

# HSS VPF-730 Combined Visibility & Present Weather Sensor



## Features

- Measures visibility AND present weather
- Proven accuracy, reliability and repeatability
- Self-test and monitoring system
- Very low power requirements
- Only sensor with adjustable matrix for varying wind conditions
- Minimal maintenance requirements and running costs

**The VPF-730 sensor is one of a kind, being the only forward scatter meter to measure visibility AND present weather (WMO 4680) including precipitation type and rate.** It is a compact, robust instrument with excellent time proven performance and is suitable for use in extreme conditions. The sensor is designed for accurate measurement and has been in operation for over 20 years.

## Present Weather

Present Weather includes: all forms of liquid, freezing and frozen precipitation; e.g., rain, drizzle, snow, snow pellets, snow grains, ice pellets (formerly sleet) and hail, and those suspended particles that are classed as obstructions to vision; namely, mist, fog, haze, dust and smoke.

## Measurement Principle

The sensor calculates EXCO (the atmospheric EXtinction COefficient) by measuring the amount of light scattered by the particles in the sampling 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 communication available as an option. The data is output in various ASCII data strings, such as a small compressed data string, expanded data string and remote maintenance 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 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.

**The VPF-730 sensor comes with 2 year's warranty as standard.**



The sensor is a single lightweight unit and can easily be installed by one person.

## The sensor includes as standard:

- Sensor head of high quality aluminium construction which is hard anodised to give a superior finish that does not require painting.
- RS-232C digital output
- Window de-misters
- Power line surge arrestors
- Signal line surge arrestors
- Self test and monitoring system
- 6 metre power and signal cable
- Waterproof mini-connectors
- Calibration reference certificate
- Manual

## Available OPTIONS see overleaf

- Heating
- Advanced self-test and monitoring system
- Alternative RS-422 output
- Ambient light sensor
- Weather station module

## Available ACCESSORIES see overleaf

- Stainless steel mounting kit
- Calibration kit
- Transit case

*For sensor specifications please refer to HSS brochure*

# HSS VPF-730

## OPTIONS

**RS-422 communications** - where there is 12 metres or more between the sensor and control computer RS-422 configuration is required.

**Heating** - the sensor is fitted with window de-misters allowing operation of the sensor in temperatures down to  $-3^{\circ}\text{C}$ . However, where the temperature drops below  $-3^{\circ}\text{C}$  for more than a couple of hours a day the heated version is recommended. This version will provide error free operation in conditions down to  $-50^{\circ}\text{C}$ . The operational range of the sensor is from  $-50^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ .

**Ambient light sensor** - allows ambient light conditions to be measured according to ICAO (4 level and with specific angle of view). Designed for use with RVR (Runway Visual Range) systems on airfields and for use with Allard's Law if night time visibility conditions are to be determined according to this instead of using the standard Meteorological Optical Range values (MOR).

**Weather station module** - provides 3 analogue inputs (0-10 V) allowing the VPF-730 to be used as a weather station with output as a single time correlated data string. With an additional temperature and humidity sensor plugged into this module the VPF-730 will output mist (10BR) as well as the standard haze (04HZ) and fog (30FG) data.

**Advanced self-test and monitoring** see right panel

## ACCESSORIES



**Calibration kit** - recommended for end-user confidence checks and re-calibration. The kit contains a carrying case, zero plugs and a calibration plaque to a specific EXCO value. One kit can be used on any number of sensors.



**Stainless steel mounting kit** - includes a U-bolt and fasteners to secure the sensor to any pole with a diameter between 40 - 64 mm.



**Transit case** - scientific case lined with 3 inch foam to hold the sensor securely in place in extreme handling conditions.



HSS Sensors are manufactured by Biral to rigorous ISO 9001:2000 quality standards.

*The HSS range is in continuous development therefore specifications may change without prior notice. E. & O.E.*

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VPF-730 with Ambient light sensor

### **Self-test and monitoring system**

The sensor condition and performance can be monitored remotely using the self-test diagnostic software which comes as standard to monitor:

- Optical Source Power
- Transmitter Window Contamination
- Non-Volatile Memory Check-Sum Test
- EPROM Check-Sum Test
- Restart Occurrence
- Sensor Sample Interrupt Verification
- RAM Read/Write Verification
- Register Read/Write Verification
- A/D Control Signal Test
- A/D Conversion Accuracy Check
- Forward-Scatter Background Illumination Level

Increased levels of diagnostic testing are available as an option see below.

### **Advanced self-test and monitoring system**

In addition to the above functions this option will also allow you to monitor:

- Forward-Scatter Receiver Sensitivity
- Back-Scatter Receiver Sensitivity
- Forward-Scatter Receiver Window Contamination
- Back-Scatter Receiver Window Contamination
- Power Supply Voltages
- Input Voltage Check (Battery Check- DC Powered Sensors Only)
- Back-Scatter Background Illumination Level

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