

Vaisala Condition Patrol DSP310



Typical Vehicle Installation



DSP310 Interface Unit

The Vaisala Condition Patrol DSP310 is the first-of-its-kind solution available to road weather maintenance professionals. The Condition Patrol uses the most advanced technology to provide decision makers with a complete mobile weather solution to monitor their road network. The Condition Patrol uses sensors that have been trusted for many years by maintenance operators around the world. The system collects the data and displays it on a smart phone on the dashboard of the vehicle. The data can also be brought back through the phone's mobile network to be displayed in Vaisala's road weather management software for the viewing by others in the agency.

The Condition Patrol provides the following mobile measurements:

- Road Condition (Dry, Moist, Wet, Snow, Ice)
- Surface Temperature
- Grip (Slipperiness)
- Dew Point Temperature
- Air Temperature
- Humidity
- Layer Thicknesses

Proven Sensor Technology

Measurements from the Condition Patrol begin with its Surface State Sensor DSC111, which consists of a spectroscope that "looks down" on the road surface to detect water and

ice crystals. Pavement temperature measurements are taken from a Surface Patrol DSP101 infrared sensor mounted with a view of the road. Air temperature and atmospheric moisture readings are collected by the Vaisala Humidity and Temperature Probe HMP155. These three core sensors provide a strong backbone for the product, as they have all been used for many years by Vaisala customers in a variety of applications. In addition, they are perfectly suited to operate in the harsh exterior mobile environment.

All the data is collected by an interface unit that resides inside the vehicle. The interface unit was designed with the future in mind by allowing for additional sensors to be added later as new technology is developed. The interface unit creates a wireless network in the vehicle, so that no additional wires are needed to display the data on the Condition Patrol's smart phone application, which increases the ease of installation.

Flexible Viewing

A key feature of the Vaisala Condition Patrol is the design allows for data viewing that meets your needs. Data can be used on the smart phone application, which allows for multiple configurations and some diagnosis of the sensors. You may decide that this is as far as the data needs to go;

to the driver. However, if you are considering building a mobile weather network of vehicles then bringing the data back to the Vaisala road weather software is an important step.

Mobile weather data provides important information that compliments fixed road weather stations, or it can be used standalone. The data provides road weather maintenance with important information about road conditions wherever they drive, filling in gaps between fixed weather station data, and providing data on the go. In combination with the vehicle's electric power, you have everything you need to create a mobile weather station, and the Condition Patrol allows you to create a network of mobile weather stations vital to your operations.

Features and Benefits

- Proven sensors increases data quality
- Measure friction/grip safely as you drive
- Cost effective solution
- Partners well with fixed road weather stations
- Data viewing can be achieved in several ways
- Mobile data can be brought back to Vaisala software

Technical data

DSP310 System General Specifications

OPERATING CONDITIONS

Temperature	
Interface unit	-25 ...+50 °C
Parts outside car	-40 ...+50 °C
Display	Specified by manufacturer
Humidity	0 ...+100 %RH
Storage conditions	-40 ...+60 °C
	5 ...95 %RH, non-condensing
Tightness class	IP64
Interface unit	IP54 (parts outside car)
Parts outside car	
Display	Specified by manufacturer
Startup time	6 min (chemical purge on HMP155)
Sensor cables, data/power	5 m
Length	PUR
Material Temperature	-40 ...+80 °C

Interface Unit Specifications

Input voltage	10...33 VDC
Input current	1.5 A typical with basic system at +12 V 0.8 A typical with basic system at +24 V 10 A (max.)
Output voltage (sensor power)	+12 V, ±0.5 V
Output current	5 A (max. operating) 10 A (max. short circuit)
Power consumption	15 W (typical with basic system) 72 W (typical with 5 A load)
Backup time	180 s (typical with basic system)
Dimensions	402 × 320 × 167 mm (15.8 × 12.6 × 6.6 in.)
Weight	6.6Kg (14.5 lbs)
Material	Polycarbonate
Regulatory compliances	CE IP54

Surface Temperature Sensor DSP101

Accuracy	±0.28 °C (0.5 °F) at 0 °C (32 °F)
Optics	Precision crystal (germanium lens)
Operating air temperature	-40 °C ...+71.1 °C (-40 °F ...+160 °F)

*For a full list of DSP101 specifications see the DSP101 literature

Remote Road Surface Sensor DSC111

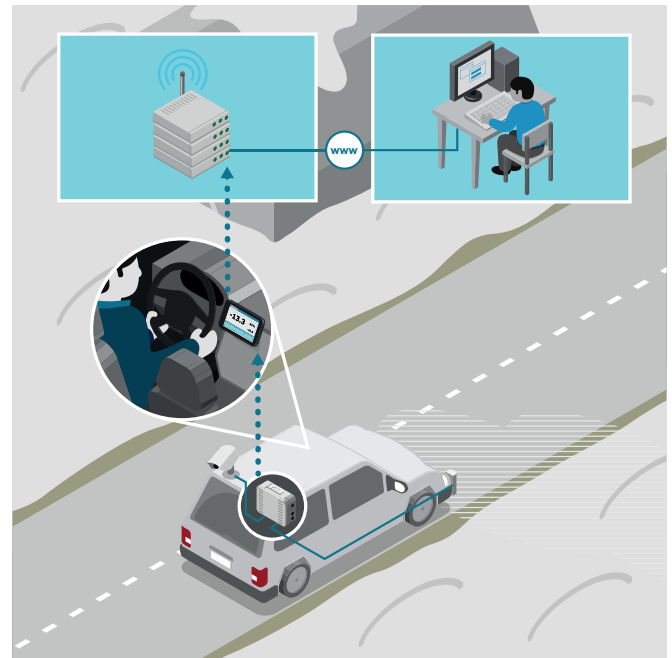
Typical mounting height	1.5 to 3m (3.2 to 9.8ft)
Typical installation angle from the horizontal line	45°
Measurement time interval	3 seconds
Level of grip	0.01 ... 1.00
Reported surface states	Dry, Moist, Wet, Snow, Ice, Slush
Layer thickness	
Water	0 ... 2 mm
Ice	0 ... 2 mm
Snow (water content)	0 ... 1 mm
Resolution	0.01 mm

*For a full list of DSC111 specifications see the DSC111 literature

Air Temperature & Relative Humidity Probe HMP155

Operating temperature range	
for humidity measurement	-80 ...+60 °C (-112 ...+140 °F)
Storage temperature range	-80 ...+60 °C (-112 ...+140 °F)

*For a full list of HMP155 specifications see the HMP155 literature



Flexible Mobile Weather Data Viewing

VAISALA

For more information, visit
www.vaisala.com or contact
us at sales@vaisala.com

Ref. B211197EN-A ©Vaisala 2012

This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications — technical included — are subject to change without notice.