

SURFACE PATROL™

MOBILE INFRARED PAVEMENT TEMPERATURE SENSOR

SURFACE PATROL

OVERVIEW

The SSI® Surface Patrol from Quixote Transportation Technologies, Inc. (QTT) is a mobile temperature sensor that features a non-contact infrared sensor for measuring pavement temperature. It also measures the ambient (air) temperature. The Surface Patrol is used to detect possible freezing temperatures on the pavement. The sensor is mounted outside the vehicle and continuously monitors road surface temperatures, providing instant feedback on road surface conditions. The Surface Patrol is also capable of sending an alert to the driver about possible icing conditions.

The Surface Patrol is a compact instrument designed for easy installation. In addition, a major advantage of using the Surface Patrol is the ability to field calibrate the sensor.

FEATURES AND BENEFITS

- ▶ Measures both ambient and pavement temperatures
- ▶ Injected molded and protective cone for winter elements
- ▶ Dash-mounted digital meter displays both air and pavement temperature
- ▶ Optional RS-232 output to connect to a computer or voltage output for other applications
- ▶ Easy to use and install
- ▶ Inexpensive when compared to other pavement monitoring
- ▶ Allows user to view pavement temperatures across an entire route
- ▶ Integrates with other vehicle equipment, such as the Nu-Metrics NiteStar® Distance Measuring Instrument (DMI)
- ▶ Unit can be calibrated in the field rather than returning it to the manufacturer



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COMPONENTS

The SSI Surface Patrol consists of three components:

- ▶ A non-contact infrared sensor with an injection molded housing that is mounted to the underside of the vehicle and scans pavement as the vehicle passes over it. A protective cone is also included to keep the germanium crystal lens clean.
- ▶ A dash-mounted digital meter that displays highway or runway surface temperatures as well as air temperature to the operator. As an option this meter can include an RS-232 output for computers and a 4-20 ma / 1-5 volt output for other applications.
- ▶ The ambient sensor is provided with its own independent cable so that the location of the sensor is determined by the user.

This sensor also has the ability to calibrate to ice (32°F or 0°C) in the field.

MINI-MAPPING SOFTWARE

Mini-Mapping software provides a graphical trend of surface and ambient temperatures. The Surface Patrol coupled with a QTT NiteStar DMI (Distance Measuring Instrument) and a proprietary software package provides a simple, cost-effective method for users to create their own thermal mapping of streets, roads or highways in their region.

The Surface Patrol outputs to a laptop at a rate of 10 times per second. This correlates to a sample every 8.8 feet (2.68 meters) as the host vehicle travels at 60 miles per hour (96.56 kilometers per hour). The operator can select sample rates from between once per minute up to six hundred times per minute.



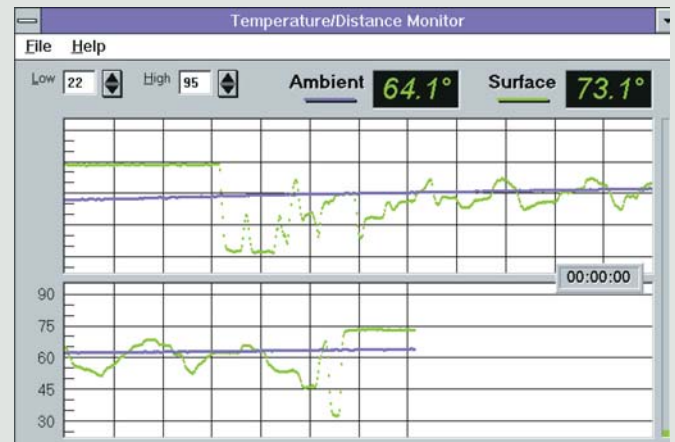
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SSI
Sensing the Future®

Quixote Transportation Technologies, Inc.
11612 Lilburn Park Road • St. Louis, Missouri 63146
Tel: (314) 569-1002 • Fax: (314) 569-3567
Toll Free: (800) 325-7226
www.qttinc.com

SPECIFICATIONS

Housing / Optical Assembly	Injection molded housing that includes a lens protecting cone
Accuracy	± 0.5°F (17.5°C) at 32°F (0°C) in operating ambient from 0°F to 120°F (17.8°C to 48.9°C)
Repeatability	± 0.1% of full scale
Shock	50 Gs
Vibration	10 Gs in any axis
Maximum Sensor Size	1 inch (2.54 centimeters) O.D.
Input Voltage	12 or 24 VDC unregulated
Field Calibration	Adjustable ± 5.0°F (17.5°C) at 32°F (0°C)
Optics	Precision Crystal (germanium)
Electrical Connections	Compression terminals for input voltage and signals Quick disconnect connector for sensor head
Cable Length	18 feet (5.5 meters) STD
Operating Ambient Temperature	-40°F to +160°F (-40°C to +71.1°C)
Weight	Sensor head: 2 ounces (56.7 grams) Sensor head with cables and connectors: 10 ounces (283.5 grams) Display: 4.5 ounces (127.6 grams)
Dual Digital Meter	High brightness red LED; showing both ambient and surface temperature
RF Hardened	Withstands external radio frequency effects caused by mobile radios



Mini-Mapping Software Output

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