

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

MINIMUM BEND RADIUS

**R2 mm**

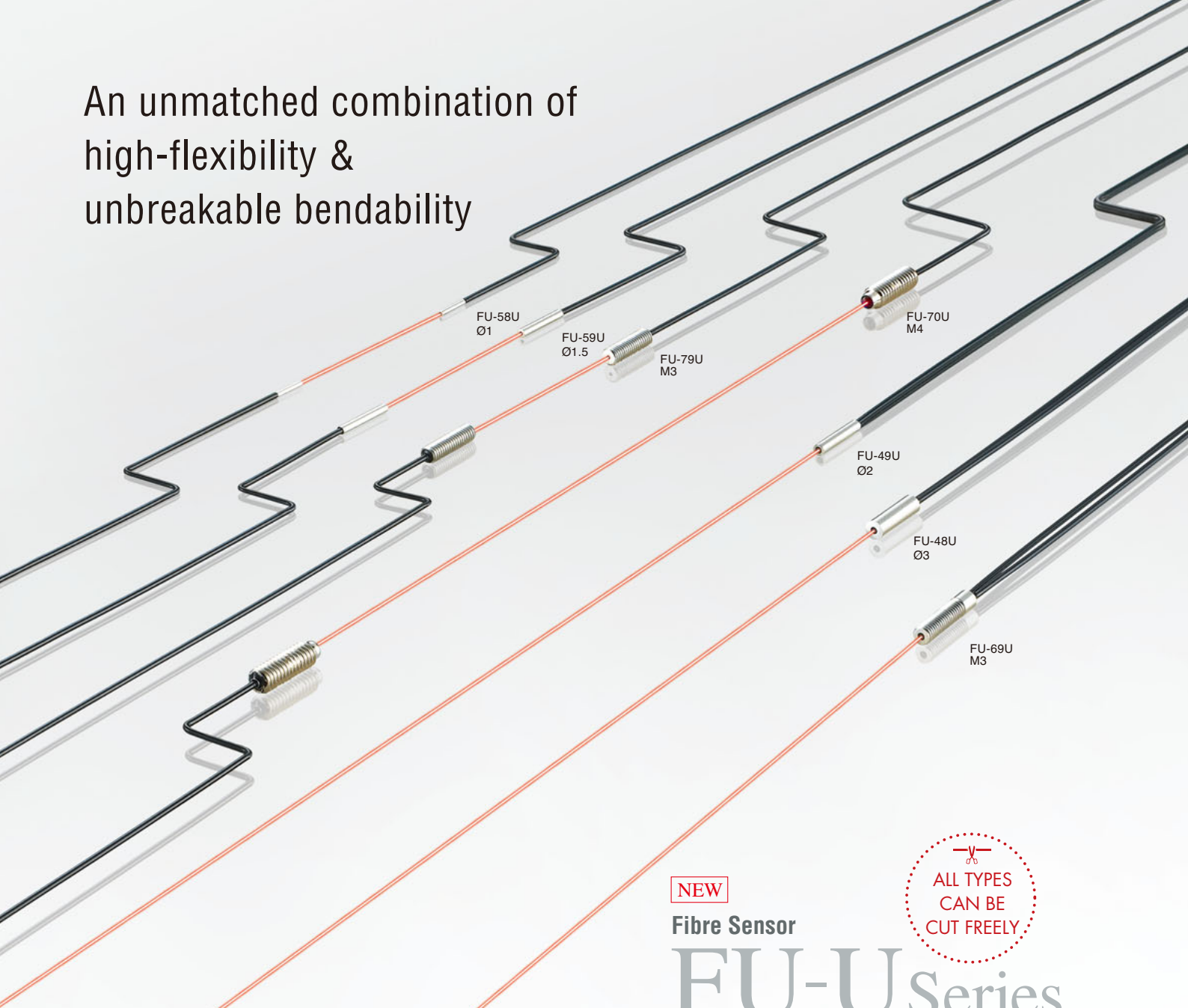
MOVEMENT WITHOUT BREAKING

# NEW FIBRE MATERIALS



Latest  
Digital Fibre Amplifier  
FS-V30 Series

An unmatched combination of  
high-flexibility &  
unbreakable bendability



**NEW**

Fibre Sensor

# FU-U Series

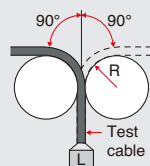


**HIGHLY-FLEXIBLE**

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

- ▮ Reduction in labour hours for maintenance
- ▮ Cost reduction

Bending conditions



<b>Angle:</b>	90° for right and left
<b>Bend radius:</b>	R30 mm
<b>Load:</b>	20 g
<b>Bending rate:</b>	30 times/minute (1 time includes left to right to original position)
<b>Test cable:</b>	FU-U Series Fibre

**UNBREAKABLE**

**R2 mm**

- ▮ Space-saving installation
- ▮ Usable in complicated shaped places

R2 mm bend radius allows flexible installation without concern for breaking.

Conventional flexible fibre



The bend radius was R4 mm with four core fibres.

New flexible fibre



