

TATSUTA
Electronic Materials &
System Equipment Group

Water Leakage Detection System

— For quick detection of even the smallest leaks —



Utility model application filed

URL <http://www.tse-sys.com/>

Water Leakage Detection System

Tatsuta's **Water Leakage Detection System** protects facilities such as computer rooms, electrical rooms, critical document rooms, apartment and condominium buildings, **from water leaks and flooding accidents**. We also offer display equipment that indicates water leak locations, as well as special-application **chemical stress sensors and heat-resistance sensors**.

Detector for total disaster prevention monitoring systems

Featuring a non-voltage output terminal, this equipment can be controlled centrally, e.g. from a central monitoring room.

Large areas can be monitored with a single sensor

This line type sensor does not fail to detect any water leak at all points on its full length, while remaining free from malfunction due to humidity. The sensor can also detect pure water, acid, and alkaline solutions.

Sensor detects wire disconnections

Any disconnection of the sensor is detected immediately, activating lamp and buzzer alarms. ※Except for the AD-AS-1CM

Installation is easy and safe, and the product is user-friendly

The sensor is in a low power circuit operating at a maximum of 5.5 VAC, which means it is very safe. The sensor is highly flexible, making it easy to handle and to use.

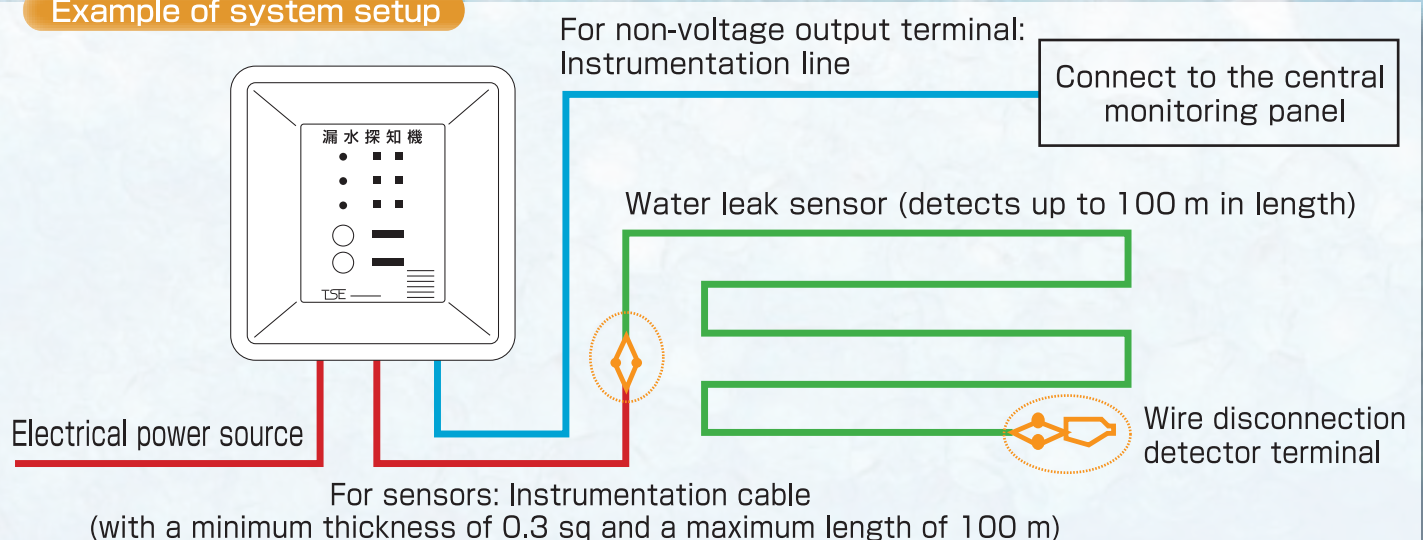
Detecting water leak locations (Leak location detecting model)

The detector has a digital display that indicates water leak locations detected by the sensor in meters. It can also output data on leak positions.

A versatile lineup of sensors

We offer a variety of sensors including: 1) a coloration model that turns red to indicate water absorption spots, 2) a coloration model that regains its original color when dried, 3) a highly durable chemical resistant model, 4) a heat-resistant model, and more, to meet the needs of every customer.

