

# KEYENCE

**NEW** Fiber Unit  
FU-A40/A100

The industry's first  
**100 mm 3.94"**  
wide-range fiber sensor



**IP67**  
compatible

Actual size  
FU-A100



Also available in a  
40 mm **1.57"** wide-range type  
FU-A40



Digital Fiberoptic Sensor  
**FS-neo** Series

# Designed for stable detection, durability, and ease of use

## POINT 1

### Tough design

The sensor body is protected by a die-cast metal housing, while the inside is filled with epoxy resin, which prevents cracks caused by impact or failure caused by the infiltration of liquid.

## POINT 2

### Strong cable

The base of the fiber cable (50 mm 1.97") incorporates a stainless-steel jacket. This protects the connection point at the base, which experiences strain when the cable is bent, making it possible to install the sensor in narrow spaces.

#### Stainless-steel jacket structure



IP67

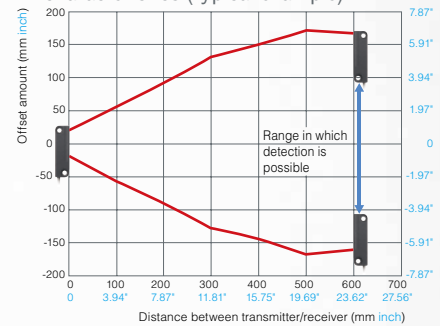
## POINT 3

### Easy optical axis alignment

Benefit of an array fiber

The 60 degree beam aperture of the 30 core fibers results in light expansion over a wide area, which simplifies optical axis alignment.

#### FU-A40 parallel movement characteristics (typical example)



Measurement conditions: Amp: FS-N11N (FINE mode, APC-OFF)  
Measures the position at which detection is possible after performing maximum sensitivity settings and with all light blocked/all light unblocked

## POINT 4

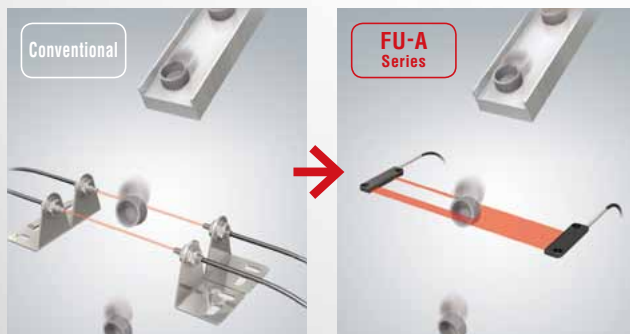
### Slim body

While the FU-A40/A100 covers a wide area, it still maintains a slim body design which allows it to be installed in narrow spaces. (Thickness 5 mm 0.20", Depth 17 mm 0.67")

## Applications

### Confirmation of product ejection

Stably detect workpieces that vary in position.

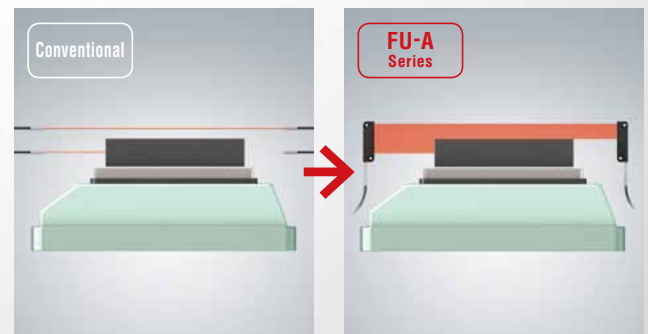


Multiple sensors are required

→ Full range covered with a single unit

### Differentiation of product type

By using a dual output amplifier, it is possible to distinguish different workpiece types with a single unit.

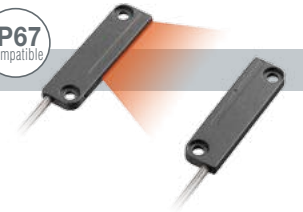


Sensors are installed for each individual product height

→ Differentiation is possible based on the amount of blocked light

## Wide-range fiber lineup

IP67  
compatible



### Array Sensors

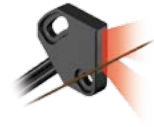
The fiber cores are arranged to form a wide ribbon of light. Because the aperture angle is 60°, optical axis alignment is easy. Furthermore, it features a waterproof and dust-proof structure, providing excellent environmental resistance.

