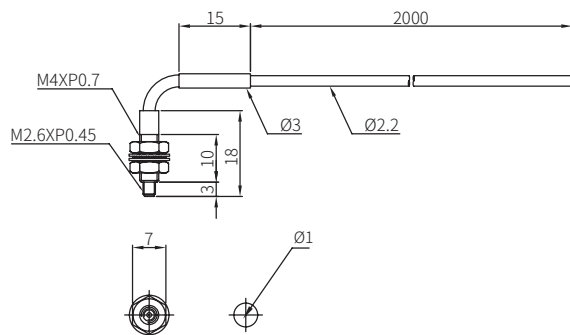
| Appearance                                                                        | Model      | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                         |                        | Adapter |
|-----------------------------------------------------------------------------------|------------|-------------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------------------|------------------------|---------|
|                                                                                   |            | Length            | Bend radius |                     |                  | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R-□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|  | FTL-420-10 | 2 m<br>(FREE CUT) | R20         | -30 to 70 °C        | Ø 0.1 mm         | U-FST                       | 10       | 210       |                         |                        | -       |
|                                                                                   |            |                   |             |                     |                  | FAST                        | 15       | 360       |                         |                        |         |
|                                                                                   |            |                   |             |                     |                  | STD                         | 25       | 710       |                         |                        |         |
|                                                                                   |            |                   |             |                     |                  | LONG                        | 55       | 1540      |                         |                        |         |
|                                                                                   |            |                   |             |                     |                  | U-LG / MAX.                 | 80       | 2440      | 30                      | 25                     |         |

01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FTL-420-10



## L-Shaped head: Heat-resistant

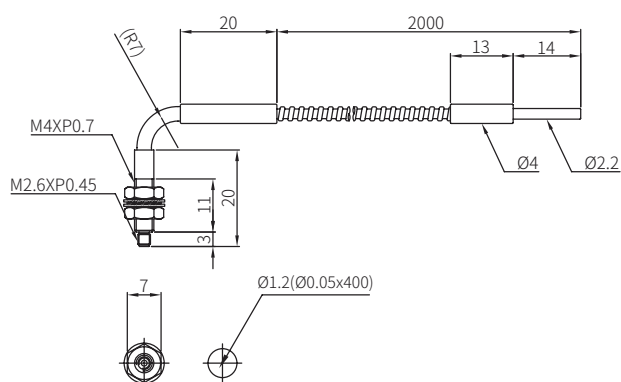
| Appearance                                                                        | Model        | Cable  |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |             |             | Adapter |
|-----------------------------------------------------------------------------------|--------------|--------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------|-------------|---------|
|                                                                                   |              | Length | Bend radius |                     |                  | Amp. Mode                   | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ 01) | BF3RX-□ 01) |         |
|  | GTL-420-12H2 | 2 m    | R25         | -60 to 250 °C       | Ø 0.08 mm        | U-FST                       | 160      | 200       | -           | -           | -       |
|                                                                                   |              |        |             |                     |                  | FAST                        | 235      | 320       |             |             |         |
|                                                                                   |              |        |             |                     |                  | STD                         | 395      | 670       |             |             |         |
|                                                                                   |              |        |             |                     |                  | LONG                        | 860      | 1460      |             |             |         |
|                                                                                   |              |        |             |                     |                  | U-LG / MAX.                 | 1250     | 2600      | 490         | N.A         |         |
|  | GTL-420-12H3 | 2 m    | R25         | -60 to 350 °C       | Ø 0.08 mm        | U-FST                       | 140      | 200       | -           | -           | -       |
|                                                                                   |              |        |             |                     |                  | FAST                        | 210      | 320       |             |             |         |
|                                                                                   |              |        |             |                     |                  | STD                         | 360      | 680       |             |             |         |
|                                                                                   |              |        |             |                     |                  | LONG                        | 820      | 1470      |             |             |         |
|                                                                                   |              |        |             |                     |                  | U-LG / MAX.                 | 1170     | 2640      | 500         | N.A         |         |

01) When setting the maximum sensitivity for each amplifier.

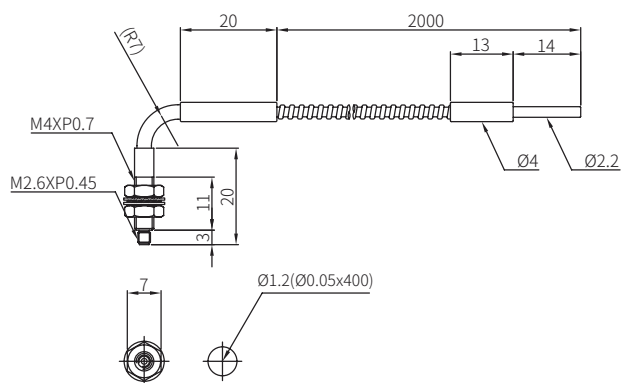
### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

#### • GTL-420-12H2



#### • GTL-420-12H3



## L-shaped head: Vacuum-resistant

- Be sure to connect with the vacuum-resistant fiber, the fiber optic coupler, and the atmospheric side fiber.
- The sensing distance of the vacuum-resistant fiber unit is based on the installation of the atmospheric side fiber unit (FU-VA0□, sold separately).

