

Road Weather Sensor

RWS-20

INTRODUCTION

The RWS-20 is a forward scatter visibility sensor designed specifically for road applications where accurate and reliable visibility measurements are essential. Its measurement principle and robust optical design ensure stable performance in all weather conditions and are not affected by local light sources such as vehicle headlights, flashing signs or warning beacons.

With a measurement range from 10 m to 7.5 km, the RWS-20 is optimised for situations where fog, heavy rain, surface spray and snow can significantly reduce visibility and compromise driving safety. Heated optical windows and sensor hoods support operation in the harshest winter conditions, while continuous contamination monitoring and automatic compensation minimise maintenance effort. Its performance is proven to be comparable to that of a transmissometer, with calibration carried out in accordance with ICAO 9328 and traceable to an independent national weather service transmissometer.

FEATURES

Forward Scatter Visibility Measurement

Proven forward scatter technology for accurate visibility measurement, comparable to transmissometers but in a compact, cost-effective design.

10 m to 7.5 km range

MOR measurement from 10 m to 7.5 km with 1 m resolution; upper range user-configurable to match local road conditions.

Resistant to local light sources

Optical design minimises the influence of vehicle headlights, street lighting and flashing warning beacons.

Heated optics for winter operation

Heated windows and hoods ensure reliable performance in snow and ice; hood heaters switch on at 2 °C and off at 4 °C to reduce power consumption.

Automatic contamination management

Continuous monitoring and automatic compensation for window contamination, with two-stage cleaning warnings to extend maintenance intervals.

Flexible outputs and connectivity

Serial communication (RS232/422/485), optional 4–20 mA outputs and relays for direct connection to data loggers, control systems and road-side signage.

CONFIGURATION & MEASUREMENT

Visibility and EXCO output

Reports averaged Meteorological Optical Range (MOR) with a fixed 10 m lower limit; user-settable upper limit up to 7.5 km. Atmospheric extinction coefficient (EXCO) output can be selected if required.

Traceable calibration

Calibrated in accordance with ICAO 9328 recommendations and traceable to a national weather service transmissometer for assured measurement quality.

Road-side installation

Rugged aluminium housing (IP66/67) and protective hoods minimise dirt, salt spray and external light, making the sensor ideal for harsh road-side environments and RWIS installations.

System integration

ASCII data messages at user-defined intervals or on request via RS232/422/485; optional analogue and relay outputs enable straightforward integration into RWIS/ITS systems and direct control of variable message signs.

Functional test mode

An advanced test mode allows user-defined visibility, contamination and fault conditions for a limited period, simplifying FAT/SAT procedures and verification of downstream processing.



- **USER SELECTABLE MEASUREMENT RANGE FROM 10 M TO 7500 M**
- **SELECTABLE MEASUREMENT RESOLUTION OF 1 M OR 10M (DEFAULT)**
- **COMPACT FORWARD SCATTER DESIGN**
- **OPTIONAL HOOD HEATING FOR USE IN EXTREME WINTER ENVIRONMENTS**
- **WINDOW HEATING AND CONTAMINATION MONITORING**
- **OPTIONAL 4-20 MA AND RELAY OUTPUTS**
- **ANALOGUE VOLTAGE OUTPUT (0-10V)**
- **COMPREHENSIVE SELF-TEST CAPABILITIES**
- **SERIAL DATA OUTPUT (RS232, RS422 OR RS485)**
- **2 YEARS WARRANTY**

General specifications

OUTPUTS & REPORTS

Output rate (seconds)	10 to 300 selectable
Serial outputs	RS232, RS422 and RS485
Analogue outputs	0-10 V (4-20 mA option)
Relay outputs	1 fault and 2 threshold relays (option)

POWER REQUIREMENTS

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

ADDITIONAL FEATURES

Hood heaters	Fitted as an option to both sensor head hoods
Window contamination monitoring	Fitted as standard to both sensor head windows

ENVIRONMENTAL

Operating temperature	-40 °C to +60 °C
Operating humidity	0 – 100% RH
Protection rating	IP66/IP67

PHYSICAL

Material	Powder coated aluminium
Weight	4.3 kg (including mounting kit)
Length	811 mm
Warranty	2 years
Lifetime	>10 years

CERTIFICATION & COMPLIANCE

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

Ordering codes

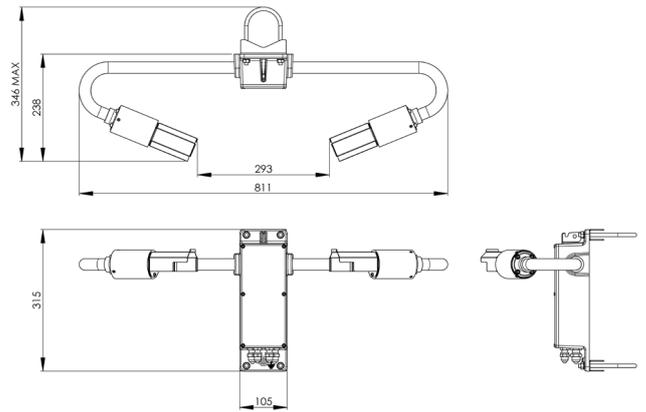
RWS20			
			Configuration RC = regular configuration SC = special configuration
			Optional Relays NR. = without relay outputs WR. = including relay outputs
			Data Output J. = RS232 and RS422/RS485 and 0-10 V as standard L. = 4-20 mA as well as standard output
			Hood Heating NH. = without heating HV. = with heating

Example: RWS20.HV.J.NR.RC

Measurement specifications

Measures	Visibility (MOR & EXCO)
Output	Serial data, and Voltage, 4-20 mA optional
Range (visibility)	10 m to 7,500 m
Measurement error	≤10.0% at 7,500m
Measurement resolution	1 m or 10 m (default)
Measurement principle	Forward scatter meter with 39° to 51° angle, centred at 45°

Dimensions



Accessories – Optional

SWS.CAL	SWS and RWS Series Calibration Kit
RWS.WTY	1 year extended warranty

The sensor is delivered in sturdy recyclable foam filled packaging with pole mounting kit (2 x U-bolt) and Quick Start Guide and calibration certificates.