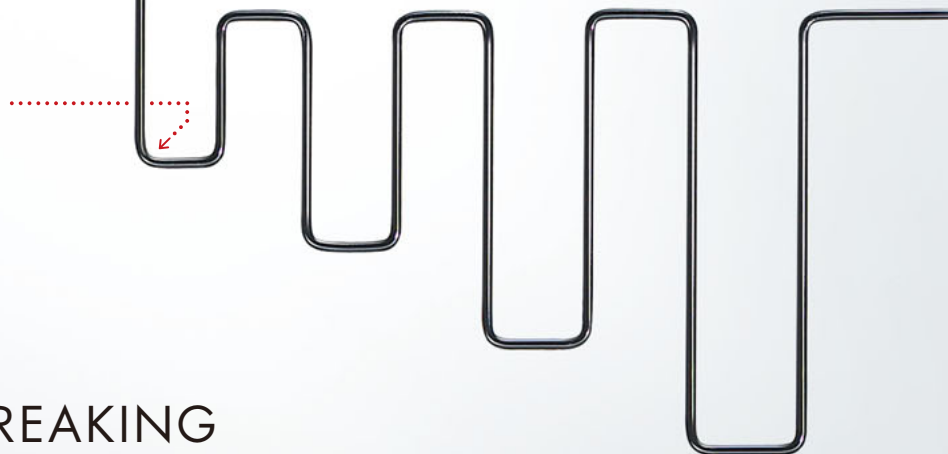


HIGHLY FLEXIBLE  
withstands bending up to  
**10 million times**

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



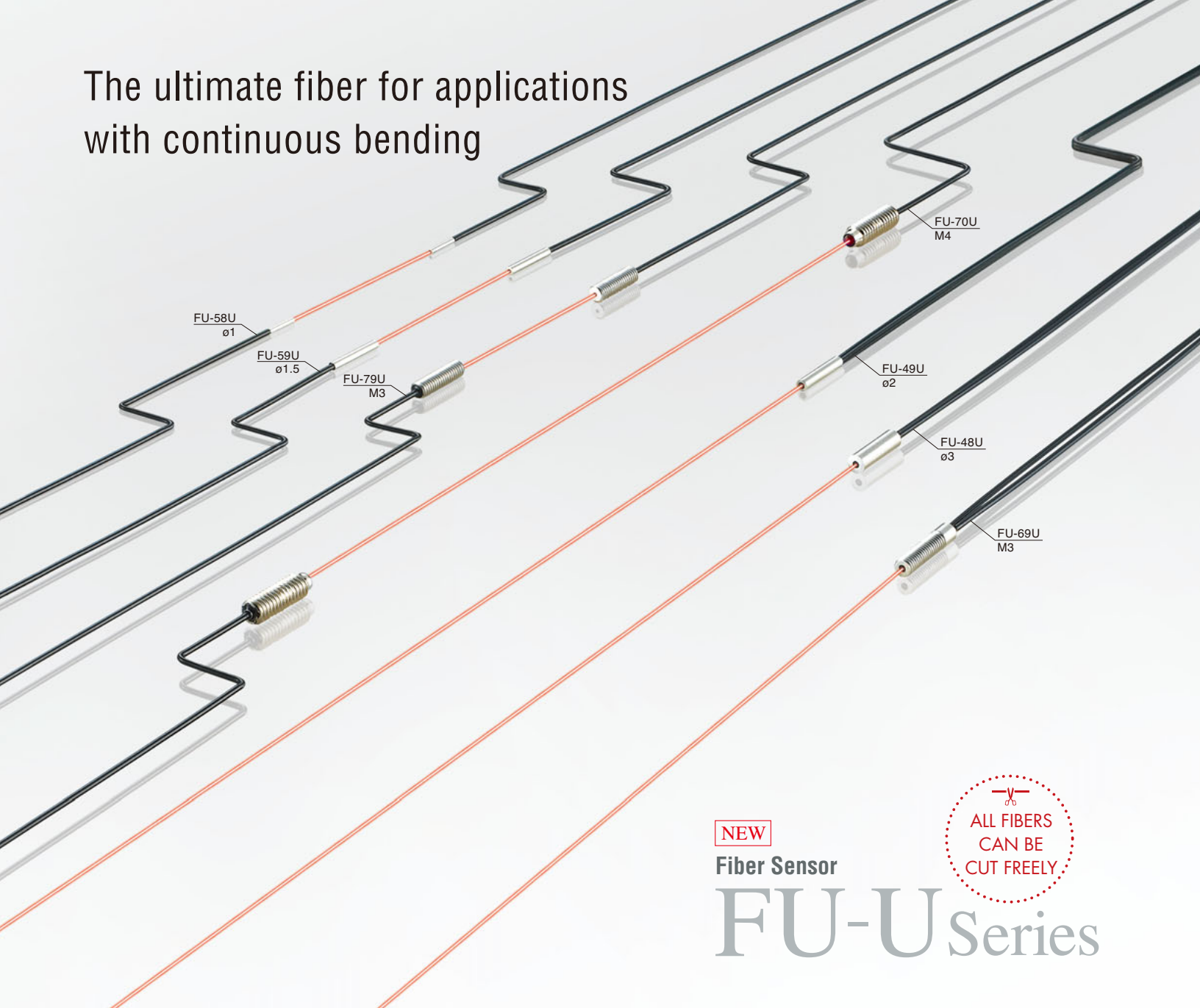
BENDS WITHOUT BREAKING

# NEW FIBER MATERIALS



Latest  
Digital Fiber Amplifier  
FS-V30 Series

The ultimate fiber for applications with continuous bending



**NEW**

Fiber Sensor



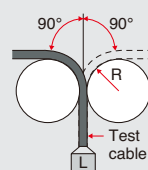
# FU-U Series

**HIGHLY-FLEXIBLE**

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

