

EX-F70

SERIES

Amplifier Built-in Leak Sensor

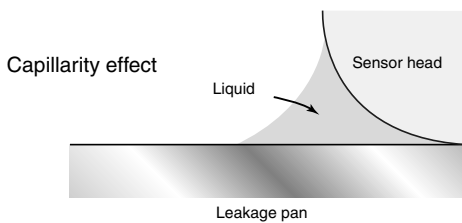


High-speed Detection Even a Little Liquid



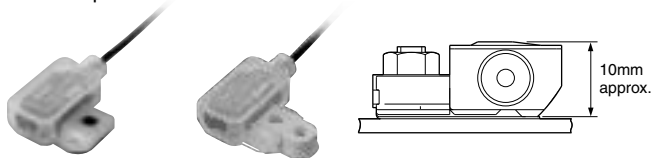
Reliable Detection

The unique effect of capillarity enables reliable detection of small leaks and viscous liquids.



Compact, Space-saving

This slim (10mm) side-mounting sensor is especially good for use in confined spaces.



SUS mounting bracket type EX-F71 □ PVC mounting bracket type EX-F72 □

PVC Mounting Bracket Now Available EX-F72 □

A mounting bracket made of PVC (polyvinyl chloride) is now available. This type of mounting bracket can be utilized without problems within environments that would corrode normal metal brackets.

Safe Design

- If the sensor is not mounted correctly, 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 (LEAK).
- Design deals with human errors such as, forgetting to mount, etc.

Easy Operation Check

This sensor is equipped with a NORMAL indicator (green) which lights up when mounting correctly, and a FAULT indicator (red) which lights up when sensing the leaked liquid or when mounted incorrectly (forgetting to mount exclusive mounting bracket). So, the operation can be checked easily.

No Need for Sensitivity Adjustment

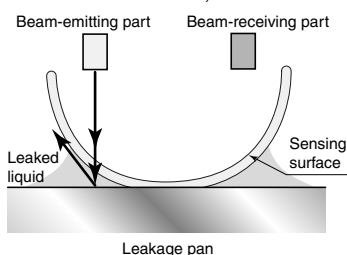
No need for sensitivity adjustment with adjuster, so initial mounting is easy.

Easy Installation & Reset

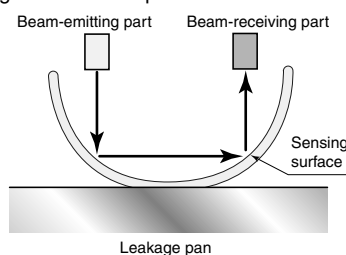
- Facilitates easy installation: the SUS mounting bracket can be installed using only a single screw and the PVC mounting bracket can be installed using only two screws or an adhesive.
- No component replacement required for resetting after leak detection.
- The simple shape makes it easy to wipe off the leaked liquid.

New Type of Detection Method

- When a leak occurs, the beam from the beam-emitting part scatters through the leaked liquid and is not transmitted to the beam-receiving part.



When leakage occurs
The beam from the beam-emitting part scatters through the leaked liquid and is not transmitted to the beam-receiving part.



When there is no leakage
The beam from the beam-emitting part reflects off of the surface of the sensor and is transmitted to the beam-receiving part.

SPECIFICATIONS

Item	Type	SUS mounting bracket type		PVC mounting bracket type	
		NPN output	PNP output	NPN output	PNP output
Model No.		EX-F71	EX-F71-PN	EX-F72	EX-F72-PN
Sensing object		Water, Fluorinert™ (Note 1, 2)			
Supply voltage		12 to 24V DC $\pm 10\%$ Ripple P-P 10% or less			
Current consumption		10mA or less	15mA or less	10mA or less	15mA or less
Output		<NPN output type>		<PNP 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 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		In normal state: ON When leak detected, or the sensor is mounted improperly: OFF			
Short-circuit protection		Incorporated			
Response time		50ms or less			
FAULT indicator		Red LED (Lights up when liquid 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) Storage: - 20 to +70°C (Note 3)			
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 cable, 2m long			
Cable extension		Extension up to total 50m is possible with 0.3mm ² , or more, cable.			
Weight		25g approx.			
Accessories		SUS mounting bracket (Note 4): 1 No. each		PVC mounting bracket (Note 4): 1 No. each for two-point-fixing and adhesive-fixing	

