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Datasheet

Marwis: Professional Mobile Weather Data Recording

Complement the stationary monitoring network with dynamic (mobile) data. Automatic optimisation of gritting material. Dynamic route optimisation for winter maintenance operations. Real time thermal mapping.

The measurement principle (optical spectroscopy): water and ice absorbs certain wave length anges differently. In case there is a water or an ice layer on the road, the spectral characteristics change.

Through these characteristics the road condition, the water film height as well as the ice percentage are determined. Further integrated sensors specify the road surface temperature and the dew point.

The road surface sensors are mounted on vehicles in accordance with the requirements for a road traffic meteorological monitoring network.

MARWIS for the detection of water, ice and snow as well as friction can be installed on vehicles with a distance of 1-2 meters between the measuring instrument and the object of measurement.

Features

- Road surface conditions such as dry, moist, wet, ice, snow, slush and chemically wet
- Road surface temperature
- Water film height up to 6mm
- Dew point temperature
- Ice percentage
- Friction
- Relative humidity above road surface
- Ambient temperature

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When the number of ice particles on the road surface increases, the friction coefficient falls and can thus serve as an important element of decision-making with regard to preventive gritting.

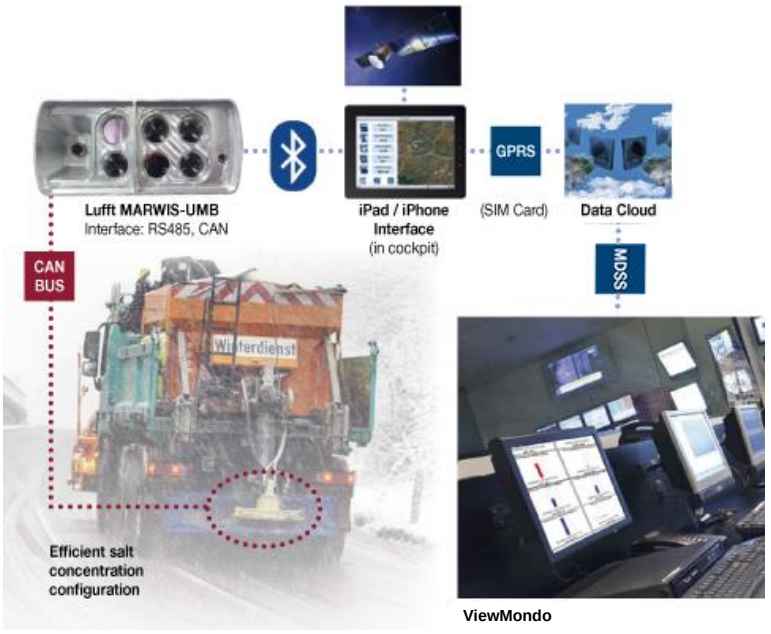
Due to the open interface protocols, MARWIS can be easily integrated into existing winter maintenance monitoring networks. Similarly, MARWIS can communicate directly with the control system on gritting vehicles.

The measurement data output supports the following protocols: UMB binary.

Advantages

- Determined black holes in your weather forecast. Mobile weather sensors help to record reliable measurement data in real time – anywhere, any time. For a better forecast in a mobile world.
- Better optimal amount. The sensor relays microclimatic measurements in real time and records all relevant environmental measurement data direct to the controller in the gritting vehicle.
- MARWIS converts your vehicle fleets into rapid response weather stations. Every navigation system requires reliable weather data in order to reliably calculate travel time. Away from single point information to specific, route-related weather data.
- MARWIS makes weather networks mobile. The same real time information in the winter maintenance service for both mobile personnel and control center – for operational planning purposes. Optimise routes and avoid unnecessary operations.