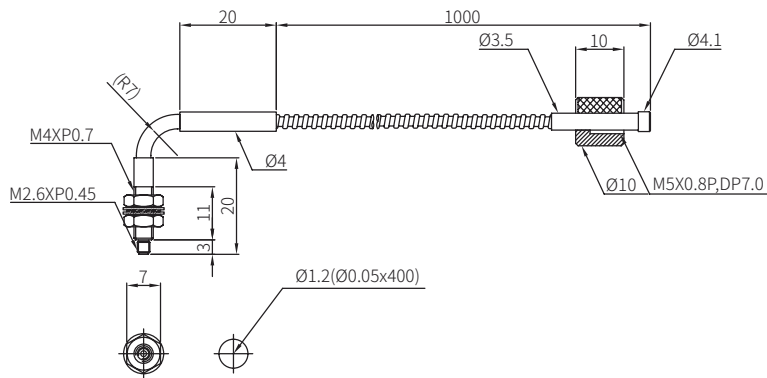
| Appearance                                                                        | Model        | Cable  |             | Ambient temperature | Min. target size (atmospheric unit) | Sensing distance (unit: mm) |      |          |           |                        | Adapter |
|-----------------------------------------------------------------------------------|--------------|--------|-------------|---------------------|-------------------------------------|-----------------------------|------|----------|-----------|------------------------|---------|
|                                                                                   |              | Length | Bend radius |                     |                                     | Mode                        | Amp. | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ <sup>01)</sup> |         |
|  | GTL-410-12V2 | 1 m    | R25         | -60 to 250 °C       | Ø 0.1 mm (+ FU-VA01)                | U-FST                       | 80   | 130      | -         | -                      | -       |
|                                                                                   |              |        |             |                     |                                     | FAST                        | 130  | 210      |           |                        |         |
|                                                                                   |              |        |             |                     |                                     | STD                         | 220  | 420      |           |                        |         |
|                                                                                   |              |        |             |                     |                                     | LONG                        | 465  | 900      |           |                        |         |
|                                                                                   |              |        |             |                     |                                     | U-LG / MAX.                 | 650  | 1440     |           |                        |         |
|                                                                                   |              |        |             |                     | Ø 0.1 mm (+ FU-VA02)                | U-FST                       | 60   | 110      | -         | -                      |         |
|                                                                                   |              |        |             |                     |                                     | FAST                        | 95   | 170      |           |                        |         |
|                                                                                   |              |        |             |                     |                                     | STD                         | 160  | 340      |           |                        |         |
|                                                                                   |              |        |             |                     |                                     | LONG                        | 350  | 710      |           |                        |         |
|                                                                                   |              |        |             |                     |                                     | U-LG / MAX.                 | 505  | 1100     |           |                        |         |

01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

#### • GTL-410-12V2



## Molded plastic head: Standard

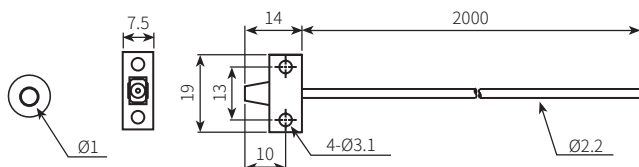
| Appearance                                                                        | Model      | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                        |                        | Adapter |
|-----------------------------------------------------------------------------------|------------|-------------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|------------------------|------------------------|---------|
|                                                                                   |            | Length            | Bend radius |                     |                  | Amp. Mode                   | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|  | FTP-320-10 | 2 m<br>(FREE CUT) | R30         | -40 to 70 °C        | Ø 1.0 mm         | U-FST                       | 140      | 190       | -                      | -                      | -       |
|                                                                                   |            |                   |             |                     |                  | FAST                        | 220      | 300       |                        |                        |         |
|                                                                                   |            |                   |             |                     |                  | STD                         | 365      | 640       |                        |                        |         |
|                                                                                   |            |                   |             |                     |                  | LONG                        | 840      | 1280      |                        |                        |         |
|                                                                                   |            |                   |             |                     |                  | U-LG / MAX.                 | 1215     | 1985      | 500                    | 165                    |         |

01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FTP-320-10



## Perpendicular head: Heat-resistant

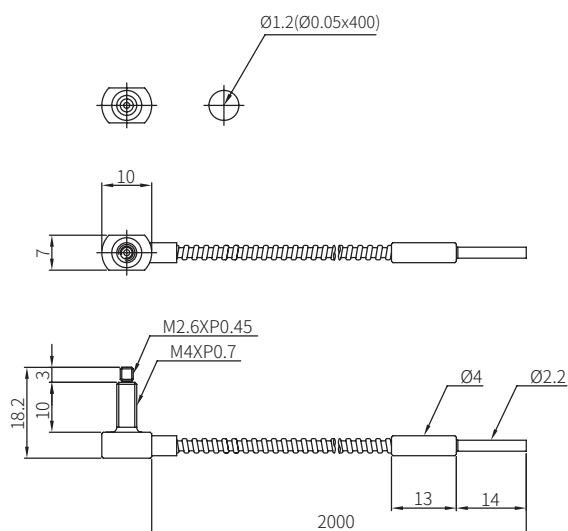
| Appearance                                                                        | Model        | Cable  |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                         |                        | Adapter |
|-----------------------------------------------------------------------------------|--------------|--------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------------------|------------------------|---------|
|                                                                                   |              | Length | Bend radius |                     |                  | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R-□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|  | GTR-420-12H2 | 2 m    | R25         | -60 to 250 °C       | Ø 0.08 mm        | U-FST                       | 160      | 200       |                         |                        | -       |
|                                                                                   |              |        |             |                     |                  | FAST                        | 230      | 310       |                         |                        |         |
|                                                                                   |              |        |             |                     |                  | STD                         | 395      | 650       |                         |                        |         |
|                                                                                   |              |        |             |                     |                  | LONG                        | 880      | 1380      |                         |                        |         |
|                                                                                   |              |        |             |                     |                  | U-LG / MAX.                 | 1335     | 2580      | 485                     | N.A                    |         |
|  | GTR-420-12H3 | 2 m    | R25         | -60 to 350 °C       | Ø 0.08 mm        | U-FST                       | 145      | 190       |                         |                        | -       |
|                                                                                   |              |        |             |                     |                  | FAST                        | 220      | 300       |                         |                        |         |
|                                                                                   |              |        |             |                     |                  | STD                         | 375      | 630       |                         |                        |         |
|                                                                                   |              |        |             |                     |                  | LONG                        | 855      | 1400      |                         |                        |         |
|                                                                                   |              |        |             |                     |                  | U-LG / MAX.                 | 1270     | 2620      | 450                     | N.A                    |         |