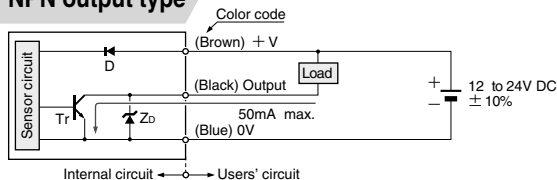
- Notes: 1) Highly viscous liquid may not be detected stably.
 2) Fluorinert™ is the world wide trademark of 3M.
 3) Liquid being detected should also be kept within the rated ambient temperature range.
 4) The mounting bracket for **EX-F71** is not interchangeable with that of **EX-F72** due to the different sensitivity settings of each sensor.

5m cable length type

5m cable length models are available (Standard: 2m).
 Model No.: **EX-F71-C5** (SUS mounting bracket type, NPN output), **EX-F71-PN-C5** (SUS mounting bracket type, PNP output)
EX-F72-C5 (PVC mounting bracket type, NPN output), **EX-F72-PN-C5** (PVC mounting bracket type, PNP output)

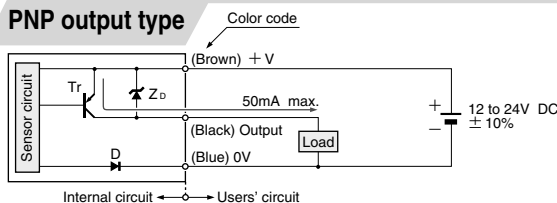
I/O CIRCUIT DIAGRAMS

NPN output type



Symbols ... D : Reverse supply polarity protection diode
 Zd: Surge absorption zener diode
 Tr : NPN output transistor

PNP output type



Symbols ... D : Reverse supply polarity protection diode
 Zd: Surge absorption zener diode
 Tr : PNP output transistor

PRECAUTIONS FOR PROPER USE



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

Mounting

- Be sure to use attached mounting bracket when installing the sensor to avoid human error. Reliable detection cannot be guaranteed when this mounting bracket is not used. As well, the mounting bracket for **EX-F71** is not interchangeable with that of **EX-F72** due to the different sensitivity settings of each sensor.
- Tightening torque of SUS mounting bracket should be 0.98N-m or less. Tightening torque of two-point-fixing PVC mounting bracket should be 0.49N-m or less.

Others

- Avoid using the product in an explosive atmosphere because this product does not have an explosive-proof protective construction.
- If air bubbles are trapped within the sensing portion, take care that extra time may be required to obtain stable sensing, or stable sensing may not be achieved. Before use, thoroughly check the conditions under which the sensor is used.
- For proper treatment after a liquid leak, ensure that all liquid is completely wiped off from both the sensor's sensing surface and from attached mounting bracket. A soft cloth must be used to ensure that scratches or other damage do not occur. If the sensing surface or attached mounting bracket is scratched, or if any traces of liquid remain, then normal functionality will be impaired.
- Do not use during the initial transient time (30 sec. approx.) after the power supply is switched on.
- Since the sensor is non-modulated type, take sufficient care against extraneous light. Make sure that extraneous light is not directly incident on the sensing surface.
- Avoid dust, dirt, and steam.
- Take care that the product does not come in direct contact with oil, grease or organic solvents, such as, thinner, etc.
- If these sensors are used in an environment where static electricity is generated, then the pan used to contain liquid leaks must be made of metal and connected to a proper electrical ground.

DIMENSIONS (Unit: mm)

