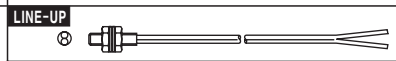
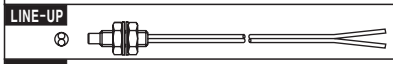
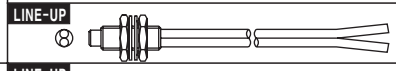
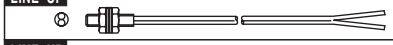
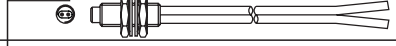
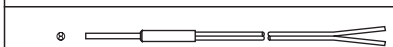
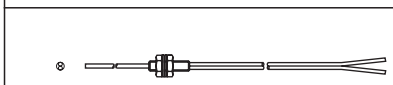
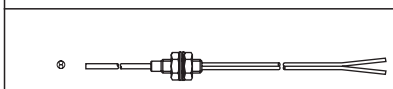
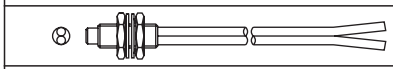
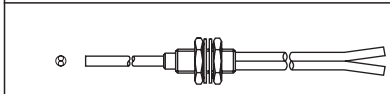
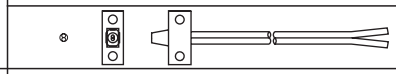
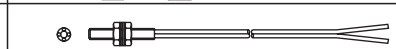
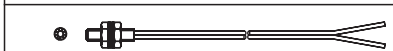
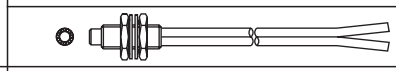
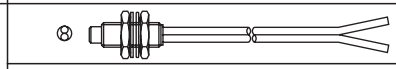
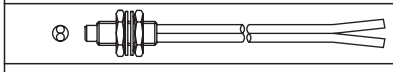
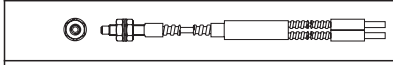
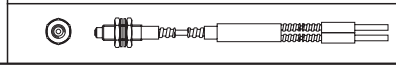
▣Specifications(Diffuse reflective)

Type	Dimension	Feature	Model	(Note1) Sensing distance (mm)	(Note2) Min. sensing target	Allowable bend radius	(Note3) Cable length(L)	Temperature
Flexible type	LINE-UP 	M3 Bolt	**FD-320-05R**	25	ϕ0.0125	1R	2m Free cut	−40~60℃ (Humidity: 35~85%RH)
	LINE-UP 	M4 Bolt	**FD-420-05R**					
	LINE-UP 	M6 Bolt	**FD-620-10R**	80	ϕ0.04			
Break-resistant type	LINE-UP 	M3 Bolt	**FD-320-06B**	35	ϕ0.0125	5R		
	LINE-UP	ϕ3 Cylinder type	**FDC-320-06B**					
	LINE-UP	M4 Bolt	**FD-420-06B**					
	LINE-UP 	M6 Bolt	**FD-620-13B**	100				
Standard type		M3 Bolt	**FD-320-05**	40	ϕ0.03	15R		−40~70℃ (Humidity: 35~85%RH)
		M4 Bolt	**FD-420-05**					
		ϕ3 Cylinder type	**FDC-320-05**					
		ϕ3 Cylinder type SUS type (90mm)	**FDCS-320-05**			15R (SUS part 10R)		
		M3 Bolt SUS type (90mm)	**FDS-320-05**					
		M3 Bolt SUS type (45mm)	**FDS2-320-05**					
		M4 Bolt SUS type (90mm)	**FDS-420-05**					
		M6 Bolt SUS type (45mm)	**FDS2-420-05**					
		M6 Bolt	**FD-620-10**	120		30R		
		M6 Bolt SUS type (90mm)	**FDS-620-10**			30R (SUS part 10R)		
		M4 Bolt SUS type (45mm)	**FDS2-620-10**					
		Plastic type	**FDP-320-10**			30R		
Coaxial type		M3 Bolt	**FD-320-F**	40		15R		
		M3 Bolt	**FD-320-F1**	60				
		M6 Bolt	**FD-620-F2**	120		30R		
Heat-resistant type		M6 Bolt	**FD-620-10H**			30R		−40~105℃
		M6 Bolt	**FD-620-15H1**	160		50R		−40~150℃
		M4 Bolt Glass type	**FD-420-20H2**	100			2m	−40~250℃
		M6 Bolt Glass type	**FD-620-20H2**					