01) When setting the maximum sensitivity for each amplifier.

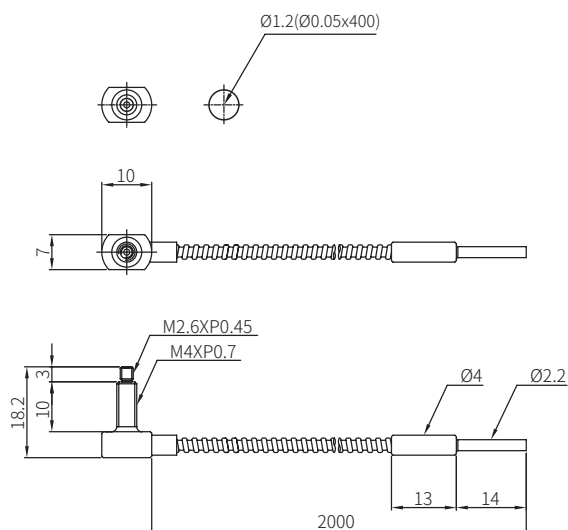
### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

#### • GTR-420-12H2



#### • GTR-420-12H3



## Perpendicular head: Flexible

| Appearance                                                                        | Model       | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                        |                        | Adapter |
|-----------------------------------------------------------------------------------|-------------|-------------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|------------------------|------------------------|---------|
|                                                                                   |             | Length            | Bend radius |                     |                  | Amp. Mode                   | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|  | FTR-410-10R | 1 m<br>(FREE CUT) | R1          | -40 to 60 °C        | Ø 0.5 mm         | U-FST                       | 125      | 180       | -                      | -                      | -       |
|                                                                                   |             |                   |             |                     |                  | FAST                        | 200      | 300       |                        |                        |         |
|                                                                                   |             |                   |             |                     |                  | STD                         | 320      | 460       |                        |                        |         |
|                                                                                   |             |                   |             |                     |                  | LONG                        | 710      | 1120      |                        |                        |         |
|                                                                                   |             |                   |             |                     |                  | U-LG / MAX.                 | 990      | 1515      | 290                    | 185                    |         |

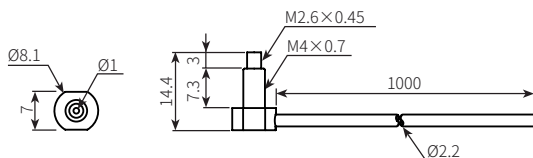
01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FTR-410-10R

