

# **COPAL ELECTRONICS**

Liquid Leak Sensor

## **WL10 series**

**CE** marking  
(Compliance with EMC Standard)

INSTRUCTION MANUAL Ver.2.1

Thank you for purchasing NIDEC COPAL ELECTRONICS CORP. product.

In order to use the product correctly and most appropriately, please completely read this manual before use and keep it for future reference.

## **COPAL ELECTRONICS**

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## Important Information and Warnings



**CAUTION** ... This caution mark describes when there is a possibility that user may suffer from damage or physical damage may occur if the product is used improperly.

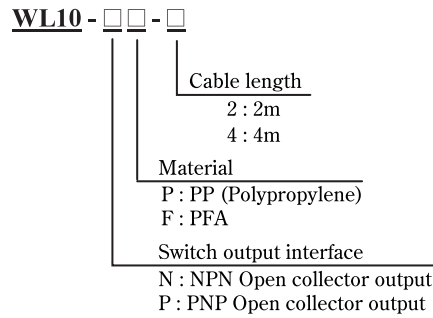


- Do not use this product in safety devices for plant worker's protection.
- This product is not incorporated in an explosion-proof structure. Therefore, please do not use it in a designated place subject to explosion-proof specifications.
- This product is designed to detect a targeted object but does not have any control functions to secure safety such as accident prevention.
- Do not use this product in applications where human safety may be put at risk. Please pay attention to safety measures.

## Handling Precautions

- Do not use this product under environment with corrosive gases.
- Highly viscous liquid may not be stably detected.
- Do not use this product for application constantly immersed into liquid.
- The detection of the sensor may be unstable when there is a presence of air bubbles on the detection part of the sensor.
- Error may occur if any liquid is left on the detection part of the sensor, or if the detection part is scratched.
- Depending on the color of the mounting surface, and/or the condition of the surface, the output may become unstable.
- When there is ambient light to the detection part of the sensor, the output may become unstable. Please make sure there is no ambient light approaching to the detection part of the sensor.
- Avoid from places with dust, dirt, and steam.
- Please turn off the power when carrying out the wiring.
- Do not use this product during system initialization. It may output excessive signal.
- Connect FG terminal on the power line to the ground when using an outside switching regulator.
- Do not wire the power line parallel to a high voltage line. It may cause malfunctions from noise.
- Please use a regulated DC power supply. Surge absorbing devices (e.g. diodes, varistors, etc.) are necessary if inductive loads, such as relays or solenoids are connected to the power line.
- Do not strongly pull the cable or the PFA tube when wiring. It may result in damage or decrease in waterproof structure.
- Do not damage or bend the PFA tube. It may result in damage or decrease in waterproof structure.
- Please provide enough straight-part at the cable near the sensor. Bending the cable near the sensor will lead to damage or decrease in waterproof structure.
- Please check if the function of the sensor is normal after installment.
- Please check the operation periodically to avoid any trouble that may arise during normal usage.
- After use, please wipe the detection part of the sensor and neighboring part gently with soft and clean cloth.
- The protective construction for this leak sensor is IP67. (According to IEC standard) Please confirm beforehand if the media is other than water.
- Be careful not to miswire. Miswiring will result in internal circuit damage. Also, do not apply voltage or load current exceeding its output capacity.

