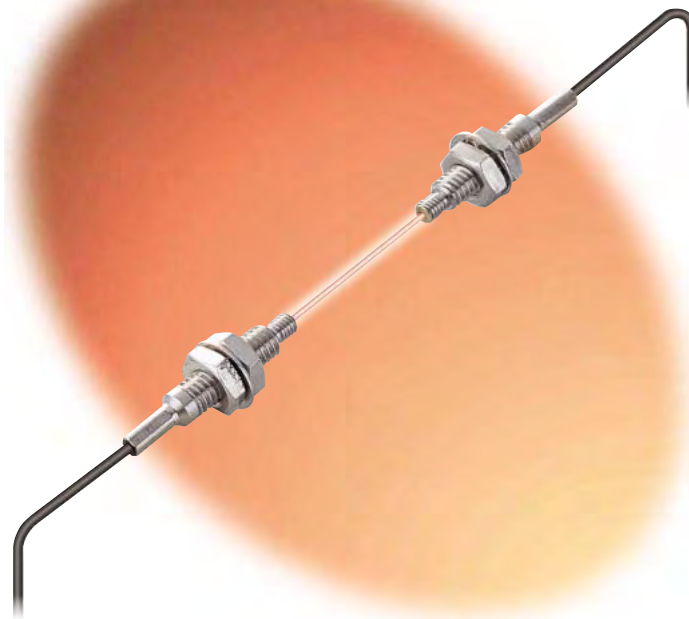




FLEXIBLE HEAT-RESISTANT FIBER

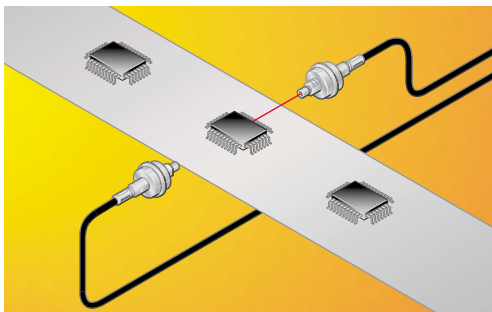
New **FT-H20W** SERIES

A bending radius of R10mm is possible even in high temperature environments



Heat-resistant Temperature 200°C

Withstands temperature up to 200°C. Sensing is now possible in high temperature environments, such as detecting the presence of ICs in a high temperature handler.



Bending Radius R10mm for Space Saving

By utilizing a PTFE exterior coating, bends of R10mm are possible, even in high temperature environments. Cabling can be laid out freely, thus saving space.

Conventional models



FT-H20W series



Fiber Cable Types of 1m and 2m Lengths Are Available

Fiber cables can be selected for your specific applications, from fiber cable types of 1m (FT-H20W-M1) and 2m (FT-H20W-M2) lengths.

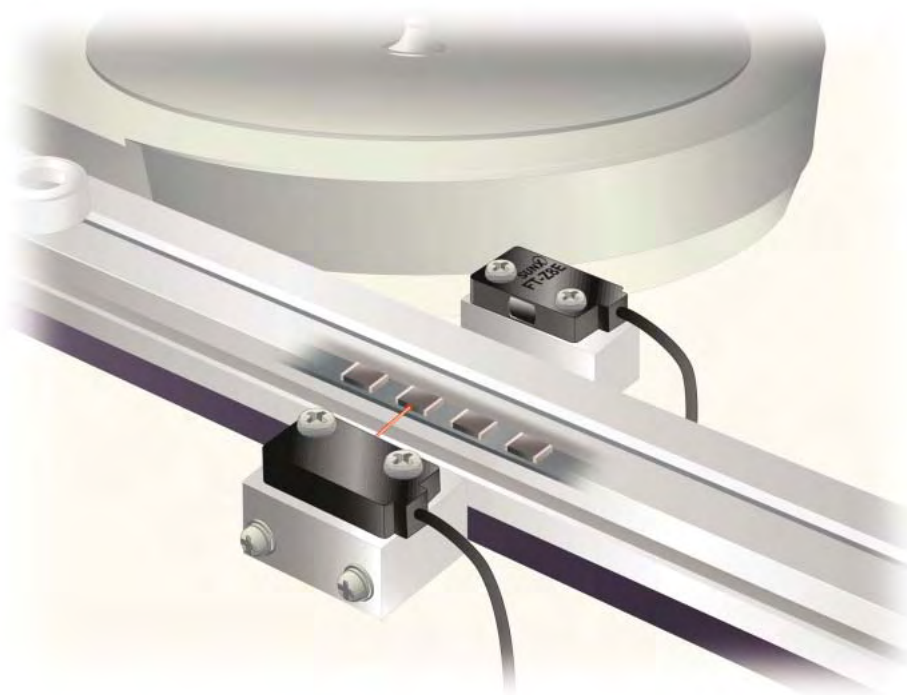


RECTANGULAR HEAD FIBER

New FT-Z8 SERIES

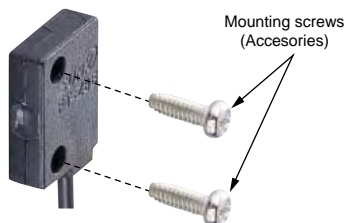
Smallest in the industry!

