VAISALA

Remote Surface Temperature Sensor DST111

Features

- Remote temperature measurement
- Unique correction of the error caused by emissivity of road surface, negating the need for emissivity adjustment
- Easy installation and service
- Low maintenance costs
- No internal moving parts
- Stable measurement results even with intense traffic
- Weather-proof, durable design
- Reports air temperature and humidity
- Easy integration with Vaisala RWS200 Road Weather Station
- Capability to act as stand-alone device in remote locations with solar/GSM options

DST111 provides a unique remote alternative to measuring road surface temperature. By measuring the infrared radiation emitted by the surface and applying intelligent signal processing, the sensor provides a reliable remote surface temperature measurement.

DST111 provides reliable results in conditions where most of the commercially available infrared sensors fail. At night time, when the road surface is cooling under a clear sky, conventional infrared sensors provide an error of up to -3 °C (-26.6 °F) due to emissivity conditions of the road surface. DST111 compensates for this error by its unique design.

Installation of DST111 is easy, requiring no slot cutting or closure of the road. Supplied with solar/GSM options, the sensor is ideal for stand-alone operation in remote or in-fill locations and on bridge decks. The sensor is simply installed on a mast or an existing structure beside the road. DST111 can also be installed alongside an existing Vaisala RWS200 or the earlier ROSA Road Weather Station.

Together with DSC111, which measures surface state, DST111 forms a versatile stand-alone weather station.

Technical Data

Measurement Performance

Measuring distance	2 ... 15 m (6 ft 7 in ... 49 ft)
Installation angle from the horizontal line	30 ... 85° (35 ... 65° recommended)
Measuring area	Ø 150 cm at 10 m (59.1 in at 32 ft)
Road Temperature	
Observation range	-40 ... +60 °C (-40 ... +140 °F)
Resolution	0.1 °C
Time constant	1 min
Data refresh time	30 s

Operating Environment

Operating temperature	-40 ... +60 °C (-40 ... +140 °F)
Operating humidity	0 ... 100 %RH
EMC (industrial environment)	EN/IEC 61326-1
Vibration	IEC 60068-2-6, Level 2 g

Inputs and Outputs

Input voltage	9 ... 30 VDC
Average power consumption	0.05 W at 24 V
Communication interface	Isolated RS-485
Cable	Shielded 5-wire cable Cable Ø 6 mm (0.24 in) Cables: 3 m, 10 m, 25 m / One end without connector / 0.6 m extension cable to the DSC111.
Connectors	
DST111	Male M12 (5 pins) including RS-485 and power in Cable connector Ø 15 mm (0.24 in)

Mechanical Specifications

Dimensions (H × W × D)	125 × 100 × 320 mm (4.92 × 3.94 × 12.60 in)
Weight	1.9 kg (4.19 lb)
Mounting	Fits on a sensor support arm with cross-section of 40 × 40 mm (1.57 × 1.57 in)

DST111 Remote Road Surface Temperature presented with the DSC111 Remote Road Surface State Sensor.

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