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.
IRS31Pro-UMB 50m cable length			**8910.U050**
IRS31Pro-UMB 50m cable length, 1 depth temperature sensor			**8910.U051**
IRS31Pro-UMB 50m cable length, 2 depth temperature sensors			**8910.U052**
IRS31Pro-UMB 100m cable length			**8910.U100**
IRS31Pro-UMB 100m cable length, 1 depth temperature sensor			**8910.U101**
IRS31Pro-UMB 100m cable length, 2 depth temperature sensors			**8910.U102**
Technical data	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 0.5mm²	
	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	
Road surface temp./below-ground temp.	Principle	NTC	
	Measuring range	–40…80 °C	
	Accuracy	±0.1 °C (–20…20 °C), else ±0.2 °C	
	Resolution	0.1	
Freezing point	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	
Water film height	Principle	Radar	
	Measuring range	0…4mm	
	Accuracy	0.2mm to 3mm: better than ±30%	
	Resolution	0.001mm	
Friction (Grip)	Measuring range	0...1 (slippery...dry)	
Ice Percentage	Measuring range	0...100%	
Accessories	UMB Interface converter ISOCON-UMB		**8160.UISO**
	Spare part cap IRS31Pro-UMB		**8910.DEC**
	Surge protection		**8379.USP**
	Digital-analog-converter DACON8-UMB		**8160.UDAC**
	Power supply		**8366.USV1**

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