Nidec
All for dreams

WL10

LIQUID LEAK SENSORS

NIDEC COMPONENTS

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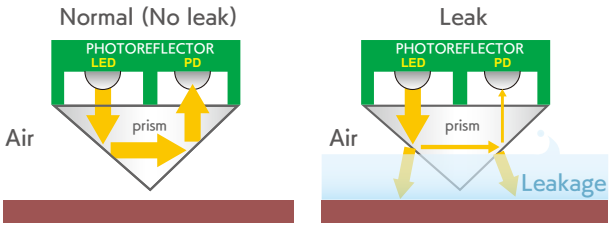
WL10

RoHS compliant

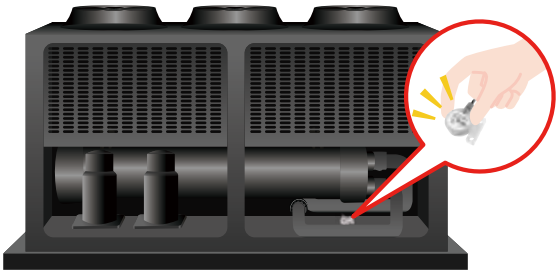
Detection Principle



Our WL10 series liquid leakage sensor is an optical spot-type sensor utilizing infrared reflection.
The detection mechanism consists of a light-emitting diode (LED) and a photodiode (PD) inside the sensor. Light emitted from the LED is reflected by a prism and received by the PD, where it is converted into an electrical current. When liquid comes into contact with the prism, the light transmits through the liquid, significantly reducing the amount of light reaching the PD. This phenomenon is used to detect leaks.

Key Advantages

Compact & Thin design



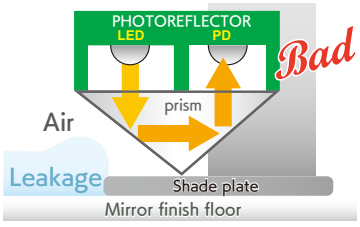
Enables pinpoint installation in narrow spaces.

High sensitivity, without an external amplifier

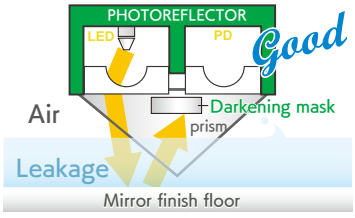
Detects leaks instantly. No amplifier is required, so ready to use. Under normal conditions, the switch output remains ON, and the LED lights up green. When a leak is detected, the switch output turns OFF, and the LED changes to red.

Unique advanced optical technology, no need for a shade-plate

In environments with strong ambient light, such as mirror-finished floors, conventional leak sensors may fail due to excessive light received by the PD. However, our WL10 utilizes unique advanced optical technologies to minimize the effects of diffuse reflection, significantly reducing location constraints.



Typical leak sensor



Our WL10

Typically, a "shade plate" is used beneath leak detection sensors to control excessive light interference. However, the WL10 does not require this, eliminating the risk of undetected leaks caused by liquid surface tension preventing it from passing over the plate.

PFA casing model available

Suitable for use with water and other corrosive liquid.

IP67 structure

Waterproof and Dustproof with IP67.

List of Model Numbers

Switch output interface		NPN		PNP	
Material of housing		PP	PFA	PP	PFA
Cable length	2 m	WL10-NP-2	WL10-NF-2	WL10-PP-2	WL10-PF-2
	4 m	WL10-NP-4	WL10-NF-4	WL10-PP-4	WL10-PF-4

Standard Specifications

General specifications	Operating temp. range	–10 ~ 60℃	
	Operating humidity	35 ~ 85%RH (No condensation)	
	Storage temp.	–20 ~ 70℃ (Atmospheric pressure, humidity 65%RH maximum)	
	Pressure medium	Water (PP) / Corrosive fluids compatible with PFA	
	Material of housing	PP / PFA	
	Net weight	Approx. 30 g (WL10-∗P-2), Approx. 50 g (WL10-∗P-4, WL10- ∗ F-2), Approx. 80 g (WL10-∗F-4)	
Power	Supply voltage	12 ~ 24 VDC ±10 %	
	Consumption current	10 mA maximum (Except open collector output)	
Output	Switch output interface	NPN	PNP
	Switching capacity	Voltage endurance: 30 VDC Sink current: 50 mA maximum (Over current protection)	Voltage endurance: 24 VDC Sourced current: 50 mA maximum (Over current protection)
	Residual voltage	1.0 V maximum	2.0 V maximum
	Operation grade	Normal condition: Switch output is ON / Green LED is ON Leakage detection: Switch output is OFF / Red LED is ON	

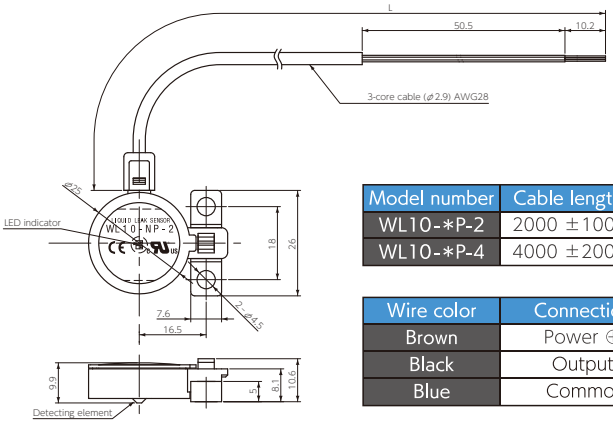
Environmental Characteristics

Test item	Test conditions	Specification
Vibration	10 ~ 500 Hz, 1.5 mm maximum / 98.1 m / S2, 3 directions for 2 hours each	Meets standard specifications
Shock	490 m/s², 3 directions for 3 times each	
Protection grade	IP67	

