Self-Calibrating Flat Non-Contact Capacitive Liquid Level Sensor
Model:JL-WL-T201

This sensor is widely applied in liquid level control equipment such as smart toilets, water towers, water purifiers, soymilk makers, vegetable washers and humidifiers.

Basic Parameters

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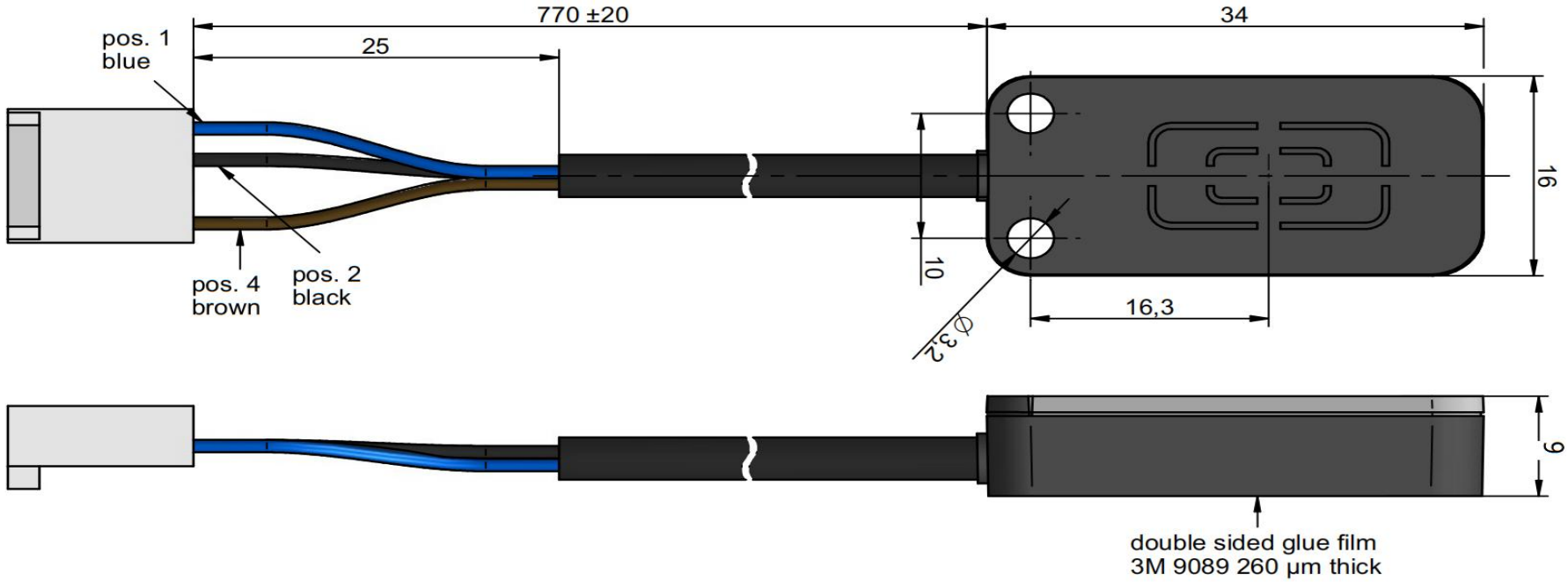
Sensing Method	Container Wall Thickness (Sensitivity set via button)	Output Type	Operation Mode
Capacitive	0 - 20 mm; One press on the button for calibration (Red indicator flashes 3 times to complete calibration)	3-wire DC NPN	No liquid detected → High impedance state Liquid detected → Low level

Overall & Mounting Dimensions



No.	Wire color	Function
pos.1	Blue	Power negative (-)
pos.2	Black	Signal output (NPN)
pos.3	Brown	Power positive (+, DC 24V)

Installation & Operation Diagram

Product Instructions

1. Application for Conductive Liquid Detection in Containers.

a. Adjust the liquid level height for low-liquid alarm as required.

b. Attach the sensor with its sensing face facing the container, and fix it at the target liquid level position.

c. Press the button to set the liquid level. The calibration is finished once the red indicator flashes 3 times.

Rated Specifications & Performance

Item		Description
Maximum Detectable Wall Thickness		≤20mm
Detectable Medium		Conductive substances (e.g. water at 0-100℃, metal conductors, etc.)
Power Supply Voltage		DC5-30V
Operating Current		Below 10 mA (at DC 24 V)
Response Time		1 s
Sampling Time		1 s
Control Output	Switching Capacity	NPN open collector, max. 100 mA (at DC 24 V)
	Residual Output Voltage	Below 1.0 V (with 100 mA load current and 2 m wire length)
Indicators		Calibration indicator (red flashing); Sensing indicator (red steady on)
Operation Mode		NPN(NO)
Connecting Wire		Black PVC 3*0.14 mm²
Connector & Terminal		MOLEX 22013047（MOLEX 4809 terminal）
Weight		
Material	Shell	PC, Flame Retardant Rating: 94V0
	Sensing Face Material	

Note: Sensor sensitivity and sensing mode can be customized upon request.

