



SWS-200 Visibility and Present Weather Sensor

Datasheet

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The SWS-200 is designed for use in applications where accurate and reliable visibility measurements are required with the addition of WMO 4680 present weather codes.

The patented design of the sensors combines a 45 degree measurement angle with a 880 nm wavelength light source and horizontal measurement path to give excellent measurement result.

The sensors use Forward Scatter Meter Technology to measure present weather and output Meteorological Optical Range (MOR).

Features

- 10m to 99.99km measurement range (other ranges available)
- Instantaneous and averaged visibility outputs
- WMO 4680 present weather codes
- Compact forward scatter design
- Hood heating for use in extreme environments
- Window heating and contamination monitoring
- Serial data output (RS232, RS422 or RS485)
- Analogue voltage and relay outputs
- Optional analogue current output
- Comprehensive self-test capabilities

General

The sensor measures Meteorological Optical Range (MOR), as well as reporting the presence of liquid and frozen precipitation. Precipitation is reported using WMO table 4680 codes for easy integration with aviation systems.

A feature of the sensors is the ability to report precipitation intensity according to a range of national standards. The unique backscatter receiver gives the SWS-200 unparalleled abilities in distinguishing frozen from liquid precipitation, a key factor when determining the safety of aircraft operations. Whilst the 10m to 75km visibility range makes the sensor suitable of use in meteorological observation networks and research applications.

Analogue voltage and current outputs, complimented by relays that can switch on visibility and/or precipitation, make the sensor suitable for connection to local warning indicators and legacy systems.

An optional interface to the ALS-2 Ambient Light Sensor makes the SWS-200 particularly suited for use in aviation applications where Runway Visual Range (RVR) information is required in addition to METAR data.

As standard the sensor is fitted with an extensive self-test capability which includes window contamination monitoring and output compensation.

Options

- Power and data cable
- Mains power adaptor calibration kit
- ALS-2 Ambient Light Sensor
- Hard shell transport case
- Hood heaters

Specifications

Measures visibility and present weather

Output digital, analogue and switching relays

Range default: 10m to 2km, selectable: 10m - 10km, 10m - 20km, 10m - 32km, 10m - 50km, 10m - 99.99km

Accuracy $\leq 4.5\%$ at 600m

$\leq 5.0\%$ at 1,500m,

$\leq 5.1\%$ at 2km

$\leq 12.5\%$ at 15km

$\leq 20\%$ at 30km

Measurement forward scatter meter with 39° , principle to 51° angle, centred at 45°

Precipitation detection rain: 0.015mm/hr (0.0006 in/hr)

Threshold snow: 0.0015mm/hr (0.00006 in/hr)

Maximum rain rate ~500 mm/hr (20in/hr)

Rain intensity accuracy $\leq 15\%$

Serial outputs RS232, RS422 and RS485

Analogue outputs 0-10V

(4-20mA or 0-20mA optional)

Output rate (seconds) 10 to 300 (selectable)

Power requirements

- Sensor power 9-36 Vdc
- Hood heating power 24 Vac or Vdc
- Basic sensor 3.5 W
- Window heaters 1.7 W
- Hood heaters 24 W

Operating temp. range - 40°C to $+60^\circ\text{C}$

Weight 4.5 kg

Material powder paint coated aluminum

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