Liquid Level Sensor

E2K-L

CSM_E2K-L_DS_E_4_6

Liquid Level Sensor That Is Unaffected by the Color of the Pipe or Liquid

- Mount to bypass pipes.
- Fit a wide range of pipe diameters: 8 to 11 mm or 12 to 26 mm
- Built-in Amplifiers to save space.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Be sure to read *Safety Precautions* on page 3.

Ordering Information

Sensors [Refer to *Dimensions* on page 5.]

Sensing method	Applicable pipe diameters	Appearance	Output configuration/Operation mode		Model
Capacitive	8 to 11 mm		NPN open-collector output	NO	**E2K-L13MC1 2M**
				NC	**E2K-L13MC2 2M**
	12 to 26 mm			NO	**E2K-L26MC1 2M**
				NC	**E2K-L26MC2 2M**

Ratings and Specifications

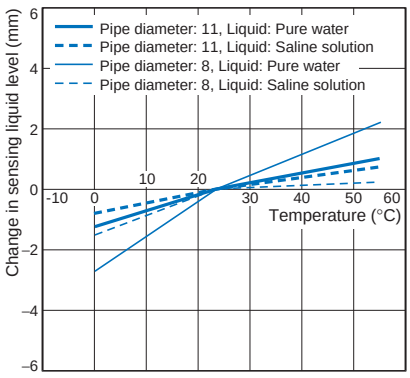
Item	Model		E2K-L13MC□	E2K-L26MC□
Applicable pipes	Materials		Non-metal	
	Size	Diameter	8 to 11 mm	12 to 26 mm
		Thickness	1 mm max.	1.5 mm max.
Detectable object			Liquid *	
Repeat accuracy			±0.2 mm max.	
Differential travel (Reference value, varies with pipe size and liquid.)			0.6 to 5 mm	0.3 to 3 mm
Power supply voltage (operating voltage range)			12 to 24 VDC (10.8 to 30 VDC), ripple (p-p): 10% max.	
Current consumption			12 mA max.	
Control output	Load current		100 mA max.	
	Residual voltage		1 V max. (Load current: 100 mA, Cable length: 2 m)	
Sensing liquid position			Indented mark position (For details, refer to *Technical Guide (Operational version)*.)	
Indicators			Detection indicator (orange)	
Ambient temperature range			Operating: 0 to 55°C (with no icing or condensation), Storage: −10 to 65°C (with no icing or condensation)	
Ambient humidity range			Operating/Storage: 25% to 85% (with no condensation)	
Temperature influence			±4 mm of detection level at 23°C in the temperature range of 0 to 55°C (with pure water or 20% saline solution) (±6 mm for E2K-L13MC□ with pure water and a pipe diameter of 8 mm)	
Voltage influence			±0.5 mm of detection level at the rated voltage in rated voltage ±10% range	
Insulation resistance			50 MΩ min. (at 500 VDC) between current-carrying parts and case	
Dielectric strength			500 VAC, 50/60 Hz for 1 min between current-carrying parts and case	
Vibration resistance			Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions	
Shock resistance			Destruction: 500 m/s^2 3 times each in X, Y, and Z directions	
Degree of protection			IP66 (IEC)	
Connection method			Pre-wired Models (Standard cable length: 2 m)	
Weight (packed state)			Approx. 70 g	
Materials	Case, Cover		Heat-resistant ABS	
	Cable clamp		NBR	
Accessories			Two bands, Four slip-proof tubes, One driver for sensitivity adjustment, Instruction manual	

* Stable detection will not be possible in the following cases. Confirm detection capability with the Sensor installed before actual application.
1. If the specific inductive capacity or the specific electric conductivity of the liquid is too low, the liquid position may not be detected since this sensor is a capacitive sensor.
2. If the quantity of liquid is too low or the change in quantity is too low in comparison to the change in liquid level because the pipe is too thin or the walls of the pipe are too thick
3. If there is a viscous film on the inner pipe wall, large quantities of foam or air bubbles, or excessive buildup of dirt on the inner pipe wall

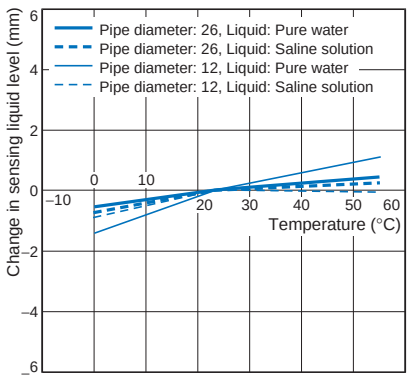
Engineering Data (Reference Value)

