WATER QUALITY / DATA SHEET

SS311-01-LORA

Oil in Water Transmitter



Fluorescence measurement with automatic temperature compensation and LoRa wireless communication.

Overview

- Measures oil-related fluorescence in water for pollution monitoring and early warning.
- Relative fluorescence units support analysis of the relationship between signal intensity and oil concentration.
- Sends readings by LoRa to a compatible gateway for centralized platform monitoring.

Oil Range	Fluorescence	Power Supply	Communication
0–50 ppm	0–100 RFU	DC 10–30 V	LoRa / RS485

Key Advantages

- Fluorescence sensing with light-filtering algorithm.
- Automatic temperature compensation.
- LoRa spread-spectrum wireless transmission.
- IP68 probe and IP65 transmitter housing.
- Gateway-based networking and Bluetooth configuration.

Application Scenarios

- Oil pollution monitoring in water.
- Online contamination early warning.
- Remote water quality monitoring.
- Centralized data collection and alarms.

SYSTEM DATA

Technical Specifications

Item	Specification
Model	SS311-01-LORA
Measurement principle	Fluorescence
Measurement range	0–50 ppm; 0–100 RFU
Measurement error	±5% FS at 25 °C; temperature: ±0.5 °C
Resolution	0.01 ppm; 0.1 RFU; temperature: 0.1 °C
Response time	≤30 s, T90
Probe operating temperature	0–40 °C
Housing environment	−40 to +60 °C; 0–95% RH, non-condensing
Power supply / average power	DC 10–30 V / ≤0.7 W
Data transmission	LoRa proprietary wireless protocol; RS485 Modbus-RTU interface
RS485 baud rate	4800 bit/s default; 1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200 bit/s
Data upload interval	300 s default. Set multiples of 60 s; other values are delayed to a 60 s multiple.
Ingress protection	Probe: IP68; transmitter housing: IP65
Probe cable length	5 m standard

Item	Specification
Housing material	Corrosion-resistant material
Housing dimensions	117 × 87 × 43 mm maximum
Probe dimensions / thread	147 mm dimension shown; Ø30 mm; NPT 3/4 thread
LoRa channels	Transmit and receive channels: 1–64
Spreading factor	7–9; default 9; must match the paired host
Time-slot interval	3000 ms default, read-only
Collector Modbus master baud rate	4800 bit/s default; 2400, 4800 or 9600 bit/s; match the connected RS485 device

MEASUREMENT DATA

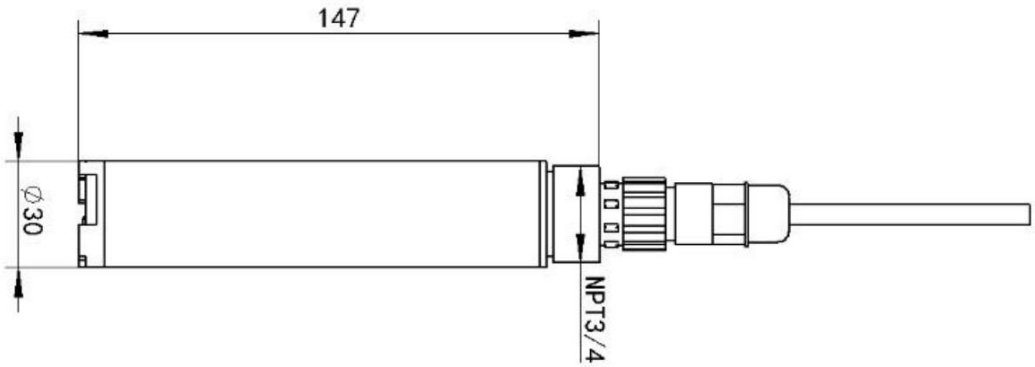
Measurement Conditions

Measurement condition	Interpretation
Reference solution	Specifications were obtained from repeated laboratory tests with quinine sulfate solution at specified concentrations.
RFU output	Relative fluorescence intensity. Assess the relationship between fluorescence and oil concentration for the actual application.

Ordering model: SS311-01-LORA, with LoRa wireless upload, RS485 Modbus-RTU interface, wall-mounted transmitter housing and 5 m probe cable. Select a compatible gateway for platform access.

MECHANICAL DATA

Dimensions and Installation



Probe drawing dimensions in millimetres: Ø30 mm, 147 mm as indicated and NPT 3/4 thread. Housing: 117 × 87 × 43 mm maximum; wall mounting spacing: 105 mm. Use Ø5 mm holes with the supplied expansion plugs and screws.

Route the cable through a waterproof support pipe and screw the probe into its NPT 3/4 threaded connection. Allow for water level changes: keep the probe at least 10 cm below the surface in slow-flowing water without bubbles. Maintain 5 cm clearance from surrounding walls and 7 cm beneath the probe, with no obstructions or reflective surfaces.

ELECTRICAL CONNECTION

Power Connection and Start Up

Connect the supplied 12 V adapter to the power input and switch on. With a compatible gateway configured, allow 1–3 minutes before viewing readings at the platform or receiving system. Keep cable connectors out of water until fully locked.

COMMUNICATION DATA

LoRa Configuration and Gateway Integration

Use the supplied Android configuration app with Bluetooth enabled. Scan for LORA485H followed by the device address and connect with password 12345678. Read parameters, edit the required values and download them. Read current measurements in the real-time data tab. The configuration password is eight numeric digits and can be changed.

Pair the module transmit channel with the host receive channel, and its receive channel with the host transmit channel. Use channels 1–64 and distinct channel assignments for different modules and nearby gateways. Match the spreading factor (default 9). Default wireless sleep/upload time is 300 s; use multiples of 60 s. Subordinate address: 1–254, within the host point-count limit. Time-slot interval and point count are read-only.

A compatible LoRa gateway forwards readings by 4G or Ethernet for real-time and historical platform access. Available gateway capacities: 32 or 128 collection devices; combined versions support 32 collectors plus 32 controllers, or 64 plus 64. Confirm gateway compatibility and the channel plan. This is a proprietary LoRa link.

Reference line-of-sight distances: spreading factor 7: over 2000 m; factor 8: over 2300 m; factor 9: over 3000 m. These tests used an open, unobstructed site and the specified magnetic-base antenna. Actual range depends on installation and the radio environment.

CALIBRATION & MAINTENANCE

Probe Cleaning and Calibration

Remove the black rubber protective cover before measurement. Clean optical probe deposits at least every 30 days, adjusting frequency to the application. Rinse with flowing water; use a soft damp cloth for remaining dirt. Avoid scratching the optical light-guiding surfaces.

Calibrate before each use. For continuous operation, calibrate approximately every 3 months and adjust frequency for fouling and chemical deposits. Keep cable connectors dry until securely locked. If a clear fault occurs, contact technical support rather than opening the device for repair.

Do not use this device as a safety device or emergency stop device, or in applications where equipment failure could cause personal injury. Read the operating instructions before installation, use or servicing.

Package contents: one oil in water transmitter, 5 m cable, one 12 V power adapter, two expansion plugs, two self-tapping screws, certificate and warranty card. Warranty: 12 months for verified defects in materials or workmanship under normal use and maintenance.

CONTACT / SUPPORT

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