

Moisture Detection Sensor

General Description

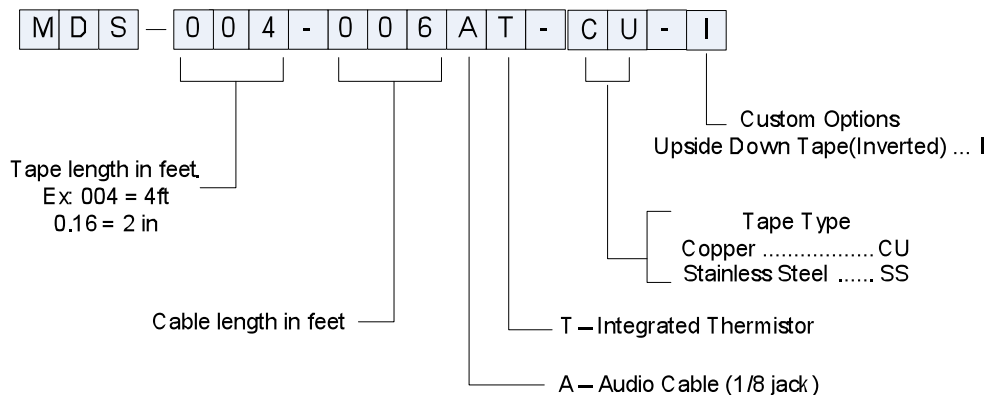
Moisture Detection Sensors (MDS) are linear detection sensors used for detecting moisture and leaks over a contiguous region.

Different MDS designs and materials are required depending on the application:

- Building envelope leak detection and moisture sensing:
 - Low profile adhesive tape with flat copper conductors.
- Condensation and Leak detection sensing:
 - Low profile adhesive tape with flat copper conductors.
- Flood Detection:
 - Adhesive tape sensor with terminal connection box for easy connectivity.
 - Termination interface for tape integrity verification.
- Inverted roof and green roof moisture detection sensing:
 - Flat tape with stainless steel conductors.
 - Sensors exposed to continuous moisture will corrode and require stainless steel conductors.
- Research Applications
 - MDS tape can be used in conjunction with the Point Moisture Measurement (PMM) Sensor where both an accurate moisture content reading and wide leak detection are required.

Features

- Self adhesive backing allows tape to be adhered to any surface.
- Flat profile allows for deployment behind drywall and under flooring.
- Wide conductors resilient to nail or screw penetrations.
- Tape can be folded and oriented to manoeuvre obstacles and turn corners.
- Various designs are available for specific applications.
- Tape with stainless steel conductors available for inverted roofing applications.



Moisture Detection Sensor (MDS)
Part Number Structure Rev1

Functional Specifications

Electrical Characteristics

Operating Voltage (with SMT WiDAQ)	0V to 3VDC
Maximum Voltage	24VDC
Sensing Element	CU – 2 copper elements SS – 2 stainless steel elements.

Environmental

Operating Temperature	-40° to 50°C / -40° to 122°F
Application Temperature	-10° to 40°C / 14° to 104°F
Storage Temperature	-40° to 50°C / -40° to 122°F
Storage Humidity	30% to 70% RH

Physical

Tape Width	20 mm / 0.8"
Tape Thickness	0.95 mm / 0.04"

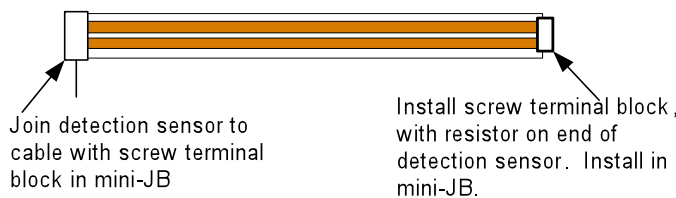
Approvals/Regulatory

Flammability Rating	In Test
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Flood/Leak Detection

Application of tape to surfaces for the purpose of flood and leak detection.

Installation

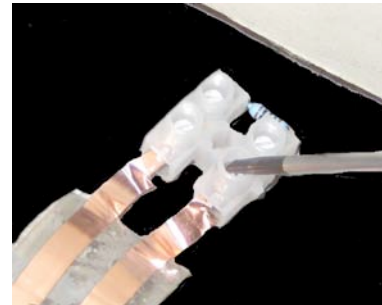


1. Identify surface to apply tape and locate connection and termination points.
2. Clean surface wipe clean with cloth and iso-alcohol to remove dust and debris.
3. Remove backing and adhere tape to surface. Contour tape around obstacles

4. Connect tape to screw terminal block.



5. Connect termination to screw terminal block.

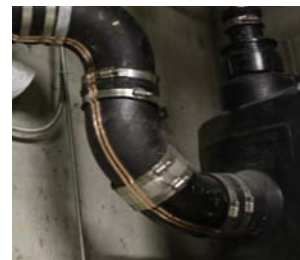


Screw down covers on termination boxes.



Condensation and Leak Detection Sensing

- MDS tape can be placed on pipes and other plumbing fixtures to monitor for leaks or condensation.
- Thermistors can be used in conjunction with tape to predict condensation build-up and eminent frozen pipe bursts.



- Mounted on the underside of pipes or where condensation is likely to occur.

Building Envelope Monitoring

Moisture Detection Sensors used for monitoring large areas within the wall cavities. This is used to monitor the building envelope effectiveness.



Adhesive tape applied to base zone of building envelope

Roof Leak Sensing



Roof Leak Sensing: Stainless Steel MDS applied to roof MDS is applied in a grid fashion on a roof membrane. Grid density defines leak detection resolution.

Ordering Information (common configs)

25 ft of Copper MDS	MDS-25-CU
100 ft Roll of Copper MDS	MDS-100-CU
300 ft Roll of Copper MDS	MDS-300-CU
100 ft Roll of Stainless Steel MDS	MDS-100-SS
Connection Box	MDS-CON
Termination box	MDS-TERM

Specifications are subject to change without notice

Maintenance

Protect tape

- Cover objects that can short the tape with an insulator such as duct tape.
- Take precautions to avoid damaging the tape.
- Do not allow the tape to be grounded or connected to a conductive surface.



Keep Clean

- Upon detection of water, resolve issue and dry tape, clean tape with iso-alcohol.
- Objects and debris could short the tape causing false alarms. Ensure the tape is free from dirt, stains and other debris.

Repair and Splicing



To join two segments of tape together or reconnect two pieces use a terminal block connector.

Troubleshooting

Readings fluctuate or are unstable.

1. WiDAQs are battery operated:
 - Change batteries
 - Check tape for grounding or wetting
2. WiDAQs are powered over the CAN bus:
 - Check tape for grounding or wetting
 - Ensure Gateway (BiG) and CAN bus are isolated using an isolation transformer.
 - Install 1uF capacitors from power and ground at each WiDAQ to building ground.