Influence of Temperature and Sensing Liquid Level

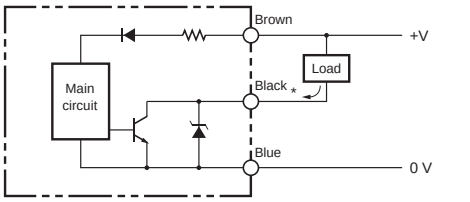
E2K-L13MC□



E2K-L26MC□



I/O Circuit Diagrams

Operation mode	Model	Timing chart	Output circuit
NO	E2K-L13MC1 E2K-L26MC1	Liquid level: Present / None Load (between brown and black leads): Operate / Reset Detection indicator (orange): ON / OFF	 * Load current: 100 mA max.
NC	E2K-L13MC2 E2K-L26MC2	Liquid level: Present / None Load (between brown and black leads): Operate / Reset Detection indicator (orange): ON / OFF	

Safety Precautions

Refer to *Warranty and Limitations of Liability*.

⚠ WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly. Do not use it for such purposes.

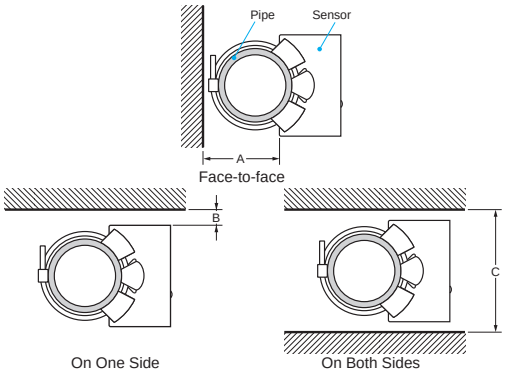
Precautions for Correct Use

Do not use this product under ambient conditions that exceed the ratings.

● **Design**

Influence of Surrounding Objects

When mounting the Sensor, maintain at least the distances in the following diagrams from surrounding metal objects or other conductors to prevent the Sensor from being affected by objects other than the sensing object.

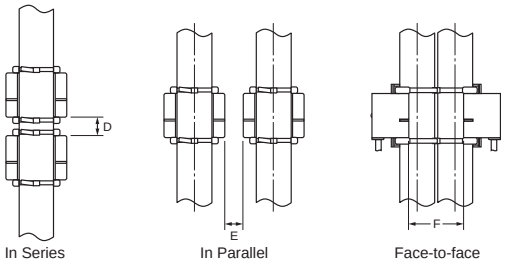


Influence of Surrounding Objects (Unit: mm)

Model \ Distance	A	B	C
E2K-L13MC□	25	5	45
E2K-L26MC□		0	40

Mutual Interference

When installing Sensors in series, in parallel, or face-to-face, ensure that the minimum distances given in the following table are maintained.



Mutual Interference (Unit: mm)

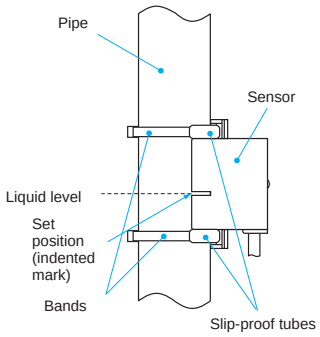
Model \ Distance	D *	E	F
E2K-L13MC□	10	10	25
E2K-L26MC□			30

* Also, always adjust the bottom Sensor first because adjusting the bottom Sensor may affect the detection level of the top Sensor.

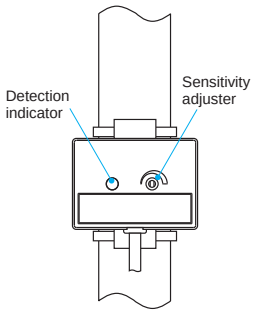
● Mounting

Mounting

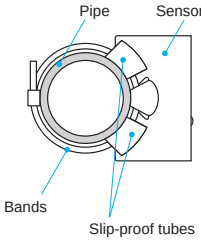
Mount the Sensor securely to the pipe using the enclosed two bands and four slip-proof tubes (two tubes used for each band) as shown in the following diagram.
When mounting the Sensor, be sure the entire Sensor is tight against the pipe along the sensing surface.



Side View



Front View



Top View

Sensitivity Adjustment

For information on the sensitivity adjustment, refer to *Technical Guide for Operation for information* for Proximity Sensor.

