

## TRM-WaterWire™-FWS

### Small diameter water detection cable



### Product Description

TRM-WaterWire™-FWS is very small diameter cable designed to detect the presence of water or water/glycol mixture in areas that are normally dry. TRM-WaterWire™-FWS is designed for OEM use. Typical applications include water cooled electronic systems, battery enclosures or other compartments in electrical and electronic systems where the presence of water is a significant operating risk.

The cable is less than 2 mm in diameter and is flexible with a bend radius of less than 3 mm. The cable can easily be shaped to follow coolant supply tubing or fittings. Once bent the cable retains its shape so it is possible to pre-form a desired shape for efficient high volume assembly. Operating temperature is -40C to +140C although at the extreme ranges, leaking water may freeze or vaporize before it can be detected as liquid water.

TRM-WaterWire™-FWS is an entirely passive sensor. It is designed to be directly integrated with the customer's motherboard or smaller processor. The host board supplies a DC voltage and the cable outputs a DC voltage that can be used as a logic input with one state representing "dry" and the alternative state representing "water present".

The cable is cut to the ordered length and terminated at the factory and supplied to the customer with a connector at one end and a sealed termination at the distant end. Length and connector type can be specified by the user.

### Key Features

- Completely passive, resistive sensor
- Small diameter: less than 2 mm
- Flexible: Bend radius less the 3mm
- Shape retention: Once bent into the desired shape the cable will not spring back
- Desired length and connector type can be specified by the user
- Shipped to the OEM user as a ready to install assembly

### Product Specifications

- Operating voltage supplied by the user's motherboard on controller board. Minimum recommended supply: 5Vdc, maximum recommended supply: 18 Vdc
- Three wire connection: +V<sub>supply</sub>, 0V, signal
- Output signal is ~50% of supply voltage when cable is dry and ~0V when cable is wet.
- In the event of a damaged or broken cable the signal voltage will be at supply voltage or 0V depending on location of cable damage.
- Three position female PC fan type connector is standard (Molex KK series or equivalent) alternative connectors can be specified.
- Core conductors: 2 x 30 AWG steel
- The cable is NOT flame retarded and does not comply with any existing UL specification
- TRM-WaterWire™-FWS is not suitable for outdoor use or exposure to corrosive gases. It is intended for use within electrical or electronic devices that are generally protected from rain, condensation and other sources of casual water.
- Operating temperature range -40°C to +140°C (note that leak detection may not occur above 100°C or below 0°C since only liquid phase water can be detected.)
- Water/glycol mixtures up to 60% glycol can be detected.
- Humidity: up to 90% non-condensing
- Length: specified by user. Recommended maximum length is 10 m

TRM-FWS is primarily intended for OEM integration into larger systems. TRM Sensors LLC is happy to provide design assistance and consulting after execution of confidentiality agreements. We highly recommend that prototyping trials be conducted and we are happy to support such efforts at low cost. Suitability for use is ultimately a decision left to the

