



## Leak Detection Sensor

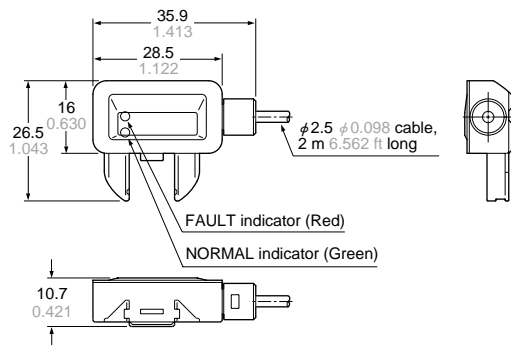
The EX-F70/F60 series of leak detection sensors offer a unique and reliable method of protecting your equipment against leaks. Using a capillary effect, the sensor utilizes the change in refractive index to detect small leaks and viscous liquids. The built-in amplifier sensor offers a compact design, and is available in general purpose (water detection) and chemical-resistant types. A convenient LED indicator allows for simple verification of fault conditions. There is no need for sensitivity adjustments, and two simple mounting bracket styles facilitate simple installation.

Model Name	Type	Output Configuration	Sensing Object	Sensing Configuration
Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼
EX-F61	Leak Detection, Chemical Resistant	NPN	Chemical Solution	Leak Detection, Contact
EX-F61-PN	Leak Detection, Chemical Resistant	PNP	Chemical Solution	Leak Detection, Contact
EX-F62	Leak Detection, Chemical Resistant	NPN	Chemical Solution	Leak Detection, Contact
EX-F62-PN	Leak Detection, Chemical Resistant	PNP	Chemical Solution	Leak Detection, Contact
EX-F71	Leak Detection, General Purpose	NPN	Water	Leak Detection, Contact
EX-F71-PN	Leak Detection, General Purpose	PNP	Water	Leak Detection, Contact
EX-F72	Leak Detection, General Purpose	NPN	Water	Leak Detection, Contact
EX-F72-PN	Leak Detection, General Purpose	PNP	Water	Leak Detection, Contact

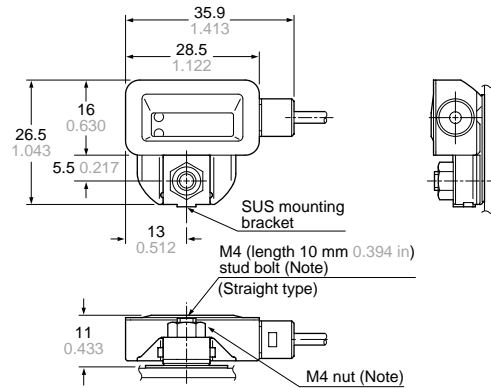
# EX-F70/F60

## DIMENSIONS (Unit: mm in)

### EX-F71(-PN) EX-F72(-PN) Sensor



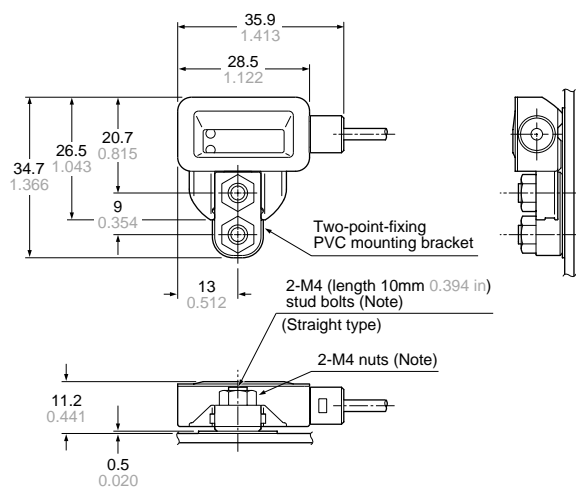
### Assembly dimensions EX-F71(-PN) with SUS mounting bracket



Note: A M4 stud bolt has been welded to this unit.  
M4 nut is not supplied with the sensor.  
Please arrange it separately.

