

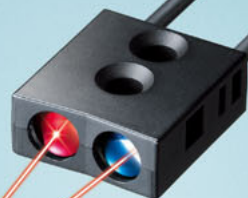
# Ideal for detecting glass boards

Fiber unit line-up for glass board detection

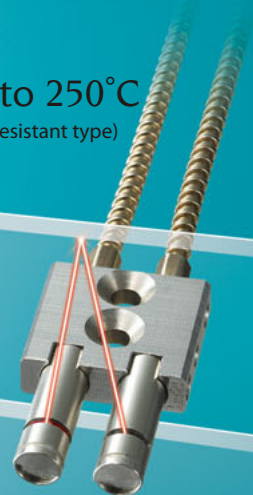


**Compact**  
For long distance alignment  
FU-38L

**Top-view**  
For edge detection  
FU-40S



**Heat-resistant up to 250°C**  
For long distance alignment (heat-resistant type)  
FU-38LK



## Ideal for mapping

Top-view type fiber unit for edge detection  
FU-40S

# Long distance and wide range

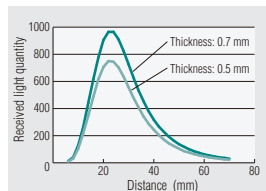
(15 to 70 mm)\*

Detection is reliable even if the distance to the target fluctuates.

\* With the FS-V30 Series in MEGA mode. APC: OFF, Target: Rounded edge of LCD glass board of 0.7 mm thickness

## Not affected by changes in distance

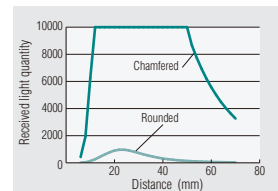
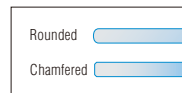
The high-power, large-diameter spherical lens allows long distance and wide range detection.



Detecting distance vs. received light quantity (Typical)  
Rounded edge of LCD glass board (ULTRA APC OFF)

## Not affected by edge shape

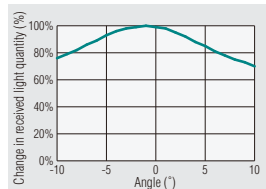
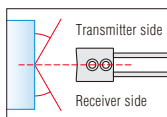
Detection is reliable even if the edge of the glass board is either rounded or chamfered.



Detecting distance vs. received light quantity (Typical)  
Flat edge of LCD glass board (t = 0.7 mm) (ULTRA APC OFF)

## Not affected by target inclination

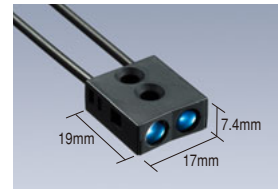
The high-power, large-diameter spherical lens ensures reliable detection even when the target is positioned at an angle.



Angle characteristics (Typical)  
Distance: 30 mm, Rounded edge of LCD glass board of 0.7 mm thickness

## Compact and lightweight

Measuring 17 (W) × 7.4 (H) × 19 (D) mm and weighing approximately 25 g, the unit minimizes the load on a robotic hand.



