control solutions
TERACOM

TSF400-0
Water Leak Detector with Digital Output

USER MANUAL

1. Short description

The TSF400-0 is a compact water-leak detector designed for early detection of water presence on floors, trays, or inside equipment enclosures. It operates from a wide 4.5–26 VDC supply and provides a NPN open-collector output for direct connection to PLCs, controllers, alarm modules, or building-automation systems.

Detection is based on the conductivity between sensing electrodes; when water bridges the electrodes, the output changes state, enabling fast and reliable alarming. The detector is fully electronic, with no moving parts, ensuring high reliability and long service life.

2. Applications

- Leak detection in server rooms, UPS rooms and telecom shelters
- HVAC drip trays, cooling/condensation lines
- Under-floor and raised-floor monitoring
- Domestic and commercial flood-alert systems

3. Specifications

- Physical characteristics
  Dimensions: 88 x 17 x 46 mm
  Weight: 115 g
- Environmental limits
  Operating temperature range: 0 to 50 °C / 32 to 122 °F
  Operating relative humidity range: 10 to 90 %RH (non-condensing)
  Storage temperature range: -20 to 60 °C
  Storage relative humidity range: 10 to 90 %RH (non-condensing)
  Ingress protection: IP65
- Power requirements
  Operating voltage range (including -15/+20% according to IEC 62368-1): 4.5 to 26 VDC
  Current consumption: 5 mA @ 12 VDC
- Output type
  NPN open collector, active-LOW
- Output states
  Water present - ON/LOW; Water absent - OFF/OPEN
- Output ratings
  Maximum output rating: 30 V / 100 mA
- Cable length
  3 m
- Detection principle
  Conductivity between probe electrodes
- Warranty
  Warranty period: 3 years

4. Pinout

Signals/Terminals	Description	Wire color
VDD	+4.5 to 26 VDC supply	Red
GND	Ground	Black
OUT	NPN open-collector output	White

5. LED indicator

The device status is shown by the panel LED:

- In standby mode, when everything is normal, the LED lights green.
- When the sensor is activated, the same LED turns red.

6. Wiring notes

Please follow these guidelines when connecting the sensor:

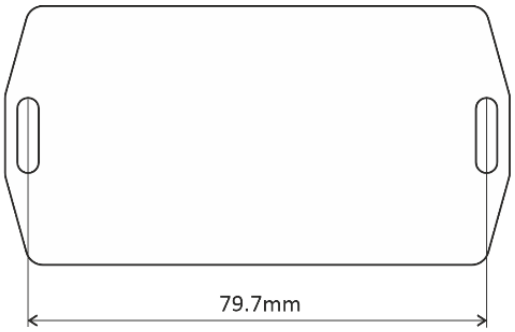
- Connect OUT to the controller/PLC input and use a suitable pull-up resistor to VDD if the input does not provide one.
- The open-collector output sinks current when active (confirm active level).
- Keep sensor leads short or use screened cable in noisy industrial environments.

7. Installation guidelines

For reliable operation, please follow these installation recommendations:

- Place the probe at the lowest point where water may accumulate (floor, tray edge, under piping).
- Avoid mounting where the electrodes may be permanently wet or contaminated by conductive dust.
- Do not use for de-ionized water detection unless verified on site.
- After installation, test the alarm function with a wet sponge.

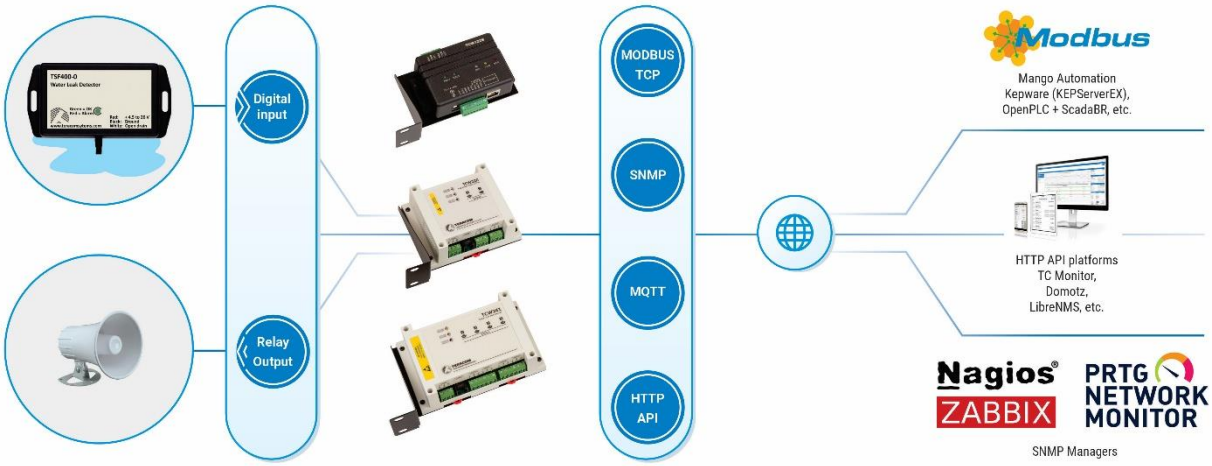
The sensor enclosure includes slotted mounting holes that allow it to be fixed securely to the floor using appropriate screws and wall plugs. The recommended screw diameter is 3 mm, with a center-to-center distance of 79.7 mm between the two mounting slots.



8. Installation example

To help visualize proper detector deployment, the picture below illustrates typical installation scenario. It shows how the TSF400-0 can be connected and arranged in real application to ensure reliable leak detection and integration with monitoring and control system.

This example is for guidance only; always follow the specific requirements of your project.



9. Notes for integration

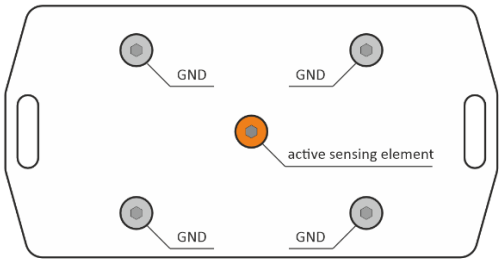
When integrating the TSF400-0 into a control system, keep in mind the following:

- The output is open collector and compatible with most digital inputs (dry-contact emulation).
- Ensure the controller input and pull-up resistor comply with the maximum output rating.
- For long probe cables or high-noise environments, use shielded cable and proper grounding.

10. Electrode layout and detection principle

The bottom surface of the TSF400-0 enclosure contains five electrodes designed for water detection.
The central electrode is the active sensing element, while the four surrounding electrodes are connected to ground.

When the device is placed on the floor, the electrodes are in direct contact with the surface.
If water is present, it creates a conductive path between the central electrode and any of the surrounding ground electrodes.
This triggers the sensor and changes the output state.



The electrode arrangement ensures reliable detection of water from any direction around the device.

11. Recycling

Please recycle all applicable materials in accordance with local regulations.

Do not dispose of the device as regular household waste.
Electronic components should be properly recycled to minimize environmental impact.