Hood material: SUS303



# SUS head: Standard

| Appearance | Model         | Cable          |                    | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                        |                        | Adapter          |
|------------|---------------|----------------|--------------------|---------------------|------------------|-----------------------------|----------|-----------|------------------------|------------------------|------------------|
|            |               | Length         | Bend radius        |                     |                  | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |                  |
|            | FTS-320-05    | 2 m (FREE CUT) | R10 (SUS part R10) | -40 to 70 °C        | Ø 0.5 mm         | U-FST                       | 45       | 60        |                        |                        | ●                |
|            |               |                |                    |                     |                  | FAST                        | 65       | 95        |                        |                        |                  |
|            |               |                |                    |                     |                  | STD                         | 120      | 200       |                        |                        |                  |
|            |               |                |                    |                     |                  | LONG                        | 255      | 355       |                        |                        |                  |
|            |               |                |                    |                     |                  | U-LG / MAX.                 | 400      | 520       | 150                    | 20                     |                  |
|            | FTS1-320-05   | 2 m (FREE CUT) | R10 (SUS part R10) | -40 to 70 °C        | Ø 0.5 mm         | U-FST                       | 40       | 55        |                        |                        | ●                |
|            |               |                |                    |                     |                  | FAST                        | 65       | 95        |                        |                        |                  |
|            |               |                |                    |                     |                  | STD                         | 120      | 190       |                        |                        |                  |
|            |               |                |                    |                     |                  | LONG                        | 245      | 345       |                        |                        |                  |
|            |               |                |                    |                     |                  | U-LG / MAX.                 | 380      | 515       | 150                    | 25                     |                  |
|            | FTS2-320-05   | 2 m (FREE CUT) | R10 (SUS part R10) | -40 to 70 °C        | Ø 0.5 mm         | U-FST                       | 45       | 50        |                        |                        | ●                |
|            |               |                |                    |                     |                  | FAST                        | 70       | 80        |                        |                        |                  |
|            |               |                |                    |                     |                  | STD                         | 120      | 175       |                        |                        |                  |
|            |               |                |                    |                     |                  | LONG                        | 255      | 310       |                        |                        |                  |
|            |               |                |                    |                     |                  | U-LG / MAX.                 | 420      | 465       | 150                    | 20                     |                  |
|            | FTS-420-10    | 2 m (FREE CUT) | R30 (SUS part R10) | -40 to 70 °C        | Ø 1.0 mm         | U-FST                       | 185      | 230       |                        |                        | -                |
|            |               |                |                    |                     |                  | FAST                        | 280      | 380       |                        |                        |                  |
|            |               |                |                    |                     |                  | STD                         | 470      | 755       |                        |                        |                  |
|            |               |                |                    |                     |                  | LONG                        | 1015     | 1545      |                        |                        |                  |
|            |               |                |                    |                     |                  | U-LG / MAX.                 | 1480     | 2140      | 500                    | 415                    |                  |
|            | FTS2-420-10   | 2 m (FREE CUT) | R30 (SUS part R10) | -40 to 70 °C        | Ø 1.0 mm         | U-FST                       | 160      | 195       |                        |                        | -                |
|            |               |                |                    |                     |                  | FAST                        | 230      | 320       |                        |                        |                  |
|            |               |                |                    |                     |                  | STD                         | 385      | 645       |                        |                        |                  |
|            |               |                |                    |                     |                  | LONG                        | 840      | 1220      |                        |                        |                  |
|            |               |                |                    |                     |                  | U-LG / MAX.                 | 1390     | 1820      | 500                    | 365                    |                  |
|            | FTCS-220-05   | 2 m (FREE CUT) | R10 (SUS part R10) | -40 to 70 °C        | Ø 0.5 mm         | U-FST                       | 40       | 50        |                        |                        | ●                |
|            |               |                |                    |                     |                  | FAST                        | 60       | 85        |                        |                        |                  |
|            |               |                |                    |                     |                  | STD                         | 100      | 180       |                        |                        |                  |
|            |               |                |                    |                     |                  | LONG                        | 220      | 340       |                        |                        |                  |
|            |               |                |                    |                     |                  | U-LG / MAX.                 | 305      | 500       | 150                    | 25                     |                  |
|            | FTCSN-2520-05 | 2 m            | R15                | -40 to 60 °C        | Ø 0.0125 mm      | U-FST                       | 35       | 15        |                        |                        | ○ <sup>02)</sup> |
|            |               |                |                    |                     |                  | FAST                        | 50       | 25        |                        |                        |                  |
|            |               |                |                    |                     |                  | STD                         | 95       | 120       |                        |                        |                  |
|            |               |                |                    |                     |                  | LONG                        | 180      | 150       |                        |                        |                  |
|            |               |                |                    |                     |                  | U-LG / MAX.                 | 230      | 275       | 120                    | 5                      |                  |

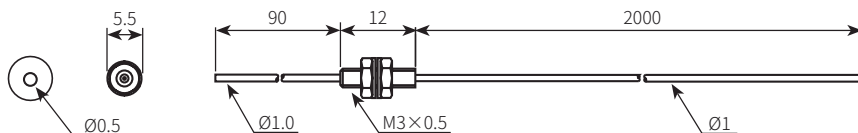
01) When setting the maximum sensitivity for each amplifier.

02) The adapter for this model is not compatible with the separately sold adapter and cannot be purchased separately, so be careful not to lose it.

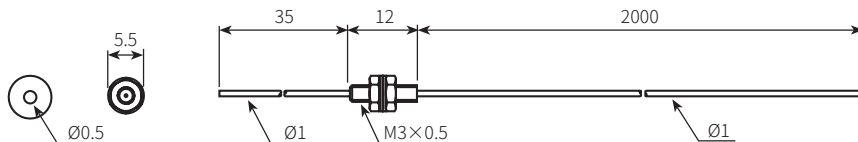
## ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