※**(Note1)** The sensing distance is a standard for Red LED of BF4 Series and 10% of Red LED is applied when it is Green LED. It is applied to 40% of sensing distance for BF3RX.

※**(Note2)** Min. sensing target is a value measured opaque material in accurate output status and the sensing distance is different with the rated sensing distance(Note1).

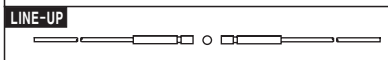
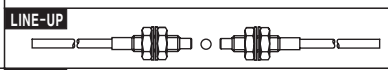
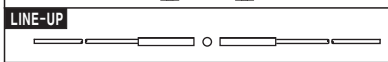
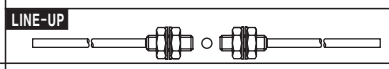
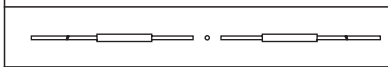
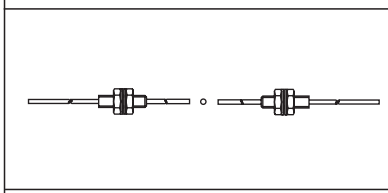
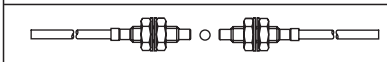
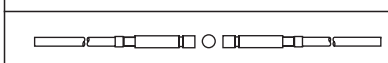
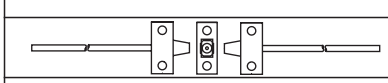
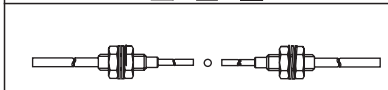
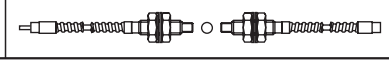
※**(Note3)** Fiber optic cable out of the rated length can be customizable.

※ Free cut The sensing distance can be shortened about max. 20% than the normal according to condition of the cable. [(FC-2) should be used for cutting fiber cable.]

※ Glass type is for BF5R, BF4R Series.

Fiber Optic Cable

▣Specifications(Through-beam)

Type	Dimension	Feature	Model	(Note1) Sensing distance (mm)	(Note2) Min. sensing target	Allowable bend radius	(Note3) Cable length(L)	Temperature
Flexible type	LINE-UP	M3 Bolt	**FT-320-05R**	85	ϕ0.3	1R	2m **Free cut**	−40~60℃ (Humidity: 35~85%RH)
	LINE-UP 	ϕ2 Bolt	**FTC-220-05R**					
	LINE-UP 	M4 Bolt	**FT-420-10R**	380	ϕ0.5			
Break-resistant type	LINE-UP	M3 Bolt	**FT-320-06B**	110	ϕ0.3	5R		
	LINE-UP 	ϕ1.5 Cylinder type	**FTC-1520-06B**					
	LINE-UP 	M4 Bolt	**FT-420-13B**	400	ϕ0.6			
Standard type		M3 Bolt	**FT-320-05**	150	ϕ0.5	15R		−40~70℃ (Humidity: 35~85%RH)
	LINE-UP	ϕ1.5 Cylinder type	**FTC-1520-05**					
		ϕ2 Cylinder type	**FTC-220-05**					
		ϕ2 Cylinder type (90mm)	**FTCS-220-05**			15R (SUS part 10R)		
		M3 Bolt SUS type (90mm)	**FTS-320-05**					
		M3 Bolt SUS type (35mm)	**FTS1-320-05**					
		M3 Bolt SUS type (45mm)	**FTS2-320-05**					
		M4 Bolt	**FT-420-10**	500	ϕ1	30R		
		ϕ3 Cylinder type	**FTC-320-10**					
		Plastic type	**FTP-320-10**					
		M4 Bolt SUS type (90mm)	**FTS-420-10**			30R (SUS part 10R)		
		M4 Bolt SUS type (45mm)	**FTS2-420-10**					
Heat-resistant type		M4 Bolt	**FT-420-10H**	300		30R		−40~105℃
		M4 Bolt	**FT-420-15H1**	500		50R		−40~150℃
		M4 Bolt Glass type	**FT-420-13H2**	400		25R	2m	−40~250℃

