

Detecting area:
0 to 1.02" (0 to 26 mm)

Fiber optic sensor unaffected by a target's background

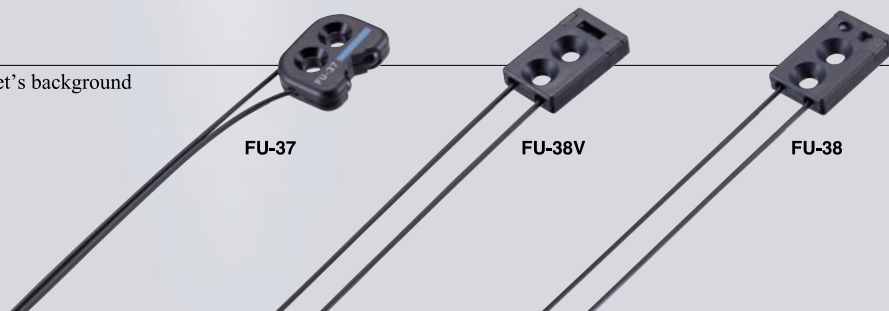
FU-38S



Dual-display,
digital fiber optic amplifier
FS-V20 Series

LINE-UP

Line-up of fiber units unaffected by a target's background



FU-37

FU-38V

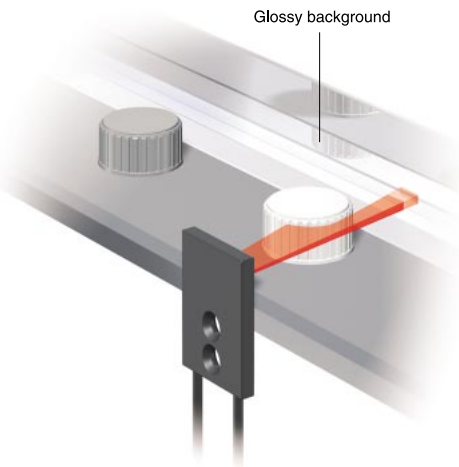
FU-38

The Debut of a Long Detecting Distance Version of a Definite-Reflective Type Sensor That is Unaffected by a Target's Background



With conventional reflective type sensors, detection is sometimes unstable due to the background, vibration or inclination of targets. The FU-38S has three features to solve this problem.

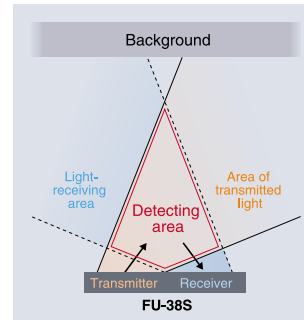
Long detecting distance,
definite-reflective type fiber unit
FU-38S



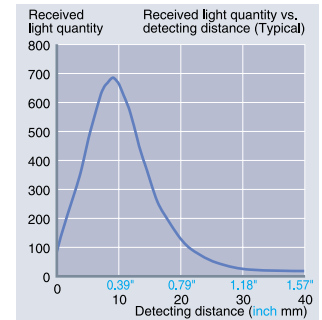
1 Unaffected by a target's background

The FU-38S is a "definite-reflective type" sensor whose transmitter and receiver are designed to face each other at a certain angle. The sensor detects only at the point where the target areas of the transmitter and receiver overlap. As a result, detection remains unaffected even if glossy objects with high light reflectivity exist in the background.

Conceptual illustration of detecting area



Detection characteristics



Limited detecting area

The detecting area is the range where the area of transmitted light and the light-receiving area overlap. As the graph shows, the received light quantity decreases sharply at a range further than a certain point. Therefore, detection is reliable without being affected by a glossy background.

Applications suitable for the FU-38S

Detecting LCD glass boards

The FU-38S combined with the FS-V20 Series amplifier achieves a best-in-its class detection ability.

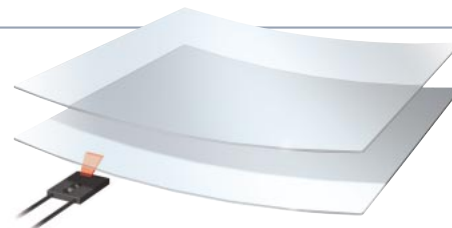
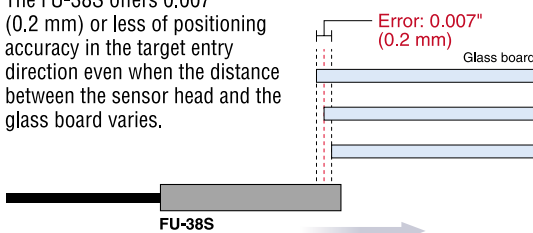
Best-in-its class

Long detecting distance without being affected by a target's background

Glass boards can be detected from a maximum distance of 0.98" (25 mm). Boards at a distance of 1.57" (40 mm) or more are not detected.

