



Recorder



Flow



Pressure



Temp



Analyzer



Level

Datasheet

Sludge Concentration

Electrode

SUP-PSS-9011

**Supmea<sup>®</sup>**

Committed to process automation solutions

E-mail: [info@supmea.com](mailto:info@supmea.com)

[www.supmea.com](http://www.supmea.com)

## Datasheet

### Sludge Concentration Electrode SUP-PSS-9011

Suspended solids/sludge concentration sensor is based on the method of combination of infrared absorption scattered light. Infrared light which the photo source sends out scattered by suspended particles in the sample. And finally converted to electrical signals by photoelectric detector and getting the suspended solids/sludge concentration of the sample after treatment by analog and digital signals.

#### Applications

- Aeration tank monitoring
- Control of secondary sedimentation tanks
- Chemical industry
- textile printing and dyeing industry
- Aquaculture pond water quality management
- Surface water monitoring

#### Features

- Wide measuring range
- Flexible resolution
- Higher precision
- For low flow rates
- High level of protection
- Wide choice of cables



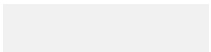
**Sludge Concentration Electrode**

### Principle

The sludge concentration electrode operates mainly on two principles. Optical scattering: a light beam hits the sludge suspension, and the scattered light intensity, detected by the electrode's light source and detector, correlates with the sludge concentration. After calibration, the concentration can be calculated from the corresponding electrical signal. Electrochemical sensing: charged sludge particles react on the electrode surface, creating a potential difference related to the concentration. Measuring and calibrating this difference allows for its determination.

| Parameters             |                                                                                           |
|------------------------|-------------------------------------------------------------------------------------------|
| Measurement Range      | 0.01-20000 mg/L, 0.01-45000 mg/L,<br>0.01-120000 mg/L                                     |
| Measurement Accuracy   | Less than $\pm 5\%$ of the measured value<br>(depending on sludge homogeneity)            |
| Repeatability          | $\pm 2\%$                                                                                 |
| Resolution Ratio       | 0.01~1 mg/L, it depends on different ranges                                               |
| Pressure Range         | $\leq 0.4\text{Mpa}$                                                                      |
| Flow velocity          | $\leq 2.5\text{m/s}$ 、 $8.2\text{ft/s}$                                                   |
| Material               | Main Body: SUS316L (Ordinary version),<br>Titanium alloy (Seawater version)<br>Cable: PUR |
| Power Supply           | 9~36VDC                                                                                   |
| Communication Protocol | MODBUS RS485                                                                              |
| Operating Temperature  | 0~45°C (not freeze)                                                                       |
| Weight                 | 1.65 KG                                                                                   |
| Level of Protection    | IP68/NEMA6P                                                                               |
| Cable Length           | Standard 10-Meter Cable,<br>Max Length: 100 Meters                                        |

**Wiring**



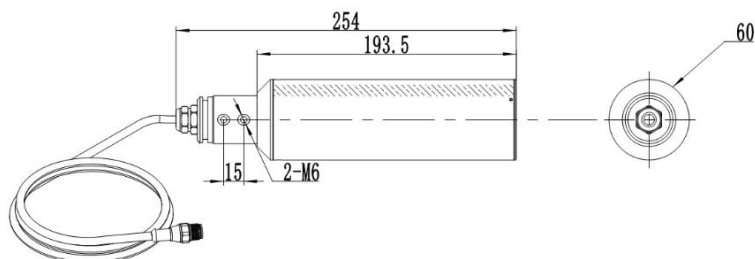
The sensor should be correctly connected by the following definition of wire core:

| Serial No.   | 1      | 2     | 3       | 4       | 5              |
|--------------|--------|-------|---------|---------|----------------|
| Sensor Cable | Brown  | Black | Blue    | White   | Yellow + Green |
| Signal       | +12VDC | AGND  | RS485 A | RS485 B | Ground lead/PE |