Easy, space-saving screw type installation



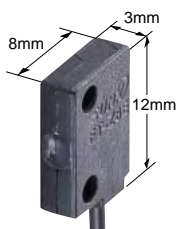
Rectangular Fiber Head Allows for Easy Installation

The fiber head has a square shape and can be installed by using M2 screws at two points. Installation and beam axis alignment can be easily performed.



Extremely Thin, the Smallest Size in the Industry

The smallest super thin type rectangular head fiber in the industry with dimensions of W3 × H12 × D8mm (side sensing type).



Utilizes Flexible Inflection Resistant Cable

Allowable bending radius of R4mm. The fiber can withstand repeated bending of one million cycles or more at R10mm. The fiber can be bent at small angles and are resistant to repeated bending, thus saving installation space and making these fibers the best for use in sensing applications on mobile elements.

Long Sensing Range 2,700mm

Top sensing type fiber realizes a long sensing range of 2,700mm (front sensing type: 800mm, side sensing type: 1,600mm).

Flexible Mounting

Three types, front sensing type, side sensing type and top sensing type fibers are available. Select depending on the place of mounting.

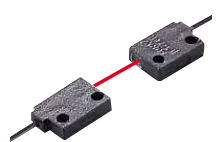
Front sensing type
FT-Z8



Side sensing type
FT-Z8E



Top sensing type
FT-Z8H



SPECIFICATIONS

Type	Front sensing	Side sensing	Top sensing
Item Model No.	FT-Z8	FT-Z8E	FT-Z8H
Applicable amplifier (Note 1)	FX-301		
Sensing range	LONG 800mm STD 400mm FAST 300mm	LONG 1,600mm STD 800mm FAST 600mm	LONG 2,700mm STD 1,400mm FAST 1,000mm
Min. sensing object	φ0.03mm opaque object (Note 2)		
Allowable bending radius	R4mm or more		
Bending durability	One million times or more (at R10mm)		
Fiber cable length	2m free-cut		
Ambient temperature	- 40 to + 60°C, Storage: - 40 to + 60°C (No dew condensation or icing allowed)		
Ambient humidity	35 to 85% RH, Storage: 35 to 85% RH		
Material	Fiber cable	Fiber core: Acrylic, Sheath: Vinyl chloride	
	Fiber head	Enclosure: Polycarbonate	
Weight	8g approx		
Accessories	Mounting screw: 1 set, FX-CT2 (Fiber cutter): 1 No. FX-AT5 (φ1.3mm fiber attachment): 1 set		

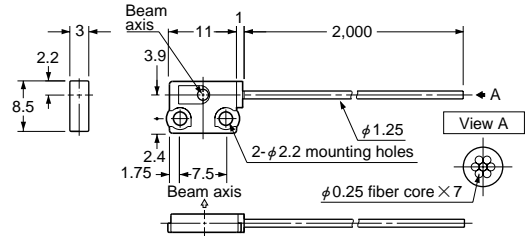
Notes: 1) For further details, refer to **FX-301** catalog. Please contact our office about another applicable amplifiers.

2) This is the value for detection under the optimum sensitivity at the maximum sensing distance.

DIMENSIONS (Unit: mm)

FT-Z8

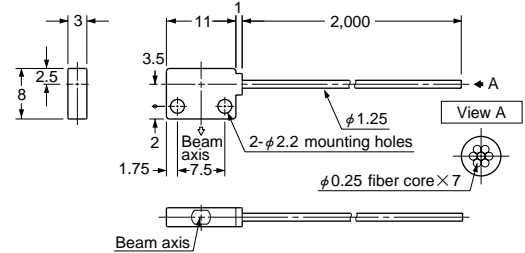
Free-cut With attachment



Note: Beam emitting fiber and beam receiving fiber are symmetrical.

