



The passive road sensor **IRS31Pro-UMB** convinces by its two part housing design and accurate detection of road surface temperature, water film height, freezing temperature, ice percentage and many more...

- **Parameters measured**  
Road surface temperature, water film height up to 4mm, 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, ice Percentage, 2 additional depth sensors
- **Measurement technology**  
Conductivity measurement (ice percentage), radar measurement (water film), NTC (road surface temp.)
- **Product highlights**  
Two part housing design allows easy maintenance/re-calibration, low energy consumption allows solar operation, radar principle to measure water film
- **Interfaces**  
RS485, SDI-12, analogue outputs
- **Article number**  
8910.U050, 8910.U051, 8910.U052, 8910.U100, 8910.U101, 8910.U102

The 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, damp with salt, wet with salt), friction (Grip), ice percentage. Optional: 2 additional depth temperatures, e.g. at 5 cm and 30 cm. The measurement data is available for further processing in the form of a standard protocol (Lufft UMB protocol).

General	
Dimensions	Ø 120mm, height 50mm
Detectable road conditions	Dry/moist/wet/moist with salt/wet with salt/ice
Weight	Approx. 800 g without cable and without external temperature probe
Storage temperature	-40...70°C (in packaging)
Rated current	<200mA
Interface	RS485, Baudrate: 2400 ... 38400 bit/s (Standard: 19200) or SDI-12
Protection type	IP68
Power supply	9...14VDC, nominal 12V
Connector	Cable 0.5mm <sup>2</sup>
Operating temperature	-40...80°C
Operating rel. humidity	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 & below ground temp.	
Principle	NTC
Measuring range	-40 ... 80 °C
Unit	°C
Accuracy	±0.1°C (-20 ... 20°C), else ±0.2°C
Resolution	0.1

Freezing point	
Measuring range	-40 ... 0 °C
Unit	°C
Accuracy	±0.5°C (0 ... -2.5°C), else ±20% of average value (at de-icing agent NaCl)
Resolution	0.1

Water film height	
Principle	Radar
Measuring range	0 ... 4 mm
Unit	mm
Accuracy	0.2mm to 3mm: better than +/-30%
Resolution	0.01 mm

Friction (Grip) [slippery...dry]	
Measuring range	0 ... 1

# Technical Data

Intelligent Passive Road Sensor IRS31Pro-UMB



## Ice Percentage

Measuring range	0 ... 100 %
Unit	%