

HIGHLY FLEXIBLE
withstands bending up to
10 million times

MINIMUM BEND RADIUS
R2 mm **R0.08"**

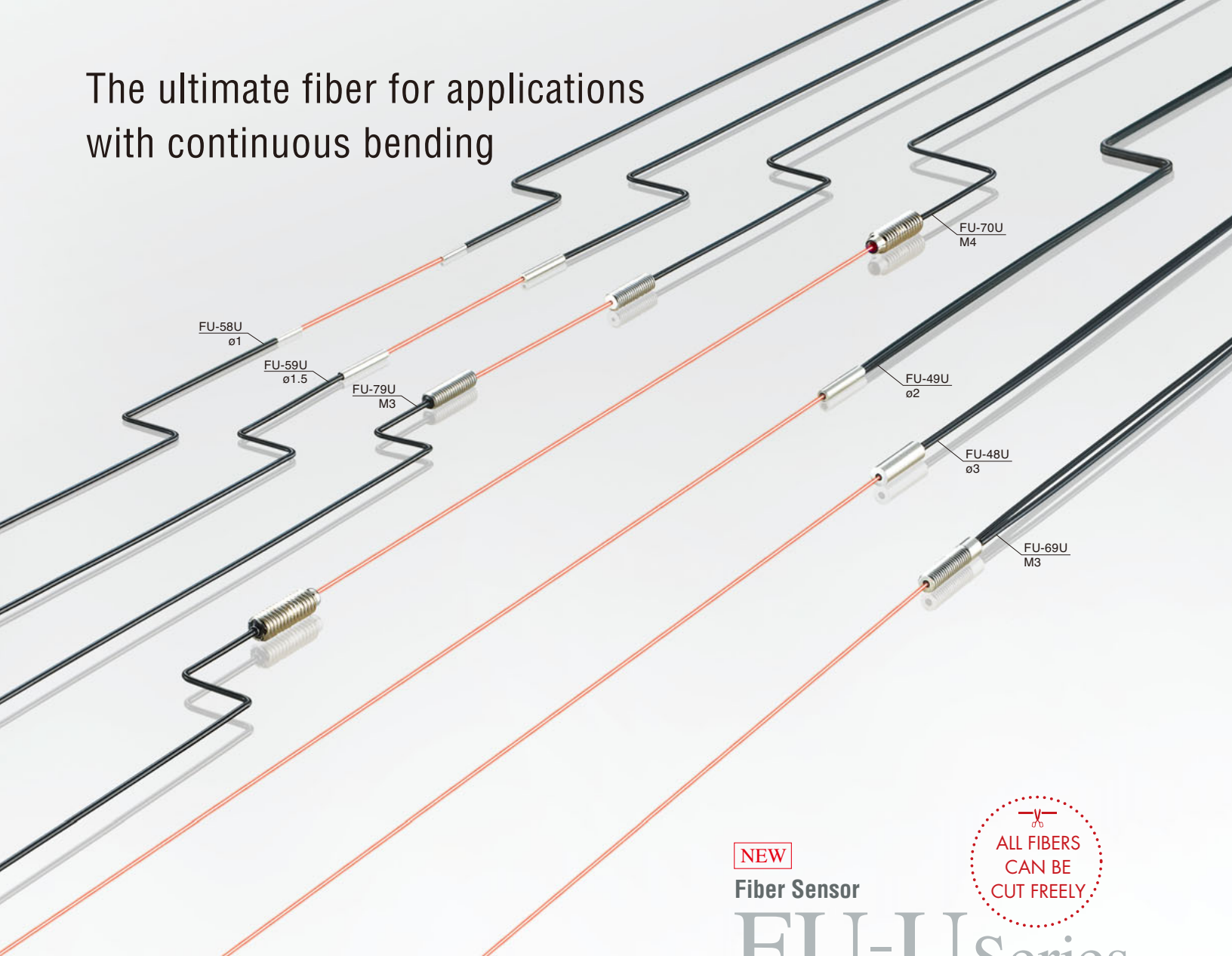
BENDS WITHOUT BREAKING

NEW FIBER MATERIALS

Latest
Digital Fiber Amplifier
FS-V30 Series



The ultimate fiber for applications
with continuous bending



NEW

Fiber Sensor

FU-U Series

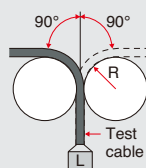


HIGHLY-FLEXIBLE

**Withstands bending up to
10 million times (Typical)**

- Reduce labor costs for maintenance
- Reduce material costs

Bending conditions



Angle:	90°
Bend radius:	R1.18" R30 mm
Load:	20 g
Bending rate:	30 cycles/minute (1 cycle includes left to right to original position)
Test cable:	FU-U Series Fiber

UNBREAKABLE

R0.08" R2 mm

- Space-saving installation
- Adapts to the contours of your machine

The R0.08" R2 mm bend radius makes it possible to install in extremely tight spaces around any obstacle without breaking.

