

Visibility Sensor

VPF-710

INTRODUCTION

The VPF-710 is a high-performance visibility sensor for demanding applications such as offshore platforms, airports and wind farms. The open head design allows free airflow through the measurement volume so that the reported visibility is representative of true ambient conditions, even in precipitation, smoke or dust. Visibility is measured using a forward scatter principle, reporting Extinction Coefficient (EXCO) or Meteorological Optical Range (MOR) over a 10 m to 99.99 km range. Measurement performance has been shown to be comparable to a transmissometer up to 75 km, while the hard coat anodised aluminium construction and optional hood heating ensure long-term, reliable operation in harsh environments. Calibration is carried out in accordance with ICAO 9328 and is traceable to a national weather service transmissometer.



FEATURES

Accurate forward scatter visibility measurement

Forward scatter measurement with optimised geometry delivers high-quality EXCO or MOR visibility data from 10 m to 99.99 km, with proven performance up to 75 km.

Reliable in all weather conditions

The open head design, window heaters and optional hood heaters maintain accurate measurements in rain, snow, fog, salt spray, smoke and dust.

Rugged, long-life construction

A hard coat anodised aluminium enclosure provides exceptional corrosion resistance. Typical service life exceeds ten years in marine environments, with a calculated MTBF of over six years and field data indicating even longer lifetimes.

Low maintenance with contamination compensation

Window contamination monitoring automatically corrects the visibility output and issues two-stage cleaning warnings so that maintenance can be planned efficiently and recalibration intervals are typically measured in years.

Flexible power options

Available with DC or AC supplies and optional hood heaters, enabling use on remote sites, offshore platforms and aviation installations.

ALS-2 ambient light integration

An optional interface allows direct connection of the ALS-2 Ambient Light Sensor, appending ambient light data to the visibility message for simplified RVR processing.

Proven in critical applications

Widely used in offshore, aviation and wind energy applications, including control of obstacle warning lights on wind turbines and RVR measurement on CAT III runways.

- RELIABLE MEASUREMENT IN ALL WEATHER CONDITIONS
- HIGHLY CORROSION RESISTANT HARD COAT ANODISED FINISH
- WINDOW CONTAMINATION MONITORING AND COMPENSATION
- UNAFFECTED BY OBSTACLE WARNING LIGHTS
- OPTIONAL, EASY INTEGRATION OF ALS-2 AMBIENT LIGHT SENSOR
- MAINS OR DC POWERED
- 10 M TO 99.99 KM MEASUREMENT RANGE
- 5 YEARS WARRANTY

CONFIGURATION & MEASUREMENT

Visibility measurement and calibration

The VPF-710 reports visibility as EXCO or MOR from 10 m to 99.99 km using a compact forward scatter geometry. Transmissometer-level performance up to 75 km is achieved without the size or complexity of traditional systems, and calibration follows ICAO 9328 with traceability to a national weather service transmissometer for use in ICAO and WMO-compliant RVR applications.

Outputs and interfacing

ASCII data messages are provided at user-defined intervals or on request via RS232 or RS422/RS485. The standard message contains EXCO or MOR, with an optional ALS-2 interface that appends ambient light data directly to the visibility message for simplified RVR processing and integration into host systems.

Status monitoring, test mode and maintenance

Self-test and window contamination status are included in every data message, with automatic compensation and two-stage cleaning warnings to minimise site visits and allow long recalibration intervals. A functional test mode enables simulation of visibility, contamination and fault conditions for FAT/SAT and verification of downstream processing.

General specifications

OUTPUTS & REPORTS

Output rate (seconds)	10 to 300 selectable
Serial outputs	RS232 as standard RS422/RS485 as an option

POWER REQUIREMENTS

Sensor power	12 Vdc / 24 Vdc / 120 Vac / 240 Vac
Hood heating power	As sensor supply
Basic sensor	6 W
Hood heaters	30 W (17 W for 12 V sensor)

ADDITIONAL FEATURES

Hood heaters	Optional
Window heaters	Fitted as standard
Window contamination monitoring	Fitted as standard on the transmitter window. Optional on the receiver window

ENVIRONMENTAL

Operating temperature	-50 °C to +60 °C
Operating humidity	0 – 100% RH
Protection rating	IP66

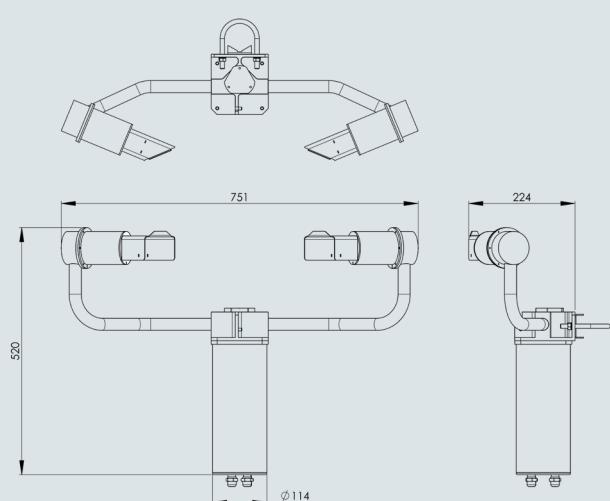
PHYSICAL

Material	Hard coat anodised aluminium
Weight	4.9 kg DC sensors / 6.1 kg AC sensors
Length	751mm
Warranty	5 years
Lifetime	>10 years

CERTIFICATION & COMPLIANCE

- CE Certified
- EMC compliance with EN61326-1997, 1998, 2001
- RoHS and WEEE compliant

Dimensions



Measurement specifications

Measures	Visibility (EXCO as standard - MOR available as a special configuration)	
Output	Serial data	
Range (visibility)	10 m to 99.99 km	
Measurement error	≤1.3% at 600 m ≤2.0% at 2 km ≤10.5% at 30 km	
Measurement principle	Forward scatter meter with 39° to 51° angle, centred at 45°	

Ordering codes

71.				T.		
					Configuration	
					RC = regular configuration	
					SC = special configuration	
					Cable length	
					06 = 6 m power and data cables with connectors	
					06G = 6 m power and data cables hard wired	
					Ambient Light Sensor Interface (ALS-2)	
					NA. = without option board	
					WA. = with ALS-2 Interface	
					Self-test and monitoring	
					S. = standard self-test and monitoring	
					A. = advanced self-test and monitoring	
					Data output	
					D. = RS232 serial output	
					E. = RS422/RS485 serial output	
					Hood Heating	
					NH. = without heating	
					HV. = with heating	
					Power supply	
					012. = 12 Vdc	
					024. = 24 Vdc	
					120. = 120 Vac	
					240. = 240 Vac	

Example: 71.024.NH.D.A.T.WA.06.RC

The sensor is delivered in sturdy recyclable foam filled packaging with pole mounting kit (1 x U-bolt); 6 m power and data cable, user manual and calibration certificates.

Accessories – Optional

70.CAL	VPF Series Calibrator
VPF.TEST1	VPF Test Plaque (single stage test kit)
VPF.TEST2	VPF Test Plaque (two stage test kit)
71.WTY	1 Year Extended Warranty

DOC101256.07A - vs1.0

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