WATER QUALITY / DATA SHEET

SS312-01-ANALOG-3

Suspended Solids Transmitter

Self-cleaning optical measurement of suspended solids and sludge concentration with temperature compensation and selectable analog output.



Overview

- Measures suspended inorganic and organic solids, sediment and microorganisms in water.
- Optical absorption measurement requires no chemical reagents.
- Analog output options: 4–20 mA, 0–5 V or 0–10 V.

Maximum Range	Resolution	Power Supply	Output
0–20000 mg/L	0.1 mg/L	DC 12–30 V*	Analog

Key Advantages

- Integrated self-cleaning system reduces biofouling.
- Modulated light reduces visible-light interference.
- Automatic temperature compensation.
- 4–20 mA, 0–5 V or 0–10 V output; select one.
- IP68 probe and IP65 conversion module housing.

Application Scenarios

- Water treatment.
- Aquaculture.
- Environmental monitoring.
- Online sludge concentration monitoring.

SYSTEM DATA

Technical Specifications

Item	Specification
Model	SS312-01-ANALOG-3
Measurement principle	Optical absorption
Range options	0–20000 / 0–5000 / 0–1000 / 0–200 mg/L; select one
Measurement error	±5% FS; depends on sludge homogeneity; temperature: 0.5 °C
Resolution	0.1 mg/L; temperature: 0.1 °C
Response time	≤30 s
Supply voltage	DC 12–30 V; 0–10 V output requires DC 24 V
Power consumption	1.8 W normal; 5.1 W during self-cleaning
Analog output	4–20 mA / 0–5 V / 0–10 V; select one
Probe operating temperature	0–40 °C
Housing environment	–40 to +60 °C; 0–95% RH, non-condensing

Item	Specification
Ingress protection	Probe: IP68; transmitter housing: IP65
Flow velocity	<3 m/s
Probe pressure limit	<0.1 MPa
Probe cable	5 m standard; customizable
Housing material	Corrosion-resistant plastic and stainless steel
Maintenance / calibration interval	3 months recommended
Self-cleaning system service life	18 months; dynamic seal replacement required after continuous use
Housing dimensions	117 × 87 × 43 mm maximum
Probe dimensions / thread	247 mm dimension shown; 227 mm body dimension; Ø50 mm; NPT 3/4

MEASUREMENT DATA

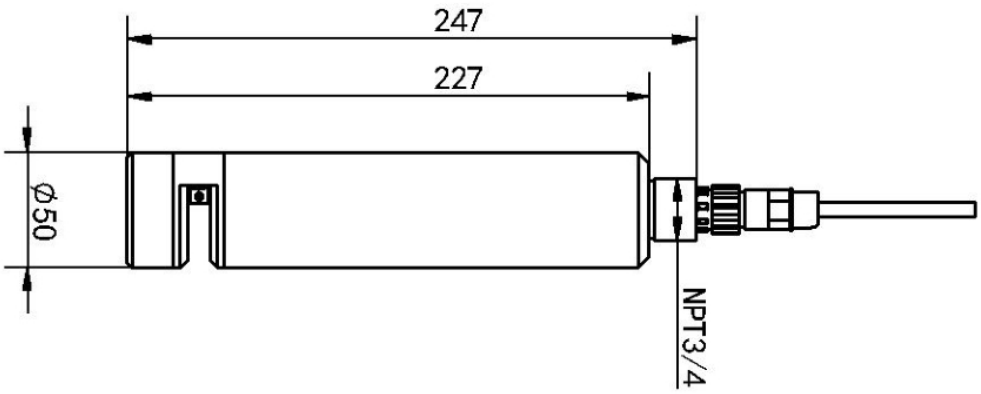
Calibration and Range Selection

Calibration condition	Requirement
Factory reference	Kaolin standard, selected for the optical transmission measurement method.
Site calibration	Use a standard prepared from sludge representative of the installation environment to ensure homogeneity and appropriate concentration calibration.

Ordering model: SS312-01-ANALOG-3. Specify the required 20000, 5000, 1000 or 200 mg/L full-scale range, analog output and cable length. Supplied system includes the optical probe and wall-mounted analog conversion module. *The 0–10 V output version requires DC 24 V.

MECHANICAL DATA

Dimensions and Installation



Dimensions in millimetres: probe Ø50 mm, 247 mm and 227 mm dimensions as shown; NPT 3/4 thread. Housing: 117 × 87 × 43 mm maximum. Wall mounting spacing: 105 mm; use Ø5 mm holes with the supplied plugs and screws.

Horizontal probe placement is preferred to reduce sediment accumulation. Install in bubble-free water at a depth no greater than 2 m and at least 30 cm below the lowest water level. Prevent the suspended probe from striking walls or structures; secure it where flow is strong. Route the cable through a waterproof support pipe and attach using the NPT 3/4 thread.

ELECTRICAL CONNECTION

Power and Analog Signal Wiring

Wire colour	Connection
Brown	Power positive: DC 12–30 V; DC 24 V for 0–10 V output
Black	Power negative
Blue	Analog signal positive
Yellow or green	Analog signal negative

The standard output cable has four bare wires. Connect power and analog signal according to the wire colours above. Use DC 12–30 V for 4–20 mA or 0–5 V versions; use DC 24 V for the 0–10 V version. Keep cable connectors out of water until fully locked.

ANALOG OUTPUT DATA

Signal Conversion and Measurement Examples

For the selected zero-based concentration range, let C be concentration in mg/L and R the full-scale range in mg/L. Scale the receiving instrument to the ordered range and output type. The analog signal represents suspended solids concentration.

4–20 mA output: C = (I − 4) × R / 16, with I in mA. For R = 20000 mg/L and I = 12 mA, C = 10000 mg/L. 0–5 V output: C = V × R / 5. 0–10 V output: C = V × R / 10, with V in volts. For R = 20000 mg/L and V = 5 V on the 0–10 V version, C = 10000 mg/L.

CALIBRATION & MAINTENANCE

Self Cleaning and Probe Maintenance

Inspect the measurement windows for deposits and scale. Rinse with tap water and wipe with a soft damp cloth; household detergent in water may be used for stubborn deposits. Do not touch or scratch the windows. Keep bubbles off the probe and measurement windows during measurement and calibration. Protect the probe from impact, direct sunlight, cable tension and mechanical stress.

Check the cleaning brush regularly for correct operation and damage. Do not force the brush shaft to rotate. After 18 months of continuous self-cleaning use, return the device for dynamic seal replacement; adjust the service interval to actual cleaning frequency. Calibrate before each use and approximately every 3 months for long-term operation, adjusting for fouling and chemical deposits. Check window cleanliness if readings are high, low or persistently unstable.

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 self-cleaning suspended solids transmitter, 5 m cable, two expansion plugs, two self-tapping screws, nylon protective net, 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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