

# Amplifier Built-in Leak Detection Sensor EX-F60 Series

MJEC-EXF60 No.0045-90V

Thank you very much for purchasing Panasonic 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 a sensor for detecting leak of fluids.
- When this product is used with safety devices, construct the system such that the device itself always operates in the safety side.

## 1 SPECIFICATIONS

Item	Type		PFA mounting bracket type (For screw-fixing)		PVC mounting bracket type (For adhesive-fixing)			
	Model No.	NPN output type	3m cable length type	5m cable length type	3m cable length type	5m cable length type		
	PNP output type	EX-F61	EX-F61-C5	EX-F62	EX-F62-C5			
			EX-F61-PN	EX-F61-PN-C5	EX-F62-PN	EX-F62-PN-C5		
Sensing object			Agent, such as Sulfuric acid, Hydrochloric acid, Phosphoric acid or Ammonia etc. (Note1, 2)					
Supply voltage			12 to 24V DC ± 10% Ripple P-P 10% or less					
Current consumption			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					
Abnormality 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, 4), Storage: -20 to +70°C					
Ambient humidity			35 to 85% RH, Storage: 5 to 85% RH					
Ambient illuminance			Incandescent light: 1,000 lx or less at the light-receiving face					
Emitting element			Infrared LED (non-modulated)					
Material			Enclosure: PFA					
Cable			0.1mm <sup>2</sup> 3-core PFA cabtyre cable, 3m long	0.1mm <sup>2</sup> 3-core PFA cabtyre cable, 5m long	0.1mm <sup>2</sup> 3-core PFA cabtyre cable, 3m long	0.1mm <sup>2</sup> 3-core PFA cabtyre cable, 5m long		
Weight			60g approx.	80g approx.	60g approx.	80g approx.		
Accessories			PFA mounting bracket: 1 pc.		PVC mounting bracket: 1pc.			

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

2) The agents mentioned above are examples. Further, PVC mounting bracket may not be used depending on type or viscosity etc. of the agent. For details, please contact us.

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

4) The specified ambient temperature is only for fixed product.

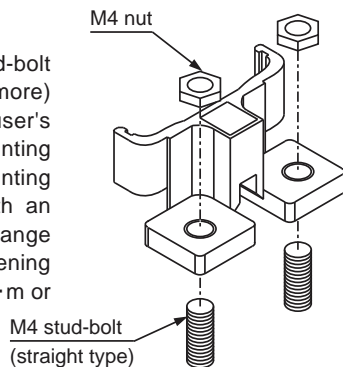
## 2 CAUTIONS

- 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 to carry out the wiring in the power supply off condition.
- 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 (50m sec. approx.) 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 0.3mm<sup>2</sup>, 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 race way. 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.
- 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.
- 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 liquid remains on the sensing surface after leak detection, wipe all liquid from the sensing surface. To avoid scratching the sensing surface and the enclosed mounting bracket, use 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 where oil or grease splashes to the product, or in an environment containing corrosive gas, 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.
- In case of using this product 50°C or more, be sure to fix this product with a dedicated mounting bracket.

### 3 MOUNTING

#### EX-F61□

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

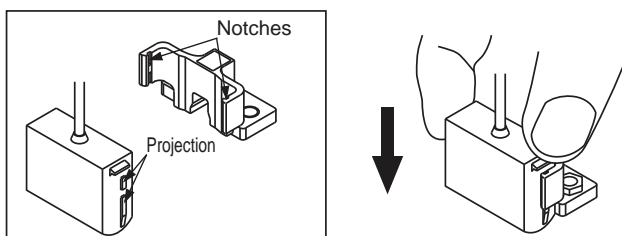


#### EX-F62□

- Please note that if the excess adhesive from the bottom surface of the exclusive mounting bracket is removed, the sensing capability may be affected.
- Use adhesive for polyvinyl chloride(PVC).

