



Surface Patrol Pavement Temperature Sensor DSP100 Series



Features

- Measures both air and pavement temperatures
- Easy-to-read, dash-mounted digital display
- Patented cone design to protect sensor lens
- Separate air sensor for improved accuracy
- Quick and easy to install
- Field calibration with no need to return unit to manufacturer
- Integrates with other vehicle equipment such as spreaders
- Optional RS-232 output to connect to a computer or analog output for other applications

Vaisala Surface Patrol Pavement Temperature Sensor DSP100 Series is a mobile temperature sensor for detecting possible freezing temperatures on the pavement. DSP100 features a non-contact infrared sensor for measuring pavement temperature, and it also measures air temperature. The easy-to-use DSP100 is valuable for large agencies, such as Departments of Transportation, airport operations, as well as smaller companies with only a few trucks.

Benefits

- Mobile sensor provides pavement data for your entire route
- Real-time pavement and air temperature readings
- Inexpensive compared to other pavement monitoring methods
- Knowledge of surface pavement temperature makes winter decision making easier

Accurate Real-Time Data

DSP100 is mounted outside your vehicle and continuously monitors road surface temperatures, providing instant feedback on road surface conditions. DSP100 has a separate air temperature sensor and cabling so that it can be placed away from direct sunlight for accurate readings.

The data retrieved from DSP100 is accurate and real-time, making it a reliable method for collecting pavement information.

Ease of Use

DSP100 can be calibrated in the field, ensuring you are always getting the most accurate readings. In addition, the pavement probe features a cone design to protect the sensor from spray and winter elements that can decrease the accuracy of the readings.

DSP100 Series Technical Data

Measurement Performance

Accuracy of surface temperature ^{1) 2)}	±0.28 °C at 0 °C (±0.5 °F at +32 °F)
Field calibration	Adjustable ±2.8 °C at 0 °C (±5.0 °F at +32 °F)
Measurement units	°C or °F (user selectable)

1) For DSP111:

EN 61000-4-6 Conducted RF immunity test specification within EN 61326-1:2013 is 3 Vemf. Within frequency range 15 ... 30 MHz, DSP111 may invalidate RS-232 output message with levels above 2 Vemf.

2) For DSP113:

EN 61000-4-3 Electromagnetic RF immunity test specification within EN 61326-1:2013 is 3 V/m. Within frequency ranges 80 ... 200 MHz, 750 MHz, and 1600 MHz, DSP113 may show ± 1.2 C deviation in surface temperature readings with levels above 1 V/m.

EN 61000-4-6 Conducted RF immunity test specification within EN 61326-1:2013 is 3 Vemf. Within frequency ranges 2.4 ... 60 MHz, DSP113 may show invalid ambient temperature readings with levels above 1 Vemf.

Operating Environment

Operating temperature	-40 ... +71 °C (-40 ... +160 °F)
Storage temperature	-40 ... +71 °C (-40 ... +160 °F)

Inputs and Outputs

Input voltage	12 or 24 VDC unregulated
Digital output (optional)	RS-232; ASCII output
Analog output (optional)	4 ... 20 mA; 1 ... 5 V
Connections	Compression terminals for input voltage and signals quick disconnect connector for sensor head

Mechanical Specifications

Cable length, both sensors	5.5 m (18 ft) standard
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Infrared Surface Temperature Sensor

Weight	57 g (2.01 oz)
Weight, with cables and connectors	284 g (10.02 oz)
Housing/Optical assembly	Injected molded housing with lens protecting cone
Optics	Precision crystal (germanium lens)

Display Unit

Dimensions (H × W × L)	50.8 × 88.9 × 139.7 mm (2.00 × 3.50 × 5.50 in)
Temperature indicators	User selectable audio and visual temperature indicators

Dual digital meter	High-brightness red LED, showing both ambient air and pavement temperature
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Spreader Control

Dimensions (H × W × L)	36.0 × 117.6 × 133.0 mm (1.42 × 4.63 × 5.24 in)
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Compliance

CE compliance (product models DSP110, DSP111, DSP113)	Directive 2014/30/EU EMC standard EN61326-1, immunity test requirements for equipment intended to be used in a basic electromagnetic environment
Shock	50 Gs
Vibration	10 Gs in any axis



Applications

Winter maintenance operations (snow plows, supervisor vehicles, and so on)

Other fleet vehicles to increase your AVL network

Runway temperature monitoring for airport operations

DSP100 Series Products

DSP110	Surface Patrol with display
DSP111	Surface Patrol with display and digital output
DSP112	Surface Patrol with display and analog output
DSP113	Surface Patrol with spreader interface and DB9 connector
DSP114	Surface Patrol with spreader interface and FA connector



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