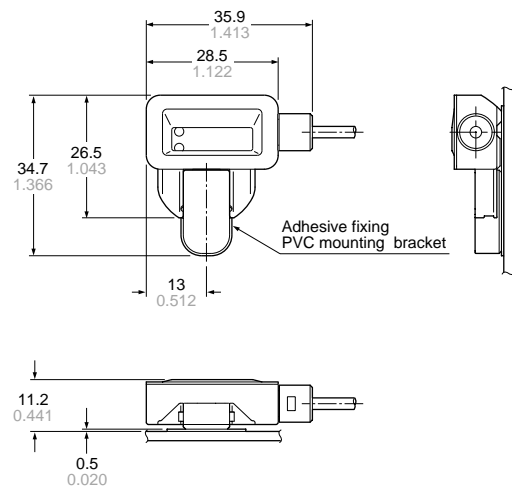
### Assembly dimensions EX-F72(-PN) with PVC mounting bracket

#### Two-point-fixing



Note: M4 stud bolts have been welded to this unit.  
M4 nuts are not supplied with the sensor.  
Please arrange it separately.

#### Adhesive fixing



# EX-F70/F60

## SPECIFICATIONS

Item	Model No.	Type	General purpose		Chemical-resistant	
			SUS mounting bracket type	PVC mounting bracket type	PFA mounting bracket type	PVC mounting bracket type
			NPN output	EX-F71	EX-F72	EX-F61
		PNP output	EX-F71-PN	EX-F72-PN	EX-F61-PN	EX-F62-PN
Sensing object		Water, Fluorinert™ (Note 1, 2)			Agent, such as Sulfuric acid, Hydrochloric acid, Phosphoric acid or Ammonia etc. (Note 1, 3, 5)	
Supply voltage		12 to 24 V DC $\pm$ 10 % Ripple P-P 10 % or less				
Current consumption		10 mA or less (PNP output type: 15 mA or less)			15 mA or less	
Output		<NPN output type> NPN open-collector transistor <ul style="list-style-type: none"> <li>• Maximum sink current: 50 mA</li> <li>• Applied voltage: 30 V DC or less (between output and 0 V)</li> <li>• Residual voltage: 1.0 V or less (at 50 mA sink current) 0.4 V or less (at 16 mA sink current)</li> </ul>			<PNP output type> PNP open-collector transistor <ul style="list-style-type: none"> <li>• Maximum source current: 50 mA</li> <li>• Applied voltage: 30 V DC or less (between output and + V)</li> <li>• Residual voltage: 1.0 V or less (at 50 mA source current) 0.4 V or less (at 16 mA source current)</li> </ul>	
Utilization category		DC-12 or DC-13				
Output operation		In normal state: ON, When leak detected or the sensor is mounted improperly: OFF				
Short-circuit protection		Incorporated				
Response time		50 ms or less				
FAULT indicator		Red LED (Lights up when the leak liquid is detected, or the sensor is mounted improperly)				
NORMAL indicator		Green LED (Lights up when the sensor is mounted properly)				
Pollution degree		3 (Industrial environment)				
Protection		IP67 (IEC)				
Ambient temperature		- 10 to + 60 °C + 14 to + 140 °F (No dew condensation or icing allowed) Storage: - 20 to + 70 °C - 4 to + 158 °F (Note 4)				
Ambient humidity		35 to 85 % RH, Storage: 35 to 85 % RH				
Ambient illuminance		Incandescent light: 1,000 lx at the light-receiving face				
Emitting element		Infrared LED (non-modulated)				
Material		Enclosure: Polypropylene			Enclosure: PFA	
Cable		0.1 mm <sup>2</sup> 3-core PVC cabtyre cable, 2 m 6.562 ft long			0.1 mm <sup>2</sup> 3-core PFA cabtyre cable, 3 m 9.843 ft long	
Cable extension		Extension up to total 50 m 164.042 ft is possible with 0.3 mm <sup>2</sup> , or more, cable.				
Weight		25 g approx.			60 g approx.	
Accessories		MS-EX-F7-1 (SUS mounting bracket) (Note 6): 1 pc.	MS-EX-F7-2, MS-EX-F7-3 (PVC mounting bracket)(Note 6):1 pc. each for two-point-fixing and adhesive-fixing	MS-EX-F6-1 (PFA mounting bracket): 1 pc.	MS-EX-F6-2 (PVC mounting bracket): 1 pc.	

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

2) Fluorinert™ is the world wide trademark of 3M.

3) The agents mentioned above are examples. For details, please contact our office.

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

5) PVC mounting bracket may not be used depending on type or viscosity etc. of the agent. For details, please contact our office.

**6) The mounting bracket for EX-F71 is not interchangeable with that of EX-F72 due to the different sensitivity settings of each sensor.**