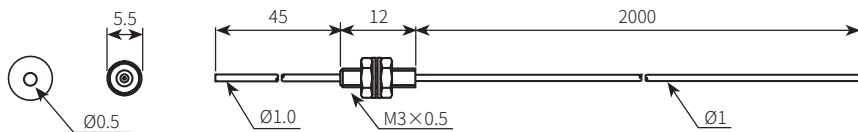
### • FTS-320-05



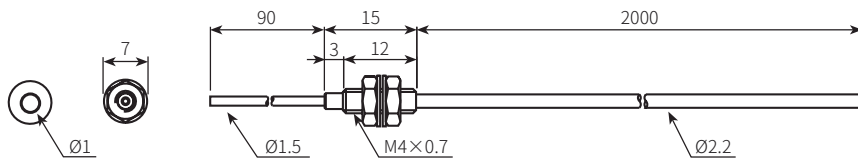
### • FTS1-320-05



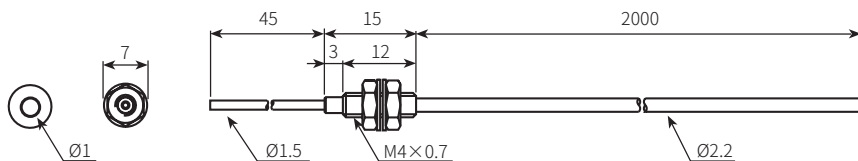
### • FTS2-320-05



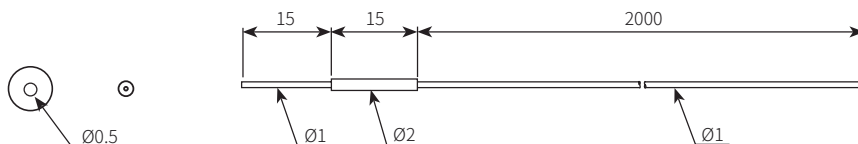
### • FTS-420-10



### • FTS2-420-10

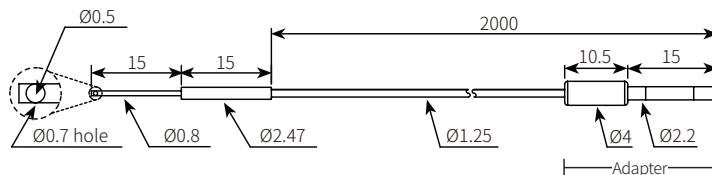


### • FTCS-220-05



### • FTCSN-2520-05

Side view



U-shaped head: Heat-resistant

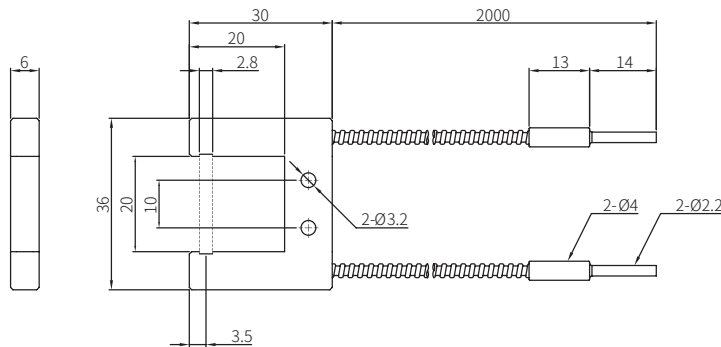
| Appearance                                                                        | Model       | Cable  |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                        |                        | Adapter |  |
|-----------------------------------------------------------------------------------|-------------|--------|-------------|---------------------|------------------|-----------------------------|----------|-----------|------------------------|------------------------|---------|--|
|                                                                                   |             | Length | Bend radius |                     |                  | Amp. fier<br>Mode           | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |  |
|                                                                                   |             |        |             |                     |                  |                             |          |           |                        |                        |         |  |
|  | GTU3-320-H2 | 2 m    | R25         | -60 to 250 °C       | Ø 2.5 mm         | U-FST                       | 20       | 20        | -                      | -                      | -       |  |
|                                                                                   |             |        |             |                     |                  | FAST                        | 20       | 20        |                        |                        |         |  |
|                                                                                   |             |        |             |                     |                  | STD                         | 20       | 20        |                        |                        |         |  |
|                                                                                   |             |        |             |                     |                  | LONG                        | 20       | 20        | 20                     | 20                     |         |  |
|                                                                                   |             |        |             |                     |                  | U-LG / MAX.                 | 20       | 20        |                        |                        |         |  |

01) When setting the maximum sensitivity for each amplifier

■ Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

• GTU3-320-H2



## Wide area head: Bending-resistant

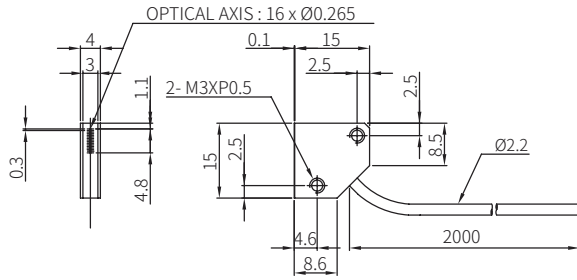
| Appearance                                                                        | Model        | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |             |             | Adapter |
|-----------------------------------------------------------------------------------|--------------|-------------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------|-------------|---------|
|                                                                                   |              | Length            | Bend radius |                     |                  | Amp. Mode                   | BFX-D1-□ | BF5R-□1-□ | BF4R□-□ 01) | BF3RX-□ 01) |         |
|  | FTW5-320-02B | 2 m<br>(FREE CUT) | R5          | -30 to 70 °C        | Ø 0.8 mm         | U-FST                       | 140      | 220       | -           | -           | -       |
|                                                                                   |              |                   |             |                     |                  | FAST                        | 215      | 350       |             |             |         |
|                                                                                   |              |                   |             |                     |                  | STD                         | 360      | 730       |             |             |         |
|                                                                                   |              |                   |             |                     |                  | LONG                        | 765      | 1520      |             |             |         |
|                                                                                   |              |                   |             |                     |                  | U-LG / MAX.                 | 1165     | 2600      | 380         | 200         |         |