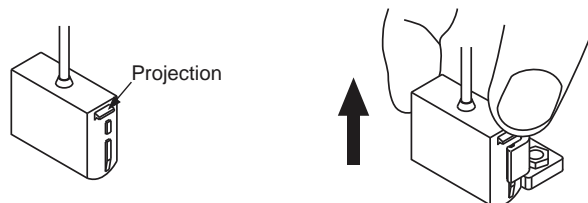
#### How to fit the sensor body to the exclusive mounting bracket

- Align the projections in the sensor body with the notches of the exclusive mounting bracket and slide till a click is felt.



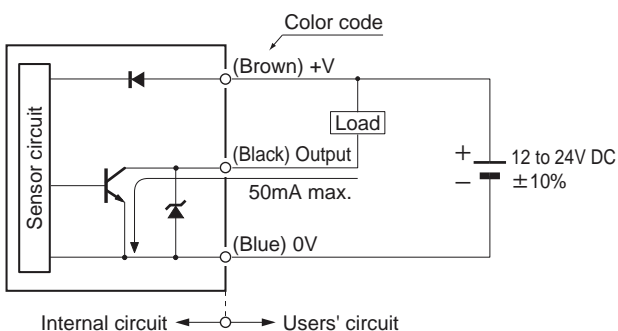
#### How to remove the sensor body from the exclusive mounting bracket

- Pinch the projections of the sensor body and pull the body upwards. Never pull the cable, since it may cause a cable break.

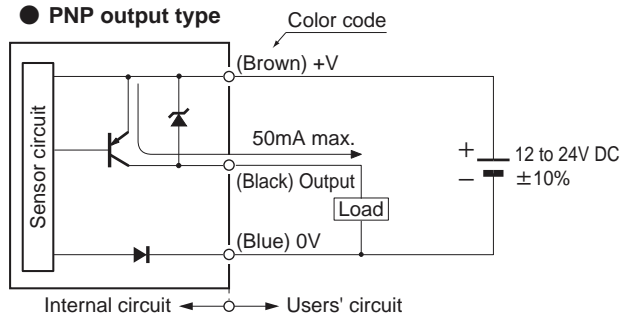


### 4 I/O CIRCUIT DIAGRAMS

- NPN output type

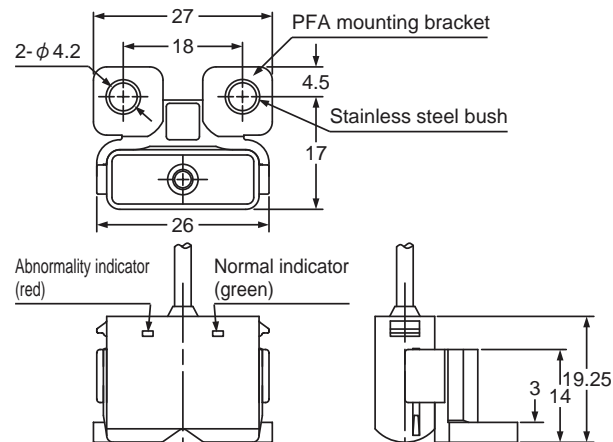


- PNP output type

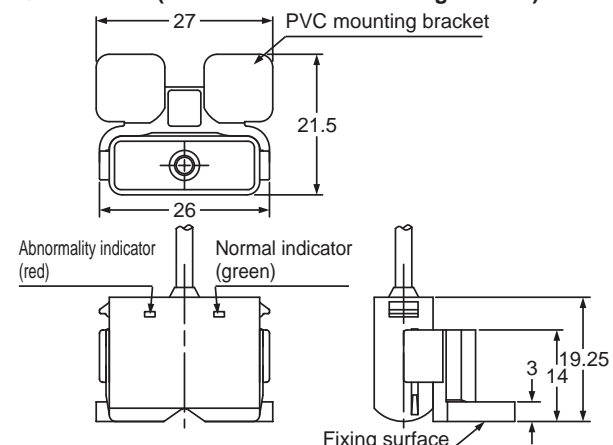


### 5 DIMENSIONS (Unit: mm)

- EX-F61□ (Sensor with PFA mounting bracket)



- EX-F62□ (Sensor with PVC mounting bracket)



### 6 INTENDED PRODUCTS FOR CE MARKING

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



- Contact for CE

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