Example of system setup



TATSUTA WATER LEAKAGE DETECTION SYSTEM

Standard model: For general sewage systems; water supply and drainage for air conditioning systems; preventing rainwater penetration

Detectors



For single-circuit systems (AD-AS-1AM)

Designed for a single detection circuit, the detector unit indicates any water leak or disconnection with LED lamp and buzzer alarm. (A non-voltage output terminal is available as well).



For single-circuit systems (AD-AS-1BM)

This DIN track-mounting model is provided with a wire disconnection detector function.



For built-in single-circuit systems (AD-AS-1CM)

This DIN track-mounting sensor is built into control panels. It does not have a wire disconnection detector function.



5DRM



1ODRM

For multiple-circuit systems (AD-AS-5DRM and AD-AS-1ODRM)

A standard model contains five or ten detector circuits. Each of them alerts the user to water leaks and wire disconnections with a LED lamp and buzzer. The non-voltage output terminals are available individually or as a batch.

Sensors



AD-S Sensor (non-coloration model)

This line sensor detects even the slightest leak of conductive liquid.



AD-RS Sensor (coloration return model)

The absorbent part of the sensor turns red, turning back to white when it dries.



AD-HS Sensor (coloration model)

The absorbent surface of the sensor turns red. The color remains even when the sensor dries.



AD-FH Sensor (flat model)

This flat sensor is highly resistant to condensation and moisture. The sensor's excellent restitution characteristics enables it to quickly regain its original state.



FR-AD Sensor (heat-resistant, flame-retardant model)

Featuring flame-retardant fibers, this sensor is resistant to heat up to 120°C.



AD-PA (point sensor)

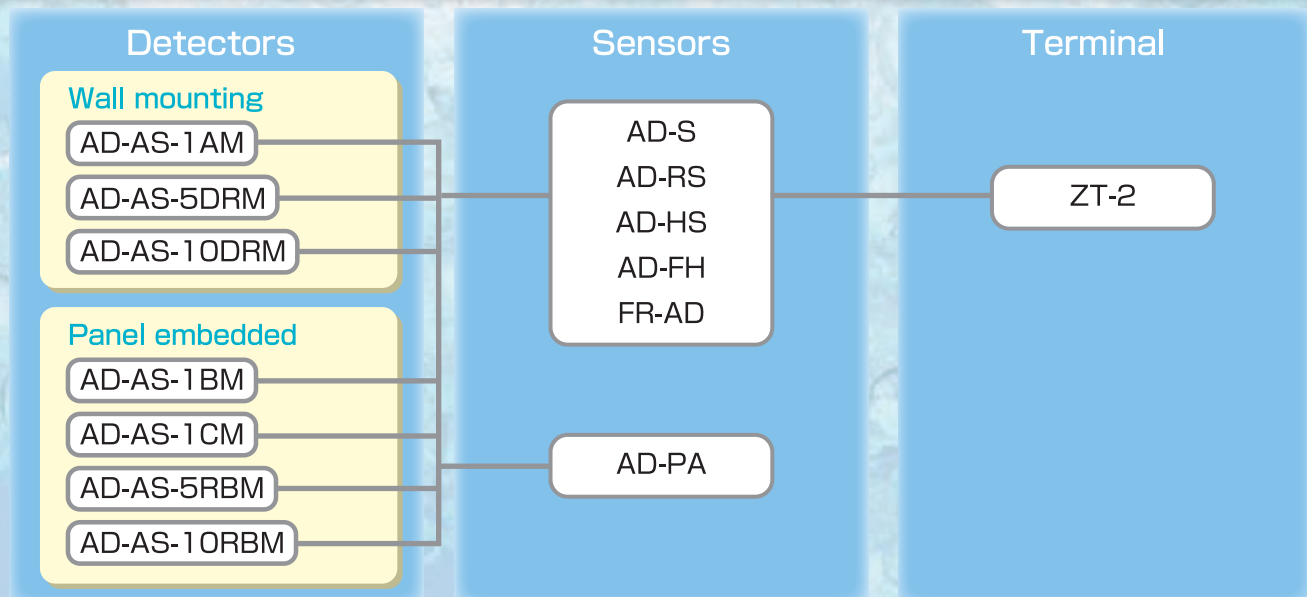
This floor-model sensor is installed in places where water tends to accumulate.