Unaffected by variations in the distance to a target

The FU-38S offers 0.007" (0.2 mm) or less of positioning accuracy in the target entry direction even when the distance between the sensor head and the glass board varies.



Best-in-its class

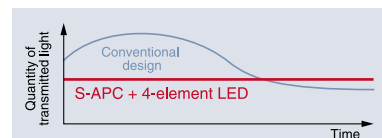
High power without being affected by target inclination

In SUPER TURBO mode, detection is stable even when the glass board inclines as much as $\pm 8^\circ$.

Features of the FS-V20 Series

S-APC + 4-element LED ensure stable detection over a long period

Newly-developed 4-element LED: The deterioration in light quantity over a long period is significantly reduced. **S-APC:** APC, which compensates for the quantity of transmitted light, can be activated or deactivated as necessary. Using APC for a long period lightens the load on the LED.

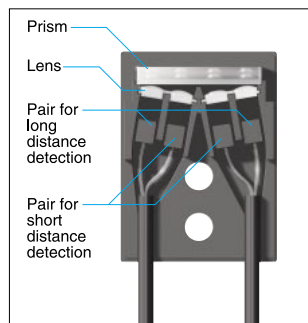


Dual-display,
digital fiberoptic amplifier
FS-V20 Series

2 Wide detecting range of 0 to 1.02" (0 to 26 mm)

The FU-38S contains two pairs of transmitters and receivers for long and short distance detection respectively. This structure has achieved an amazing long detecting range of 0 to 1.02" (0 to 26 mm). Detection is stable without being affected by variations in the distance between the sensor head and the target.

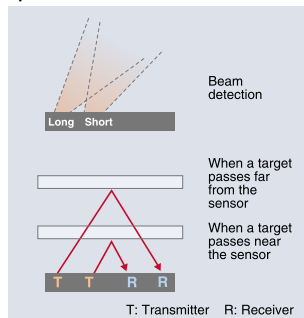
Internal structure



Two pairs of transmitters and receivers are incorporated.

The FU-38S incorporates two pairs of transmitters and receivers: The outer pair is for long distance detection and the inner pair is for short distance detection. The structure, which uses a prism to reflect light beams, has achieved a thin profile housing.

Conceptual illustration of beam spot/detection



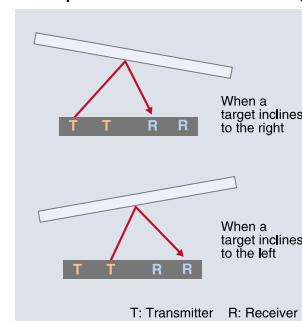
Wide detection range

When a target passes far from the sensor, the pair for long distance detection activates. When a target passes near the sensor, the pair for short distance detection activates.

3 Unaffected by target inclination

The dual transmitter/receiver structure presents another advantage of remaining unaffected by target inclination. Detection is stable even when a target inclines either to the right or left. Targets that often sag such as sheet materials can also be stably detected.

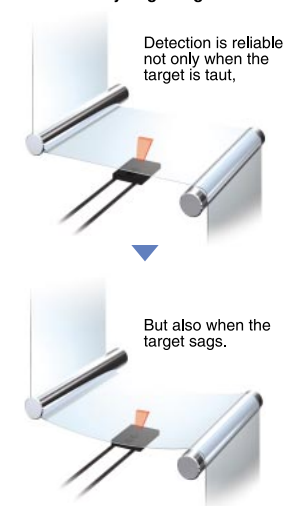
Conceptual illustration of inclined targets



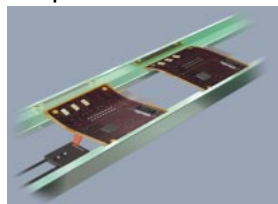
Unaffected by right/left inclination

When a target inclines, the light from the transmitter may not be properly received by the receiver of the pair. With the dual structure, however, the receiver of the other pair receives the light, enabling reliable detection.

Unaffected by target sag

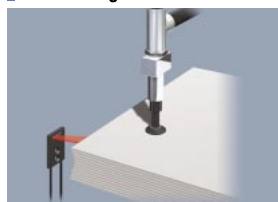


Detecting the passage of warped PC boards



The definite-reflective structure and wide detecting range ensure stable detection that is unaffected by variation in PC board colors or in the detecting distance caused by warp.

Positioning boards



When stacked boards arrive at a specified position, the transfer system activates. Although the positions of the stacked boards vary, detection remains stable.

