

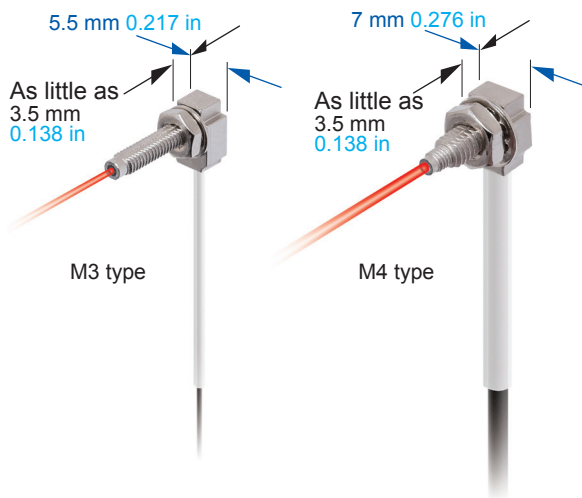
NEW

## Square Head Fiber

FT-R□ / FD-R□

# Space-saving Break-free, more flexible, square head fiber \*!

### Compact, space-saving



With thru-beam type fiber

With reflective type fiber

### Compact installation

Square head fiber heads can be installed cleanly on the side of a conveyor belt. The design makes it less likely for tools and other objects to catch on the fiber cable during installation.

FT-R□ / FD-R□

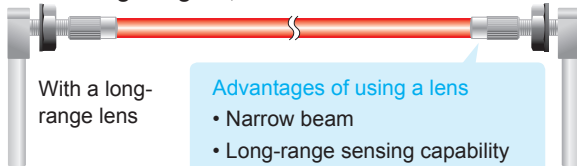
Standard fiber



## Use for long-range sensing or spot detection by attaching a lens

### Thru-beam type fibers

Sensing range **3,600 mm 141.732 in** (Note 1, 2)



With a long-range lens

#### Advantages of using a lens

- Narrow beam
- Long-range sensing capability
- Increased thru-beam capability

### Lens (For thru-beam type fiber)

Sensing range (mm in) (Note 1) [Lens on both sides]	Beam axis dia. (mm in)	Lens		Applicable fiber Model No.
		Designation	Model No.	
3,600 141.732 (Note 2)	ø3.6 ø0.142	Expansion lens	FX-LE1	FT-R43
	ø9.8 ø0.386	Super-expansion lens	FX-LE2	
950 37.402	ø2.8 ø0.110	Side-view lens	FX-SV1	

Notes: 1) The sensing ranges are the values when used in combination with an FX-500 series amplifier (in STD mode).

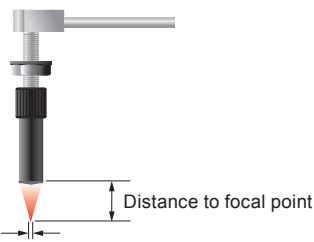
2) The fiber cable length practically limits the sensing range.

### Reflective type fibers

With a finest-spot lens

Spot diameter (Note 3)

ø0.1 to ø0.5 mm  
ø0.004 to ø0.020 in



Choose the fiber and lens combination that yields the optimal spot diameter for your application.

### Lens (For reflective type fiber)

Spot diameter (mm in) (Note 3)	Distance to focal point (mm in) (Note 3)	Lens		Applicable fiber Model No.
		Designation	Model No.	
Approx. ø0.1 ø0.004	7 ± 0.5 0.276 ± 0.020	Finest spot lens	FX-MR6	FD-R33EG
Approx. ø0.2 ø0.008				FD-R32EG
Approx. ø0.4 ø0.016				FD-R31G
Approx. ø0.15 ø0.006	7.5 ± 0.5 0.295 ± 0.020	Finest spot lens	FX-MR3	FD-R33EG
Approx. ø0.3 ø0.012				FD-R32EG
Approx. ø0.5 ø0.020				FD-R31G

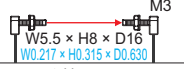
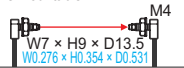
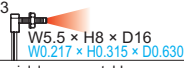
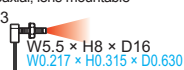
Note: 3) The sensing ranges are the values when used in combination with an FX-500 / FX-100 series amplifier.