※**(Note1)** The sensing distance is a standard for Red LED of BF4 Series and 10% of Red LED is applied when it is Green LED. It is applied to 40% of sensing distance for BF3RX.

※**(Note2)** Min. sensing target is a value measured opaque material in accurate output status and the sensing distance is different with the rated sensing distance(Note1).

※**(Note3)** Fiber optic cable out of the rated length can be customizable.

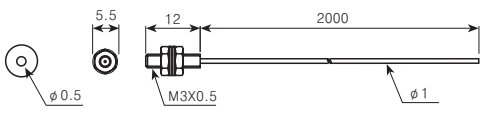
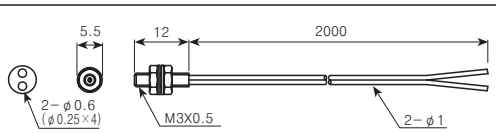
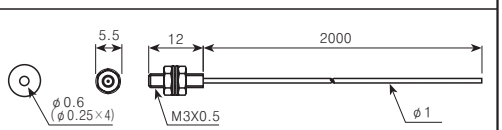
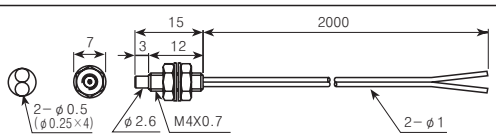
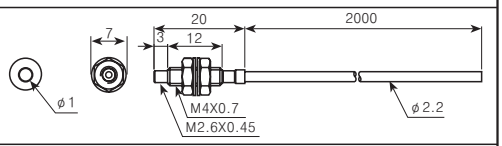
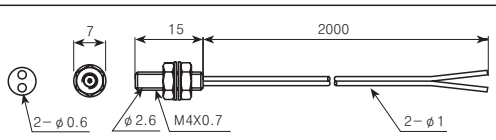
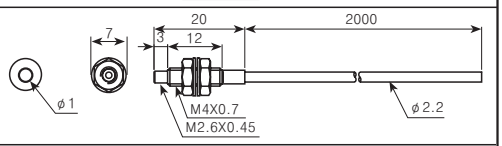
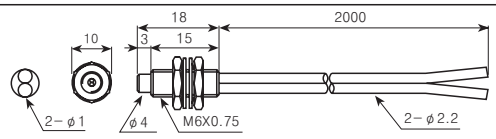
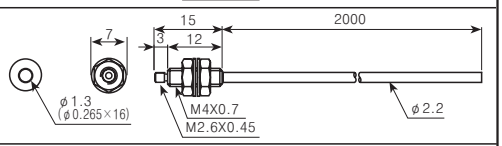
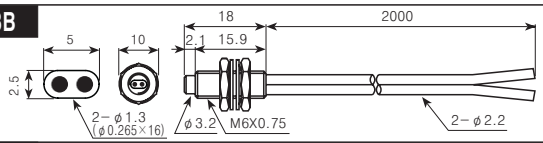
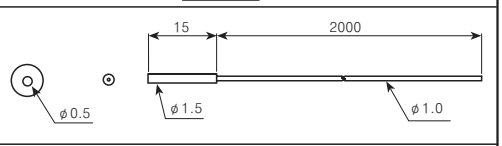
