

## Visibility & Present Weather Sensor

### VPF-750

#### INTRODUCTION

The VPF-750 is the top-of-range visibility and present weather sensor in the VPF family, aimed at automated weather observing systems, major airports and national meteorological networks. It combines wide-range visibility measurement with external integrated precipitation and temperature/humidity sensors, providing a comprehensive description of current and recent weather in a single instrument. A proven forward scatter design with an additional backscatter receiver allows the VPF-750 to distinguish not only between liquid and frozen precipitation but also to report freezing precipitation types when used with the heated precipitation sensor and temperature input. Visibility is reported as MOR and EXCO from 10 m to 99.99 km, with calibration to ICAO 9328 and traceability to a national weather service transmissometer for straightforward system acceptance in aviation applications.

#### FEATURES

##### Flagship visibility & weather sensor

Top-of-range VPF model combining long-range visibility measurement with advanced present weather reporting for airports, AWOS and national meteorological networks.

##### Wide visibility range with MOR & EXCO

Measures forward scatter MOR and EXCO from 10 m to 99.99 km, with calibration in accordance with ICAO 9328 and traceability to a national weather service transmissometer.

##### Integrated precipitation and backscatter sensing

An exclusive backscatter receiver together with the integrated precipitation sensor provides excellent discrimination between liquid and different types of frozen precipitation, even in challenging conditions.

##### Extended WMO and METAR code set

Provides up to 50 WMO Table 4680 present weather codes and 45 METAR codes, including significant past weather, giving the broadest set of weather types in the VPF range.

##### Configurable precipitation definitions

Precipitation intensity thresholds can be supplied to standard country definitions or customised to user requirements, supporting local reporting practices.

##### Built for demanding environments

Hard coat anodised aluminium enclosure, optional hood heating, automatic window contamination monitoring and long MTBF ensure reliable, low-maintenance operation even on offshore platforms and major airports.

#### CONFIGURATION & MEASUREMENT

##### Visibility and code reporting

The VPF-750 measures forward scatter MOR and EXCO from 10 m to 99.99 km, meeting ICAO and WMO requirements for use in RVR and METAR systems. Standard outputs include visibility, WMO Table 4680 and METAR present weather codes, significant past weather and precipitation amount.

##### Present weather and precipitation measurement

Precipitation type is derived from particle intensity and transit time together with the forward/backscatter ratio, which differs for liquid and frozen hydrometeors. In combination with the integrated precipitation sensor this enables reliable identification of rain, snow and other frozen precipitation types, giving the widest present weather capability in the VPF family.

##### Interfacing, diagnostics and ALS-2 integration

ASCII messages are transmitted via RS232 or RS422/RS485 at user-selectable intervals or on request, with an optional ALS-2 interface appending ambient light data directly to the output. Continuous self-test and window contamination monitoring provide automatic compensation, two-stage cleaning warnings and a functional test mode for simulating visibility, weather, contamination and fault conditions during FAT/SAT and commissioning.



- **WMO TABLE 4680 PRESENT WEATHER CODES (50) – PLUS 45 METAR CODES**
- **INTEGRATED PRECIPITATION SENSOR – DISTINGUISHES BETWEEN LIQUID AND DIFFERENT TYPES OF FROZEN PRECIPITATION**
- **INTEGRATED TEMPERATURE AND HUMIDITY SENSORS – HIGHLY ACCURATE REPORTING**
- **AUTOMATIC WINDOW CONTAMINATION MONITORING – ENSURES OPTIMUM ACCURACY WHILST MINIMISING MAINTENANCE REQUIREMENTS**
- **DESIGNED FOR AVIATION, RESEARCH AND GENERAL METEOROLOGICAL USE – USED ON CAT III RUNWAYS**
- **OPTIONALLY, EASY INTEGRATION WITH THE ALS-2 AMBIENT LIGHT SENSOR – FAST INSTALLATION, RELIABLE RESULTS**
- **5 YEARS WARRANTY**

## General specifications

### OUTPUTS & REPORTS

Output rate (seconds)	10 to 300 selectable
Serial outputs	RS232 or RS485
Present Weather	50 WMO Table 4680 codes, including Past Weather, Freezing Rain and Ice Pellets 45 METAR codes
Humidity Sensor	Capacitive type. 0 - 100% RH
Air Temperature Sensor	Pt 100 type. -30°C to +70°C

### POWER REQUIREMENTS

Sensor power	19 to 28 Vdc
Heating power	As sensor supply
Maximum power	72W

### ADDITIONAL FEATURES

Hood heaters	Optional
Window heaters	Fitted as standard
Window contamination monitoring	Fitted as standard on all the sensor windows

### ENVIRONMENTAL

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

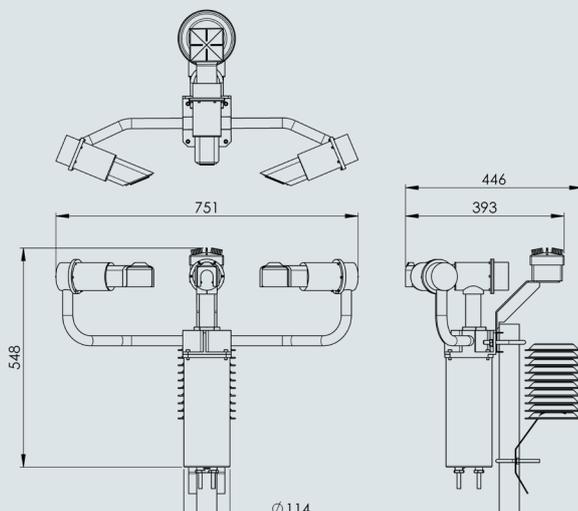
### PHYSICAL

Material	Hard coat anodised aluminium
Weight	7.4 kg (including external sensors)
Length	751mm
Warranty	5 years
Lifetime	>10 years
MTBF (MIL-HDBK-217F)	6.5 years (56,700 hours)
MTBF (Service return calculation)	>35 years

### CERTIFICATION & COMPLIANCE

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

## Dimensions



## Measurement specifications

Measures	Visibility and Present Weather (MOR & EXCO)	
Output	Serial data	
Range (visibility)	10 m to 99.99 km	
Measurement error	≤1.3% at 600 m	≤1.8% at 1,500 m
	≤2.0% at 2 km	≤8.3% at 15 km
	≤10.5% at 30 km	≤20% at 75 km
Measurement principle	Forward scatter meter with 39° to 51° angle, centred at 45°	
Precipitation detection resolution	Rain: 0.015 mm/hr (0.0006 in/hr)	
	Snow: 0.0015 mm/hr (0.00006 in/hr)	
Precipitation intensity reporting range	0-1000 mm/hr (39.4 in/hr)	
Rain intensity accuracy	≤10%	

## Ordering codes

75.	024.			A.	T.					
										Configuration RC = regular configuration SC = special configuration
										Precipitation definitions XX. = country code*
										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
										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 24 Vdc

Example: 75.024.NH.D.A.T.WA.06.UK.RC

\* For a full list of currently available country codes, please refer to our Sales Department.

The sensor is delivered in sturdy recyclable foam filled packaging with pole mounting kit (2 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)
75.WTY	1 Year Extended Warranty
PW.CODE	User defined precipitation definitions