

INSTRUCTION MANUAL

Photoelectric Sensor Amplifier Built-in Leak Detection Sensor EX-F70 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.

⚠ WARNING

- Never use this product as a sensing device for personnel protection.
- In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

1 SPECIFICATIONS

Type	SUS mounting bracket type		PVC mounting bracket type	
	2m cable length type	5m cable length type	2m cable length type	5m cable length type
Model	EX-F71	EX-F71-C5	EX-F72	EX-F72-C5
Item No.	EX-F71-PN	EX-F71-PN-C5	EX-F72-PN	EX-F72-PN-C5
Sensing object	Water, Fluorinert™ (Note 1) (Note 2)			
Supply voltage	12 to 24V DC ± 10% Ripple P-P 10% or less			
Current consumption	10mA or less (PNP output type: 15mA or less)			
Output	<NPN output type> NPN open-collector transistor • Maximum sink current: 50mA • Applied voltage: 30V DC or less (between output and 0V) • Residual voltage: 1.0V or less (at 50mA sink current) 0.4V or less (at 16mA sink current)		<PNP output type> PNP open-collector transistor • Maximum source current: 50mA • Applied voltage: 30V DC or less (between output and +V) • Residual voltage: 1.0V or less (at 50mA source current) 0.4V or less (at 16mA source current)	
	Output operation	ON when normal operation, OFF when leak is detected or the sensor is mounted improperly.		
Short-circuit protection	Incorporated			
Response time	50ms or less			
Abnormal indicator	Red LED (lights up when leak is detected or the sensor is mounted improperly.)			
Normal indicator	Green LED (lights up when the sensor is mounted properly.)			
Protection	IP67 (IEC)			
Ambient temperature	-10 to +60°C (No dew condensation or icing allowed) (Note 3), Storage: -20 to +70°C			
Ambient humidity	35 to 85% RH, Storage: 35 to 85% RH			
Ambient illuminance	Incandescent light: 1,000lx at the light-receiving face			
Emitting element	Infrared LED (non-modulated)			
Material	Enclosure: Polypropylene			
Cable	0.1mm ² 3-core PVC cabtyre cable, 2m long	0.1mm ² 3-core PVC cabtyre cable, 5m long	0.1mm ² 3-core PVC cabtyre cable, 2m long	0.1mm ² 3-core PVC cabtyre cable, 5m long
Weight	Approx. 25g	Approx. 55g	Approx. 25g	Approx. 55g
Accessories	SUS mounting bracket: 1 pc.		PVC mounting bracket: 1 pc. each for two-point-fixing and adhesive-fixing	

Notes: 1) Highly viscous liquid may not be stably detected.

2) Fluorinert™ is the worldwide trademark of 3M.

3) Liquid being detected should be also kept within the rated ambient temperature range.

2 CAUTIONS

- This product has been developed / produced for industrial use only.
- Avoid using the product in an explosive atmosphere because this product does not have an explosive-proof protective construction.
- Make sure that the power supply is off while wiring.
- Take care that wrong wiring will damage the sensor.
- Verify that the supply voltage variation is within the rating.
Take care that if a voltage exceeding the rated range is applied, or if an AC power supply is directly connected, the sensor may get burnt or damaged.
- If power is supplied from a commercial switching regulator, ensure that the frame ground (F.G.) terminal of the power supply is connected to an actual ground.

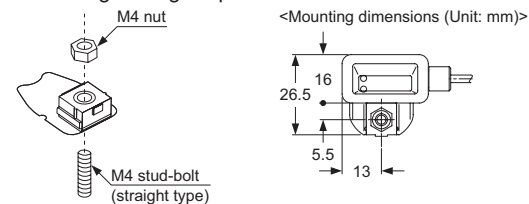
- Do not use during the initial transient time (approx. 30 sec.) after the power supply is switched on.
- In case noise generating equipment (switching regulator, inverter motor, etc.) is used in the vicinity of this product, connect the frame ground (F.G.) terminal of the equipment to an actual ground.
- Cable extension is possible up to total 50m with 0.3mm², or more, cable. However, in order to reduce noise, make the wiring as short as possible.
- Do not run the wires together with high-voltage lines or power lines or put them in the same raceway. This can cause malfunction due to induction.
- In case a surge is generated in the used power supply, connect a surge absorber to the supply and absorb the surge.
- Be sure to use the exclusive mounting bracket when installing the sensor to avoid human error, etc. Reliable detection cannot be guaranteed when this mounting bracket is not used.