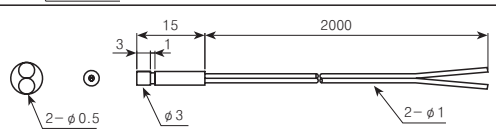
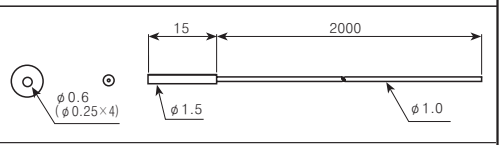
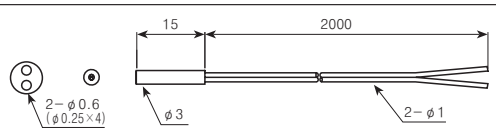
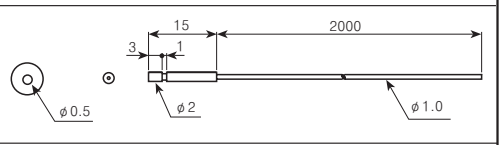
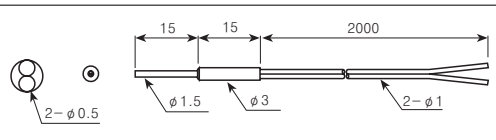
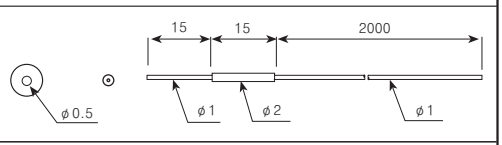
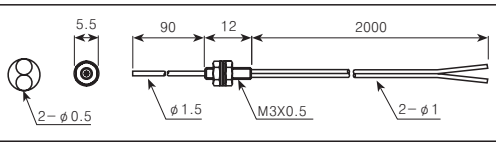
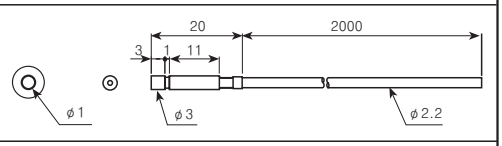
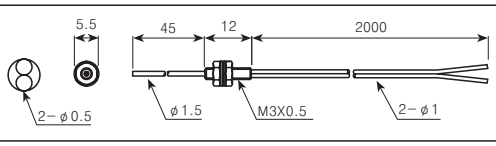
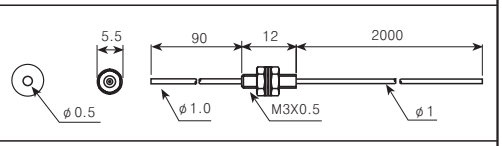
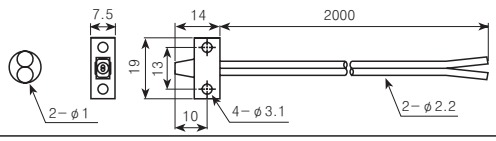
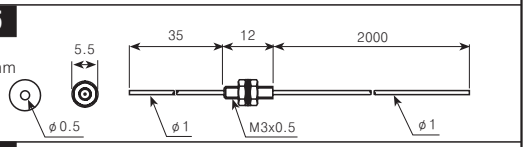
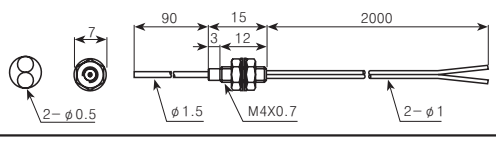
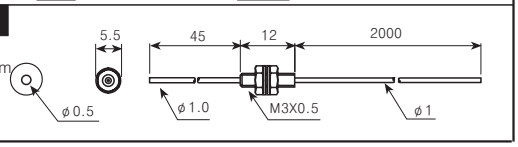
※ **Free cut** The sensing distance can be shortened about max. 20% than the normal according to condition of the cable. [(FC-2) should be used for cutting fiber cable.]

※ **Glass type** is for BF5R, BF4R Series.

※FT-420-13 was discontinued. FT-420-13B is replacement.