Wire disconnection detector terminal (ZT-2)

This is a sensor terminal used for on-site installation.

- ※Choose your water leak detector or water leak sensor depending on your purpose.
- ※A wire disconnection detector terminal is required only if the detection of wire disconnections is required.
- ※We offer two types of water leak sensors (AD-PA)—terminal built-in and non-built-in types. Indicate your choice when you place your order.
- ※The AD-AS-5RBM and AD-AS-1ORBM pictured below are multiple-circuit detectors of built-in type.
- ※The sensor detection color may vary from the actual color.



TATSUTA WATER LEAKAGE DETECTION SYSTEM

Water leak location detector

For identifying water leak locations on sites where there is long-distance piping, such as at plants.

Detectors



1LCM-A



1LCM

Water location detector models [AD-AS-1LCM-A](#) and [AD-AS-1LCM](#)

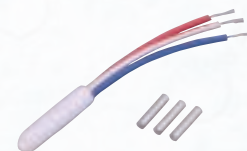
Both models in combination with a dedicated sensor enable the digital display of water leak locations.

Sensors



[AD-LS Sensor](#) (water location detector model)

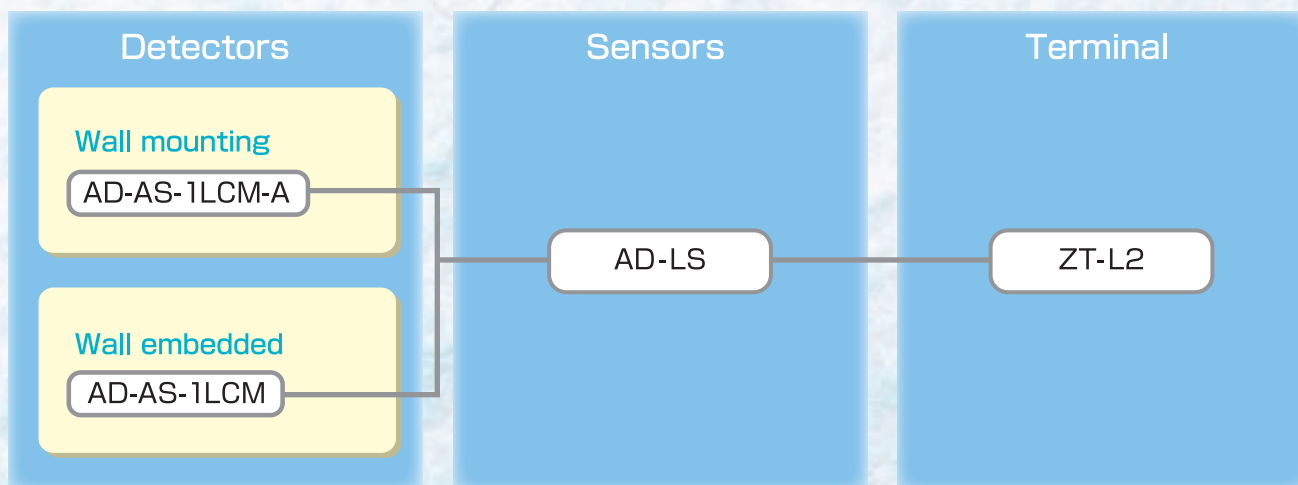
This is a dedicated sensor used for detecting water leak locations.



[Wire disconnection detector terminal](#) (ZT-L2)

This is a sensor terminal for on-site installation and dedicated to the detection of water leak locations.

※The wire disconnection detector terminal is required.



High-sensitivity sensor

For detection of pure water used in special applications, such as semiconductor production equipment.

Detectors



Single-circuit built-in use [AD-AS-1C-SR](#)

This high-sensitivity sensor is used as a DIN track-mounting sensor built into panels or incorporated into equipment. It can be used to detect high-resistance fluids (e.g., pure water and chemicals).