In the vehicle, a tablet or smartphone displays the measurement data graphically in real time



ViewMondo

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Different types of asphalt

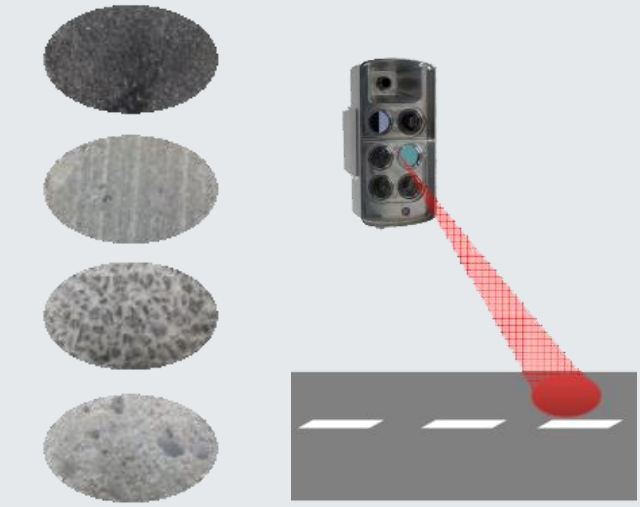
The mobile sensor, which is sealed against dirt in a protective housing, measures 100 times per second and works reliably under extreme conditions.

There are hundreds of different types of asphalt for roads. Whether lownoise asphalt, porous asphalt, mastic asphalt or concrete, MARWIS automatically adjusts the recording of the conditions to the surface structure.

Specifications

The specifications for mobile measurements are completely different to those for stationary sensors:

- Vibration of the vehicle must not distort the measured value
- Even on extremely dirty roads, the sensor must provide maintenance-free, reliable operation while driving
- The sensor must be removable from the housing, easily and quickly, for cleaning purposes
- The sensor must operate automatically with different surface materials (asphalt, concrete), without special calibration
- Damage and potholes in the road must not cause incorrect measurements (preprocessing of measured value in sensor)
- The sensor data must be transmitted to different interfaces (display and gritting controller) in parallel, both wirelessly (Bluetooth) and by cable (CAN bus)



Different types of asphalt

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DATA SUMMARY

TECHNICAL DATA

- Dimensions: Height +/- 110mm; Width +/- 200mm; Depth +/- 100mm
- Weight: 1.7 kg

STORAGE CONDITIONS

- Ambient air temperature: -40°C … 70°C
- Ambient relative humidity: < 95% relative humidity, non condensing

OPERATING CONDITIONS

- Operating voltage: 10 - 28 VDC
- Heating: 65W for 24V
- Temperature: -40°C … 60°C
- Protection class: IP68

DEW POINT TEMPERATURE

- Measurement range: -50°C … 60°C
- Accuracy: ±1.5°C (temperature 0...35°C)

WATERFILM HEIGHT

- Measurement range: 0...6000µm
- Accuracy: 10%

ROAD SURFACE TEMPERATURE

- Principle: Pyrometer
- Measurement range: -40°C … 70°C
- Accuracy: ± 0.8°C@0°C
- Resolution: 0.1°C

AMBIENT TEMPERATURE

- Measurement range: -50°C … 70°C
- Resolution: 0.1°C

RELATIVE HUMIDITY ABOVE ROAD SURFACE

- Measurement range: 0 … 100% relative humidity
- Sampling rate: 10Hz

FRICTION

- Measurement range: 0 … 1 (smooth ... dry)
- Sampling rate: 100Hz

ROAD CONDITIONS

Dry, moist, wet, ice, snow, slush and chemically wet

ACCESSORIES

- Protective housing short (car) with mounting flange
- Protective housing long (truck) with mounting flange
- Kit for magnetic bracket
- Software
- Connection cable 5m or 15m

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Solutions beyond expectations

Since 1924 Observator has evolved to be a trend-setting developer and supplier in a wide variety of industries. From instruments for meteorological and hydrological solutions, air and climate technology, to high precision mechanical production, window wipers and sunscreens for shipping and inland applications.

Originating from the Netherlands, Observator has grown into an internationally oriented company with a worldwide distribution network and offices in Australia, Germany, the Netherlands, Singapore and the United Kingdom.

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