▣Dimensions

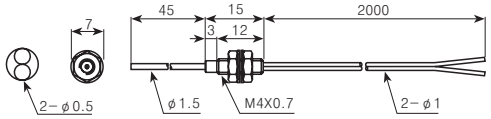
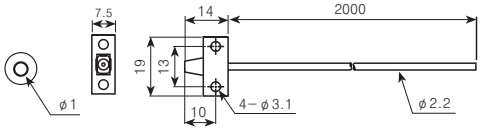
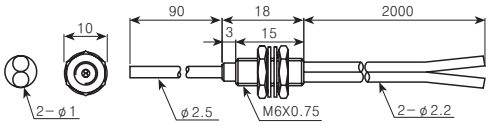
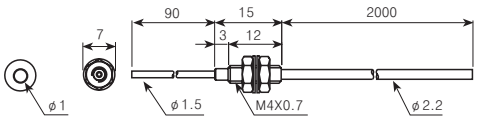
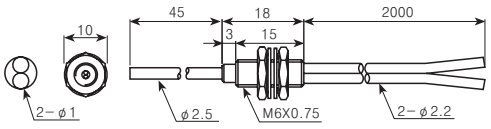
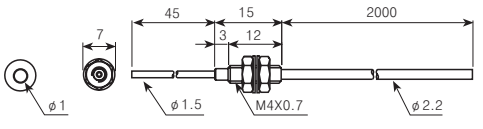
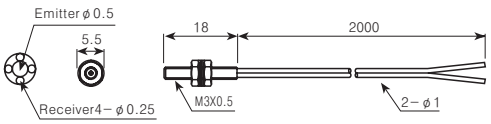
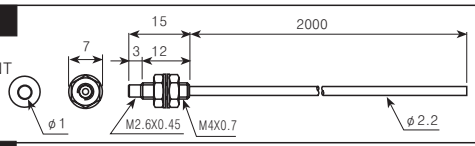
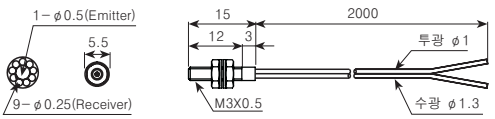
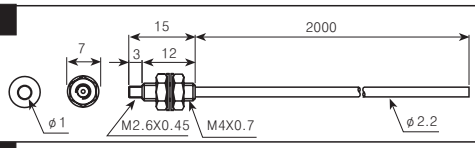
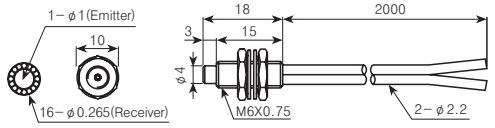
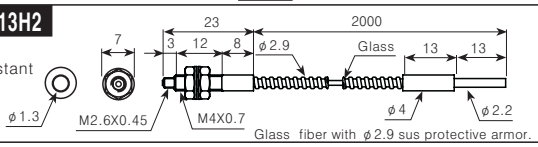
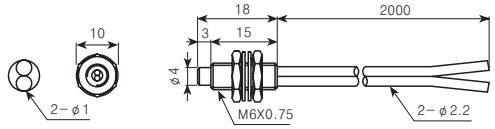
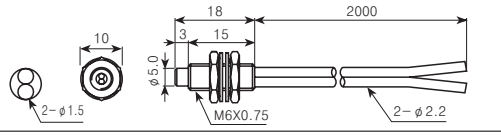
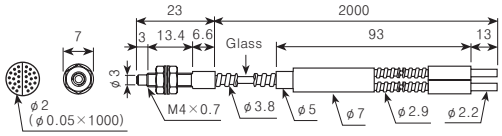
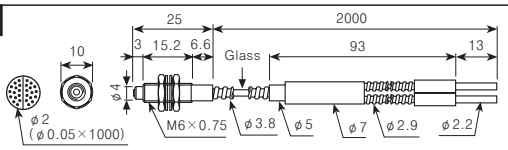
(Unit:mm)

