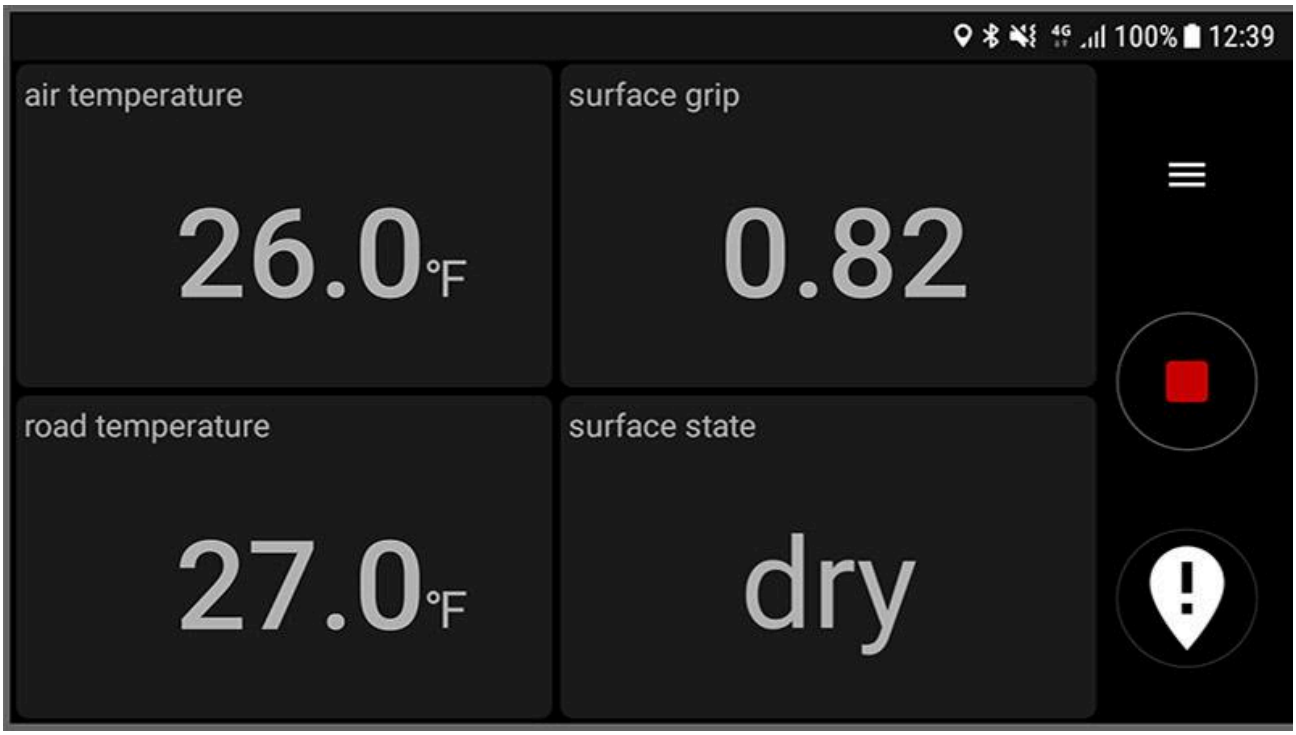
DATASHEET

# MD30

Vaisala · Authorized Partner

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VAISALA

# Mobile Detector MD30 Datasheet



## Features

- Compact, multi-parameter mobile sensor
- Designed for snow plow trucks, suitable for any vehicle
- Proven DSC technology optimized for mobile measurements
- Simultaneous water, ice, and snow layer reporting
- Molded design to withstand heavy vibration and water ingress
- Patent pending double-hood for window protection
- Hand-removable hood for easy window cleaning

Vaisala Mobile Detector MD30 is a mobile road sensor for winter maintenance operations. The compact MD30 measures all key surface weather parameters and is suitable for snow plow trucks and other vehicles. MD30 data is targeted to enable more accurate maintenance decision-making and salt usage optimization.

## Measurements

- Grip
- Surface state
- Surface layer thickness
- Surface temperature
- Air temperature
- Dew point and frost point
- Relative humidity

### Reliable in any weather

To provide a quick response time and high sensitivity in road condition reporting, MD30 uses an improved, fast-measuring version of the proven DSC laser technology. In cases where external heat sources could disturb the temperature measurements, the surface and air temperature sensors can be separated from the MD30 body and placed in the desired locations.

### Robust for any vehicle

The rugged design allows MD30 to operate in snow plow trucks and other vehicles. The core is molded to withstand continuous vibration and to prevent water ingress. Further, the hood has a special vented double structure that directs the air flow to protect the window from dirt and splashes.

### Easy to use and maintain

MD30 provides simplicity for both use and maintenance. It starts to measure automatically when the vehicle starts, and constantly monitors the sensor status, such as the window contamination. The window is heated to avoid dew and frost formation. The sensor automatically indicates the need to clean the window. When cleaning is needed, the window can be accessed by simply removing the hood by hand, without any tools.

### Compact and cost-effective

MD30 provides grip, as well as other key measurements in one package. The cost-effective product allows you to use the full potential of your vehicle fleet as a data collection platform.

### Output and visualization

MD30 outputs a binary data message over an RS-232 interface, which can also be turned wireless with an external Bluetooth module.

MD30 data can be collected and locally visualized with MD30 mobile app. The app can also be set to record video or take photos.

The powerful combination of sensor data, images, and video can be visualized in Vaisala Wx Horizon or Vaisala RoadAI online maps.

In Wx Horizon, MD30 data can be used to improve road weather forecasts and it can be combined with fixed weather station data in the same map.