- Reduce labor costs for maintenance
- Reduce material costs

**Bending conditions**



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

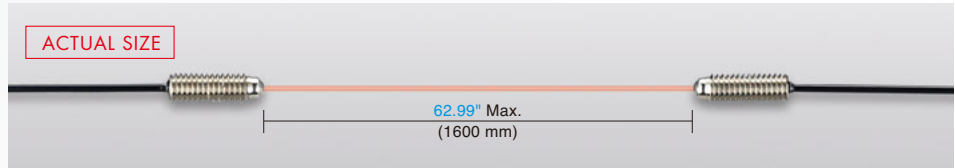
FU-70U

### 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.



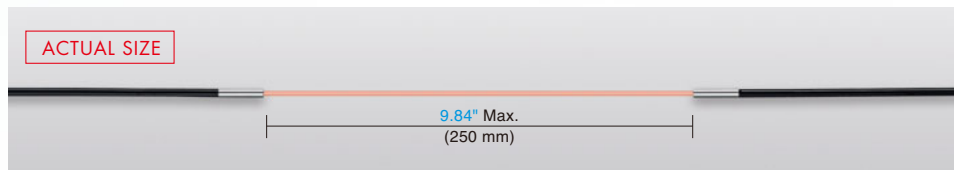
The built-in lens doesn't come off.



FU-58U

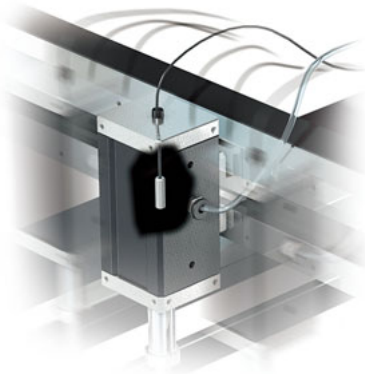
### Ultra-small $\phi 0.04$ " 1mm head fits anywhere

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.