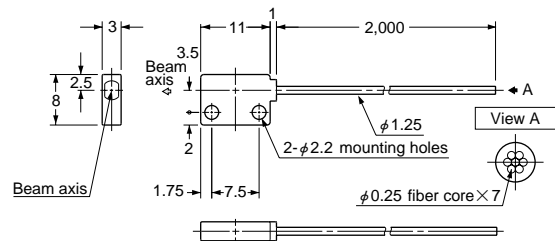
FT-Z8E

Free-cut With attachment



FT-Z8H

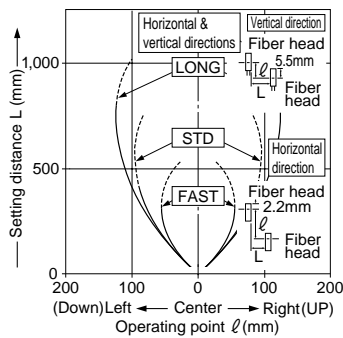
Free-cut With attachment



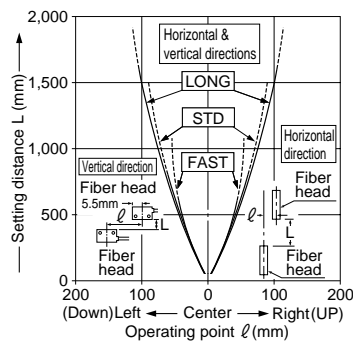
SENSING CHARACTERISTICS (TYPICAL)

Parallel deviation

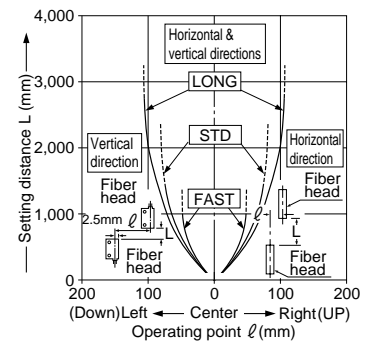
FT-Z8



FT-Z8E



FT-Z8H



All information is subject to change without prior notice.

SUNX
Sensing the Future



LIQUID FIBER **Pipe-mountable liquid detection fiber**

New

FT-F9 SERIES

Reliably Detect Liquid in Pipe



Safer Fiber Type Sensor

In response to the demand for higher safety standards throughout the world, including SEMI S2, safer sensing can be achieved by placing the amplifier for this fiber sensor away from dangerous locations, such as locations with volatile chemicals, where electrical circuits increase the risk of fire or explosion.

Easy to Use and Reliable Detection

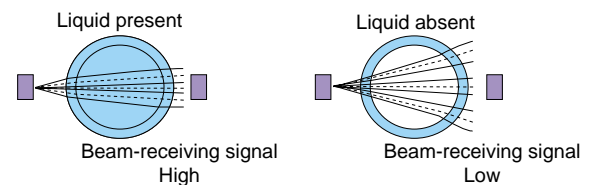
Even when the shape and thickness of the pipe vary, this sensor uses a method where the beam axis is always over the diameter of the pipe, and so when compared to conventional methods, the shape and thickness of the pipe have no influence over the performance of this sensor.

Reliable Detection Not Affected by Bubbles or Droplets

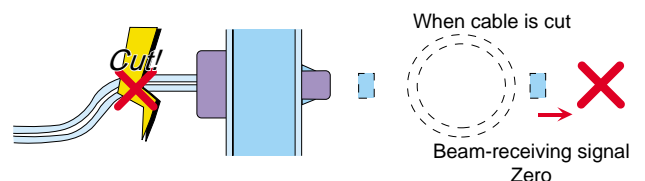
Problems encountered by conventional pipe-mountable sensors, such as bubbles, droplets, or liquid leakage, have been solved using the latest optical fiber techniques.

Worry-free Design That Doesn't Overlook Liquid-absent condition and Sensor Malfunction

- When liquid is present in the pipe, the lens effect of the liquid condenses the beam, so the sensor become to be in beam received condition.



- If the fiber is bent or faulty, if the cable is cut or disconnected, or if the sensor is not operating correctly, the output is the same as when the beam is not received (Liquid-absent condition).

