

INSTRUCTION MANUAL

Liquid Detection Fiber (Pipe-mountable Liquid Detection Fiber) FT-F9 Series

Thank you very much for using SUNX products. Please read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product. Kindly keep this manual in a convenient place for quick reference.



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.

- For the mounting method to the amplifier, refer to the Instruction Manual attached to the amplifier [FX-301(P)-F].
- For the handling method of the fiber cutter, refer to the Instruction Manual attached to the fiber attachment (FX-AT□).

1 SPECIFICATIONS

Designation		Liquid detection fiber	
Item	Model No.	FT-F902	FT-F905
Applicable amplifier		FX-301(P)-F	
Sensing object		Liquid (Note 1)	
Applicable pipe diameter (Note 2)		Outer dia ϕ 3.0 to ϕ 10.0mm [Fluorine resin (PFA) 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) (Note 3) Storage: -20 to +60°C	
Ambient humidity		35 to 85% RH, Storage: 35 to 85% RH	
Material	Fiber cable	Fiber core: Acrylic, Fiber sheath: Vinyl chloride, Protective tube: Fluorine resin (PFA)	
	Fiber head	Enclosure: Heat-resistant ABS, Lens: Acrylic Tying band: 2 Nos., Anti-slip tube: 2 Nos.	
Accessories		FX-CT2 (Fiber cutter): 1 No. FX-AT4/AT10 (ϕ 1mm fiber attachment): 1 set	

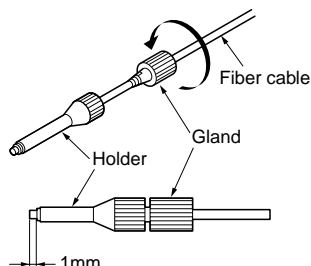
Notes: 1) Reliable detection may not be possible for unclear or heavily colored liquid.
2) Liquid in an opaque pipe cannot be detected correctly.
3) Liquid being detected should also be kept within the rated ambient temperature range.

2 CONNECTING FIBER ATTACHMENT (FX-AT10)

- When the fiber attachment (FX-AT10) is used, mount it as explained below.

Connecting procedure

- ① Thread the fiber cable through the gland and the holder separately, and screw the gland into the holder clockwise.
- ② The fiber end should protrude from the holder by 1mm approx.



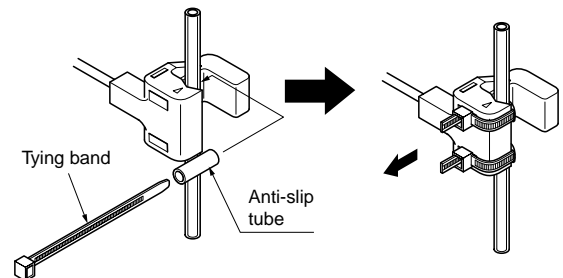
For the connecting method of the fiber attachment (FX-AT4), refer to the Instruction Manual attached to the fiber attachment (FX-AT□).

3 CAUTIONS

- There is a white stripe on the beam-emitting cable. When setting the amplifier, put the fiber cable with white stripe into the beam-emitting side.
- Keep the lens of the fiber head intact. If it is scratched, the detectability will deteriorate.
- Wipe a dirt on the lens with a moist soft cloth. However, do not use any organic solvents.
- Since a water drop on the pipe's sensing surface can affect the sensing performance, avoid using this fiber head at a place where water splashes. Further, take sufficient care against dew condensation etc. on the pipe's outside 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 will deteriorate.
- Ensure that any strong extraneous light is not incident on the sensing surface of the fiber head.
- The fiber cable can be cut for adjustment using the attached fiber cutter (FX-CT2), however, the sensing performance may decrease depending on the cut condition of the fiber cable and the connection to the amplifier.
- Take care that 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 at 1m and when mounted on the pipe, the displayed digit value of the amplifier in liquid absent condition should be 3,500 or less.)
- Unclear or highly viscous liquid may not be stably detected.
- Take care not to scratch the fiber sheath while cutting the protective tube.
- The detection result may vary greatly if the this sensor is not firmly secured. Use the attached anti-slip tube to firmly secure it to the pipe so that it does not move.
- Make sure to adjust the sensitivity of the amplifier after mounting the fiber in liquid absent condition in the pipe. In case of re-mounting the fiber to the pipe or change in layout, adjust the sensitivity of the amplifier again.
- Note that light intensity may decrease when used under high temperature and high humidity for a long period.

4 MOUNTING

- Mount the fiber on a pipe with the attached tying bands and the anti-slip tubes as shown in the diagrams below. Fasten two tying bands, as shown, and cut off the excess portions.



- If other tying bands are to be used, the dimension (A) shown in the figure below should be 2.5mm or less.



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