# Technical Data

## Measurement specifications

| | |
|---|---|
| **Grip and surface state** | |
| Reported level of grip | 0.09–0.82 |
| Reported surface states | Dry, moist, wet, snowy, icy, slushy |
| **Surface layer thickness** | |
| Water | 0–5 mm (0–0.20 in) |
| Ice | 0–2 mm (0–0.08 in) |
| Snow (water equivalent) [1] | 0–1 mm (0–0.04 in) |
| Accuracy, water and ice [2] | ±10 % at 0–2 mm (0–0.08 in) |
| **Surface temperature** | |
| Measurement range | −40 ... +60 °C (−40 ...+140 °F) |
| **Air temperature and relative humidity** | |
| Humidity range | 0–100 %RH |
| Temperature range | −40 ... +60 °C (−40 ... +140 °F) |
| Dew point range | −40 ... +60 °C (−40 ... +140 °F) |

*1) 1 mm (0.04 in) snow water equivalent corresponds to snow depth of approx. 10 mm (0.39 in).*
*2) According to laboratory measurement method as described in EN 15518-4.*

## Measurement details

| | |
|---|---|
| Measurement interval | 40 times/s |
| Light source | Laser |
| Layer thickness reporting | 3 layers simultaneously (water, ice, snow) |
| Window dew/frost protection | Heated window |
| Window contamination reporting | Clean, contaminated, heavily contaminated |
| Window cleaning access | Hand-removable hood |

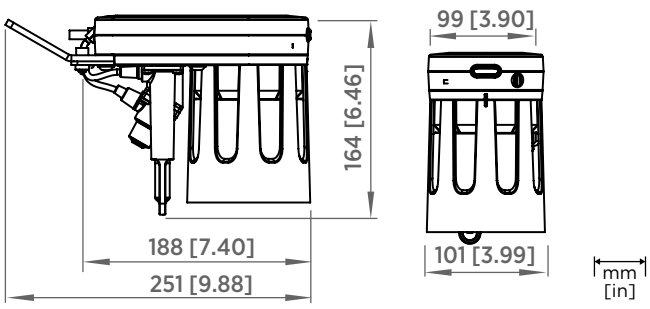
## Operating environment

| | |
|---|---|
| Operating temperature [1] | −40 ... +60 °C (−40 ... +140 °F) |
| Storage temperature | −40 ... +60 °C (−40 ... +140 °F) |
| Operating humidity | 0–100 %RH |

*1) In +35 ... 60 °C (+95 ... 140 °F), surface layer thickness measurement performance may be degraded.*

## Inputs and outputs

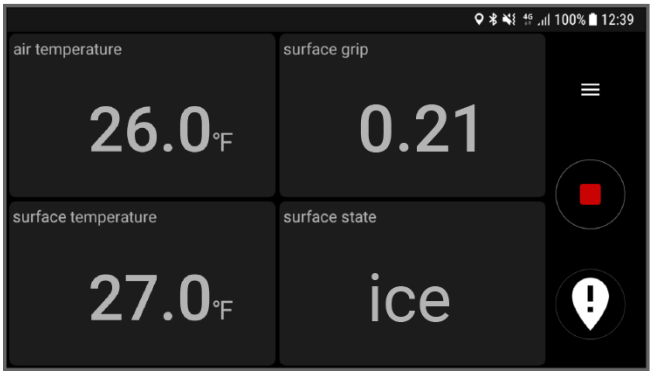
| | |
|---|---|
| Powering | 12–32 V DC |
| Power consumption, maximum | 15 W |
| Protocol | RS-232 |
| Protocol, with optional Bluetooth module | RS-232-to-Bluetooth |
| Data output | Binary |




MD30 dimensions

## Mechanical specifications

| | |
|---|---|
| Sensor structure | Encapsulated and molded |
| IP rating | IP68 |
| Installation height, mobile sensor | 20–110 cm (7.87–43.31 in) |
| Weight, mobile sensor with bracket | 1.8 kg (4.0 lb) |



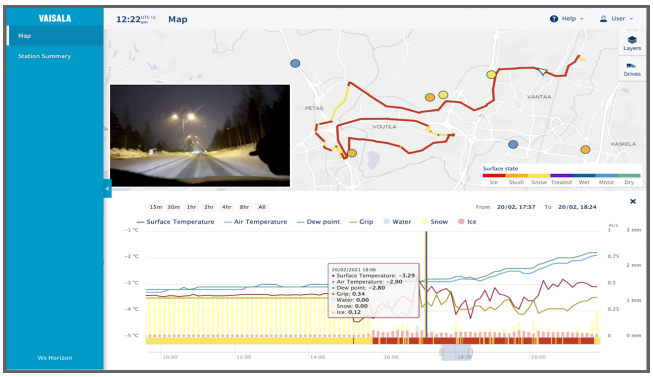

Data visualization on MD30 Mobile app

## Compliance

| | |
|---|---|
| EU directives and regulations | EMC Directive (2014/30/EU) |
| Electromagnetic compatibility (EMC) | EN 61326-1, industrial environment<br>CISPR 32 / EN 55032, Class B<br>FCC part 15 B, Class B<br>ICES-3 / NMB-3 (Class B) |
| Eye safety | EN 60825-1:2014 + A11:2021<br>Class 1 laser product |
| Compliance marks | CE, China RoHS |

## Environmental tests

| | |
|---|---|
| Cold | IEC 60068-2-1 |
| Dry heat | IEC 60068-2-2 |
| Change of temperature | IEC 60068-2-14 |
| Shock | IEC 60068-2-27 |
| Damp heat, cyclic | IEC 60068-2-30 |
| Vibration | IEC 60068-2-64 |
| Corrosion and salt mist | VDA 621-415 |




Data visualization on Vaisala Wx Horizon online map

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