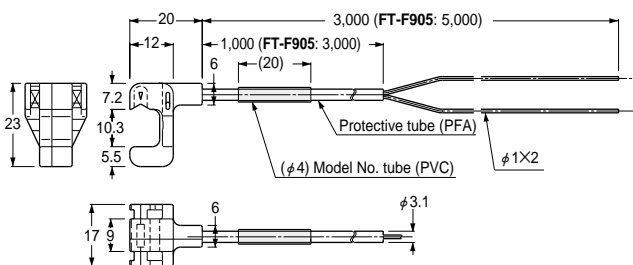


SPECIFICATIONS

Designation		Liquid fiber (Pipe-mountable liquid detection fiber)	
Item	Model No.	FT-F902	FT-F905
Applicable amplifier		FX-D1-F	
Sensing object		Liquid (Note 1)	
Applicable pipe diameter (Note 2)		Outer dia ϕ 3.0 to ϕ 10.0mm [PFA (fluorine resin) or equivalently transparent pipe, wall thickness 0.3 to 1.0mm]	
Protective tube length		1m	3m
Fiber cable length		2m free-cut	5m free-cut
Allowable bending radius		Protective tube: R20mm or more, Fiber cable: R4mm or more	
Bending durability		Fiber cable: 1,000,000 times or more (at R4mm)	
Ambient temperature		-20 to +60°C (No dew condensation or icing allowed), Storage: -20 to +60°C (Note 3)	
Ambient humidity		35 to 85% RH, Storage: 35 to 85% RH	
Material	Fiber cable	Fiber core: Acrylic, Fiber sheath: Vinyl chloride, Protective tube: PFA	
	Fiber head	Enclosure: Heat-resistant ABS, Lens: Acrylic	
Accessories		Tying band: 2 Nos., Anti-slip tube: 2 Nos. FX-CT1 (Fiber cutter): 1 No. FX-AT10 (ϕ 1mm fiber attachment): 1 set	

Notes: 1) Reliable detection may not be possible for unclear or heavily colored liquid.
2) Liquid in an opaque pipe cannot be detected correctly.
3) Liquid being detected should also be kept within the rated ambient temperature range.

DIMENSIONS (Unit: mm)



PRECAUTIONS FOR PROPER USE



This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor.

Cautions

- There is a white stripe on the beam-emitting fiber cable. **When setting the amplifier, put the fiber cable with white stripe into the beam-emitting side.**
- Keep the fiber head surface intact. If it is scratched or spoiled, the detectability will deteriorate.
(Caution: Do not use any organic solvents.)
- Do not use the fiber head in places where it may come in direct contact with water. A water drop on the fiber head deteriorates the sensing. No dew or liquid drop is present on either surface of the pipe wall.
- Do not apply excessive tensile force to the fiber cable.
- Bending radius of the fiber cable must be R4mm or more. If the bending radius is smaller than the specified value, the sensing performance may deteriorate.
- Ensure that any strong extraneous light is not incident on the receiving face of the fiber head.
- The fiber cable can be cut for adjustment using the attached fiber cutter, however, the performance of the sensor may greatly decrease depending on the condition of the cut fiber cable and the connection to the amplifier.
- Shortening the fiber cable excessively may result in loss of reliable detection due to an insufficient light intensity difference. (As a reference, adjust the length of the fiber cable so that the amplifier reads 3,500, or less, when there is no liquid present in the pipe.)
- Unclear or highly viscous liquid may not be sensed correctly.
- Do not scratch the fiber sheath while cutting the protective tube.
- The detection results may vary greatly if the protective tube is not firmly secured. Use the attached anti-slip tube to firmly secure it to the pipe so that it does not move.
- Be sure to adjust the sensitivity of the amplifier after installing the fiber head and when there is no liquid present in the pipe. Perform the same sensitivity adjustment after changing the layout or re-mounting the fiber head to the pipe.
- Note that light intensity may greatly decrease when used under high temperature and high humidity for long periods.

Amplifier setting procedure

Set the sensitivity of the **FX-D1-F** amplifier using the 'Limit teaching' function as described below.

- Set the fiber head on the pipe.
- Set the mode selection switch to either 'RUN' or 'MODE'.
- Set to either Output 1 or Output 2 by turning the jog switch to the '+' or the '-' side.
- Set the mode selection switch to 'SET' the present threshold value is displayed.
- Press the jog switch in the liquid absent condition and release it within 3 sec.
- The read incident light intensity is displayed for 0.5 sec. approx. Subsequently, '2nd' is displayed on the LCD display.
- Turn the jog switch to the '-' side. 'good' is displayed on the LCD display.
- Set the mode selection switch to 'RUN', and setting is completed.





CHEMICAL-RESISTANT
SQUARE-SHAPED HEAD FIBER

New

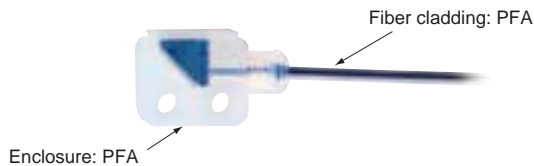
FT-Z8Y SERIES

Chemical-resistant square-shaped head with no light-beam misalignment.