- Take care not to use the SUS mounting bracket for EX-F72□ or the PVC mounting bracket for EX-F71□ mistakenly, since normal detection cannot be performed.
- Make sure to use an isolation transformer for the DC power supply. If an auto-transformer (single winding transformer) is used, this product or the power supply may get damaged.
- In case air bubbles are drawn into the sensing part, take care that it may take some time for sensing to stabilize, or sensing may even become unstable.
- When conducting maintenance after operation, wipe all liquid from the sensor and mounting bracket with a soft cloth.
- If there is liquid remained or scratch on the sensing surface or the exclusive mounting bracket, normal operation cannot be performed.
- Since this sensor employs non-modulated infrared LED, take sufficient care against extraneous light. Do not expose the sensing part directly to the extraneous light.
- Avoid dust, dirt, and steam. Further, do not use this product in an environment containing organic solvents.
- Take care that the product does not come in contact with oil, grease or organic solvents, such as, thinner, etc.
- In case this sensor is used where electrostatic charge is present, use a metal leak pan, which should be connected to an actual ground.

3 MOUNTING

EX-F71□

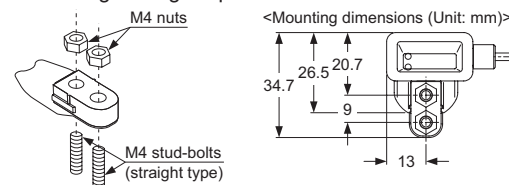
- Insert the M4 stud-bolt (length 10mm or more) welded on the user's facilities into the mounting hole of the SUS mounting bracket and screw with an M4 nut (please arrange separately).
The tightening torque should be 0.98N·m or less.



EX-F72□

<In case of using the two-point-fixing PVC mounting bracket>

- Insert M4 stud-bolts (length 10mm or more) welded on the user's facilities into the mounting holes of the two-point-fixing mounting bracket and screw with M4 nuts (please arrange separately).
The tightening torque should be 0.49N·m or less.

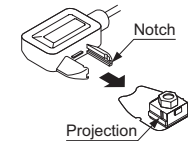


<In case of using the PVC mounting bracket for adhesive fixing>

- Use adhesive to stick fast the mounting bracket on the mounting surface. Please note that if the adhesive sticks out from the bottom surface of the mounting bracket or is 0.5mm, or more thick, the sensor body cannot be fitted to the mounting bracket.

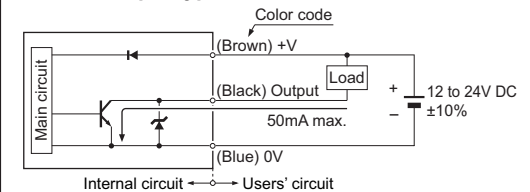
How to fit the sensor body to the exclusive mounting bracket

- Match the notch in the sensor body with the projection of the exclusive mounting bracket and slide till a click is felt.

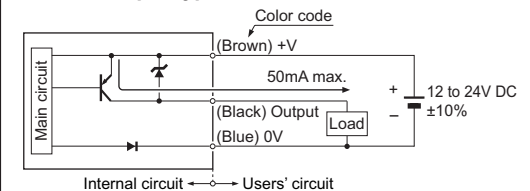


4 I/O CIRCUIT DIAGRAMS

• NPN output type



• PNP output type



5 INTENDED PRODUCTS FOR CE MARKING

- The models listed under "1 SPECIFICATIONS" come with CE Marking. As for all other models, please contact our office.

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