



## Mobile Detector MD30



### 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 and runway condition 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 quick response time and high sensitivity in road and runway condition reporting, MD30 utilizes 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 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 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 Vaisala RoadAI Android mobile application. 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 and runway 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) <sup>1)</sup>	0 ... 1 mm (0 ... 0.04 in)
Accuracy, water and ice <sup>2)</sup>	±10 % at 0 ... 2 mm (0 ... 0.08 in)

### Surface temperature

Measurement range	-40 ... +60 °C (-40 ... +140 °F)
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### 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 latest draft (2020) of 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 <sup>1)</sup>	-40 ... +60 °C (-40 ... +140 °F)
Storage temperature	-40 ... +60 °C (-40 ... +140 °F)
Operating humidity	0 ... 100 %RH

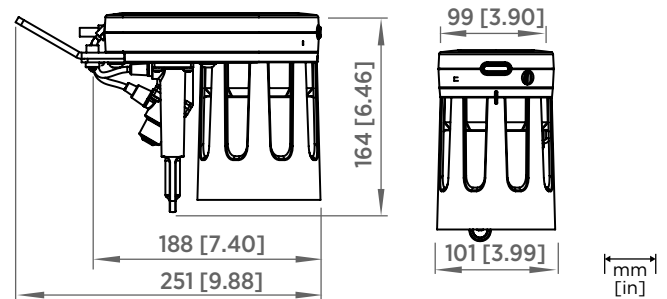
- 1) In +35 ... 60 °C (+95 ... 140 °F), surface layer thickness measurement performance may be degraded.

## 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

## 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)



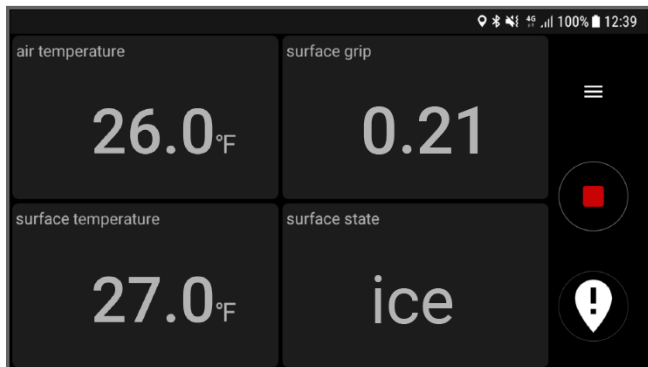
## Mounting options

Standard mounting bracket for front, side, rear, bottom mounting	MDBRACKET <sup>1)</sup>
Front towing hook mounting	MD30FRONTMOUNT
Rear trailer hook mounting	MD30REARMOUNT <sup>2)</sup> MD30REARKIT <sup>3)</sup>
Mounting kit for temperature sensors	MD30EXTSET

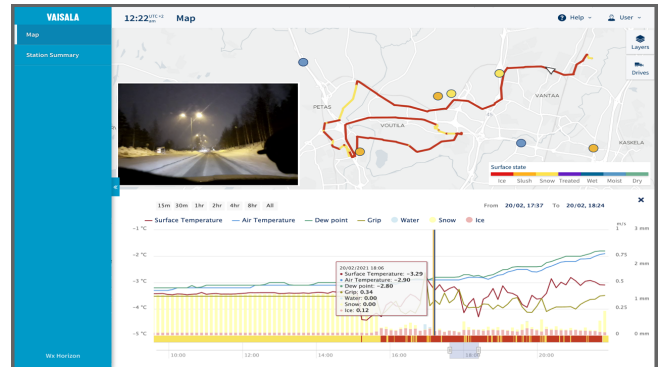
- 1) Delivered with each MD30 sensor.  
 2) MD30 mounting kit for vehicle rear trailer hook.  
 3) MD30 sensor with mounting kit for vehicle rear trailer hook and Bluetooth module enclosure.

## Compliance

EU directives	EMC Directive (2014/30/EU)
EMC compatibility	EN 61326-1, industrial environment CISPR 32 / EN 55032, Class B FCC part 15, class B ICES-3 (B)
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
Eye safety	IEC 60825-1 Class 1 laser product
Compliance marks	CE, China RoHS



Data visualization on Vaisala RoadAI mobile app



Data visualization on Vaisala Wx Horizon online map



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