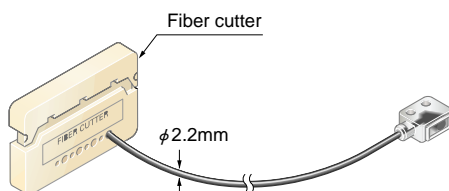
Usable with Various Chemical Liquids

With the case made of PFA and fiber clad with PFA, the fiber can be used with various types of chemical liquids.



Easy Cutting of Even PFA Protected Fiber

As the diameter of the fiber, including the PFA protected portion, is only $\phi 2.2\text{mm}$, you can simply cut the fiber to a desired length.



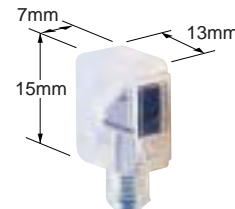
Excellent Explosion-proof Structure Complying with SEMI S2

Since the fiber does not have any electrical circuit in the sensing part, it offers an excellent explosion-proof structure.

Square-shaped Head Provides Easy Mounting

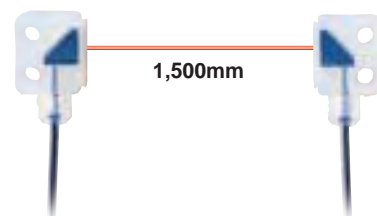
The square-shaped head offers both easy installation and easy light-beam alignment.

The head measures $7 \times 15 \times 13\text{mm}$, and can be mounted with M3 screws at two locations.



Thru-beam Type Side-View with 1,500mm Long Sensing Range

The compact side-view type unit realizes a long sensing range of 1,500mm.

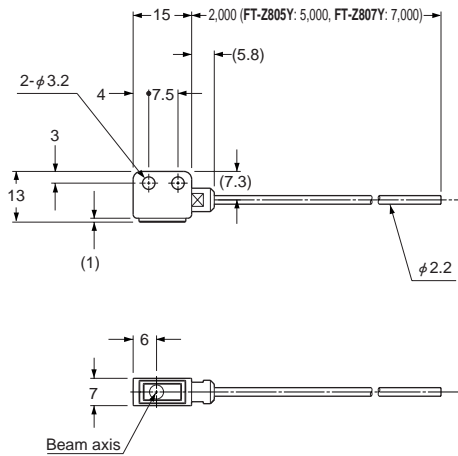


SPECIFICATIONS

Type	2m type	5m type	7m type
Item Model No.	FT-Z802Y	FT-Z805Y	FT-Z807Y
Applicable amplifier	FX-D1 series (Note)		
Sensing range	1,500mm		
Sensing object	φ4mm or more opaque object		
Allowable bending radius	R25mm or more		
Fiber cable length (Free-cut)	2m	5m	7m
Protection	Equivalent to IP67 (except for the cut ends of the fiber)		
Ambient temperature	0 to +60°C (No dew condensation or icing allowed), Storage: 0 to +60°C		
Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH		
Material	Fiber cable	Fiber core: Acrylic, Sheath: PFA	
	Fiber head	Enclosure: PFA	
Accessories	FX-CT1 (Fiber cutter): 1 No.		

Note: For further details, refer to **FX-D1** series catalog or sensor general catalog for **FX-D1** series.

DIMENSIONS (Unit: mm)



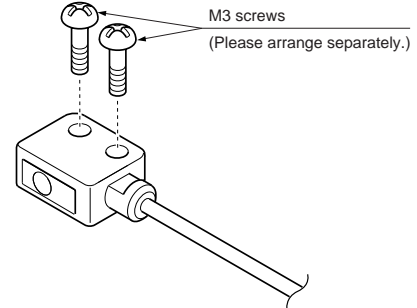
PRECAUTIONS FOR PROPER USE



This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor.

Mounting

- Mount using M3 screws. The tightening torque should be 0.3N·m or less.



Cautions

- Keep the fiber head surface intact. If it is scratched or spoiled, the detectability will deteriorate.
- If the fiber head surface is dirty, wipe the off the dirt with a clean soft cloth moistened with water.
- Do not use the fiber head surface in places where it may come in direct contact with water. A water drop on the fiber head surface deteriorates the sensing. No dew or liquid drop is present on surface of fiber head surface or sensing object.
- Do not apply excessive tensile force of the fiber cable.
- Bending radius of the fiber cable must be R25mm or more. If the bending radius is smaller than the specified value, the sensing performance may deteriorate.
- Ensure that any strong extraneous light is not incident on the receiving face of the fiber head.
- The fiber cables should be cut off at the ends with the fiber cutter **FX-CT1**(accessory) before insertion into the amplifier. Carefully cut and connect the fiber, as the sensing performance may deteriorate depending on the conditions of the cut part and/or of the connection to the amplifier.