Model	Diffuse reflective	Model	Through-beam
FD-320-05(R) M3-D0.5 Free cut Adapter		**FT-320-05(R)** M3-D0.5 Free cut Adapter	
FD-320-06B M3-D0.6 Free cut Adapter		**FT-320-06B** M3-D0.6 Free cut Adapter	
FD-420-05(R) M4-D0.5 Free cut Adapter		**FT-420-10** M4-D1.0 Free cut	
FD-420-06B M4-D0.6 Free cut Adapter		**FT-420-10R** M4-D1.0 Free cut	
FD-620-10(R) M6-D1.0 Free cut		**FT-420-13B** M4-D1.3 Free cut	
FD-620-13B M6-D1.3 Free cut		**FTC-1520-05** ø2-D0.5 Free cut Adapter	
FDC-320-05 M3-D0.5 Free cut Adapter		**FTC-1520-06B** ø2-D0.6 Free cut Adapter	
FDC-320-06B M3-D0.6 Free cut Adapter		**FTC-220-05(R)** ø2-D0.5 Free cut Adapter	
FDCS-320-05 ø3-D0.5 SUS ø1.5×15mm Free cut Adapter		**FTCS-220-05** ø1.0-D0.5 SUS ø1×15mm Free cut Adapter	
FDS-320-05 M3-D0.5 SUS ø1.5×90mm Free cut Adapter		**FTC-320-10** ø3-D1.0 Free cut	
FDS2-320-05 M3-D0.5 SUS ø1.5×45mm Free cut Adapter		**FTS-320-05** M3-D0.5 SUSø1.0×90mm Free cut Adapter	
FDP-320-10 D1.0×2 Plastic Free cut		**FTS1-320-05** M3-D0.5 SUS ø1.0×35mm Free cut Adapter	
FDS-420-05 M4-D0.5 SUS ø1.5×90mm Free cut Adapter		**FTS2-320-05** M3-D0.5 SUSø1.0×45mm Free cut Adapter	

Fiber Optic Cable

▣Dimensions

(Unit:mm)

Model	Diffuse reflective	Model	Through-beam
FDS2-420-05 M4-D0.5 SUS ø1.5×45mm Free cut Adapter		**FTP-320-10** D1.0 Plastic Free cut	
FDS-620-10 M6-D1.0 SUS ø2.5×90mm Free cut		**FTS-420-10** M4-D1.0 SUS ø1.5×90mm Free cut	
FDS2-620-10 M6-D1.0 SUS ø2.5×45mm Free cut		**FTS2-420-10** M4-D1.0 SUS ø1.5×45mm Free cut	
FD-320-F Co-axial M3 ø0.5, ø0.25×4 Free cut Adapter		**FT-420-10H** M4-D1.0 Heat RESISTANT 105℃ Free cut	
FD-320-F1 Co-axial M3 ø0.5, ø0.25×9 Free cut Adapter		**FT-420-15H1** M4-D1.0 Heat Resistant 150℃ Free cut	
FD-620-F2 Co-axial M6 ø1.0 ø0.265×16 Free cut		**GT-420-13H2** M4-D1.3 Heat Resistant Max.250℃ Glass Glass fiber with ø2.9 sus protective armor.	
FD-620-10H M6-D1.0 Heat Resistant 105℃ Free cut			
FD-620-15H1 M6-D1.5 Heat Resistant 150℃ Free cut			
GD-420-20H2 M4-D0.05×1000 Heat Resistant 250℃			
GD-620-20H2 M6-D0.05×1000 Heat Resistant 250℃			

▣Lens unit for long distance detection (Sold separately)

◎Model : **FTL-M26**

<Lens unit> <Mounting at cable>

◎Mounting of lens

Mount the lens unit on the 3 mm projecting point of the front hood

◎Ambient temperature range of lens unit

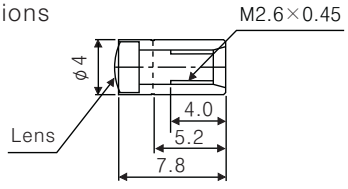
Able to use within −40℃~100℃.
(Disable to use over 100℃.)