Conventional flexible fiber



The bend radius was R0.16" R4 mm with four core fibers.

New flexible fiber



Unbreakable R0.08" R2 mm was achieved by using a multicore fiber.

Extensive lineup

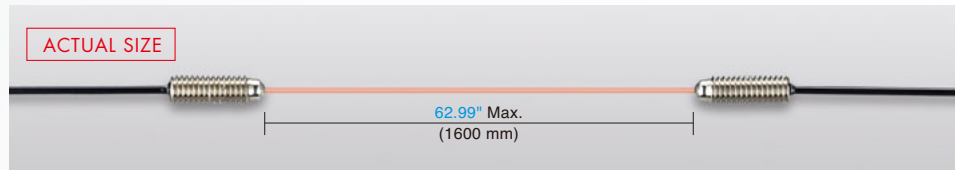
FU-70U

Built-in lens won't scratch or come loose

Some conventional high-flex fibers offer lens attachments, but due to continuous movement and vibration these lenses can come loose over time. The FU-70U features a super-tough built-in spherical lens that will not pop out, scratch, or come loose.



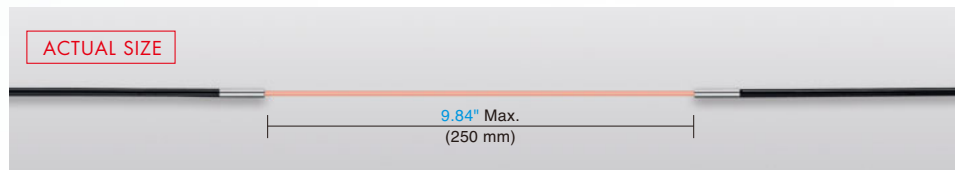
The built-in lens doesn't come off.



FU-58U

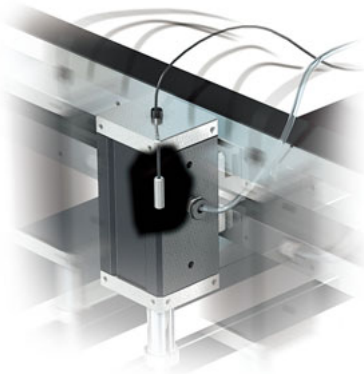
Ultra-small $\phi 0.04"$ 1mm head fits anywhere

The incredibly tough $R0.08"$ R2mm bend radius, 10 million cycle, $\phi 0.04"$ $\phi 1$ mm cable combined with its $\phi 0.04"$ $\phi 1$ mm head means the FU-58U can be mounted almost anywhere.

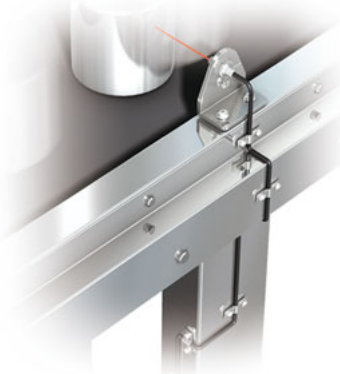


Application examples

Installation on a moving robot



Tightly installed around the contours of a machine



Amplifier

Type		Standard		2 outputs		Analog
		Main unit	Expansion unit	Main unit	Expansion unit	Main unit
Model	NPN output	FS-V31	FS-V32	FS-V33	FS-V34	FS-V31M ^{*1}
	PNP output	FS-V31P	FS-V32P	FS-V33P	FS-V34P	—
Control outputs		1		2		1
External input		0		1		0
Analog output		0				1

^{*1} Output range: 1 to 5 V for the display value 0 to 4095 at HIGH SPEED/FINE/TURBO mode.

