



## HSS VPF-710 VISIBILITY SENSOR

As with all the HSS sensors the HSS VPF-710 sensor is configured for accurate measurement of visibility in the densest of fogs to very clear air conditions and is the refinement of 2 decades of experience and technology resulting in a compact, robust instrument with excellent performance.

Originally designed for the US military, the HSS VPF-710 is suitable for use in any system where a digital\* output is required and sophisticated levels of remote monitoring are desired, for example on road or national weather networks feeding data back to a central collection point. It is a very compact, robust instrument with all electronics contained in the sensor head. It has excellent time proven performance and is suitable for use in extreme conditions

### Features:

- Measures visibility AND fog density
- Proven accuracy, reliability and repeatability
- Self-test and monitoring system
- Very low power requirements
- Long and trouble-free operational life
- Minimal maintenance requirements and running costs



*Sensor nearby motorway*



*Visibility sensor on Met station in sea*

## GENERAL

### Measurement Principle

The VPF-710 sensor uses forward scatter meter technology to measure visibility in all weather conditions. The sensor calculates EXCO (the atmospheric EXtinction COefficient) by measuring the amount of light scattered by small suspended particulates (ie fog, haze and smoke aerosols) and larger particles (ie rain, snow, ice pellets, drizzle and mist) passing through the sample volume. From this EXCO value the MOR (Meteorological Optical Range) and thus visibility is determined.

### Data Output

The sensor is configured with RS-232C signal output as standard with RS-422 communications available as an option. The data is output in various ASCII data strings, such as a small compressed data string, expanded data string and monitoring data string amongst others. The unit can be set in either automatic or polled mode and data sent to a printer or to a PC for tagging, processing and archiving.

### Maintenance, calibration, self test and monitoring

The sensor is fully calibrated at the time of manufacture. Routine maintenance, including a check on calibrations, can be performed easily by one person in a matter of a few minutes and a re-calibration (although this should never be required) takes only slightly longer. The sensor condition and performance can be monitored remotely using the self-test and monitoring system detailed overleaf.

### Operation in temperature extremes

The sensor operates in temperatures ranging from -50°C to +60°C. For operation below -30°C the heated version is recommended (please refer to the variants overleaf).

## VPF-710 Specifications

Measures	<b>Visibility</b>
Output	<b>Digital</b>
Range	<b>10 m to 75 km (33 ft to 47 miles)</b>
Accuracy	<b>+/- 2%</b>
Light source	<b>infra-red</b>
Light source wavelength	<b>880 nm</b>
*FSM angle used	<b>45°</b>
Measurement Geometry	<b>horizontal</b>
Sample volume size (cm <sup>3</sup> )	<b>400</b>
Power supply:	<b>mains, battery or solar</b>
Power requirements:	
sensor head	<b>2.0 W</b>
window heaters	<b>1.7 W</b>
Hood heating option available	<b>Yes</b>
Hood heater power requirements	<b>30 W *please see note</b>
Operating temperature range	<b>- 50°C to +60°C (-58°F to +140°F)</b>
Weight	<b>7 kg (15 lbs)</b>
Output rate (seconds)	<b>10 to 300 (selectable)</b>
Method of Construction	<b>salt-dip brazing</b>
Materials	<b>hard-anodised aluminium</b>
Reliability	<b>&gt; 8 years (***)MTBF</b>
Undisturbed sample volume	<b>Yes</b>



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