Model Designation

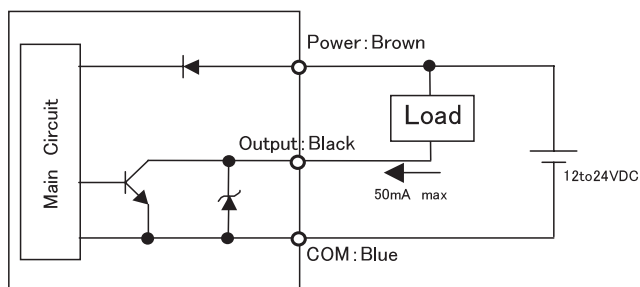


Specifications

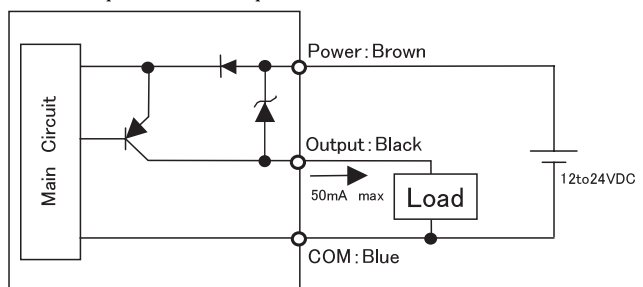
Type	WL10- *P- *	WL10- *F- *
Medium	Water	Corrosive liquid compatible with PFA
Operating temp. range	-10 to 60°C (No freezing)	
Operating humidity	35 to 85%RH (No condensation)	
Material of the body	PP (Polypropylene)	PFA (body and cable tube)
Material of the tube	—	PFA (Includes heat shrinkable tube)
Material of the inner cable	PVC	
Supply voltage	12 to 24VDC ±10% (Recommended 12VDC)	
Consumption current	10mA max.	
Indication	Normal : Switch output is ON / Green LED is ON Detection of the leakage : Switch output is OFF / Red LED is ON	
Output interface	N* - * : NPN open collector output P* - * : PNP open collector output	
Switching capacity	N* - * : Sink current : 50mA max. Voltage endurance : 30VDC P* - * : Source current : 50mA max. Voltage endurance : 24VDC	
Residual voltage	N* - * : 1.0V max., P* - * : 2.0V max.	
Protection of circuit	Over current protection Reverse polarity protection	
Protection grade	IP67 (In accordance with IEC IP-67)	
Weight	*P-2 : Approx. 30g (2m cable) / *P-4 Approx. 50g (4m cable) *F-2 : Approx. 45g (2m cable) / *F-4 Approx. 80g (4m cable)	

Internal Electrical Schematics

① WL10-N\* - \* Type  
(NPN open collector output)



② WL10-P\* - \* Type  
(PNP open collector output)

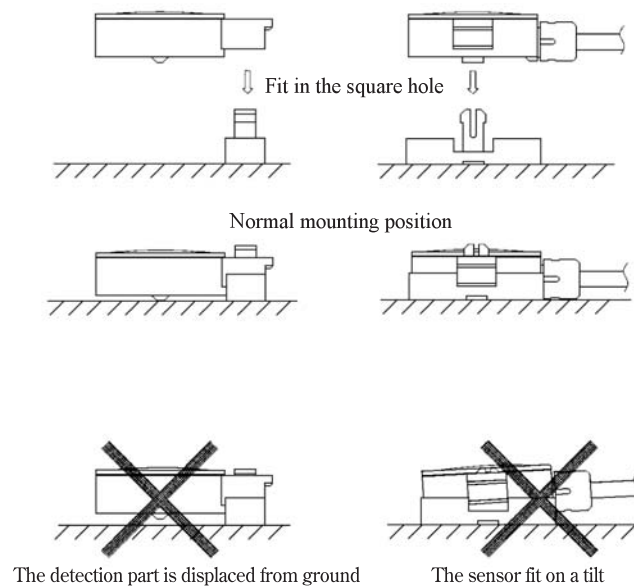


## Mounting Method

- 1) Installation method of the mounting plate  
 Mounting plate is to be secured by 2pieces of M4 screw or M4 stud bolt.  
 The recommended tightening torque is below  $0.5N \cdot m$ .
- 2) Installation method of the sensor  
 Place the sensor horizontally to the mounting plate. Fit in the square hole of the sensor with the salient of mounting plate and press in the sensor so the detection part of the sensor comes out of the Mounting plate.



If the detection part is not secured properly, the sensor may not function properly.