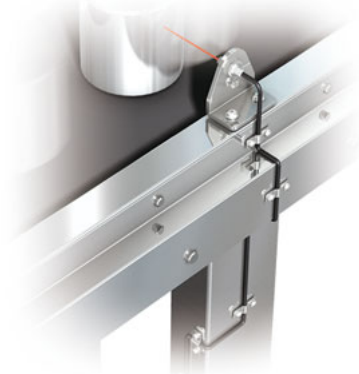


## Application examples

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

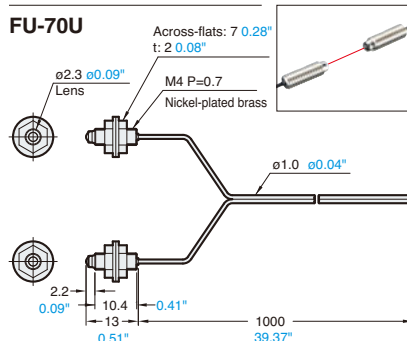
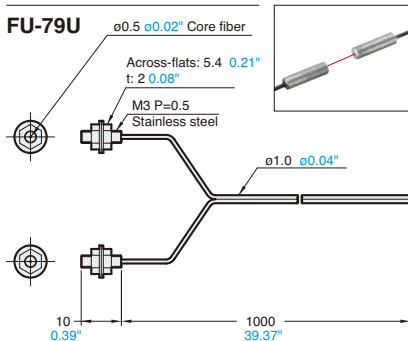
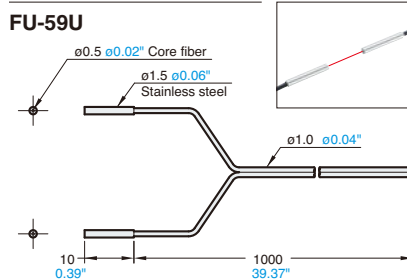
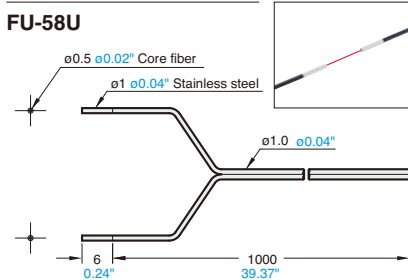
Model	FU-58U	FU-59U	FU-79U	FU-70U	FU-48U	FU-49U	FU-69U
Type	Thrubeam				Reflective		
Optical axis diameter	ø0.02" ø0.5 mm			ø0.9" ø2.3 mm		NA	
Detecting distance (inch mm) *1	MEGA	9.84" 250		62.99" 1600		3.23" 82	
	ULTRA	6.69" 170		62.99" 1600		2.48" 63	
	SUPER	4.33" 110		36.61" 930		1.89" 48	
	TURBO	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	ø0.0002" ø0.005 mm opaque body			ø0.001" ø0.1 mm opaque body		ø0.0002" ø0.005 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.

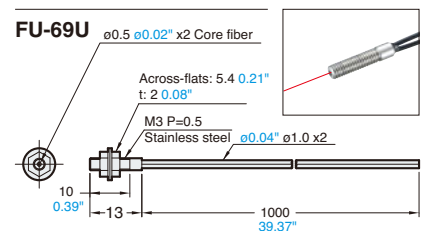
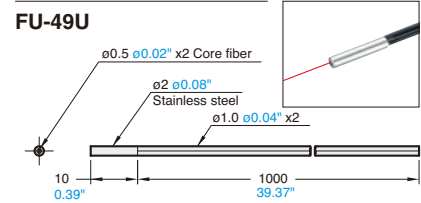
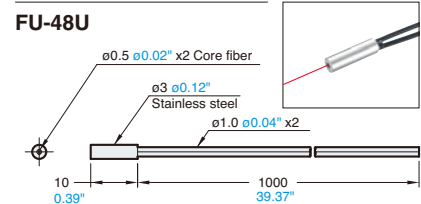
## Dimensions

### Thrubeam type



### Reflective type

Unit: mm inch



Specifications are subject to change without notice.



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