#### Thrubeam array type

Type		Fiber length (diameter) Ambient operating temperature	Appearance (mm inch)	Minimum cable bend radius (mm inch)	Detection distance (mm inch) <sup>*1</sup>		Optical axis diameter (mm inch)	Model Weight
Type	Detection area width				MEGA FINE	Other Power mode		
Array	5 mm 0.20"	2 m 6.6' free-cut (ø2.2 ø0.09") -40 to +70°C -40 to +158°F		R4 <sup>*2</sup> R0.16"	MEGA : 2200 86.61' FINE : 440 17.32'	ULTRA : 1400 55.12" SUPER : 840 33.07" TURBO : 540 21.26" HSP : 200 7.87"	Approx. 6 x 0.3 0.24" x 0.01"	FU-A05 Approx. 20 g
	10 mm 0.39"	2 m 6.6' free-cut (ø2.2 ø0.09") -40 to +70°C -40 to +158°F						
	40 mm 1.57"	2 m 6.6' free-cut (not including the 50 mm 1.97' spiral section) -20 to +50°C -4 to +122°F		R10 R0.39"	MEGA : 2800 110.24' FINE : 600 23.62"	ULTRA : 1900 74.80" SUPER : 1200 47.24" TURBO : 850 33.46" HSP : 320 12.60"	Approx. 40 x 0.25 1.57" x 0.01"	NEW FU-A40 Approx. 70 g
	100 mm 3.94"	2 m 6.6' free-cut (not including the 50 mm 1.97' spiral section) -20 to +50°C -4 to +122°F						

\*1 When the FS-N10 Series is used. \*2 R10 for the first 10 mm 0.39" of cable from the housing.

When using a reflective type to detect small objects at short distances, the received light intensity will be more than that of an area type. It can detect with greater stability when detecting workpieces that experience vibration.



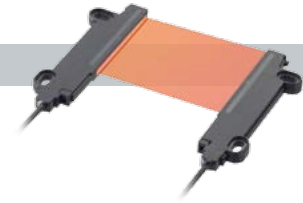
#### Reflective array type

Type		Fiber length (diameter) Ambient operating temperature	Appearance (mm inch)	Minimum cable bend radius (mm inch)	Detection distance (mm inch) <sup>*1</sup>		Minimum detectable object (mm inch) <sup>*3</sup>	Model Weight
Type	Detection area width				MEGA FINE	Other Power mode		
Array	10 mm 0.39" (At a detection distance of 4 mm 0.16")	2 m 6.6' free-cut (ø2.2 ø0.09" x 2) -40 to +70°C -40 to +158°F		R4 <sup>*2</sup> R0.16"	MEGA : 740 29.13" FINE : 140 5.51"	ULTRA : 460 18.11" SUPER : 260 10.24" TURBO : 180 7.09" HSP : 60 2.36"	ø0.005 ø0.0002" Gold wire	FU-A05D Approx. 20 g
	15 mm 0.59" (At a detection distance of 4 mm 0.16")	2 m 6.6' free-cut (ø2.2 ø0.09" x 2) -40 to +70°C -40 to +158°F						FU-A10D Approx. 20 g

\*1 When the FS-N10 Series is used. \*2 R10 for the first 10 mm 0.39" of cable from the housing.  
\*3 The minimum detectable object was determined at the optimal detecting distance and sensitivity setting.

### Area Sensors

Area sensors feature a lens that allows the light intensity distribution to be equalized. As a result, the thrubeam type makes it possible to detect minute changes in light intensity better than an array type.



#### Thrubeam area type

Type		Fiber length (diameter) Ambient operating temperature	Appearance (mm inch)	Minimum cable bend radius (mm inch)	Detection distance (mm inch) <sup>*1</sup>		Optical axis diameter (mm inch)	Model Weight
Type	Detection area width				MEGA FINE	Other Power mode		
Area	11 mm 0.43"	2 m 6.6' free-cut (ø2.2 ø0.09") -40 to +50°C -40 to +122°F		R2 R0.08" ToughFlex	MEGA : 3600 141.73' FINE : 2700 106.3"	ULTRA : 3600 141.73" SUPER : 3600 141.73" TURBO : 3600 141.73" HSP : 1300 51.18"	11 x 2 0.43" x 0.08"	FU-E11 Approx. 20 g
	40 mm 1.57"	2 m 6.6' free-cut (ø2.2 ø0.09") -40 to +50°C -40 to +122°F						

\*1 When the FS-N10 Series is used. The maximum detection distance is set at 3600 mm 141.73" because the fiber length is 2 m 6.6' on each side.

Reflective area sensors feature a lens that directs the beam into a focused ribbon of light.

#### Reflective area type

Type		Fiber length (diameter) Ambient operating temperature	Appearance (mm inch)	Minimum cable bend radius (mm inch)	Detection distance (mm inch) <sup>*1</sup>		Minimum detectable object (mm inch) <sup>*2</sup>	Model Weight
Type	Detection area width				MEGA FINE	Other Power mode		
Area	15 mm 0.59" (At a detection distance of 15 mm 0.59")	2 m 6.6' free-cut (ø2.2 ø0.09" x 2) -40 to +70°C -40 to +158°F		R25 R0.98"	MEGA : 5 to 200 0.20" to 7.87" FINE : 5 to 140 0.20" to 5.51"	ULTRA : 5 to 200 0.20" to 7.87" SUPER : 5 to 200 0.20" to 7.87" TURBO : 5 to 160 0.20" to 6.30" HSP : 5 to 110 0.20" to 4.33"	ø0.1 ø0.004" Gold wire	FU-11 Approx. 19 g

\*1 When the FS-N10 Series is used. \*2 The minimum detectable object was determined at the optimal detecting distance and sensitivity setting.

