

New product introduction
Tough Fiber

Fiber Selection Guide
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Choose by shape/application
Viewing new models

Fibers
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Cylindrical Type
Sleeve
Flat Type
Small Spot
Narrow Beam
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Convergent Reflective Type
Retroreflective Type
Chemical-resistant
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Fiber Options

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Others

Amplifiers
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Earlier models comparison table

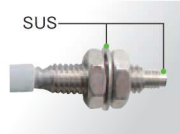
Threaded Type

- It is a standard fiber which is mounted using nuts. It has reasonable pricing while drastically improving flexing performance.
- With the lens installable type, long distance sensing and microscopic object sensing is possible by installing a lens.
- A protective tube and a sturdy stainless jacket type that prevents disconnection are also prepared.



Stainless steel fittings are used for the fiber head of all models.

- Clearly conforms to RoHS
- Can be used for secondary battery
- Improved mounting strength



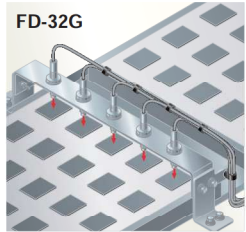
* Some models not included (FT-R41W, FT-R42W, FT-140)

Application

Metal-free fiber FT-41, FD-G60, FD-G40

- Made of resin
- Metallic particulate production ratio: ZERO
- Effect on magnetic fields: ZERO

*For details, please see our website.



Sensing the presence of workpiece



<Thru-beam type> FT-31/31W/43/42/42W FT-45X/R40

<Reflective type> FD-31/41/62/61/R60

More user-friendly, high quality fiber

Improved centering accuracy

- The beam axis deviation of each unit is kept within $\pm 3^\circ$ and the beam axis centering accuracy is kept within $\pm 150 \mu\text{m}$.
(Within $\pm 5^\circ$ and $\pm 90 \mu\text{m}$ for ultra small diameter fibers)
- Makes beam axis adjustment easier
 - Improves mounting hole machining accuracy
 - Improves sensing accuracy

Improved specularity

- High precision polishing is accomplished by using the PCTC polishing technique. The specularity of the end face of the fiber is 5 times greater.
- Light intensity is increased, enabling stable sensing.

Thru-beam type (one pair set)

Type	Shape of fiber head (mm)	Model No.	Bending radius (mm)	Fiber cable length (m)	Sensing range (mm in) (Note 1)			Beam axis dia. (mm)	Beam axis position/Inclination of beam axis	Protection	Ambient temp.		
					FX-500 series	U-LG LONG FAST H-SP	FX-101 (Upper value) FX-102 (Lower value)						
Threaded	M3	Tough NEW FT-31	R2	2 m	STD 315 12.402	770 30.315	130 5.118	0.5	150 μm / $\pm 2^\circ$	IP67	-55 to +80 °C		
		NEW FT-31W	R1		HYPR 1,350 53.150	550 21.654	340 13.386						
	M4	Lens mountable	NEW FT-43	R4	2 m	STD 260 10.236	590 23.228	80 3.150	1.5	150 μm / $\pm 3^\circ$	IP67	-55 to +80 °C	
			Tough NEW FT-42	R4		HYPR 990 38.976	440 17.323	240 9.449					
		Lens mountable	NEW FT-42W	R1	2 m	STD 800 31.496	1,900 74.803	260 10.236	1.5	150 μm / $\pm 3^\circ$	IP67	-40 to +60 °C	
			NEW FT-45X	R4		HYPR 3,300 129.921	1,400 55.118	720 28.346					
		Lens mountable, Stainless-jacketed	NEW FT-R40	R4	2 m	STD 930 36.614	2,800 110.236	270 10.630	1.5	150 μm / $\pm 2^\circ$	IP67	-55 to +80 °C	
			NEW FT-R41W	R1		HYPR 800 31.496	2,100 82.677	740 29.134					
		Square head	With expansion lens	NEW FT-R42W	R1	2 m	STD 3,200 125.984	1,750 68.898	250 9.843	2.2	—	IP40	-40 to +60 °C
				NEW FT-140	R4		HYPR 19,600 771.654	1,500 59.055	710 27.953				
Long range	With expansion lens	NEW FT-140	R4	10 m	STD 19,600 771.654	1,600 62.992	14,000 551.181	10	—	IP67	-40 to +70 °C		
		NEW FT-140	R4		HYPR 19,600 771.654	1,600 62.992	6,300 248.031						

Notes: 1) Note that the sensing range of the free-cut type fiber may be reduced by 20 % max. depending upon how the fiber is cut.

2) The fiber cable length practically limits the sensing range.

Tough : It is a fiber which possesses both unbreakable (bending radius: R10 mm, reciprocating bending: 180°) and bendable (bending radius: R4 mm or less) features.

Coaxial type FD-□□ in which high-precision positioning can be achieved.