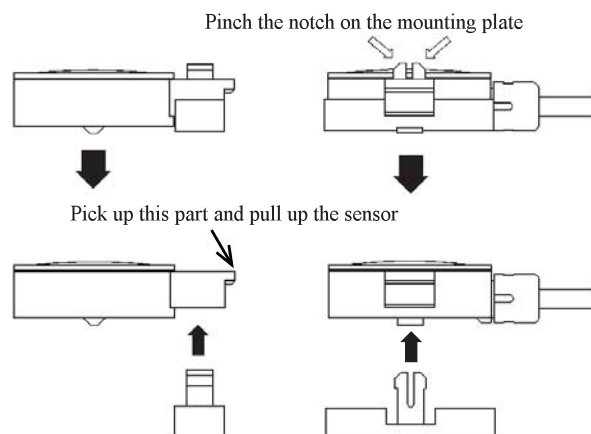


- 3) Wiring  
 Make sure not to miswire when wiring. After installation, make sure if the sensor is working properly.



Make sure not to miswire when wiring. It may result in internal circuit damage.

- 4) Method for dismantling the sensor  
 Pinch the notch on the mounting plate and pick up the sensor.



Warranty

This product is covered by a warranty for a period of one year from the date of delivery. This warranty covers free-of-charge repair and replacement for defects occurring through design or manufacturing inadequacy of NIDEC COPAL ELECTRONICS CORP. Even during the warranty period, the following failures will be handled on a fee basis.

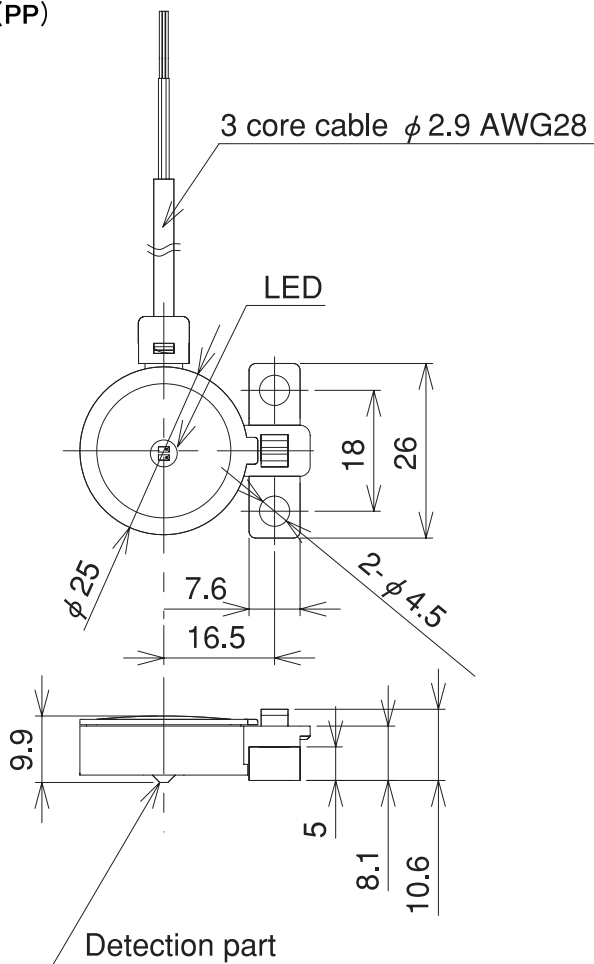
- 1) Failures or damages occurring through misuse or disoperation performed not following the instruction manual.
- 2) Failures or damages occurring through improper modification, adjustment, or repair.
- 3) Failures or damages occurring through natural calamities, fires or other inevitable accidents.

For more detailed information, please ask for the nearest distributor or the following sales center.

Outline Dimensions ( Unit : mm )

Type	L (Cable length)	Wire color	Connection
WL10-**-2	2000mm	Brown	Power (+)
WL10-**-4	4000mm	Black	Switch output
		Blue	Common

◆WL10-\*\*\*P-\*\*\* Type  
(PP)



◆WL10-\*\*\*F-\*\*\* Type  
(PFA)

