Lufft MARWIS Mobile Weather Sensor, 2 m Installation Height

Product #:	**8900.U04**
USD Price:	Contact Hach

The mobile advanced 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 2 m above the surface and calculates 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. A standard data output rate is 1 Hz via RS485. 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.

Mobile sensor
Flexible and representative measurements from many vehicles, no fixed installation required, and hot spots for high water film heights or icying can easily be identified.

Non-invasive measuring principle
The optical (spectroscopic) measuring principle delivers the important road surface condition parameter without the need of construction works on the road itself.

Easy and flexible installation
Simple car mounting options and flexible data communication via Bluetooth, RS485, and CAN-Bus.

Low maintenance
Long life LED technique, no moving parts and easy cleaning procedure.

Specifications

*Parameters Measured:	Road condition (dry, moist, wet, ice, snow, slush, chemically wet)
	Road surface temperature
	Ambient temperature
	Water film height up to 6 mm
	Dew point temperature
	Relative humidity
	Ice percentage
	Friction (calculated)
Accuracy:	Road surface temperature: ±1 .5 °F @ 32 °F

	Dew point temperature: 3 °F @ temperature of 32 - +95 °F
	Waterfilm film height: 10 %
Cable Connection:	Open wires
Cable Length:	50 ft (15 m)
Communication:	Bluetooth, RS485-UMB, CAN-Bus
Detectable road conditions:	Dry, damp, wet, snow-/ice-covered, chemically wet, slush
Dimensions:	4.3 x 7.9 x 3.9 in (110 x 200 x 100 mm)
Height above Absolute Altitude:	9843 ft (3000 m)
Interface:	RS485
	2 wire, half duplex, bluetooth, CAN
IP Rating:	IP68
Light Source:	LED
Material Enclosures:	Aluminium housing with plastic cover
Measurement distance:	7 ft (2 m)
Measurement technology:	Optical spectroscopic principle, LED transmitter, pyrometer
Measuring Range:	Road surface temperature: -40 - +158 °F
	Ambient temperature: -58 - +158 °F (°C switchable)
	Relative air humidity: 0 - 100 %
	Relative humidity above road surface: 0 - 100 %
	Dew point temperature: -58 - +140 °F
	Waterfilm film height: 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.)
	Ice Percentage: 0 - 100 %
	Friction: 0 - 1
Operating Humidity:	95 % RH (non-condensing)
	0 - 100 % RH
Operating Temperature Range:	-40 - +140 °F
Operating voltage:	10 - 28 VDC on the sensor
Power Consumption:	Approx. 3 VA without heating, 50 VA with heating
Product highlights:	Mobile
	Plug and play
	100 measurements per second with max. output rate of 10Hz
	Multifunctional
	Real time thermal mapping
	Wireless data transfer
Resolution:	Road surface temperature: 32.18 °F (0.1 °C)
	Ambient temperature: 32.18 °F (0.1 °C)

Relative air humidity: 1%

Relative humidity above road surface: 0.1%

Dew point temperature: 32.18 °F (0.1 °C)

Waterfilm film height: 1 µm

Ice Percentage: 1%

Friction: 0.01

Standard storage temperature:	-40 - +158 °F
Temperature Accuracy:	±0.5 °C from 40 km/h (25 mph) on
Temperature Compensation:	-40 - +70 °C
Temperature Range:	-40 - +70 °C
Temperature Resolution:	32.02 °F (0.01 °C)
Weight:	3.7 lb (1.7 kg)