FS-V30 Series



Specifications

Unit: inch mm

Model	FU-58U	FU-59U	FU-79U	FU-70U	FU-48U	FU-49U	FU-69U
Type	Thrubeam				Reflective		
Optical axis diameter	$\phi 0.02"$ $\phi 0.5$ mm			$\phi 0.9"$ $\phi 2.3$ mm	NA		
Detecting distance (inch mm) *1	MEGA	9.84" 250		62.99" 1600		3.23" 82	
	ULTRA	6.69" 170		62.99" 1600		2.48" 63	
	SUPER	4.33" 110		36.61" 930		1.89" 48	
	TURBO	3.15" 80		26.38" 670		1.26" 32	
	FINE	2.32" 59		18.5" 470		0.91" 23	
	HSP	0.94" 24		7.87" 200		0.35" 9	
Smallest detectable object *2	$\phi 0.0002"$ $\phi 0.005$ mm opaque body			$\phi 0.001"$ $\phi 0.1$ mm opaque body	$\phi 0.0002"$ $\phi 0.005$ mm gold wire		
Tightening torque (Nm)	0.05	0.15	0.6	0.8	0.15	0.15	0.6
Ambient temperature	-40 to 122 °F -40 to +50 °C (No freezing)						
Relative humidity	35% to 85% (No condensation)						
Bend radius	R0.08" R2 mm						
Fiber length	3.28' 1 m (free cut)						
Material	Core fiber: Acrylic Fiber coating: Nylon Housing: Stainless steel 303			Core fiber: Acrylic Fiber coating: Nylon Housing: Nickel-plated brass Lens: Glass (BK7)	Core fiber: Acrylic Fiber coating: Nylon Housing: Stainless steel 303		
Weight	Approx. 4 g			Approx. 5 g	Approx. 4 g		
Included accessories	Fiber cutter FU adapter		Fiber cutter, FU adapter, Mounting nuts		Fiber cutter, FU adapter	Fiber cutter, FU adapter, Mounting nuts	

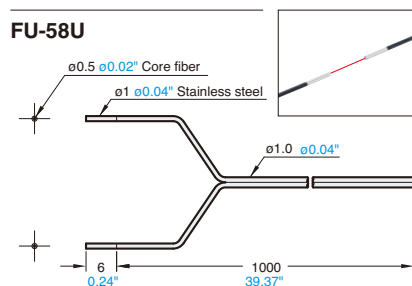
*1 When using the FS-V30 Series.

*2 The smallest detectable object was determined at the optimal detecting distance and sensitivity setting.

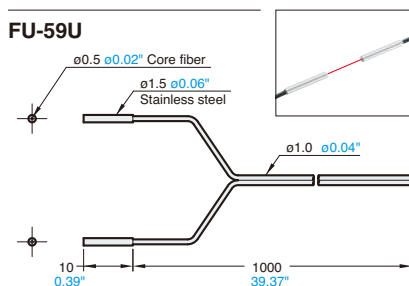
Dimensions

Thrubeam type

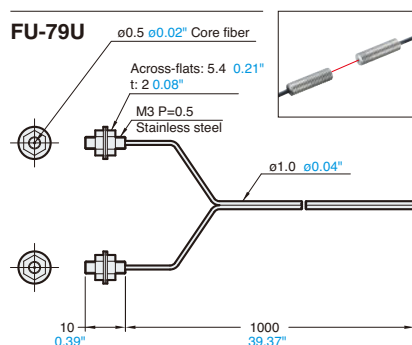
FU-58U



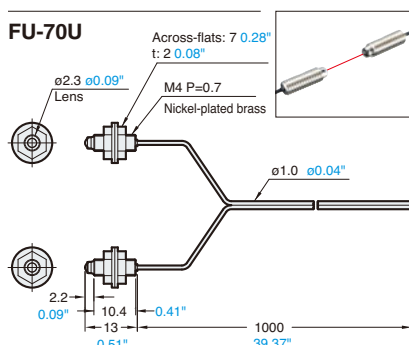
FU-59U



FU-79U



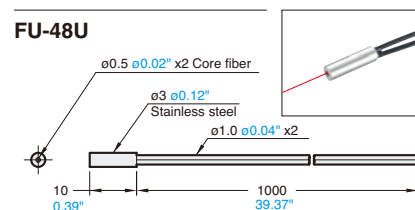
FU-70U



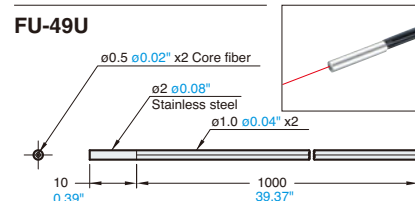
Reflective type

Unit: mm inch

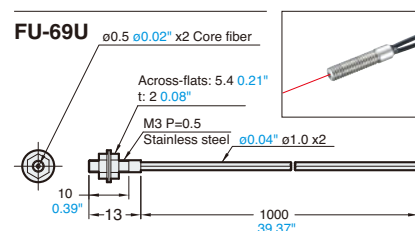
FU-48U



FU-49U



FU-69U



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