Unbreakable R2 mm was achieved by using a multicore fibre.

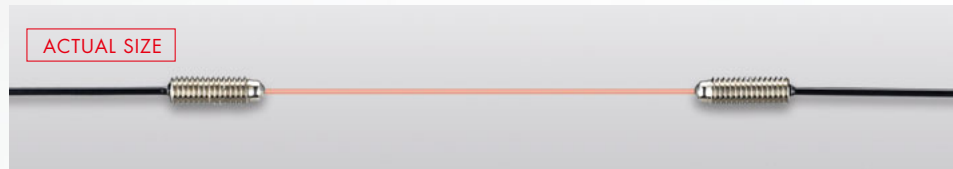
## Extensive lineup

### Built-in ball lens type FU-70U

The new fibre FU-70U achieves a long detecting distance 1600 mm by using a ball lens in it, that is three times longer than that of the conventional models. In addition, the FU-70U is resistant to dirt, due to its high power.

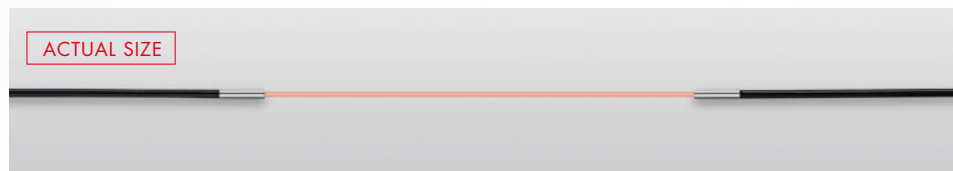


The built-in lens doesn't come off



### Super-compact type Ø1 mm FU-58U

Free-cut cable with an extra-fine Ø1 mm was designed. A combination of R2 mm and high flexibility makes it possible to install anywhere.

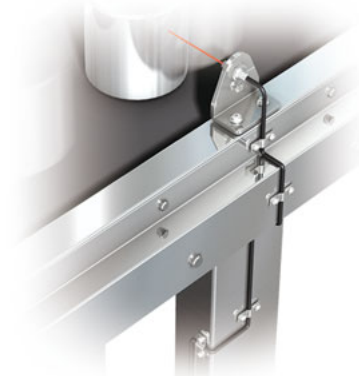


## Application examples

For installation on a moving robot



For space-saving installation according to the shape



## Amplifier

Type		Standard		2 outputs		Analogue
		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	-
ON/OFF outputs		1		2		1
External input		0		1		0
Analogue output				0		1

\* M8 connector type is also available.