Quality Standard **Adopt GB2828, General Inspection Level II, Single Sampling Plan**

Inspection Item	Specification	Test Method	Acceptance Criteria
Shape & Dimension	In accordance with general assembly drawing	Caliper / Ruler	AQL2.5
Appearance	Comply with appearance inspection standard	Visual inspection	AQL2.5
Operational Characteristics	Comply with operational characteristic requirements		AQL2.5
※Electrical Service Life	Comply with service life requirements		n=5 c=0
※Vibration Resistance	Comply with vibration resistance requirements		n=5 c=0
※Drop Resistance	Comply with drop resistance requirements		n=5 c=0
※Heat Resistance	Comply with heat resistance requirements		n=5 c=0
※Cold Resistance	Comply with cold resistance requirements		n=5 c=0
※Humidity Resistance	Comply with humidity resistance requirements		n=5 c=0

Note: Items marked with ※ shall only be tested when product design or materials are modified.

Test & Verification Methods

Operational Characteristics

Test with dedicated water tank fixture. Fix the sensor at the designated liquid level and press the button to complete sensitivity calibration. The sensing indicator turns on when the water level rises; the indicator turns off and the sensor outputs low level when the water level drops to the set position.

Electrical Service Life

Test with dedicated water tank fixture. When the water level reaches the upper limit sensor, the indicator lights up and water feeding stops. When the water level drops to the lower limit sensor, the indicator turns off and water feeding restarts. After more than 100,000 cycles with no on-off faults and qualified sensing distance, the product is deemed compliant.

Vibration Resistance

Apply vibration at frequency 10-75 Hz and amplitude 1.5 mm for 1 hour. The product shall meet all performance requirements after test.

Drop Resistance

Drop the sensor freely from a height of 1 meter onto a rubber plate for 3 times. The product shall meet all performance requirements after test.

Heat Resistance

Place the sensor in a high-temperature chamber at 85±2℃ for 48 hours, then leave it at room temperature for 1 hour. Performance shall remain qualified.Place the sensor in an environment of 80℃ for 1 hour, then conduct test immediately. Performance shall remain qualified.

Cold Resistance

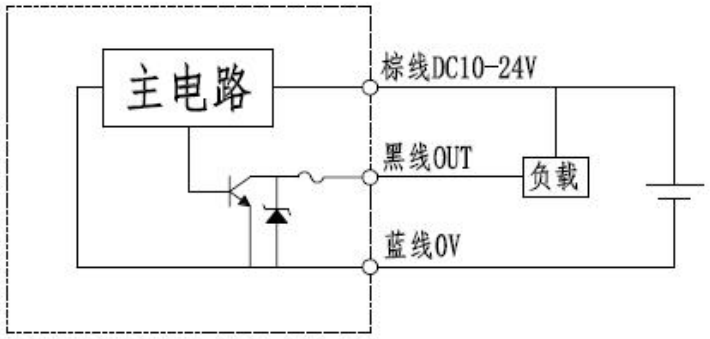
Place the sensor in a low-temperature chamber at -20±2℃ for 48 hours , then leave it at room temperature for 1 hour. Performance shall remain qualified.Place the sensor in an environment of -5℃ for 1 hour, then conduct test immediately. Performance shall remain qualified.

Humidity Resistance

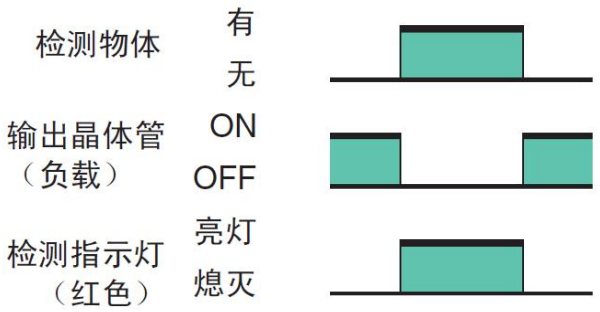
Place the sensor in an environment with humidity 93±3% and temperature 40±2℃ for 48 hours. Take it out and keep at room temperature for 1 hour before test. Performance shall remain qualified.

Circuit Diagram & Timing Diagram

Output Circuit



Timing Diagram



Output Circuit

Main circuit: Brown wire → DC 10-24 V
Black wire → Output (connected to load)
Blue wire → 0 V (Ground)

Timing Diagram

- No detected object: Detection indicator OFF, Load OFF, Output transistor OFF
- Object detected: Detection indicator ON, Load ON, Output transistor ON

Precautions

Please read the instructions carefully before use.

Warning: This product shall NOT be used for human body detection directly or indirectly for safety protection purposes. Do not use it as a human body protection detection device.

Do not operate the product beyond its rated range and applicable environment.

Detectable Medium: The sensor is compatible with most substances. However, the detectable distance varies depending on the electrical conductivity, relative permittivity, water absorption status and volume of the medium. Grounded metal objects have the maximum detectable distance. Please verify the applicability before indirect detection.

Wiring: Cable length barely affects product performance. To avoid voltage drop, keep the wire length within 200 meters.

Calibration: After installation and confirming the target sensing liquid level, press the button once. Calibration is completed when the red indicator flashes 3 times. Do not move the sensor or allow foreign objects to approach during calibration.