

Visibility & Present Weather Sensor

SWS-200

INTRODUCTION

The SWS-200 is a compact forward-scatter instrument with an additional backscatter receiver, providing combined measurement of visibility (Meteorological Optical Range) and present weather, including discrimination between liquid and frozen precipitation. It is used in aviation, national observation networks, wind farms and road weather systems.

Default visibility range is 10 m to 20 km, with the maximum visibility user-configurable up to 99.99 km via a simple configuration command. Calibration of the SWS family follows ICAO 9328 and is traceable to a national weather service transmissometer, supporting ICAO and WMO requirements, including RVR systems when combined with the ALS-2 Ambient Light Sensor.

FEATURES

[Long-range visibility with fine resolution](#)

Standard 10 m to 20 km range, with the measurement range selectable from 10 m up to 99.99 km and 1 m or 10 m resolution.

[Enhanced frozen precipitation detection](#)

The combined forward and backscatter measurement improves separation of liquid and frozen precipitation, providing more reliable present weather reporting.

[Present weather with WMO codes](#)

Outputs visibility, precipitation type and intensity with WMO Table 4680 present weather codes for operational use in aviation and national networks.

[Flexible integration options](#)

Standard serial output by default, with an optional board slot available for either an ALS-2 interface, or analogue and relay outputs for legacy systems and local alarms.

[Optimised for low maintenance](#)

Window contamination monitoring with automatic compensation, heater options and built-in self-test reduce site visits and long-term operating costs.

CONFIGURATION & MEASUREMENT

[Visibility, EXCO and present weather output](#)

The SWS-200 reports instantaneous and averaged Meteorological Optical Range over a 10 m to 20 km default range, with the measurement range selectable from 10 m to 99.99 km and 1 m or 10 m resolution. The user can choose MOR or extinction coefficient (EXCO) output and enable WMO Table 4680 present weather codes, including precipitation type and intensity based on liquid/frozen discrimination.

[Measurement principle](#)

Particles crossing the sample volume are illuminated and measured using both forward and backscattered light. Analysis of signal strength, duration and the forward/backscatter ratio provides accurate visibility measurement and robust identification of liquid versus frozen precipitation.

[Interfaces and option boards](#)

Serial communication (RS-232, RS-422 or RS-485) is provided as standard.

Depending on the selected option board, the sensor can be supplied without option board (serial only), with ALS-2 interface (ambient light data appended directly to the sensor message for RVR), or with analogue and relays interface (analogue outputs and configurable volt-free relays for visibility thresholds, precipitation or fault indication).

[Installation, status and test functions](#)

Designed for straightforward mounting and single-person installation. Self-test and contamination status are included in every data message, with detailed diagnostics and a functional test mode available to simulate visibility, present weather, contamination and fault conditions for FAT/SAT and system integration.



- **SELECTABLE MEASUREMENT RANGE FROM 10 M TO 99.99 KM**
- **SELECTABLE MEASUREMENT RESOLUTION OF 1 M OR 10 M (DEFAULT)**
- **WMO 4680 PRESENT WEATHER CODES**
- **COMPACT FORWARD SCATTER DESIGN**
- **WINDOW CONTAMINATION MONITORING AND COMPENSATION**
- **OPTIONALLY, DIRECT CONNECTION OF THE ALS-2 AMBIENT LIGHT SENSOR FOR USE IN RUNWAY VISUAL RANGE (RVR) APPLICATIONS**
- **DIGITAL OUTPUT, OPTIONAL ANALOGUES AND RELAY OUTPUT**
- **COMPREHENSIVE SELF-TEST AND MAINTENANCE DATA**
- **3 YEARS WARRANTY**