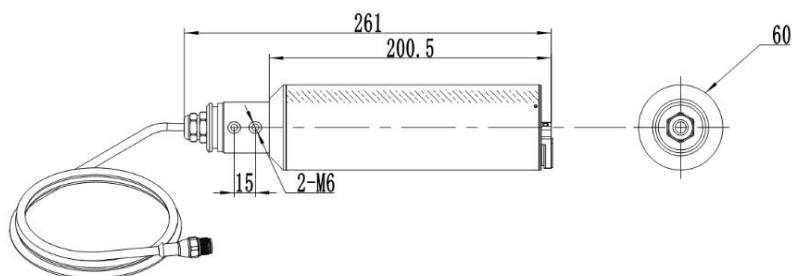
## Dimension

SUS316L/Titanium Alloy External Dimension:

No automatic cleaning device:

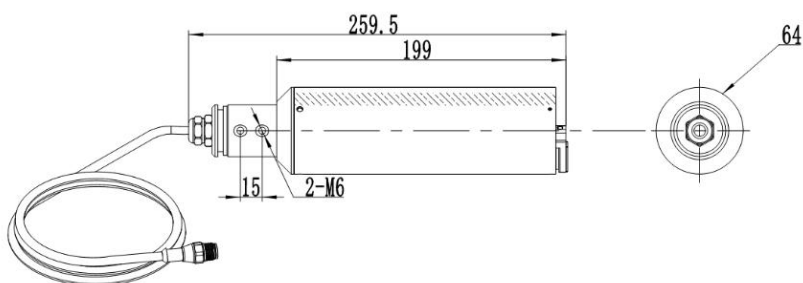


With automatic cleaning device:

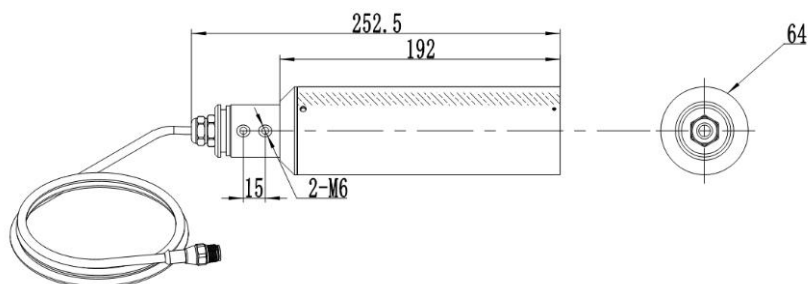


POM External Dimension:

No automatic cleaning device:



With automatic cleaning device:



Installation

■ Installation

Installation of Sensors

Quick Dismantling Pool Side Fixed Installation

CBZJ-03

|      |                                                            |          |          |
|------|------------------------------------------------------------|----------|----------|
| 7    | Sensor Adapter (Double holes to R5/4)                      | 1 SET    |          |
| 6    | Mounting tube (External thread + internal thread (SUS304)) | PCS      |          |
| 5    | Mounting tube (external thread at one end (SUS304))        | 1 PCS    |          |
| 4    | Rubber ring                                                | 3 PCS    |          |
| 3    | Installation blockage                                      | 1 PCS    |          |
| 2    | Mounting plate                                             | 1 PCS    |          |
| 1    | M8 expansion bolt                                          | 5 SETS   |          |
| num. | Part                                                       | Quantity | Comments |

