

# Lufft IRS31Pro-UMB – Intelligent Passive Road Sensor

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 4mm
- Freezing temperature for different de-icing materials (NaCl, MgCl, CaCl)
- Road condition (dry/damp/wet/ice or snow/residual salt/freezing rain)
- Friction (Grip)
- Ice Percentage

Optional:

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

The sensors are addressable and can be networked.

The measurement data is available for further processing in the form of a standard protocol (Lufft UMB protocol).



Lufft IRS31-UMB Intelligent Road Sensor		Order No.
<b>IRS31Pro-UMB</b> 50m cable length		<b>8910.U050</b>
<b>IRS31Pro-UMB</b> 50m cable length, 1 depth temperature sensor		<b>8910.U051</b>
<b>IRS31Pro-UMB</b> 50m cable length, 2 depth temperature sensors		<b>8910.U052</b>
<b>IRS31Pro-UMB</b> 100m cable length		<b>8910.U100</b>
<b>IRS31Pro-UMB</b> 100m cable length, 1 depth temperature sensor		<b>8910.U101</b>
<b>IRS31Pro-UMB</b> 100m cable length, 2 depth temperature sensors		<b>8910.U102</b>
<b>Technical data</b>	Dimensions	Ø 120mm, height 50mm
	Weight	Approx. 800g without cable
	Detectable road conditions	Dry/moist/wet/moist with salt/wet with salt/ice
	Storage temperature	-40 ... 80 °C
	Rated current	< 200 mA
	Interface	RS485, Baudrate: 2400 ... 38400 bit/s (Standard: 19200)
	Protection	IP68
	Op. power consumption	9 ... 14VDC, typical 12V
	Plug	Cable 0.5mm <sup>2</sup>
	Op. temperature range	-40 ... 80 °C
	Operating humidity range	0 ... 100% RH
	Road dampness	Unit: dry/damp/wet
	Slippery road conditions	Unit: no ice/snow, snow, freezing rain, ice
<b>Road surface temp./below-ground temp.</b>	Principle	NTC
	Measuring range	-40 ... 80 °C
	Accuracy	±0.1 °C (-20 ... 20 °C), else ±0.2 °C
	Resolution	0.1
<b>Freezing point</b>	Measuring range	-30 ... 0 °C
	Accuracy	±0.5°C (0...-2.5°C), else ±20% from average value (at de-icing agent NaCl)
	Resolution	0.1
<b>Water film height</b>	Principle	Radar
	Measuring range	0 ... 4mm
	Accuracy	0.2mm to 3mm: better than ±30%
	Resolution	0.001mm
<b>Friction (Grip)</b>	Measuring range	0...1 (slippery...dry)
<b>Ice Percentage</b>	Measuring range	0...100%
<b>Accessories</b>	UMB Interface converter ISOCON-UMB	<b>8160.UISO</b>
	Spare part cap IRS31Pro-UMB	<b>8910.DEC</b>
	Surge protection	<b>8379.USP</b>
	Digital-analog-converter DACON8-UMB	<b>8160.UDAC</b>
	Power supply	<b>8366.USV1</b>



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