## Specifications

Model	FU-40S	FU-38S	FU-38L	FU-38LK	
Type	Reflective	Definite-reflective	Definite-reflective	Definite-reflective	
Standard target	Rounded edge of LCD glass board (150×150×t=0.7mm)	Flat edge of LCD glass board (t = 0.7 mm)	Flat edge of LCD glass board (t = 0.7 mm)	Flat edge of LCD glass board (t = 0.7 mm)	
Detecting distance (mm)*1	HSP	—	10 to 26 (10 to 23)	10 to 18 (10 to 15)	
	FINE	18 to 30 (20 to 25)	0 to 25 (0 to 25)	8 to 32 (8 to 29)	8 to 30 (8 to 27)
	TURBO	15 to 38 (18 to 33)	0 to 25 (0 to 25)	8 to 34 (8 to 31)	8 to 30 (8 to 27)
	SUPER	15 to 46 (15 to 40)	0 to 25 (0 to 25)	8 to 35 (8 to 32)	8 to 32 (8 to 29)
	ULTRA	15 to 60 (15 to 54)	0 to 25 (0 to 25)	8 to 36 (8 to 33)	8 to 34 (8 to 31)
	MEGA	15 to 70 (15 to 62)	—	8 to 38 (8 to 35)	8 to 37 (8 to 34)
Angle characteristics	—	± 8° inclination to right/left (Detecting distance: 5 to 17 mm, Target: Glass board, Mode: SUPER TURBO)	± 6° sideways inclination, ± 3° longitudinal inclination (Detecting distance: 10 to 20 mm, Target: Glass board, t: 0.7 mm, APC: OFF)*2		
Positioning accuracy	—	0.2 mm or less (Detecting distance: 5 to 17 mm, Target: Glass board, Mode: FINE)	0.2 mm or less (Detecting distance: 8 to 30 mm, Target: Glass board, t: 0.7 mm, APC: OFF, Mode: TURBO)		
Ambient temperature (No condensation)	−40 to +70	−40 to +70	−10 to +60	−40 to +250*3	
Relative humidity (No condensation)	35% to 85% RH	35% to 85% RH	35% to 85% RH	—	
Minimum bend radius	R25 mm	R5 mm	R25 mm		
Tightening torque	0.3 Nm max.	0.3 Nm max.	0.2 Nm max.	0.3 Nm max.	
Fiber length	2 m (Free-cut)	2 m (Free-cut)	2 m (Free-cut)	2 m (Cannot be cut)	
Material	Housing: PBT Lens: Glass Cable sheath: Polyethylene	Housing: PBT Lens: Norbornene resin Cable sheath: Polyethylene	Housing: PPS Lens: Norbornene resin Cable sheath: Polyethylene	Housing: SUS303 Lens: Glass Cable sheath: SUS304	
Weight	Approx. 25g	Approx. 20g	Approx. 20g	Approx. 70g	
Accessory	Fiber cutter	Fiber cutter	Fiber cutter	—	

\*1: When the red light source model of the FS-V30 Series is used to detect a standard target. The values in parentheses are obtained when APC is ON.

\*2: Excluding HSP (high speed) mode

\*3: In dry conditions only

## Ideal for alignment

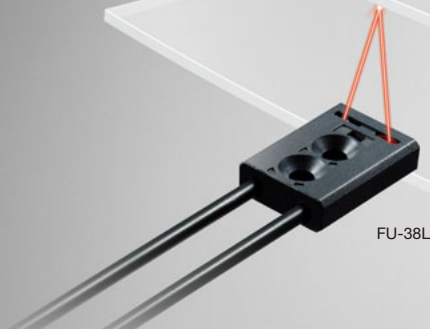
Middle detecting distance type  
FU-38S

Long detecting distance, "compact" type  
FU-38L

Long detecting distance, 250°C heat-resistant type  
FU-38LK

# From short to long distances

Strong line-up for detection from short to long distances, and at ordinary to hot temperatures.

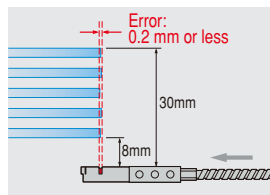


## Accurate detection for distances between 8 and 30 mm

The positioning accuracy is 0.2 mm or less, even when the distance to the target changes within a range of 8 to 30 mm.

\* With the FS-V31 Series in TURBO mode and APC is OFF.

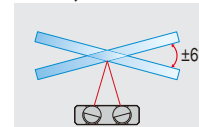
\* With the FU-38S, the positioning accuracy of 0.2 mm or less is achieved within a range of 5 to 17 mm.



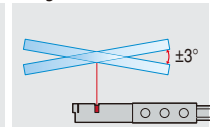
## Not affected by target inclination of ±6° sideways and ±3° longitudinal

Detection is stable even when the glass board is positioned at an angle.

Sideways inclination

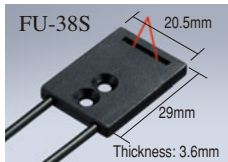


Longitudinal inclination



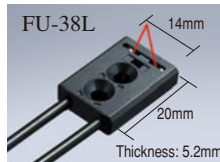
## Line-up

Middle detecting distance type

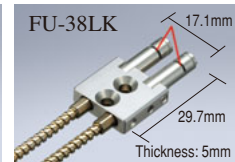


The FU-38S is a definite-reflective type featuring an area designed to transmit and receive a light beam. This creates excellent angle characteristics to the right and left.