Sensors

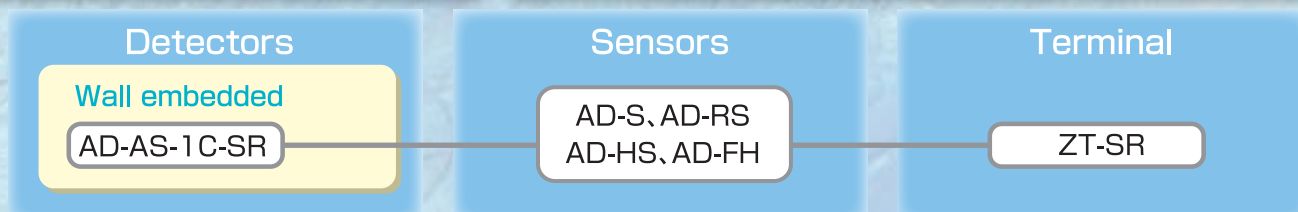


[Wire disconnection detector terminal](#) (ZT-SR)

This terminal is dedicated for high-sensitivity sensors.

※A wire disconnection detector terminal is required only if the detection of wire disconnections is required.

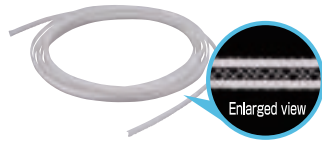
※The standard model sensor can be used for pure water detection.