Outline Dimensions (Unit: mm)

Unless otherwise specified, tolerance: ± 0.5

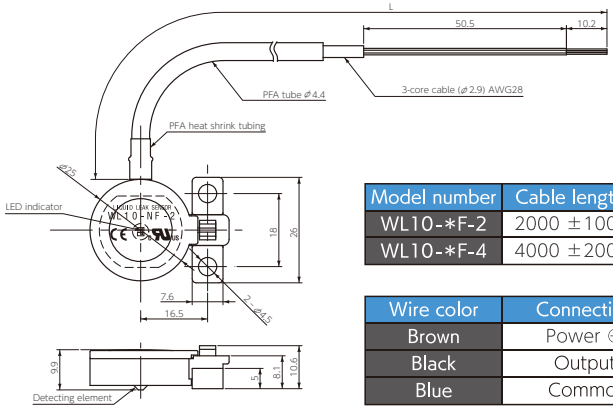
●WL10- ∗P-∗ (Material of housing - PP)



Model number	Cable length (L)
WL10-∗P-2	2000 ±100 mm
WL10-∗P-4	4000 ±200 mm

Wire color	Connection
Brown	Power ⊕
Black	Output
Blue	Common

●WL10- ∗F-∗ (Material of housing - PFA)

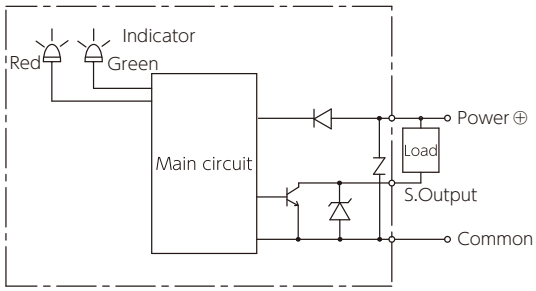


Model number	Cable length (L)
WL10-∗F-2	2000 ±100 mm
WL10-∗F-4	4000 ±200 mm

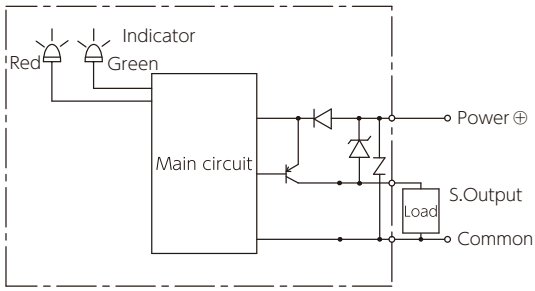
Wire color	Connection
Brown	Power ⊕
Black	Output
Blue	Common

Internal Electrical Schematics

●NPN



●PNP



Applications

Our WL10 series is widely adopted in the following applications and continues to expand its possibilities.

Semiconductor Production Equipment


Wafer process (e.g. CVD)


Assembly & testing process (e.g. Dicing)

Chillers

Water-cooled Servers


(Zoom image of inside a water-cooled server)

Energy Storage Systems

Gas Welding Machines

Medical Devices


Centrifuge for blood analysis


Dialyzer

Printing and Dyeing Machines

White Goods, Kitchen, Sanitary Equipment

NIDEC COMPONENTS CORPORATION (HQ)
7-5-25 Nishi-Shinjuku, Shinjuku-ku, Tokyo 160-0023 JAPAN
Phone: +81-3-3364-7055 Fax: +81-3-3364-7098

https://www.nidec-components.com

NIDEC COMPONENTS (U.S.A.), INC.
367 Van Ness Way, Suite 601 Torrance, CA 90501 U.S.A.
Phone: +1-310-618-0225 Fax: +1-310-618-9984

NIDEC COMPONENTS EUROPE GmbH
Mergenthalerallee 79-81, 65760 Eschborn GERMANY
Phone: +49-6196-92775-0 Fax: +49-6196-92775-75

NIDEC COMPONENTS (SHANGHAI) CO., LTD.
Unit A, 4/F, No.4 Bldg., No.253, Ai Du Rd., Wai Gao Qiao
Free Trade Zone, Shanghai 200131, CHINA
Phone: +86-21-5046-3009 Fax: +86-21-5046-3115

NIDEC COMPONENTS KOREA CORPORATION
C- 406, Woolim Lion's Valley 168, Gasan digital,
Geumcheon-gu, Seoul, 08507, KOREA
Phone: +82-2-3482-5861 Fax: +82-2-3482-5860

NIDEC COMPONENTS (TAIWAN) CO., LTD.
18F-1, No.57, Sec.2, Tun Hwa S.Rd., Taipei 106, TAIWAN
Phone: +886-2-27030577 Fax: +886-2-27010577

NIDEC COMPONENTS (SINGAPORE) PTE. LTD.
180B Bencoolen Street #07-05 The Bencoolen Singapore 189648
Phone: +65-6535-0056 Fax: +65-6535-0087

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