



Data sheet

SWS-200 Visibility Meter / Present Weather Sensor

– Made for Sabik by Biral –

- **easily integrated into Sabik Offshore NAI System**
- **selectable measurement range**
- **precipitation type, intensity and accumulation outputs**
- **instantaneous and averaged visibility outputs**
- **date and time stamp on data strings**
- **2 adjustable relays and 1 fault relay**
- **analogue outputs of visibility range**
- **extended self-test and maintenance information**

The BIRAL SWS-200 sensor is designed for general meteorological applications where visibility and present weather parameters are required. The sensor measures: visibility (MOR – Meteorological Optical Range), fog, haze, drizzle, rain, snow and general precipitation (according to WMO 4680 table codes).

The extended visibility range up to 50 km exceeds the usual limit of 16 km for obstruction to vision information required by national weather services and standard coding procedures.

The enhanced present weather information from the SWS-200 is due to the backscatter receiver which allows detailed precipitation analysis including precipitation intensity information and accumulation totals for 24 hour periods.

The SWS-200 is ideal for single installations or multiple sensor networks in a range of applications from general weather station monitoring to wind turbine sites . . . in fact nearly anywhere where visibility and present weather information is needed.

SWS-200 Specifications

Visibility and precipitation measurements

Measurement range	*Selectable: 2 km, 10 km, 20 km, 32 km or 50 km
Measures	Visibility (MOR - Meteorological Optical Range): fog, haze, smoke, sand, drizzle, rain, snow and general precipitation
Measurement accuracy	≤ 10 % maximum
Measurement principle	forward scatter meter with 45° angle
Precipitation detection resolution	rain: 0.015 mm/hr (0.0006 in/hr) snow: 0.0015 mm/hr (0.00006 in/hr)
Maximum rain rate	250 mm/hr (10 in/hr)
Rain rate accuracy	≤ 15 %
Intensities	light (-), moderate, heavy (+)

*Selectable at time of order

Output and reports

Output rate (seconds)	10 to 300 (selectable)
Digital (serial) outputs	RS-232, RS-422, RS-485*
Analogue outputs	0 to 10 V
Switching relays (providing flexible configurations)	Relay 1 = fault Relay 2 = visibility (user selectable threshold) Relay 3 = precipitation yes/no or snow yes/no or 2nd visibility (user selectable)
Outputs	Selected WMO 4680 table codes

*Single sensor connection only, not multi-drop

Physical

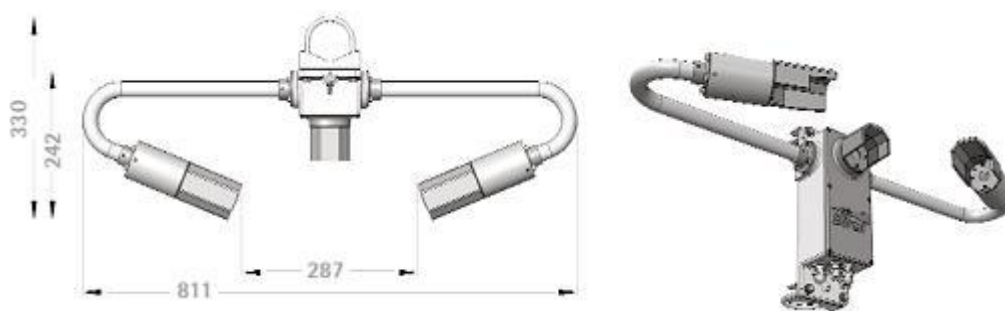


Figure 1: Dimensions (in mm)

Material	Powder coated aluminium
Length	810 mm
Weight	3.3 kg

Life expectancy

Lifetime	> 10 years
----------	------------

Power requirements

Operating voltage V_{IN}	9 to 36 V DC
Power consumption ($V_{IN}=24$ V DC)	6 W – in normal running (no-dew window heaters ON) 3.5 W – with no-dew window heaters OFF 42 W – using optional de-icing hood heaters at 36 W

Environmental conditions

Ambient temperature (operation)	-40 to +60 °C
Operating humidity	0 to 100 % RH
Degree of protection (acc. to IEC 60529)	IP66

Compliance

EMC Compliance	according to EN 61326-2006
RoHS and WEEE	compliant

Assembly

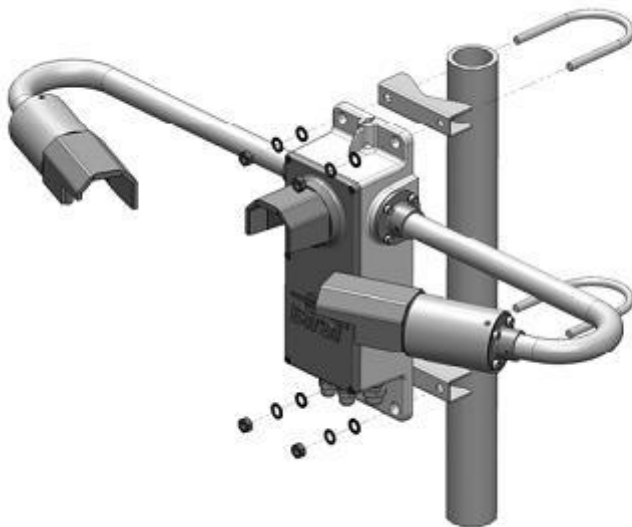


Figure 2: U-bolt pole mounting

Included with the sensor

Delivery	SWS sensor in sturdy, recyclable foam-filled packaging
with	- 3 m RS232 auxiliary cable - pole mounting kit (U bolt, saddle and bolts) - documentation (manual, calibration certificate)

Orientation

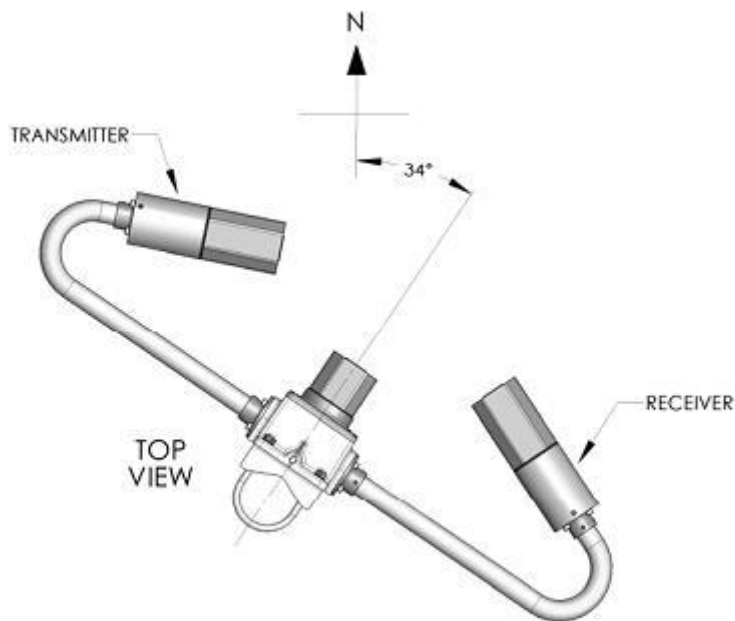


Figure 3: SWS-200 Orientation (Northern Hemisphere) [from: Biral SWS-100/SWS-200 OPERATION and MAINTENANCE MANUAL]

Maintenance

Comprehensive self test	with maintenance warnings
User confidence check	6 months (suggested)
window cleaning	3 months (suggested)