01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FTW5-320-02B



## Wide area head: Flexible

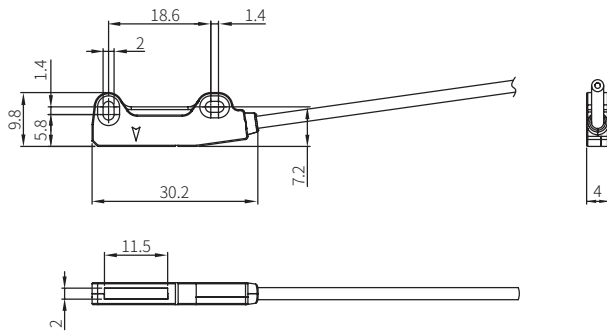
| Appearance | Model         | Cable             |             | Ambient temperature | Min. target size | Sensing distance (unit: mm) |          |           |                         |                        | Adapter |
|------------|---------------|-------------------|-------------|---------------------|------------------|-----------------------------|----------|-----------|-------------------------|------------------------|---------|
|            |               | Length            | Bend radius |                     |                  | Mode \ Amp.                 | BFX-D1-□ | BF5R-□1-□ | BF4R-□-□ <sup>01)</sup> | BF3RX-□ <sup>01)</sup> |         |
|            | FTW11-210-10R | 1 m<br>(FREE CUT) | R2          | -40 to 60 °C        | Ø 0.07 mm        | U-FST                       | 495      | 600       |                         |                        | -       |
|            |               |                   |             |                     |                  | FAST                        | 680      | 900       |                         |                        |         |
|            |               |                   |             |                     |                  | STD                         | 860      | 1400      |                         |                        |         |
|            |               |                   |             |                     |                  | LONG                        | 1060     | 1400      |                         |                        |         |
|            |               |                   |             |                     |                  | U-LG / MAX.                 | 1095     | 1600      | 975                     | 855                    |         |

01) When setting the maximum sensitivity for each amplifier.

### ■ Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

#### • FTW11-210-10R



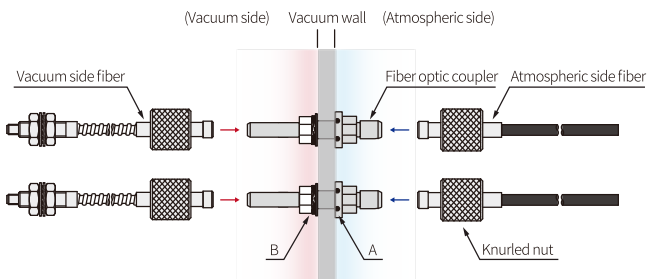
## Sold Separately: Fiber Optic Coupler, Atmospheric side fiber

### ■ Cautions during installation

- When using the vacuum-resistant fibers, be sure to connect with the fiber optic coupler and the atmospheric side fibers.
- The fiber optic coupler is a device that seals the vacuum side and the atmospheric side to transmit light, and it is equipped with an O-ring. Be sure not to blur the glass rod inside by welding on the vacuum wall and weld joints.
- When installing the fiber optic coupler, following the environmental requirements below.
  - Thickness of the installation wall: 8 to 10 mm
  - Diameter of the mounting hole:  $\varnothing 5.0 \pm 0.1$ , - 0.1 mm
  - Surface roughness in contact with the O-ring: 1.6 Ry
- Be sure to install the fiber optic coupler and fiber optic units by checking the specified connection points below. Failure to follow this instruction may result in product damage.
  - Vacuum side fibers → Long side of the fiber optic coupler
  - Atmospheric side fibers → Short side of the fiber optic coupler

### ■ Example of usage

- Insert the fiber optic coupler into the mounting hole of the vacuum wall.
- From the long side of the fiber optic coupler, insert a flat washer, followed by a spring washer, and then a nut to the direction of the vacuum wall. Tighten the nut to secure the fiber optic coupler.
- Turn the knurled nuts of the vacuum side and atmospheric side fibers to connect them with the fiber optic coupler.



A. O-ring

B. An M5 nut + a spring washer+ a flat washer

### ■ Fiber optic coupler

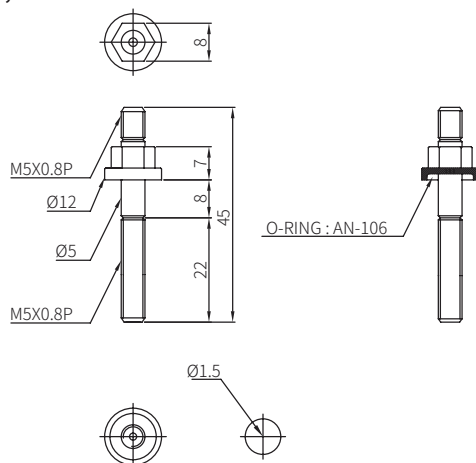
| Appearance                                                                          | Ambient temperature | Applicable cable                                | Model   |
|-------------------------------------------------------------------------------------|---------------------|-------------------------------------------------|---------|
|  | -60 to 200 °C       | Vacuum-resistant type,<br>Atmospheric side type | FU-VC01 |
|                                                                                     | -60 to 300 °C       | Vacuum-resistant type,<br>Atmospheric side type | FU-VC02 |

- Helium leak testing:  $\leq 10^{-11} \text{ Pa} \cdot \text{m}^3/\text{s}$
- Product components: Fiber optic coupler, M5 nut, spring washer, flat washer (each × 2)

### ■ Dimensions

Unit: mm, For the detailed drawing, follow the Autronics website.