Line-up of fiber units unaffected by the target's background

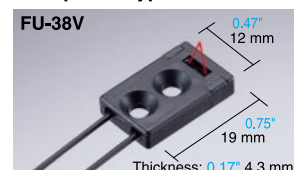
Select the best-suited fiber unit according to the required size and detecting area.

Side-mounting type

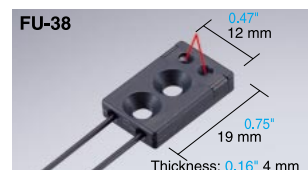


The FU-37 can be mounted to the side surface when mounting space is limited.

Thin-profile type

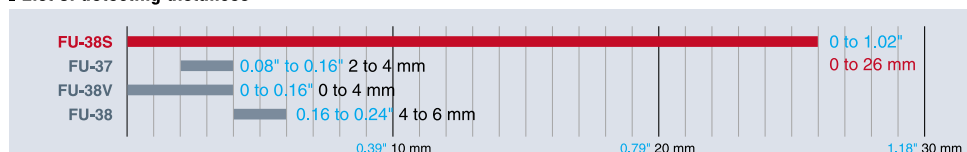


The FU-38V is a compact type that can detect from zero distance (contact detection). The thin housing can be mounted anywhere.



Has a longer detecting distance than the FU-38V. The housing is thinner than that of the FU-38V.

List of detecting distances



I Specifications

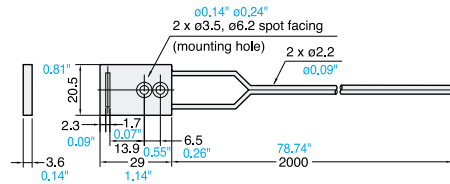
Model		FU-38S
Type		Definite-reflective
FS-V10/V20	Detecting distance (in FINE mode)	0 to 0.98" 0 to 25 mm (Glass board [$t=0.03"$ $t = 0.7$ mm]), 0 to 1.02" 0 to 26 mm (White paper)
	Angle characteristics (in SUPER TURBO mode)	$\pm 8^\circ$ inclination to the right/left (Detecting distance: 0.20" to 0.67" 5 to 17 mm, Target: Glass board)
	Positioning accuracy (in FINE mode)	0.007" 0.2 mm or less (Detecting distance: 0.20" to 0.67" 5 to 17 mm, Target: Glass board)
Ambient temperature		-40 to +70°C (-40 to 158°F), No condensation
Relative humidity		35 to 85%, No condensation
Minimum bend radius		R0.20" R5 mm
Tightening torque		0.3 N·m (Approx. 3 kgf·cm) max.
Fiber length		6.6' 2 m (Free-cut)
Material		Housing: PBT, Fiber: Plastic (Polyethylene sheathed)
Weight		Approx. 20 g

Type	Model	Size	Detecting distance
Definite-reflective	Standard	FU-37	0.57" x 0.75" 14.4 x 19 mm
		FU-38V	0.47" x 0.75" 12 x 19 mm
		FU-38	0.47" x 0.75" 12 x 19 mm
			0.12" $\pm 0.04"$ 3 ± 1 mm
			0 to 0.16" 0 to 4 mm
			0.24" $\pm 0.08"$ 6 ± 2 mm

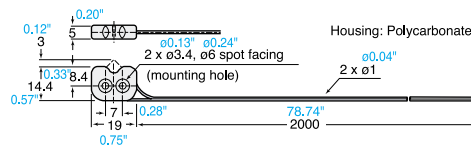
II Dimensions

Unit: inch mm

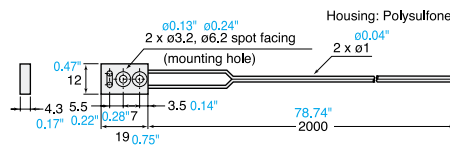
FU-38S $\phi 5.6$ (2 mm) Free-cut \leftarrow 0 to 1.02" (0 to 26 mm)



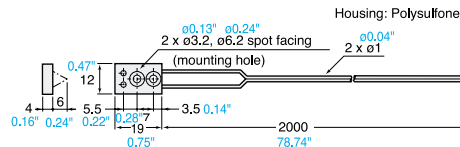
FU-37 $\phi 5.6$ (2 mm) Free-cut \leftarrow Center: 0.12" (3 mm)



FU-38V $\phi 5.6$ (2 mm) Free-cut \leftarrow 0 to 0.16" (0 to 4 mm)



FU-38 $\phi 5.6$ (2 mm) Free-cut \leftarrow Center: 0.24" (6 mm)



Specifications are subject to change without notice.

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