

Road Tunnel Weather Sensor

RWS-30

INTRODUCTION

The **RWS-30** is a forward scatter visibility sensor designed for use in both **road and tunnel applications** where accurate and reliable visibility measurements are required. Its compact optical design delivers stable measurements in all weather conditions, with outputs suited to the specific requirements of tunnel systems.

Modern Road Weather Information Systems (RWIS) and tunnel safety systems rely on sensitive visibility measurements to detect fog, pollution from slow or stationary vehicles and smoke from fires. The RWS-30 has been developed to meet these needs and complies with international tunnel guidelines defined by the PIARC Technical Committee. Fast and simple installation minimises lane closure times, while window contamination monitoring with automatic adjustment ensures maintenance is only performed when necessary.

FEATURES

Road & tunnel optimised, PIARC compliant

Designed for road and tunnel environments with outputs suited to tunnel systems and in line with PIARC guidelines.

200 m to 99.99 km range for pollution & fire

Extended MOR/EXCO range (1 m resolution) for high sensitivity to pollution build-up and smoke from fires.

Forward scatter technology

Compact, robust design with advantages over backscatter and transmissometers, and minimal influence from surrounding objects.

Early alarms & ventilation control

Relay outputs can trigger alarms, tunnel entrance signs and ventilation systems when visibility drops due to pollution or smoke.

Smart contamination & low maintenance

Window contamination monitoring with automatic correction, two-stage cleaning warnings and long calibration intervals traceable to a national weather service transmissometer.

Easy installation, low ownership cost

Single-person installation and simple integration help minimise lane closure times and overall cost of ownership.

CONFIGURATION & MEASUREMENT

Visibility and EXCO outputs

Provides averaged MOR and EXCO with an extended measurement range up to 99.99 km.

Serial and analogue interfaces

ASCII data via RS232/422/485 plus 0–10 V and 4–20 mA outputs (MOR or EXCO), as favoured in tunnel systems.

Relay outputs for alarms and control

Three configurable volt-free relays for visibility thresholds, contamination and sensor failure, enabling direct control of signs and ventilation.

Self-test and maintenance management

Continuous self-test information in every message, with advanced monitoring that auto-corrects for contamination and issues two-stage cleaning warnings.

Advanced Functional Test Mode

Test mode to simulate visibility, contamination and fault conditions for FAT/SAT and verification of downstream processing.



- **200 M TO 99.99 KM MEASUREMENT RANGE**
- **COMPACT FORWARD SCATTER DESIGN**
- **NOT AFFECTED BY LIGHTS**
- **EASILY INSTALLED BY ONE PERSON**
- **WINDOW HEATING AND CONTAMINATION MONITORING**
- **EXCO AND MOR OUTPUTS**
- **ANALOGUE VOLTAGE AND CURRENT OUTPUTS**
- **SERIAL DATA OUTPUT (RS232, RS422 OR RS485)**
- **2 YEARS WARRANTY**

General specifications

OUTPUTS & REPORTS

Output rate (seconds)	60
Serial outputs	RS232, RS422 and RS485
Analogue outputs	0-10 V and 4-20 mA
Relay outputs	1 fault and 2 threshold relays (option)

POWER REQUIREMENTS

Sensor power	9-36 Vdc
Basic sensor	3.5 W
Window heaters	1.7 W

ADDITIONAL FEATURES

Window contamination monitoring	Fitted as standard to both sensor head windows
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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

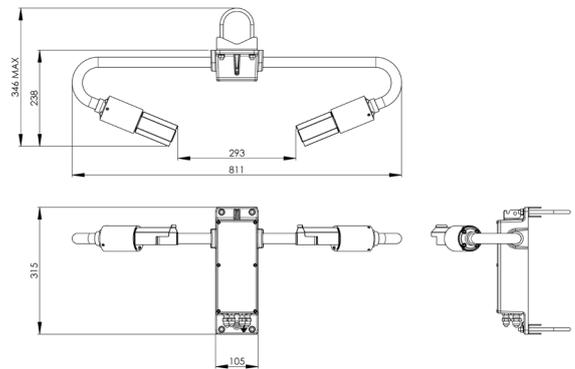
CERTIFICATION & COMPLIANCE

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

Measurement specifications

Measures	Visibility (MOR & EXCO)
Output	Serial digital, 4-20 mA and voltage 0-10 V
Range (visibility)	MOR 200 m to 99.99 km EXCO 0.03 to 15 km ⁻¹
Measurement error	≤10% at 200 m to 10,000 m ≤20.0% at 10,001 m to 30,000 m
Measurement resolution	1 m or 10 m (default)
Measurement principle	Forward scatter meter with 39° to 51° angle

Dimensions



Ordering codes

RWS30	
	Configuration RC = regular configuration SC = special configuration
	Optional Relays NR. = without relay outputs WR. = including relay outputs

Example: RWS30.WR.RC

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.