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

FS-V30 Series



Model	FU-58U	FU-59U	FU-79U	FU-70U	FU-48U	FU-49U	FU-69U
Type	Thrubeam				Reflective		
Optical axis diameter (Standard target to be detected)	Ø0.5 mm			Ø2.3 mm	NA		
Detecting distance (mm) *1	MEGA	250 (190)		1600 (1600)	82 (63)		
	ULTRA	170 (135)		1600 (1000)	63 (49)		
	SUPER	110 (88)		930 (690)	48 (34)		
	TURBO	80 (64)		670 (490)	32 (25)		
	FINE	59 (46)		470 (365)	23 (17)		
	HSP	24 (17)		200 (135)	9 (5)		
Smallest detectable object *2	Ø0.005 mm opaque body			Ø0.1 mm opaque body	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 +50 °C (No freezing)						
Relative humidity	35% to 85% (No condensation)						
Bend radius	R2 mm						
Fibre length	1 m (free cut)						
Material	Core fibre: Acrylic Fibre coating: Nylon Housing: Stainless steel 303			Core fibre: Acrylic Fibre coating: Nylon Housing: Nickel-plated brass Lens: Glass (BK7)		Core fibre: Acrylic Fibre coating: Nylon Housing: Stainless steel 303	
Weight	Approx. 4 g			Approx. 5 g		Approx. 4 g	
Included accessories	Fibre cutter FU adapter		Fibre cutter, FU adapter, Mounting screw			Fibre cutter, FU adapter	Fibre cutter, FU adapter, Mounting screw

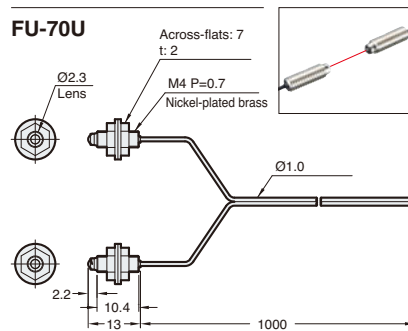
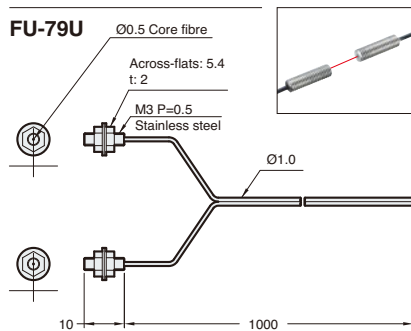
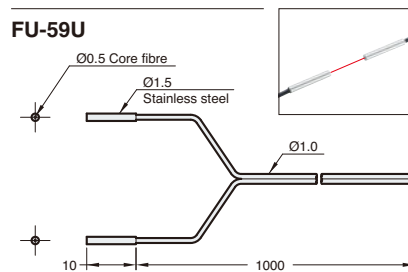
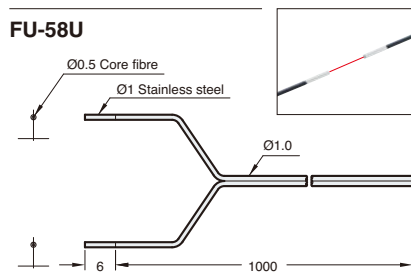
\*1 When using the FS-V30 Series. ( ) indicates a distance with APC ON.

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

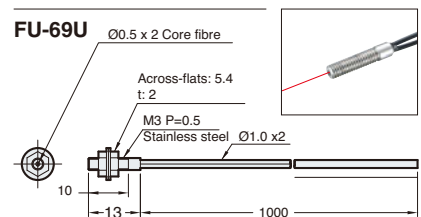
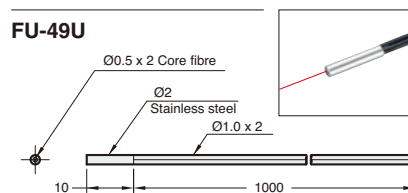
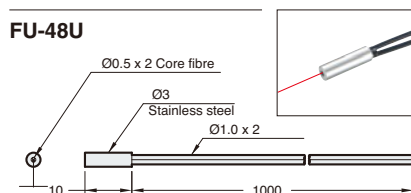
Dimensions

Thrubeam type

Unit: mm



Reflective type



Please visit: [www.keyence.com](http://www.keyence.com)

**SAFETY INFORMATION**  
 Please read the instruction manual carefully in order to safely operate any KEYENCE product.

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