Long detecting distance, "compact" type



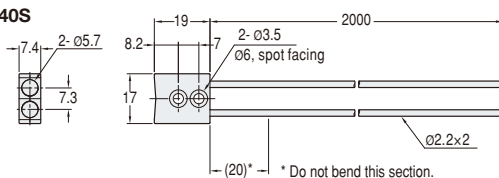
Long detecting distance, 250°C heat-resistant type



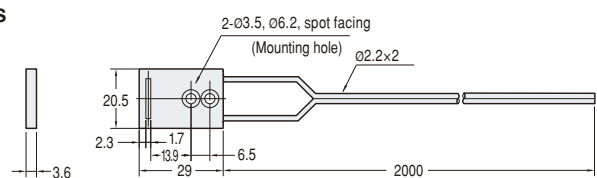
These fiber units are suitable for alignment of glass boards from a long distance. Two types are available: The FU-38L with a compact body, and the FU-38LK, which is resistant to heat up to 250°C.

## Dimensions

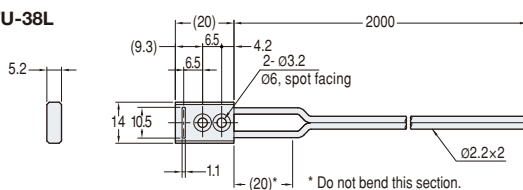
FU-40S



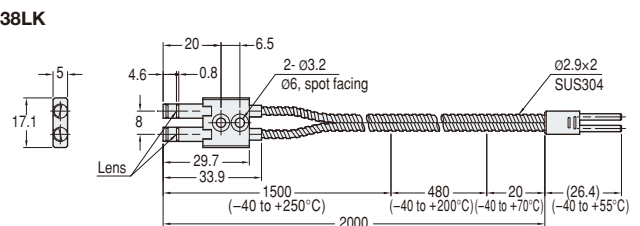
FU-38S



FU-38L



FU-38LK

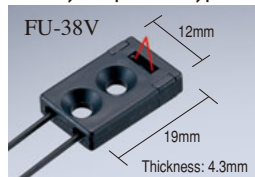


Unit (mm)

# RELATED PRODUCTS

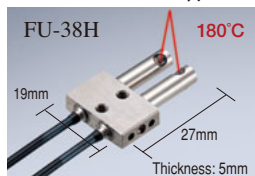
## Ideal for seating or presence/absence detection

Compact, ordinary temperature type



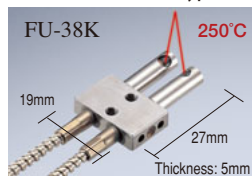
The FU-38V is a compact fiber unit that can detect when in absolute contact (0 mm). The thin housing can be mounted anywhere.

180°C heat-resistant type



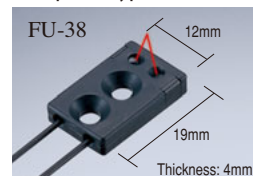
A glass lens and metal housing are combined with a heat-resistant fiber cable. These units can be used in hot environments where the ordinary temperature type cannot be used. Either the FU-38H or FU-38K can be selected according to the required temperature resistance.

250°C heat-resistant type



## Ideal for height differentiation

Thin-profile type



The FU-38 is a thin-profile fiber unit that is mounted in front of the target either the FU-38 or FU-37 can be selected according to the mounting space.

Side-mounting type



The FU-37 detects targets from its side either the FU-38 or FU-37 can be selected according to the mounting space.

## Line-up

Type	Size (mm)	Shape/detecting distance (mm)*1	Standard target	Model	
Reflective	Top-view	17×19	15 to 70	Rounded edge of LCD glass board (150×150×t=0.7mm)	FU-40S
	Definite-reflective	Front-view	14×20	8 to 38	Flat edge of LCD glass board (t=0.7mm)
20.5×29			0 to 25	Flat edge of LCD glass board (t=0.7mm)	FU-38S
22×29			0 to 14	White paper	FU-38R
12×19			6±2	White paper	FU-38
12×19			0 to 4	White paper	FU-38V
Side-view		14.4×19	3±1	White paper	FU-37
Heat-resistant, front-view		17.1×29.7	8 to 37	Flat edge of LCD glass board (t=0.7mm)	FU-38LK
	19×27	2.5 to 65	White paper	FU-38K	
	19×27	2.5 to 65	White paper	FU-38H	

\*1: The detecting distance is measured when the red light source model of the FS-V30 Series (MEGA) is used with a standard target.

\*2: When the red light source model of the FS-V30 Series (FINE) is used.

## New digital fiberoptic sensor amplifier

FS-V30 Series

- World's most powerful "MEGA mode"
- World's fastest response of 33 μs
- World's first, real-time sensitivity tracking function
- Power booster switch to provide 64-fold power quickly



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