SWS-100

Visibility Sensor

The SWS-100 is optimised for use in applications where accurate and reliable visibility measurements are required with the addition of fundamental WMO 4680 precipitation codes.

WMO Table 4680 & METAR Outputs

Atmospheric extinction coefficient (EXCO)

Digital, analogue and switching relay outputs

Comprehensive self-test and maintenance data

The forward scatter design allows the sensor to be compact whilst the inclusion of serial, analogue and relay outputs make the sensor easy to interface to almost any system.

The SWS-100 is a versatile sensor suited to a very wide variety of applications across the globe. It is used by national weather services as part of synoptic monitoring networks due to its wide measurement range, reliability and measurement accuracy. In aviation the ICAO 9328 compliant design and seamless integration with the ALS-2 Ambient Light Sensor allow the SWS-100 to be used for both general visibility

monitoring and as part of instrumented Runway Visual Range (RVR) systems.

The SWS sensor family is designed to be easily installed by a single person and has an interface which simplifies system integration. Selftest features include window contamination monitoring which automatically corrects the output data and provides two stage warnings allowing maintenance to be performed most efficiently. Calibration checks and recalibration are simple and quickly accomplished in the field by a single person.

Visibility measurement

Measures	visibility (MOR)
Output	digital, analogue and switching relays
Range (visibility) **(fixed, select at time of order)**	default 10 m to 2 km selectable 10 m to 10 km, 10 m to 20 km, 10 m to 32 km, 10 m to 50 km or 10 m to 75 km
Measurement error	≤4.5 % at 600 m ≤5.0 % at 1,500 m ≤5.1 % at 2 km ≤12.5 % at 15 km ≤20 % at 30 km
Measurement resolution	1 m or 10 m (default)
Measurement principle	forward scatter meter with 39° to 51° angle, centered at 45°

Outputs and reports

Output rate (seconds)	10 to 300 (selectable)
Serial outputs	RS-232, RS-422 and RS-485
Analog outputs	0 to 10 V (4 to 20 mA or 0 to 20 mA optional)
Switching relays (providing flexible configurations)	relay 1 = fault relay 2 = visibility (user selectable value) relay 3 = precipitation yes / no or snow yes / no or visibility (user selectable)
Present weather output	selected WMO Table 4680 codes

Power requirements

Sensor power	9 - 36 V DC (mains power adaptor available)
Hood heating power	24 V AC or DC
Basic sensor **Window heaters** **Hood heaters**	3.5 W 1.7 W 24 W

Additional features

Hood heaters	fitted as an option to both sensor head hoods
Window contamination monitoring	fitted as standard to the transmitter window; optional on receiver
Window heaters	fitted as standard to both sensor head windows

Environmental

Operating temperature	−40 °C to +60 °C
Operating humidity	0 to 100 %RH
Protection rating	IP 66 / IP 67

Certification & compliance

CE certified	
EMC compliance with EN61326-1997, 1998, 2001	
RoHS and WEE compliant	

Physical

Material	powder paint coated aluminum
Weight (including mounting kit)	4.3 kg
Length	811 mm
Warranty	3 years
Lifetime	> 10 years

Maintenance

Self-test capability	as standard
User confidence check	6 months (recommended)
Window cleaning	automatic compensation and warnings
Field calibration	with optional calibration kit

Included with sensor

The sensor is delivered in sturdy recyclable foam filled packaging with:
- Pole mounting kit (2 x U-bolt)
- User manual and calibration certificates

Accessories – optional

00.SWS.CABLE-D	SWS series data cable per meter
00.SWS.CABLE-P	SWS series power cable per meter
SWS.CAL	SWS series calibration kit
SWS.CASE	SWS series transit case
SWS.SK.100	SWS series spares kit
SWS.WTY100	1 year extended warranty
PW.MAINS	Mains power adaptor