It is a coaxial fiber that encloses the circumference of the emitter fiber at the center with the receiver fiber. This is suitable for high-precision positioning. It can perform sensing without affecting the approach direction of the work.



Supports spot lenses and zoom lenses!

Fiber options

Lens (For thru-beam type fiber)
▶P.30~

Lens (For reflective type fiber)
▶P.32

Protective tube▶P.33

- FTP-□
- FDP-□



Reflective type

Type	Shape of fiber head (mm)	Model No.	Bending radius (mm)	Fiber cable length Free-cut	Sensing range (mm in) (Note 1, 2)			Beam axis position/Inclination of beam axis	Protection	Ambient temp.	
					FX-500 series	U-LG LONG FAST H-SP	FX-101 (Upper value) FX-102 (Lower value)				
M3		Tough NEW R2 FD-31	Bending durability	2 m	STD 125 4.921 HYPR 515 20.276	290 11.417 220 8.661 80 3.150 25 0.984	35 1.378 140 5.512	150 μm /±3°	IP67	-55 to +80 °C	
		NEW R1 FD-31W			STD 80 3.150 HYPR 330 12.992	180 7.087 140 5.512 45 1.772 12 0.472	15 0.591 60 2.362	—			-40 to +60 °C
		Tough NEW R2 FD-32G	Bending durability	1 m (Note 3)	STD 200 7.874 HYPR 650 25.591	380 14.961 270 10.630 95 3.740 27 1.063	70 2.756 190 7.480	—	IP40	-55 to +80 °C	
		NEW R2 FD-32GX			STD 200 7.874 IHYPR 630 24.803	410 16.142 360 14.173 100 3.937 30 1.181	75 2.953 210 8.268	—			
	Ultra-small diameter		NEW R4 FD-EG30		500 mm	STD 48 1.890 HYPR 170 6.693	130 5.118 110 4.331 30 1.181 9 0.354	20 0.787 70 2.756	—	IP40	-40 to +70 °C
			NEW R4 FD-EG31			STD 20 0.787 HYPR 85 3.346	45 1.772 35 1.378 12 0.472 3.5 0.138	7 0.276 25 0.984	—		-20 to +60 °C
Threaded M4		Tough NEW R2 FD-41	Bending durability	2 m	STD 125 4.921 HYPR 515 20.276	290 11.417 220 8.661 80 3.150 25 0.984	35 1.378 140 5.512	150 μm /±3°	IP67	-55 to +80 °C	
		NEW R1 FD-41W			STD 270 10.630 HYPR 900 35.433	630 24.803 430 16.929 150 5.906 45 1.772	80 3.150 230 9.055	—			-40 to +60 °C
		Tough NEW R2 FD-42G	Bending durability	2 m	STD 200 7.874 HYPR 650 25.591	380 14.961 270 10.630 95 3.740 27 1.063	70 2.756 190 7.480	—	IP40	-55 to +80 °C	
		NEW R1 FD-42GW			STD 150 5.906 HYPR 670 26.378	340 13.386 280 11.024 90 3.543 25 0.984	45 1.772 140 5.512	—			-40 to +60 °C
	M6		NEW R4 FD-62	Bending durability	2 m	STD 520 20.472 HYPR 1,500 59.055	1,000 39.370 940 37.008 340 13.386 110 4.331	170 6.693 450 17.717	150 μm /±3°	IP67	
			Tough NEW R1 FD-61			STD 450 17.717 HYPR 1,400 55.118	840 33.071 670 26.378 200 7.874 70 2.756	120 4.724 410 16.142	—		
		NEW R1 FD-61W		2 m	STD 270 10.630 HYPR 900 35.433	630 24.803 430 16.929 150 5.906 45 1.772	80 3.150 230 9.055	—	IP40	-40 to +60 °C	
		Tough NEW R4 FD-61G	Bending durability		STD 420 16.535 HYPR 1,100 43.307	800 31.496 650 25.591 200 7.874 60 2.362	120 4.724 350 13.780	—			
Elbow		NEW R4 FD-64X		1 m	STD 280 11.024 HYPR 670 26.378	500 19.685 410 16.142 160 6.299 50 1.969	75 2.953 220 8.661	—	IP40	-55 to +80 °C	
		Tough NEW R4 FD-R60	Bending durability		STD 290 11.417 HYPR 1,100 43.307	600 23.622 550 21.654 190 7.480 65 2.559	110 4.331 240 9.449	150 μm /±3°			IP67

Notes: 1) Note that the sensing range of the free-cut type fiber may be reduced by 20 % max. depending upon how the fiber is cut.
2) The sensing range is specified for white non-glossy paper.
3) The allowable cutting range is 700 mm 27.559 in from the end that the amplifier inserted.

Tough : It is a fiber which possesses both unbreakable (bending radius: R10 mm, reciprocating bending: 180°) and bendable (bending radius: R4 mm or less) features.

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