● Wiring

Power Supply

- If the load and Sensor are connected to different power supplies, always turn ON the Sensor power first.
- Switching noise can cause operating mistakes if a commercial switching regulator is used. When using a switching regulator, always ground the frame ground terminal and the ground terminal.

● Operating Environment

Ambient Atmosphere

- Although the Sensor is water resistance, it is a capacitive sensor and should not be used where it will come into direct contact with liquids, such as water or cutting oil.
- The life of the Sensor will be shorten by rapid changes in temperature even within the ambient operating temperature range. Do not use the Sensor in locations subject to rapid temperature changes.

● Miscellaneous

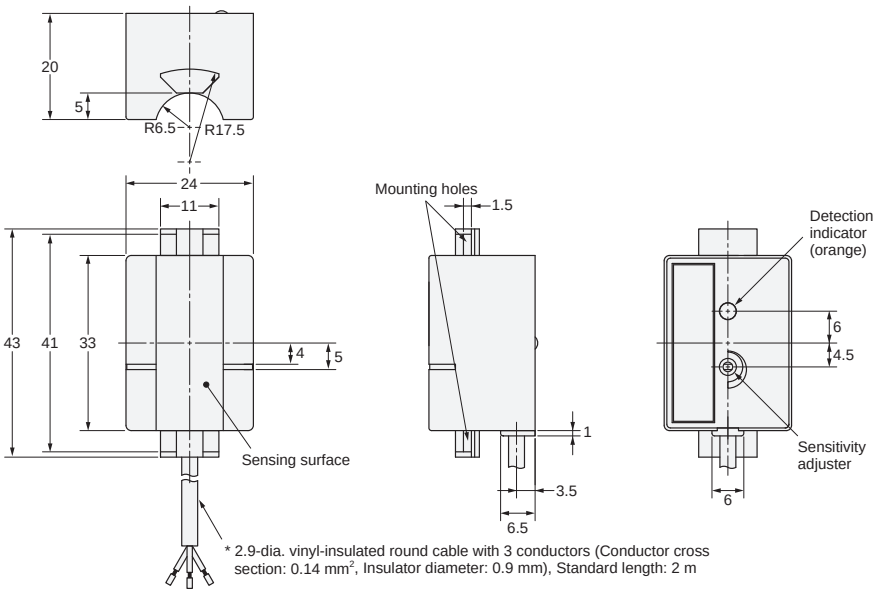
Drift will occur when the power supply is turned ON. If the specific inductive capacity of the sensing liquid is low, the detection level may increase by 2 to 3 mm during the 20 minutes required from the time the power supply is turned ON until operation stabilizes.

Dimensions

(Unit: mm)
Tolerance class IT16 applies to dimensions in this data sheet unless otherwise specified.

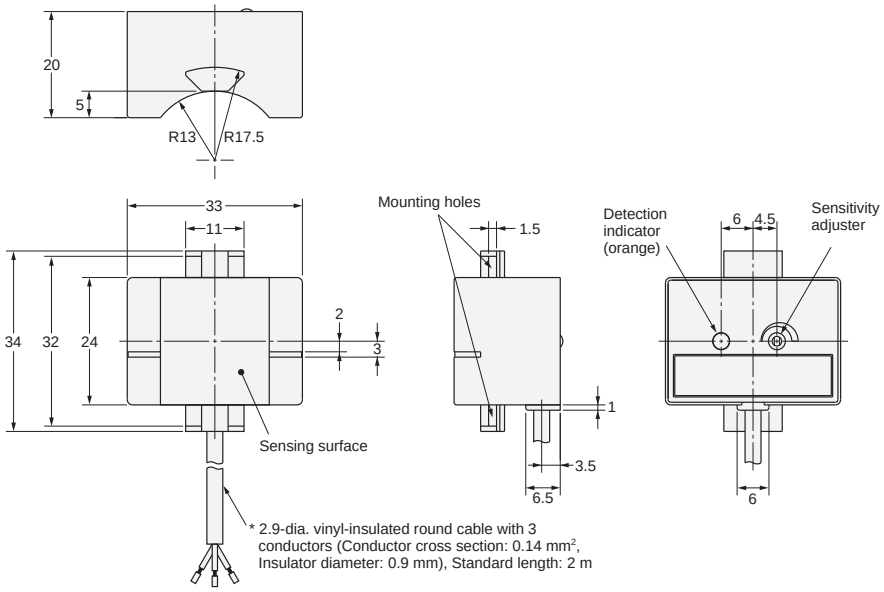
E2K-L13MC□





E2K-L26MC□





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