CBZJ-03

GROUND

SHORE

WATER

1

2

3

4

5

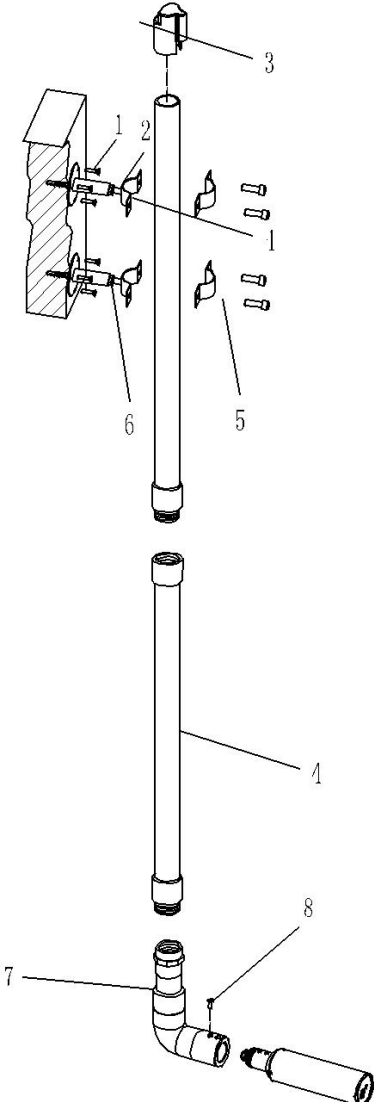
6

7

|      |                                                            |          |          |
|------|------------------------------------------------------------|----------|----------|
| 7    | Sensor Adapter (Double holes to R5/4)                      | 1 SET    |          |
| 6    | Mounting tube {External thread + internal thread (SUS304)} | PCS      |          |
| 5    | Mounting tube {external thread at one end (SUS304)}        | 1 PCS    |          |
| 4    | Rubber ring                                                | 3 PCS    |          |
| 3    | Installation blockage                                      | 1 PCS    |          |
| 2    | Mounting plate                                             | 1 PCS    |          |
| 1    | M8 expansion bolt                                          | 5 SETS   |          |
| num. | Part                                                       | Quantity | Comments |

Classic Pool Side Fixed Installation

CBJD-03



|      |                                      |
|------|--------------------------------------|
| 8    | bolt M6*12                           |
| 7    | rotary union(M6 to R $\frac{1}{4}$ ) |
| 6    | M8 hex nut                           |
| 5    | bolt M8*16                           |
| 4    | sus304 pipes ( $\varnothing$ 38mm)   |
| 3    | end cap                              |
| 2    | pipe hoop ( $\varnothing$ 40)        |
| 1    | M4 expansion bolt                    |
| num. | Part                                 |

Railing Fixed Installation

LGZJ-03

1 2 3 4 5 6 7 8 9 10 11 12 13 14

|      |                                                  |
|------|--------------------------------------------------|
| 14   | bolt M6*12                                       |
| 13   | M8 spring washer                                 |
| 12   | M8 flat gasket                                   |
| 11   | Mounting plate                                   |
| 10   | bolt M6*120                                      |
| 9    | U type pipe hoop                                 |
| 8    | rotary union(M6 to R <sub>1</sub> <sup>1</sup> ) |
| 7    | U type pipe hoop                                 |
| 6    | pipe clamp                                       |
| 5    | sus304 pipes (Φ38mm)                             |
| 4    | end cap                                          |
| 3    | M8 hex nut                                       |
| 2    | M8 flat gasket                                   |
| 1    | M8 hex nut                                       |
| num. | Part                                             |

## Ordering code

| SUP-PSS-9011-WF-0-A-B-10-ZY-M3 |    |   |   |   |    |    |    | Description     |
|--------------------------------|----|---|---|---|----|----|----|-----------------|
| SUP-PSS-9011                   | -  | - | - | - | -  | -  | -  |                 |
| Measurement Range              | WF |   |   |   |    |    |    | 0-20g/L         |
|                                | WG |   |   |   |    |    |    | 0-45g/L         |
|                                | WJ |   |   |   |    |    |    | 0-120g/L        |
| Electrode Scraper              |    | 0 |   |   |    |    |    | No              |
|                                |    | 1 |   |   |    |    |    | Yes             |
| Output                         |    |   | A |   |    |    |    | RS485           |
| Power Supply                   |    |   |   | B |    |    |    | 12VDC           |
| Cable Length                   |    |   |   |   | 10 |    |    | 10m             |
|                                |    |   |   |   | 20 |    |    | 20m             |
|                                |    |   |   |   | 30 |    |    | 30m             |
|                                |    |   |   |   | XX |    |    | Others          |
|                                |    |   |   |   |    |    |    |                 |
| Cable Connector                |    |   |   |   |    | ZY |    | Cable Connector |
|                                |    |   |   |   |    | HK |    | Aviation Plug   |
| Housing Material               |    |   |   |   |    |    | M3 | 316LSS          |
|                                |    |   |   |   |    |    | T1 | Ti              |