CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

Wintersense SDI-12

Non-Invasive Surface Temperature Sensor

Forecast Winter Treatments for Road Surfaces

Prevent traffic accidents and loss of life

Overview

The Wintersense SDI-12 is a remote road surface temperature sensor designed for use with your road weather information systems (RWIS). It is an easy-to-deploy, non-invasive, compact, and lightweight sensor that you can mount on existing roadside structures such as streetlight columns or RWIS towers. The Wintersense SDI-12 has a cabled connection for power and communications with an RWIS station or data logger for data storage and forwarding.

With accurate, real-time road surface temperature data, you can forecast your winter road treatments, preventing traffic accidents and potential loss of life.

Benefits and Features

- Accurate
- Non-invasive
- Easy to install
- Simple to maintain
- Compatible with most data loggers and RWIS
- Remote firmware updates

Detailed Description

The Wintersense SDI-12 is equipped with a thermopile sensor that detects the presence of thermal radiation emitted from the target surface. The sensor also has an integrated optical filter that cuts off the visible and near-infrared radiation flux so that you get optimum ambient and sunlight immunity. These features, combined with an eight-second signal-averaging algorithm, provide you with best-of-class data for these measurement parameters:

- Road surface temperature
- Air temperature
- Relative humidity
- Dewpoint
- Installation angle
- Sensor temperature

Specifications

Road-Surface Temperature

Measurement Range	-40 to +70°C (-40 to +158°F)
Accuracy at -40 to +60°C	±0.5°C *Note: Accuracy is temperature dependent. The quoted accuracy is against a blackbody source within the ambient temperature range of -20 to +50°C and object temperature range of -40 to +60°C.*
Resolution	±0.01°C
Field of View (FOV)	*Note: Use our field-of-view tool to make your calculations and install your Wintersense SDI-12 appropriately.* 10° (at 50% normalized signal)
Distance to Target	2 to 15 m (6.6 to 49.2 ft)

Dew Point Temperature (Calculated)

Measurement Range	-40 to +70°C (-40 to +158°F)
Accuracy	±1°C *Note: The calculated dew point temperature is found from Tetens' equation solved for dew point with coefficients optimized for the temperature range -35 to +50°C.*
Resolution	0.1°C

Air Temperature

Measurement Range	-40 to +70°C (-40 to +158°F)
Accuracy	*Note: Inaccuracy can be higher under moderate-to-high solar radiation.* ±0.4°C
Resolution	±0.01°C

Relative Humidity

Measurement Range	0 to 100%
Accuracy	< ±3%
Resolution	±0.1%

General Specifications

Operating Temperature Range	-40 to +70°C (-40 to +158°F)
Operating Humidity Range	0 to 100%
Internal Enclosure Sealing	IP65 (minimum)
Typical Power Consumption @ 12 Vdc	< 0.1 mA (idle) < 14 mA (active)
Supply Voltage Range	5 to 18 Vdc
Dimensions	350 x 200 x 100 mm (13.8 x 7.9 x 4.0 in.)
Weight	1.4 kg (3 lb)
Digital Output	SDI-12
Default SDI-12 Address	0
Response Time (to M!)	8 s to read all sensor outputs using SDI-12 commands
Sensor Warm-up Time	If power is switched, allow 3 s for warm-up before taking a measurement.

For comprehensive details, visit: www.campbellsci.com/wintersense-sdi-12