## Semi-custom fibers that flexibly meet diverse needs

Custom-ordered products are available with different fiber lengths and sleeve lengths in order to respond quickly to different requirements. Contact your nearest our office for details on model numbers, standard prices and delivery periods.

\* These fibers provide a combination of break-free (10 million times bending durability [typical value, when bent back and forth at 180° with a bending radius of R10 mm R0.394 in]) and bendable (bending radius of R2 to R4 mm R0.079 to R0.157 in) characteristics.

# LIST OF FIBERS

Type	Shape of fiber head (mm in)	Model No. (Beam-emitting part) (mm in)	Bending radius	Fiber cable length Free-cut	Sensing range (mm in) (Note 1, 2)		Beam axis dia. (mm in)	Protection	Ambient temp.			
					FX-500 series	U-LG LONG FAST H-SP FX-101 (Upper value) FX-102 (Lower value)						
Square head	Thru-beam type	M3  W5.5 × H8 × D16 W0.217 × H0.315 × D0.630	<b>Tough</b> <b>NEW</b> FT-R31	R2 mm R0.079 in Bending durability	2 m 6.562 ft	STD 270 10.630 HYPR 1,000 39.370	580 22.835 440 17.323 160 6.299 55 2.165	100 3.937 340 13.386	∅0.5 ∅0.020	IP67	-55 to +80 °C -67 to +176 °F	
		M4  W7 × H9 × D13.5 W0.276 × H0.354 × D0.531	<b>Tough</b> <b>NEW</b> FT-R43	R4 mm R0.157 in Bending durability	500 mm 19.685 in	STD 720 28.346 HYPR 3,000 118.110	1,600 62.992 1,100 43.307 430 16.929 130 5.118	210 8.268 640 25.197	∅1 ∅0.039			
	Reflective type	M3 Coaxial, lens mountable  W5.5 × H8 × D16 W0.217 × H0.315 × D0.630	<b>Tough</b> <b>NEW</b> FD-R31G (∅0.5 ∅0.020)	R2 mm R0.079 in Bending durability	500 mm 19.685 in	STD 170 6.693 HYPR 530 20.866	310 12.205 260 10.236 85 3.346 27 1.063	45 1.772 150 5.906	—	IP40		-40 to +70 °C -40 to +158 °F
			<b>NEW</b> FD-R32EG (∅0.25 ∅0.010)	R4 mm R0.157 in		STD 45 1.772 HYPR 170 6.693	110 4.331 92 3.622 30 1.181 9 0.354	20 0.787 68 2.677				
		M3 Coaxial, lens mountable  W5.5 × H8 × D16 W0.217 × H0.315 × D0.630	<b>NEW</b> FD-R33EG (∅0.125 ∅0.005)	R4 mm R0.157 in	STD 19 0.748 HYPR 84 3.307	44 1.732 33 1.299 11 0.433 3 0.118	7 0.276 22 0.866	—	IP67	-20 to +60 °C -4 to +140 °F		
			<b>Tough</b> <b>NEW</b> FD-R41	R2 mm R0.079 in Bending durability	2 m 6.562 ft	STD 210 8.268 HYPR 710 27.953	430 16.929 320 12.598 100 3.937 34 1.339	60 2.362 170 6.693				—

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 of reflective type is specified for white non-glossy paper.  
**Tough** : These fibers provide a combination of break-free (when bent back and forth at 180° with a bending radius of R10 mm R0.394 in) and bendable (bending radius of R4 mm R0.157 in or less) characteristics.

## DIMENSIONS (Unit: mm in)

The CAD data in the dimensions can be downloaded from our website.

