

**Amplifier Built-in Leak Detection Sensor
EX-F70 Series**

MJECK-EXF70 No.0054-73V

Thank you very much for purchasing Panasonic products. 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.
- When using sensing devices for personnel protection, use products that meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

1 APPLICABLE STANDARDS / REGULATIONS

- This product complies with the following standards / regulations.

<European Directive>

EMC Directive



<Korean Standard>

S1-G-1-2009, S2-W-5-2009



- Economic operators' information in EU is as follows:
<Contact for CE>

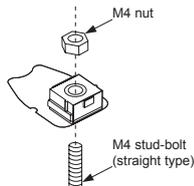
Panasonic Marketing Europe GmbH Panasonic Testing Center Winsbergring 15, 22525 Hamburg, Germany

2 MOUNTING

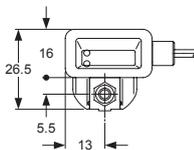
- Do not damage the sensing part of the sensor body or the reflector part of the mounting bracket.
- Do not deform the mounting bracket.
- Make sure that there is no gap between the sensing part of the sensor body and the reflector part of the mounting bracket.
- Do not touch the sensing part of the sensor body or the reflector part of the mounting bracket during installation. If they are touched accidentally, wipe clean with alcohol, etc.
- Secure the cable in place to prevent it from applying a force to the sensor body.
- Before using the product, make sure that the cable is securely held in place.
- It is recommended to secure the cable to the floor at a location of about 100mm from the cable outlet section.

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.

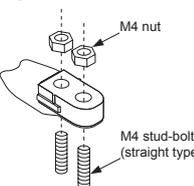


<Mounting dimensions (Unit: mm)>

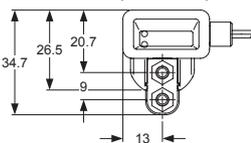


EX-F72

- 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.



<Mounting dimensions (Unit: mm)>

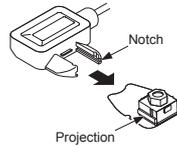


• In case of using the PVC mounting bracket for adhesive fixing

- 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.

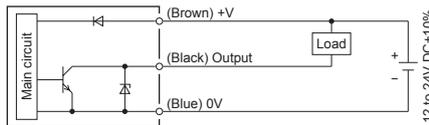
How to fit the sensor body to the exclusive mounting bracket

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

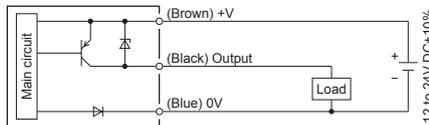


3 I/O CIRCUIT DIAGRAMS

NPN output type



PNP output type



4 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 No.	NPN output EX-F71	EX-F71-C5	EX-F72	EX-F72-C5
	PNP output	EX-F71-PN-C5	EX-F72-PN	EX-F72-PN-C5
Sensing object	Water, Fluorinert _{TM} (Note 1, 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 or less at the light-receiving face			
Emitting element	Infrared LED (non-modulated)			
Material	Enclosure: Polypropylene			
Cable	2m cable length type: 0.1mm ² 3-core PVC cabtyre cable, 2m long 5m cable length type: 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_{TM} is the worldwide trademark of 3M.
3) Liquid being detected should be also kept within the rated ambient temperature range.

5 CAUTIONS

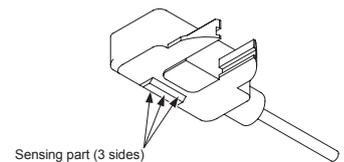
- This product has been developed / produced for industrial use only.
- This product is suitable for indoor use only.
- Avoid using the product in an explosive atmosphere because this product does not have an explosive-proof protective construction.
- Make sure that the power supply is OFF while adding or removing the controllers.
- Take note that incorrect 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.
- When 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.
- 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.
- Do not use during the initial transient time (500ms) after the power supply is switched ON.
- Extension up to total 100m or less is possible with more than 0.3mm² of electric conductor cross-sectional area cable.
- The extension of a power supply line and the output line of less than 10m is acceptable in case using this product as conforming to S-mark.
- In order to reduce noise, make the wiring as short as possible.
- 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.
- Note that if air bubbles are caught at the sensing part of the sensor body, detection operation may require some time to stabilize or may not stabilize.
- The sensor may not operate properly if the sensing part of the sensor body or the reflector part of the mounting bracket is adhered with liquid residue or has scratches.
- Detection operation may not work properly if there is damage to the reflector part of the mounting bracket, such as dents or scratches severe enough to be felt when running your fingertip or fingernail over them.
- Since the product uses a non-modulating-type sensor, it is necessary to keep external light away from the sensor. Do not allow ambient light to directly fall onto the sensing part of the sensor body.
- Avoid dust, dirt, and steam. Further, do not use this product in an environment containing organic solvents
- Ensure that the product does not come into contact with organic solvents such as thinner.
- Ensure that the product does not come into contact with oil or grease.
- In case this sensor is used where electrostatic charge is present, use a metal leak pan, which should be connected to an actual ground.

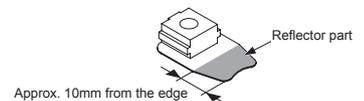
6 MAINTENANCE

- If the detection operation is unstable, wipe the sensing part of the sensor body and the reflector part of the mounting bracket using a soft cloth and alcohol, etc.
- When wiping, be careful not to scratch or damage the sensing part of the sensor body or the reflector part of the mounting bracket.

EX-F71 / EX-F72



SUS mounting bracket / PVC mounting bracket



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