◎Applicable fiber optic cable and max. mounting distance

FT-420-10 : 2500mm

FT-420-10H : 1500mm

◎Dimensions



(Unit:mm)

▣Micro spot fiber optic cable and lens unit (Sold separately)

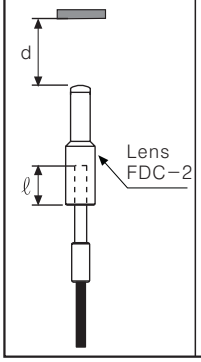
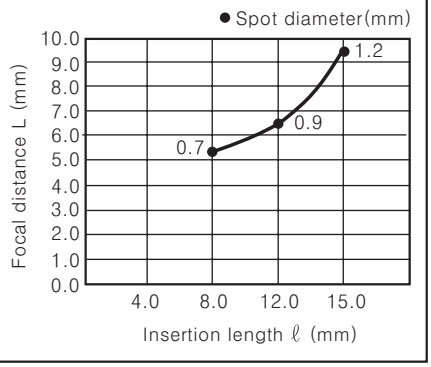
◎Model

Fiber optic cable : **FDC-320-F**
Micro spot lens : **FDC-2**

◎Ambient temperature range of lens unit

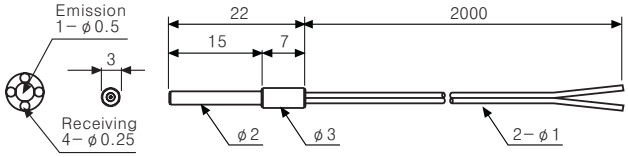
It is used within −40℃−+100℃.
(It cannot be used over 100℃.)

◎Feature data

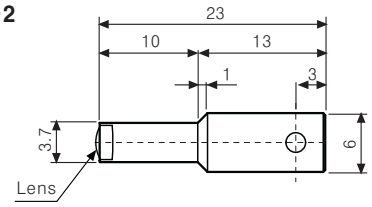
Measuring method	Beam spot characteristic
	

◎Dimensions

●**FDC-320-F**



●**FDC-2**

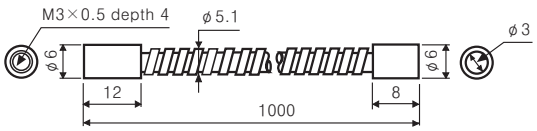
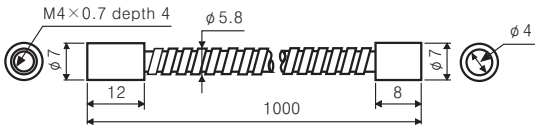
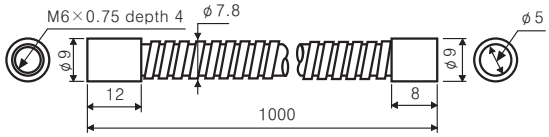


(Unit:mm)

▣Protection tube for fiber optic cable (Sold separately)

◎Usage : Protect cable from impact or cutting

(Unit:mm)

Model	Dimension
FTH-310	
FTH-410	
FDH-610	

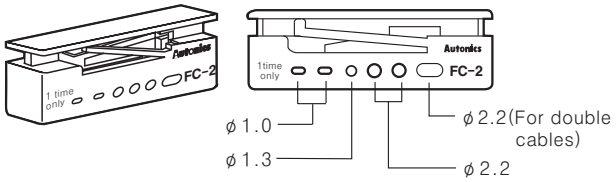
※Note1)
500mm tube can be customized.
※Note2)
Additional 8mm is for tube coupling.

▣Accessory

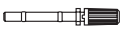
◎Fiber cutter

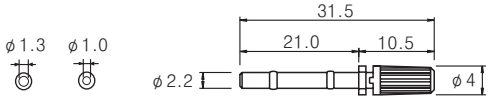
Usage : Free cut type, fiber optic cable cutting

●FC-2



◎Adapter

Adapter :  should be used.



※Note1)
The inside diameter φ1.0(Standard and black)
The inside diameter φ1.3(Only applied to the receiver of FD−320−F1 and dark gray.)

(Unit:mm)