

MODEL 5439

Surface Sentinel

Surface Temperature Sensor

- Trigger ITS Devices Directly from Sensor
- Low Power for Solar Installations
- SDI-12 Interface: Simple Integration w/Industry Standard Dataloggers
- Fan Provides Air Temp/RH Aspiration



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Description:

The Model 5439 Surface Sentinel non-intrusive surface temperature sensor provides surface temperature, air temperature, relative humidity and dew point measurements for warning systems and fixed weather stations. Premium materials are used to meet the demands of road weather professionals.

The surface temperature is measured by an accurate non-contact infrared temperature sensor. Air temperature and relative humidity are measured from an accurate sensor from which dew point is calculated. The sensor has an integrated fan for applications where higher accuracy air temperature and relative humidity readings are needed.

The sensor is typically mounted on a pole or tower next to a road surface. It can be used for remote monitoring or in an autonomous system.

In the remote monitoring configuration, the Surface Sentinel can be connected to industry standard datalogger and telemetry options to send data to a central software system. The standard open-architecture data output is available via SDI-12 to provide a common interface for retrieving the atmospheric and road data from the sensor.

In the autonomous system configuration, a contact output provided direct from the sensor can be used to trigger ITS devices based on user-defined sensor thresholds. An example would be to trigger a "BRIDGE MAY BE ICY" sign when the bridge surface is near or below freezing.

PRODUCT APPLICATIONS:

- Low cost way to fill in gaps between existing weather stations
- Alert vehicle operators or pedestrians of hazardous weather conditions by locally or remotely triggering flashing warning signs. Example, "ROAD MAY BE ICY"
- Alerting paint stripe crews that the road is ready to start work
- Alert when the road or sidewalk might be too warm and could start to see buckling



Example application

02-5439-00(D)

Environmental Monitoring Solutions

WEB SITE: www.highsierraelectronics.com E-MAIL: sales@highsierraelectronics.com

Model 5439 Surface Sentinel Surface Temperature Sensor

SPECIFICATIONS:

Surface Temperature

Range -40° to 185° F (-40° to 85° C)

Accuracy ± 1° at 32° F otherwise ± 2° F (± 0.5° C at 0° C otherwise ± 1° C)

Reaction Time 63% of step changes in 1 second

Air Temperature

Range -40 to 149° F (-40 to 65° C)

Accuracy ± 0.4° at 32° F otherwise ± 1° F (± 0.2° C at 0° otherwise ± 0.5° C)

Reaction Time 63% of step change in 15 minutes

Humidity

Range 0 to 100% RH

Accuracy ±1.8% at 10% to 90% RH otherwise ±3%

Reaction Time 63% of 35 to 80% step change in 12 seconds

Measurement Time Less than 1.0 second, fan off

Measurement Distance Range 3 to 50 ft (1 to 15 m)

Elevation Angle 35° to 90° from vertical

Field of View 12°

Measuring Area 2 ft (0.6 m) diameter at 10 ft (3 m)

Fan Power Management Based on light level

Default Emissivity Setting 0.96

Outputs SDI-12, open collector

Operating Voltage 9.6 to 16 VDC, per SDI-12 spec

Current Draw 170 µA (average at 2 minute measurement without fan)
210 mA (max with fan running) at 12 VDC supply voltage
7 mA (when measuring, without fan)

Cable 33 ft (10 m) standard

Mounting 2 x 2 in (5.1 x 5.1 cm) spaced ¼ inch - 20 threaded PEM nuts

Materials Anodized aluminum, polycarbonate

Operating Air Temp -40° to 185° F (-40° C to 85° C)

Operating Humidity 0 to 100% RH

Dimensions 8 x 3 x 3 in (20 x 8 x 8 cm)

Weight 2 lbs (0.9 kg)

Shipping Weight 4 lbs (1.8 kg)

Warranty 2 years from date of shipment

ORDERING GUIDE:

Model 5439-00 Surface Sentinel sensor with tinned leads

Model 5439-01 Surface Sentinel sensor with RS-485 RWIS RPU interface

Model 5439-02 Surface Sentinel sensor with MS connector

OPTIONS/SPARE PARTS:

Model 5439-70 Pole Mounting Bracket 1 to 2 in (2.5 x 5.1 cm) Diameter

Model 5433-70 Pole Mounting Bracket 4 to 8 in (10.2 x 20.3 cm) Diameter