



MARWIS is the first road and runway weather sensor detecting road conditions, temperatures, friction and other parameters mobile and in real time from driving vehicles...

- **Parameters measured**

Road condition (dry, moist, wet, ice, snow, slush, chemically wet), road surface temperature, ambient temperature, water film height up to 6mm, dew point temperature, relative humidity, ice percentage, friction (calculated)

- **Measurement technology**

Optical LED transmitters, photo receivers, pyrometer, infrared

- **Product highlights**

Mobile, plug and play, 100 measurements per second with max. output rate of 10Hz, multifunctional, real time thermal mapping, wireless data transfer

- **Interfaces**

Bluetooth, RS485, CAN-Bus

- **Article number**

8900.U03, 8900.U04

The mobile road weather sensor MARWIS turns vehicles into driving weather stations by detecting several critical road and runway weather parameters. It can be installed on vehicles with a distance of 1 - 2m above the surface and delivers information about temperatures, waterfilm heights, dew points, road conditions (dry, moist, wet, snow, ice), ice percentages, rel. humidity and friction with a frequency of up to 100 times per second and a max. output rate of 10 Hz. It serves as an important decision support with regard to preventive gritting. Due to the open interface protocols, MARWIS can be easily integrated

into existing winter maintenance monitoring networks. Similarly, the mobile road sensor can communicate directly with the control system on gritting vehicles. The measurement data output supports the protocol UMB binary.

| General | |
|---|---|
| Dimensions | Height approx. 110 mm, width approx. 200 mm, depth approx. 100 mm |
| Weight | 1.7 kg |
| Admissible storage temperature | -40...70 °C |
| Operating rel. humidity | <95 % relative humidity non-condensing |
| Operating voltage | 10...28 VDC on the sensor |
| Power consumption | Approx. 3VA without heating, 50VA with heating |
| Operating temperature | -40...60 °C |
| Operating rel. humidity | 0...100 % RH |
| Protection type | IP68 |
| Surface conditions | Dry, damp, wet, snow-/ice-covered, chemically wet, slush |
| Admissible height above absolute altitude | 3000 m |
| Interface | RS485, 2 wire, half duplex, bluetooth, CAN |

| Road surface temperature | |
|--------------------------|-----------------|
| Principle | Optical |
| Measuring range | -40...70 °C |
| Unit | °C |
| Accuracy | ± 0.8 °C @ 0 °C |
| Resolution | 0.1 °C |

| Ambient temperature | |
|---------------------|-----------------------------|
| Measuring range | -50...70 °C (°F switchable) |
| Unit | °C (°F switchable) |
| Resolution | 0.1 °C |

| Relative air humidity | |
|-----------------------|---|
| Measuring range | 0...100 % |
| Unit | % |
| Resolution | 1 % |
| Principle | passive, calculated out of air temperature and humidity |

| Relative humidity above road surface | |
|--------------------------------------|--|
| Measuring range | 0 ... 100 % |
| Unit | % |
| Resolution | 0.1 % |
| Principle | passive, calculated out of air temperature and humidity above road surface |

Dew point temperature

| | |
|-----------------|---|
| Measuring range | -50 ... 60 °C |
| Unit | °C |
| Resolution | 0.1 °C |
| Principle | passive, calculated out of air temperature and humidity |
| Accuracy | 1.5 °C @ temperature of 0...35 °C |

Waterfilm film height

| | |
|-----------------|---|
| Principle | Optical |
| Measuring range | 0 ... 6000 µm Max. WFH is only achieved with concrete underground. For asphalt, the maximum measurable water film height is smaller and depends on the distance to the ground. |
| Unit | µm |
| Resolution | 1 µm |
| Accuracy | 10% |

Ice Percentage

| | |
|-----------------|-------------|
| Measuring range | 0 ... 100 % |
| Unit | % |
| Resolution | 1% |

Friction

| | |
|-----------------|-------|
| Measuring range | 0...1 |
| Resolution | 0.01 |