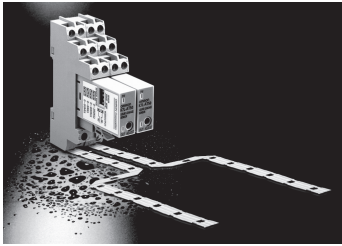


Multi-channel Applications

Isolation between the power supply circuits and sensing circuits allows multiple channels to be installed in the same location.



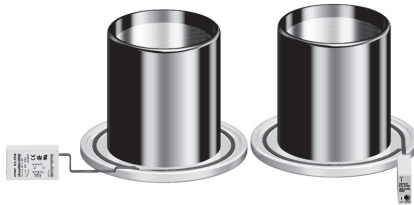
Sensing Band with Excellent Chemical Resistance

SUS316 and polyethylene are used for the Sensing Band's core and sheath to ensure high resistance to both acidic and alkaline liquids.



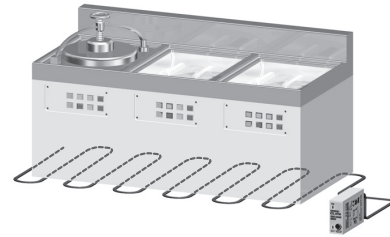
Liquid Leakage Detection for Measuring Baths in CMP Devices

Liquid leaked to drain pans can be detected to prevent damage to devices and cleaning irregularities for wafers.



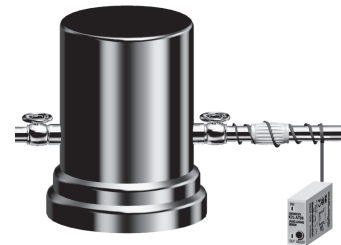
Detection of Condensation and Liquid Leakage at Semiconductor Production Installations

Detection is also possible for condensation inside cleaning devices and liquid leaked to the surroundings.



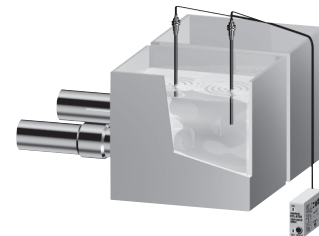
Detection of Liquid Leakage at Pipe Joints for Liquid Chemical Tanks

Liquid leakage at a pipe joint can be detected by wrapping the Sensing Band around the joint.



Detection of Cleaning Fluid Level for Plating Devices

The level of pure water is detected inside plating baths. High sensitivity allows high-accuracy control to prevent cleaning irregularities.



Note: Be sure to ground the baths if two or more K7L Sensors are used in the same tank in an explosion-prevention area.

Model Number Legend

K7L-AT50 □ □
(1) (2)

| Symbol | Meaning | Output | |
|--------|--|----------------|-----------------------------|
| | | NPN connection | PNP connection (Equivalent) |
| Blank | No sensor disconnection detection | OK | OK |
| D | Sensor disconnection detection | OK | NG |
| DP | Sensor disconnection detection Supports plus common connection | NG | OK |

| Symbol | Meaning |
|--------|---|
| Blank | Ivory, Screw Terminal Block Socket |
| B | Black, Push-In Plus Terminal Block Socket |

Note: If you want a Push-In Plus Terminal Block Socket, use the K7L-AT50□B.
(The terminal arrangement of a Push-In Plus Terminal Block Socket is upside down in comparison with a Screw Terminal Block Socket.)

Ordering Information

| Product name | | Model | | |
|----------------------------------|--|--|---|------------------------|
| Amplifier | Liquid Leakage Sensor Amplifier *1 | K7L-AT50 K7L-AT50B | | |
| | Liquid Leakage Sensor Amplifier with Disconnection Detection Function *1 | K7L-AT50D K7L-AT50DP K7L-AT50DB K7L-AT50DPB | | |
| | Sensors | Sensing Band | F03-15 F03-16PE F03-16PT F03-16SF F03-16SFC | |
| | | | Point Sensor (for K7L-AT50/AT50B) | F03-16PS F03-16PS-F |
| | | | Mounting Brackets and Stickers | Sensing Band Stickers |
| Point Sensor Mounting Brackets | | | | |
| Socket *2 (for K7L-AT50/AT50D) | Round terminals can be used. | P2RF-08 | | |
| | Round terminals cannot be used. | P2RF-08-E | | |
| Socket *2 (for K7L-AT50B/AT50DB) | Push-In Plus Terminal | P2RF-08-PU | | |
| Terminal Blocks | | F03-20 | | |

*1. Accessories are provided. Check the accessories listed in the specifications for details.

*2. The applicable models of the K7L depend on the model of the Socket. If the correct Socket is not used, the K7L nameplate will be upside down.

Characteristics

| | |
|-----------------------|---|
| Ambient temperature | Operating: -10 to +55°C |
| Ambient humidity | Operating: 45% to 85% |
| Insulation resistance | 10 MΩ at 100 VDC between case and current-carrying parts |
| Dielectric strength | 1,000 VAC at 50/60 Hz for 1 min between case and current-carrying parts |
| Power consumption | 1 W max. |
| Response time | Operate: 800 ms max. Release: 800 ms max. When turning ON power: 2 s max. |
| Weight | Approx. 14 g |

Specifications

| | | | | |
|------------------------------------|--|-----------------------|-------------------------------|-------------------|
| Rated power supply voltage | 12 to 24 VDC (Allowable voltage fluctuation range: 10 to 30 VDC) | | | |
| Operate resistance | 0 Ω to 50 MΩ, variable Range 0: 0 to 250 kΩ. Range 1: 0 to 600 kΩ Range 2: 0 to 5 kΩ. Range 3: 0 to 50 kΩ | | | |
| | Note: The range is set using the DIP switch on the side of the Sensor Amplifier. (Refer to DIP Switch Settings.) Set the corresponding pin of the DIP switch in the up position. (For range 0, set all 3 pins in the down position.) The adjuster (ADJUST) on the top of the Sensor Amplifier sets the resistance value for detection within the set range. It is factory-set to the upper limit. (Normally, the K7L can be used with the adjuster at this setting.) With any range, resistance values can be set from 0 Ω. | | | |
| Disconnection detection function * | Detection signal: 10 VDC max., 200 ms Detection time: 10 s max. Recovery: Operation is recovered by resetting the power supply. | | | |
| Release resistance | 105% min. of operate resistance | | | |
| Output configuration | Open-collector transistor output with 100 mA at 30 VDC max. for both liquid leakage detection and disconnection detection. Max. 30 VDC, 100mA Note: If the rightmost pin of the DIP switch on the side of the Sensor Amplifier is set to the down position, the output turns ON when liquid is detected; if it is set to the up position, the output turns OFF when liquid is detected. | | | |
| Wiring distance | Connecting cable: 50 m max. Sensing Band length: 10 m max. Note: These values are possible on condition that a completely insulated 3-conductor VCT cable with a thickness of 0.75 mm ² and a dielectric strength of 600 V is used together with a Liquid Sensing Band specified by OMRON. (A 0.2-mm ² cable can also be used.) | | | |
| Accessories | | Terminal Block | Screwdriver for ADJUST | Terminator |
| | K7L-AT50/AT50B | 1 | 1 | --- |
| | K7L-AT50D/AT50DB/ AT50DP/AT50DPB | 1 | 1 | 1 |
| | K7L-AT50D-S | 1 | 1 | --- |

* For the K7L-AT50D□□.