#### • FU-VC01, FU-VC02



### ■ Atmospheric side fiber

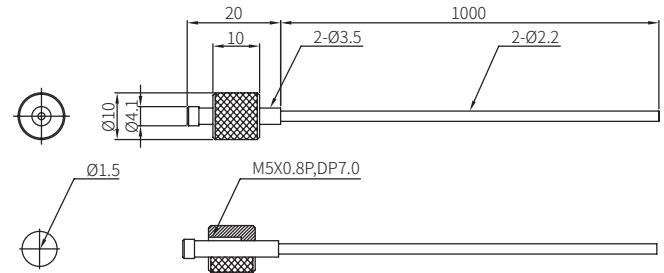
| Appearance                                                                        | Bend radius | Ambient temperature | FREE CUT | Model   |
|-----------------------------------------------------------------------------------|-------------|---------------------|----------|---------|
|  | R30         | -30 to 70 °C        | FREE CUT | FU-VA01 |
|                                                                                   | R20         | -30 to 70 °C        | FREE CUT | FU-VA02 |

- Product components: Atmospheric side fiber × 2, Fiber cutter (FC-3) × 1

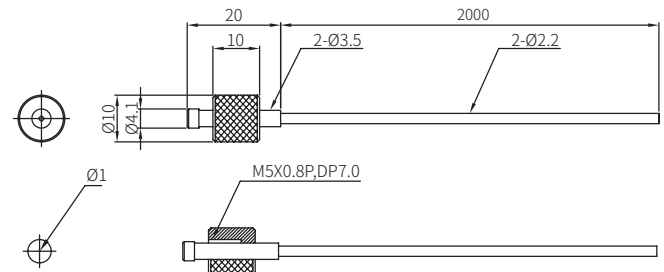
### ■ Dimensions

Unit: mm, For the detailed drawing, follow the Autronics website.

#### • FU-VA01



#### • FU-VA02



## Sold Separately: Lens Unit

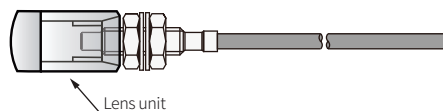
You can increase the sensing distance of the fiber optic units with the lens unit.

| Appearance                                                                        | MAG. <sup>01)</sup> | Ambient temperature | Recommended cable                    | Model     |
|-----------------------------------------------------------------------------------|---------------------|---------------------|--------------------------------------|-----------|
|  | ×5                  | -40 to 100 °C       | Standard type                        | FTL-M26   |
|                                                                                   | ×10                 | -60 to 350 °C       | Standard type, Vacuum-resistant type | FTL-M26V3 |
|                                                                                   | ×15                 | -60 to 350 °C       | Standard type, Vacuum-resistant type | FTL-M4V3  |

01) The sensing distance may vary depending on the detection environment.

### ■ Example of mounting

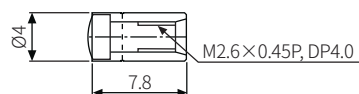
Mount the lens unit onto the protrusion of the front hood.  
Refer to the dimensions of the fibers.



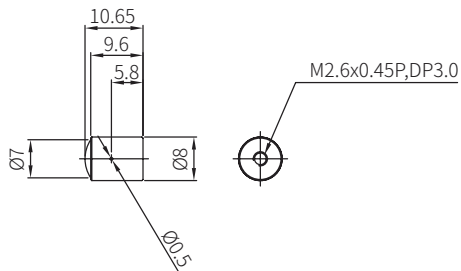
### ■ Dimensions

Unit: mm, For the detailed drawing, follow the Autonics website.

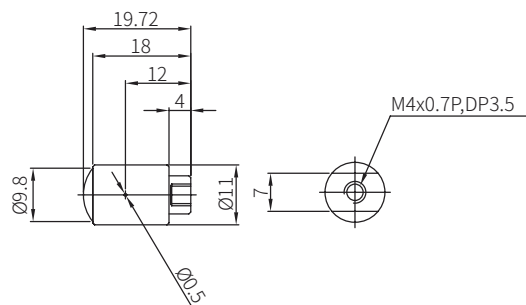
#### • FTL-M26



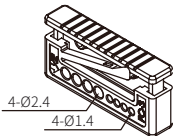
#### • FTL-M26V3



#### • FTL-M4V3



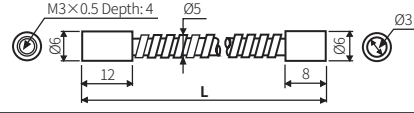
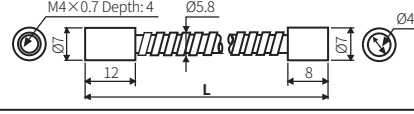
## Sold Separately: Fiber Cutter

| Model | Hole diameter        | Appearance                                                                          |
|-------|----------------------|-------------------------------------------------------------------------------------|
| FC-3  | Ø2.4 X 4<br>Ø1.4 X 4 |  |

## Sold Separately: Cable Protection Tube

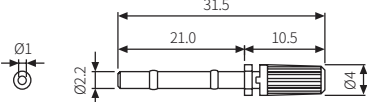
Be sure to consider the diameter of the fiber optic cable and choose a suitable protection tube for the fiber cable.

• Diameter of cable: Cable protection tube > Fiber optic unit

| Model   | Length (L) | Dimensions (unit: mm)                                                               |
|---------|------------|-------------------------------------------------------------------------------------|
| FTH-305 | 500 mm     |  |
| FTH-310 | 1,000 mm   |                                                                                     |
| FTH-405 | 500 mm     |  |
| FTH-410 | 1,000 mm   |                                                                                     |

## Sold Separately: Adapter

The additional adapter for the Adapter-compatible models can be purchased through an authorized distributor of Autonics.

| Model       | Feature                            | Dimensions (unit: mm)                                                                |
|-------------|------------------------------------|--------------------------------------------------------------------------------------|
| B1700000047 | Inner diameter: Ø1<br>Color: black |  |

## Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

• Example of ordering information: FT-420-10H

|          |          |                          |   |          |           |   |           |          |                          |
|----------|----------|--------------------------|---|----------|-----------|---|-----------|----------|--------------------------|
| <b>F</b> | <b>T</b> | <input type="checkbox"/> | - | <b>4</b> | <b>20</b> | - | <b>10</b> | <b>H</b> | <input type="checkbox"/> |
| <b>1</b> | <b>2</b> | <b>3</b>                 | - | <b>4</b> | <b>5</b>  | - | <b>6</b>  | <b>7</b> | <b>8</b>                 |

|          |                       |                 |                                                   |
|----------|-----------------------|-----------------|---------------------------------------------------|
| <b>1</b> | <b>Fiber material</b> | F               | Plastic                                           |
|          |                       | G               | Glass                                             |
| <b>2</b> | <b>Sensing type</b>   | D               | Retroreflective type                              |
|          |                       | L               | Convergent reflective type                        |
|          |                       | T               | Through-beam type                                 |
| <b>3</b> | <b>Head shape</b>     |                 |                                                   |
|          |                       | · Threaded head | No mark    Standard                               |
|          | · Cylindrical head    | C               | Standard                                          |
|          |                       | CS              | Cylinder+SUS head (SUS length 15 mm)              |
|          |                       | CSN             | Cylinder+SUS head (SUS length 15 mm, side view)   |
|          | · Flat head           | F               | Flat view                                         |
|          |                       | FB              | Side view+Top view (bending)                      |
|          |                       | FN              | Side view                                         |
|          |                       | FU              | Top view (up)                                     |
|          |                       | LU              | L-shaped head top view (height 12.2 mm)           |
|          |                       | LU1             | L-shaped head top view (height 17.2 mm)           |
|          |                       | LU2             | L-shaped head top view (height 22.2 mm)           |
|          | · L-shaped head       | L               | Standard                                          |
|          | · Molded plastic head | P               | Standard                                          |
|          |                       | PF              | Flat view                                         |
|          | · Perpendicular head  | R               | Standard                                          |
|          |                       | RT              | Protection tube mounted                           |
|          | · SUS head            | S               | SUS length 90 mm                                  |
|          |                       | S1              | SUS length 35 mm                                  |
|          |                       | S2              | SUS length 45 mm                                  |
|          | · U-shaped head       | U3              | Beam width 3 mm                                   |
|          | · Wide area head      | W5              | Beam width 5 mm                                   |
|          |                       | W10             | Beam width 10 mm                                  |
|          |                       | W10T            | Beam width 10 mm, protection tube mounted         |
|          |                       | W11             | Beam width 11 mm                                  |
|          | · Protection tube     | H               | Protection tube for fiber cable (sold separately) |
| <b>4</b> | <b>Hood diameter</b>  | 15              | Ø 1.5 mm                                          |
|          |                       | 2               | Ø 2 mm (M2)                                       |
|          |                       | 3               | Ø 3 mm (M3)                                       |
|          |                       | 4               | Ø 4 mm (M4)                                       |
|          |                       | 6               | Ø 6 mm (M6)                                       |

|          |                                               |         |                                        |
|----------|-----------------------------------------------|---------|----------------------------------------|
| <b>5</b> | <b>Cable length</b>                           | 5       | 0.5 m                                  |
|          |                                               | 10      | 1 m                                    |
|          |                                               | 20      | 2 m                                    |
|          |                                               | 10M     | 10 m                                   |
| <b>6</b> | <b>Fiber diameter</b>                         | 2       | Ø 0.2 mm                               |
|          |                                               | 5       | Ø 0.5 mm                               |
|          |                                               | 6       | Ø 0.6 mm                               |
|          |                                               | 10      | Ø 1.0 mm                               |
|          |                                               | 12      | Ø 1.2 mm                               |
|          |                                               | 13      | Ø 1.3 mm                               |
|          |                                               | 14      | Ø 1.4 mm                               |
|          |                                               | 15      | Ø 1.5 mm                               |
|          |                                               | 17      | Ø 1.7 mm                               |
|          |                                               | 20      | Ø 2.0 mm                               |
|          |                                               | F       | Ø 0.5 mm, Ø 0.25 mm×4 (coaxial type)   |
|          |                                               | F1      | Ø 0.5 mm, Ø 0.25 mm×9 (coaxial type)   |
|          |                                               | F2      | Ø 1.0 mm, Ø 0.265 mm×16 (coaxial type) |
| <b>7</b> | <b>Unit type</b>                              | No mark | Standard                               |
|          |                                               | B       | Bending-resistant (R5)                 |
|          |                                               | R       | Flexible (R1, R2)                      |
|          |                                               | H       | Heat-resistant ( -40 to 105 °C)        |
|          |                                               | H1      | Heat-resistant ( -40 to 150 °C)        |
|          |                                               | H2      | Heat-resistant ( -60 to 250 °C)        |
|          |                                               | H3      | Heat-resistant ( -60 to 350 °C)        |
|          |                                               | V       | Vacuum-resistant ( -60 to 100 °C)      |
|          |                                               | V1      | Vacuum-resistant ( -60 to 150 °C)      |
|          |                                               | V2      | Vacuum-resistant ( -60 to 250 °C)      |
|          |                                               | V3      | Vacuum-resistant ( -60 to 350 °C)      |
| <b>8</b> | <b>Convergent reflective type size option</b> | A       | R20 / 12×18×3                          |
|          |                                               | L       | Over 30 mm of the product length       |
|          | <b>Waterproof sealing</b>                     | WP      | Water resistance supported             |