# Best under tough conditions

Introducing waterproof fiberoptic amplifiers

IP66 compatible with full NEO Series functionality

IP66 compatible



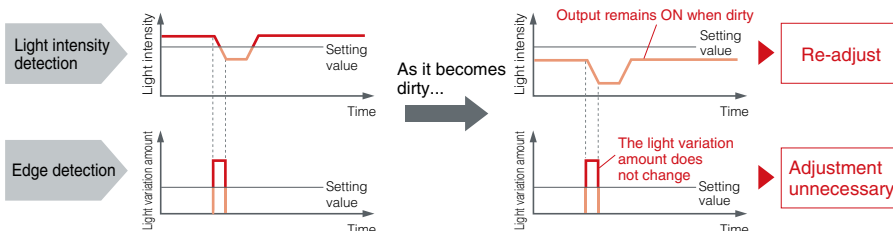
FS-N15CN/N15CP

Enhanced stability is possible with the FS-neo Series

Functions that are useful when using a wide-range fiber

## [Edge detection mode]

Ignores minor fluctuations in light intensity caused by environmental changes including dirt buildup and temperature variations to detect only changes in light intensity produced by the workpiece. This reduces the frequency of periodic maintenance or readjustment, enabling long-term, stabilized detection.



## [Specifications]

Type	Array thrubeam 40 mm 1.57" type		Array thrubeam 100 mm 3.94" type	
Model	FU-A40		FU-A100	
Optical axis area (Standard detection target) (mm inch)	40 x 0.25 1.57" x 0.01"		100 x 0.25 3.94" x 0.01"	
Detection distance (mm inch) when the FS-N10 Series is used	MEGA	2800 110.24"	2800 110.24"	
	ULTRA	1900 74.80"	1900 74.80"	
	SUPER	1250 49.21"	1200 47.24"	
	TURBO	900 35.43"	850 33.46"	
	FINE	640 25.20"	600 23.62"	
	HSP	360 14.17"	320 12.60"	
Minimum detectable object (mm inch) <sup>1</sup>	ø2.5 ø0.10" opaque object		ø6 ø0.24" opaque object	
Enclosure rating	IP67			
Operating ambient temperature	-20 to +50°C -4 to +122°F (No freezing)			
Operating ambient humidity	35 to 85% RH (No condensation)			
Fiber allowable bend radius (mm inch)	R10 R0.39"			
Cable length	2 m 6.6' <sup>2</sup> (Free-cut) ø2.2 mm ø0.09" Spiral parts cannot be cut			
Tightening torque	0.75 N·m			
Material	Case: Die-cast zinc, Detecting surface: PBT, Core fiber: Acrylic, Fiber sheath: Polyethylene			
Weight (g)	Approx. 70		Approx. 110	
Accessories	Fiber cutter, Mounting screws (M4 X L8, 4 units)			

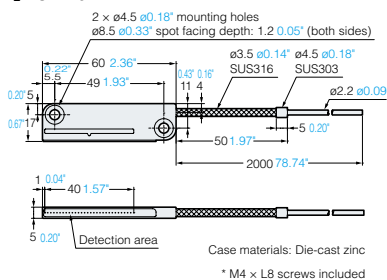
<sup>1</sup>The minimum detectable object was determined at the optimal detecting distance and sensitivity setting.

<sup>2</sup>A 5 m 16.4' type is also available. Contact your nearest KEYENCE sales office.

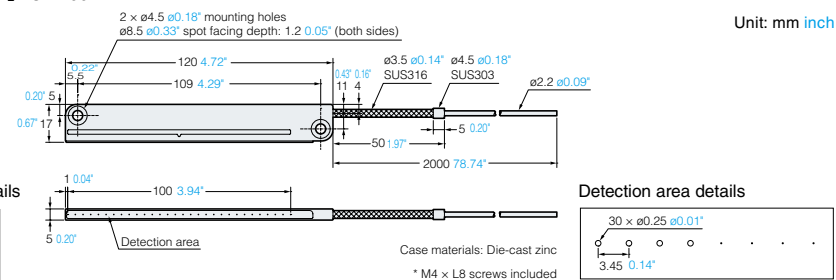
CAD DATA DOWNLOAD [www.keyence.com/CADG](http://www.keyence.com/CADG)

## [Dimensions]

### ■ FU-A40



### ■ FU-A100



CALL TOLL FREE TO CONTACT YOUR LOCAL OFFICE  
**1-888-KEYENCE**  
1-888-539-3623

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

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

CONTACT YOUR NEAREST OFFICE FOR RELEASE STATUS

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