Chemical detection

For chemical detection in industrial plants such as chemical plants

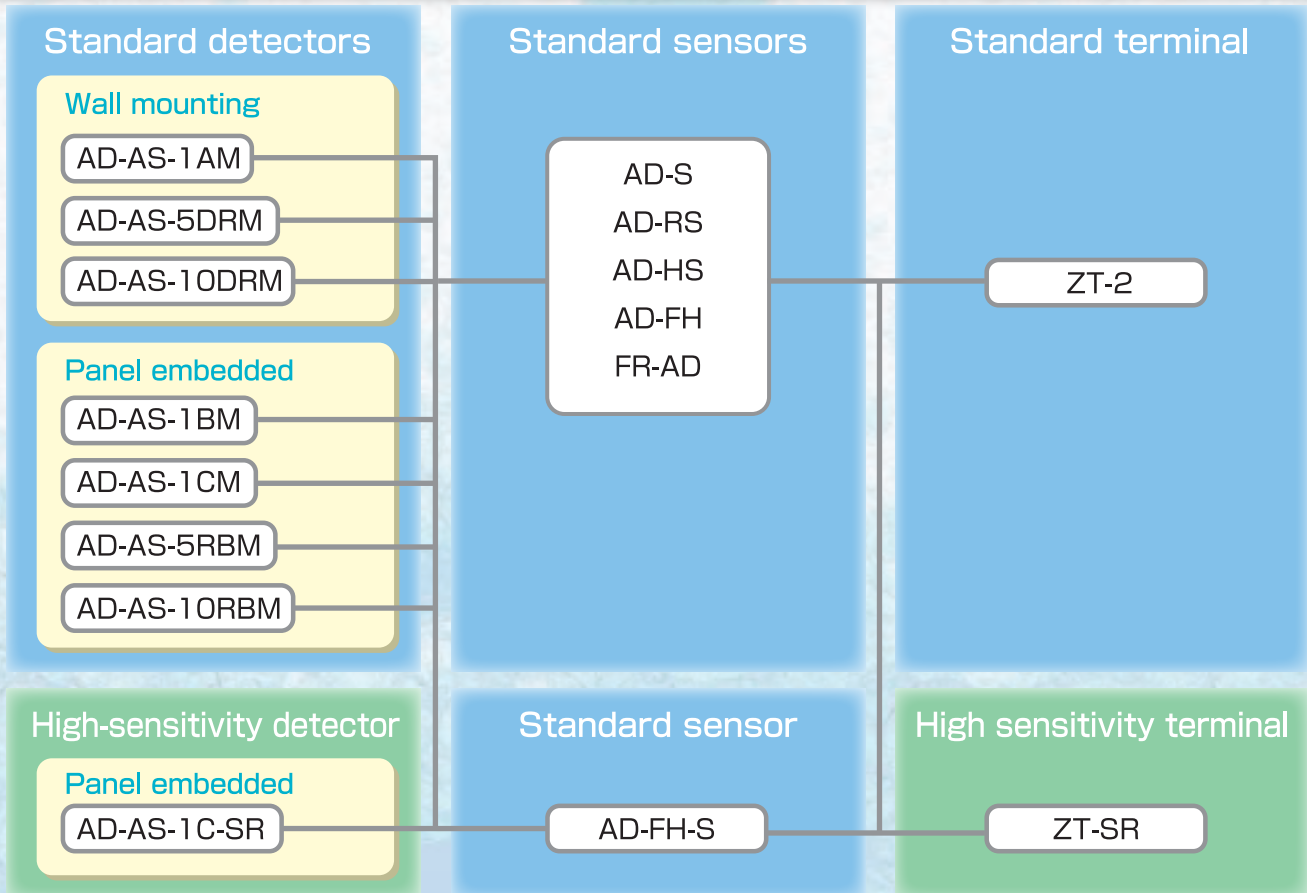
Sensors



AD-FH-S Sensor (chemical-proof model)

This highly durable sensor features stainless steel (SUS) electrodes.

- ※Detectors other than leak location detectors can be utilized.
- ※A wire disconnection detector terminal is required only if the detection of wire disconnections is required.
- ※A standard model sensor can be applied to chemical solution detection, but cannot be re-used unless it is a point sensor.
- ※Use a high-sensitivity detector for the detection of high-resistant liquids.
- ※If a high-sensitivity detector is used for the detection of wire disconnection, use a high-sensitivity terminal in combination.
- ※Some chemical solutions cannot be detected, depending on conductivity rates. For details on which chemical solutions can be detected, check the specification sheet or contact your Tatsuta representative.



Sensor mounting bracket

※Choose models according to the installation site.



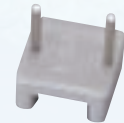
Sticker (CA-14)

This sticker used to attach sensors to wires includes adhesive tape.



Sticker (SP-1SF)

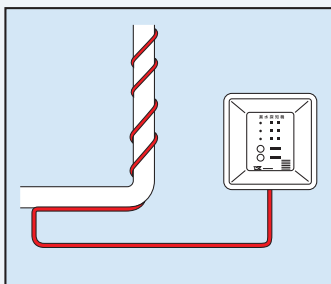
This bridge-type sticker comes with adhesive tape.



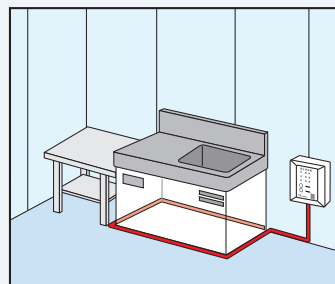
Pin Saddle (PS-1)

The pin saddle comes with concrete pegs. ※1 By Sekisui

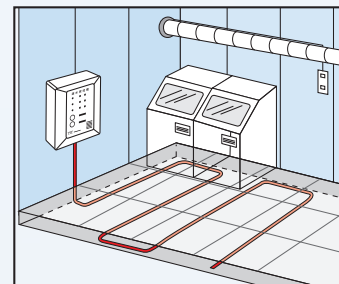
Installation examples



Sensor is attached to a pipe.



Sensor is installed around machinery.



Sensor is attached under free access areas.

