



## Datasheet

# Intelligent Passive Road Sensor IRS31Pro-UMB

Passive road sensor IRS31Pro-UMB is flush-mounted in the road. The two part housing design allows the combined sensor/electronics unit to be removed for maintenance or calibration at any time.

The following variables are recorded

- Road surface temperature
- Water film height up to 4 mm
- Freezing temperature for different de-icing materials (NaCl, MgCl, CaCl)
- Road condition (dry/damp/wet/ice or snow/moist with salt/wet with salt)
- Friction (grip)
- Ice percentage
- Saline concentration

### Optional

- 2 additional depth temperatures, e.g. at 5 cm and 30 cm

The sensors are addressable and can be networked. The measurement data is available for further processing in the form of a standard protocol.

### Features

- Replaceable sensor electronics
- Polling via RS485 interface
- Low energy consumption (solar operation)
- Radar principle to measure water film
- Analogue outputs in combination with 8160.UDAC
- Complies with prEN15518-3:2010

## DATA SUMMARY

### TECHNICAL DATA

- Dimensions                    Ø 120 mm, height 50 mm
- Weight                        approx. 800 g (without cable)
- Detectable road conditions Dry/moist/wet/moist with salt/wet with salt/ice
- Storage temperature        -40°C ... 70°C
- Rated current                < 200mA
- Interface                     RS485, baud rate: 2,400 ... 38,400 bit/s, standard: 19200 or SDI-12
- Protection                  IP68
- Op. power consumption     9...14 VDC, typical 12V
- Plug                          Cable 0.5 mm<sup>2</sup>
- Op. temperature range     -40°C ... 80°C
- Op. humidity range         0 ... 100% RH
- Road dampness             Unit: dry/damp/wet/damp with salt/wet with salt
- Slippery road conditions    Unit: no ice/snow, snow, ice

### ROAD SURFACE TEMPERATURE

- Principle                     NTC
- Measuring range            -40°C ... 80°C
- Accuracy                    ±0.1°C (-20...20°C), else ±0.2°
- Resolution                 0.1

### FREEZING POINT

- Measuring range            -40°C ... 0°C
- Accuracy                    ±0.5°C (0...-2,5°C), else ±20%  
v.MW (at de-icing agent NaCi)
- Resolution                 0.1

### WATER FILM HEIGHT

- Principle                     Radar
- Measuring range            0...4 mm
- Accuracy                    ±0.1 mmm + 20% measurement
- Resolution                 0.01 mm

### FRICTION

- Measuring range            0...1 (slippery...dry)

### ICE PERCENTAGE

- Measuring range            0...100%



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