Detector Specifications

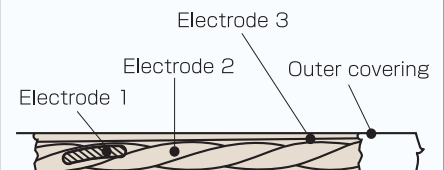
Model number Specifications	Single-circuit use				Multiple-circuit use		Water leak detection use	
	AD-AS-1AM	AD-AS-1BM	AD-AS-1CM	AD-AS-1C-SR	AD-AS-5DRM	AD-AS-10DRM	AD-AS-1LCM-A	AD-AS-1LCM
No. of sensor circuits	1	1	1	1	5	10	1	1
Power supply voltage	100 to 240 VAC		100 VAC or 200 VAC		100 to 200 VAC		100 to 240 VAC	24 VDC
Frequency	50/60Hz							
Sensor applied voltage	2.8 VAC max	5.3 VAC max	5 VAC max	2.8 VAC max	5.5 VAC max		3 VAC max	
Sensor short-circuit current	0.15 mA max	1.3 mA max	1.3 mA max	0.15 mA max	0.3 mA max		1.0 mA max	
Water-leak alarm	Red LED lamp blinks Buzzer sounds	Orange-colored LED lamp blinks			Red LED lamp lights up Buzzer sounds		Red LED lamp blinks Buzzer sounds Water leak location shown in digital display 4-20mA analog output	
Wire disconnection alarm	Green LED lamp blinks Buzzer sounds	Orange-colored LED lamp blinks	—	Orange-colored LED lamp blinks	Red LED lamp lights up Buzzer sounds		Red LED lamp lights up Buzzer sounds '---' displayed in seven-segment LED	
Non-voltage output terminal capacity (Resistive load)	6.0 A at 250 VAC or 6.0 A at 24 VDC	1.5 A at 250 VAC or 1.5 A at 24 VDC	0.5 A at 125 VAC or 2.0 A at 30 VDC		0.4 A at 125 VAC or 2.0 A at 30 VDC		0.3 A at 125 VAC or 1.0 A at 30 VDC	
Power consumption	4.5 VA max	3 VA max	2 VA max		12 VA max	20 VA max	5 VA max	5 W max
Sensitivity adjustment	Yes							
Checking function	Yes	—			Yes		—	
Overall dimensions W x H x D (mm)	120×124×55	45×72×67			300×330×100		180×125×35	105×95×61
Weight (kg)	Approx. 0.3	Approx. 0.12	Approx. 0.15		Approx. 5.5		Approx. 0.35	Approx. 0.2
Box color	Ivory white	Gray			Light beige (5Y 7/1)		Gray	

*For details see our Website at: <http://www.tse-sys.com/> *The above specifications are for standard models.

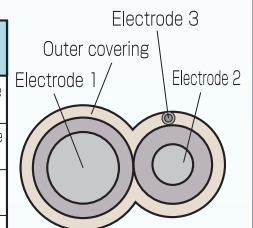
*Custom-made models with your specified number of circuits can be manufactured by request.

Sensor specifications

Model number Specifications	AD-S sensor	AD-RS sensor	AD-HS sensor	FR-AD sensor	
Electrode internal layer	Electrode 1	0.33 mm ² tin-plated annealed copper wire with plastic single braiding	0.33 mm ² tin-plated annealed copper wire with plastic single braiding	Electrode 1	0.75 mm ² tin-plated annealed copper wire with glass fiber braiding
	Electrode 2	0.33 mm ² tin-plated annealed copper wire with plastic single braiding	0.33 mm ² tin-plated annealed copper wire with plastic single braiding	Electrode 2	0.75 mm ² tin-plated annealed copper wire with glass fiber braiding
Outer layer	Plastic braiding			Flame retardant (aramid fiber) braiding	
Outer diameter	Approximately 4 mm dia			Approximately 5 mm dia	
Lead wire	—				
Detection sensitivity	3 ml max. At the rate of a 0.05-ml drop per second.*1				



Model number Specifications	AD-FH sensor	AD-FH-S sensor	AD-PA	AD-LS sensor
Electrode internal layer	Electrode 1	0.33 mm ² tin-plated annealed copper wire with plastic single braiding	Electrode 1	0.33 mm ² SUS316 with plastic single braiding
	Electrode 2	0.33 mm ² tin-plated annealed copper wire with plastic single braiding	Electrode 2	0.33 mm ² SUS316 with plastic single braiding
Outer layer	Plastic braiding		Soft PVC resin mold	Plastic braiding
Outer diameter	Approximately 6.5 × 2.0 mm		Approximately 40 × 50 × 14 mm	Approximately 3.5 mm
Lead wire	—		MF-VCTF 0.5 mm ² 3.5 m	—
Detection sensitivity	Length undetected by sensor: 60 to 90 mm (Reference volume: 14 to 18 ml)		Water level: 10 mm min	3 ml max. At the rate of a 0.05-ml drop per second.*1



Sensor structure

*1 Factory settings

*For details, see our Website at: <http://www.tse-sys.com/>

Contact the following for further information on the catalog. We also develop custom-made sensor systems by request. Please contact us at any time for details.

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