

# Dissolved oxygen meter

Committed to process automation solutions

## Datasheet



**SUP-DY2900**

## Supmea Dissolved oxygen meter

SUP-DY2900 Dissolved oxygen meter

### Product description:

SUP-DY2900 Dissolved oxygen online analyzer, an intelligent online chemical analyzer. The cap of the sensor is coated with a luminescent material. Blue light from an LED illuminates the luminescent chemical. The luminescent chemical instantly becomes excited and releases red light. The time and intensity of red light are inversely proportional to the concentration of oxygen molecules, So the concentration of oxygen molecules is calculated.



SUP-DY2900  
Dissolved Oxygen meter

### Application:

- Sewage treatment plants:  
Oxygen measurement and regulation in the activated sludge basin for a highly efficient biological cleaning process
- Environmental protection water monitoring:  
Oxygen measurement in rivers, lakes or seas as an indicator of the water quality
- Water treatment:  
Oxygen measurement for status monitoring of drinking water for example (oxygen enrichment, corrosion protection etc.)
- Fish farming:  
Oxygen measurement and regulation for optimum living and growth conditions

## Features

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- Support dissolved oxygen(DO), saturation(SAT), oxygen partial pressure(OPP) and temperature measure.
  - Support upper/lower limit control, transmitting output, RS485 communication.
  - Configurable manual and auto temperature offset function.
  - Configurable upper/lower limit alarm and delay.
  - Configurable hummer and LCD backlight switch.
  - Optional language, Chinese and English.
  - Zero oxygen and full-scale calibration.
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## Measuring principle

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- **Sensor design:**

- Oxygen-sensitive molecules (markers) are integrated in an optically active layer (fluorescence layer).
- The surface of the fluorescence layer is in contact with the medium.
- The sensor optics are directed at the underside of the fluorescence layer.

- **There is an equilibrium between the oxygen partial pressure in the medium and that in the fluorescence layer:**

- If the sensor is immersed in the medium, the equilibrium is established very quickly.

- **Measuring process:**

- The sensor optics send green light pulses to the fluorescence layer.
- The Oxygen-sensitive molecules instantly becomes excited and releases red light.
- The duration and intensity of the response signals is directly dependent on the oxygen contents and the partial pressure.
- If the medium is free from oxygen, the response signals are long and very intense.
- Oxygen molecules quench the Oxygen-sensitive molecules. As a result, the response signals are shorter and less intense.

- **Measurement result:**

- The sensor returns a signal that is in proportion to the oxygen concentration in the medium.
- The medium temperature and air pressure are already taken into account calculated in the sensor.
- In addition to the standard values of concentration, saturation index and partial pressure, the sensor also returns a raw measured value in  $\mu\text{s}$ . The value corresponds to the decay time of the fluorescence and is approx. 20  $\mu\text{s}$  in air and approx. 60  $\mu\text{s}$  in media free from oxygen.

## Technical Specifications:

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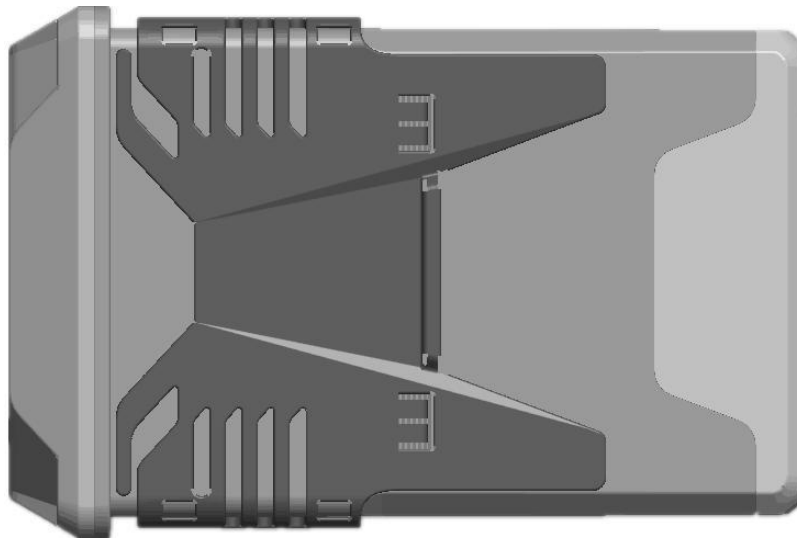
Measurement variables	Dissolved oxygen, saturation, oxygen partial pressure
Measuring range	0 - 20mg/L, 0 - 200%, 0 - 400hPa
Resolution	0.01mg/L, 0.1%, 1hPa
Accuracy	±1.5%FS
Repetition	±0.5%FS
Temperature measurement type	NTC 10K/PT1000
Auto A/manual H Measuring range	-10 - 60°C Resolution: 0.1°C Correction accuracy: ±0.5°C
Output type	4 - 20mA current transmission output
Max.loop resistance	750Ω
Accuracy	0.1%FS
Output type	RS485 digital signal output
Communication protocol	Standard MODBUS-RTU (customizable)
Power supply	AC220V±10%, 50Hz/60Hz (optional 24V±10%)
Alarm relay	AC250V、3A

## Installation methods

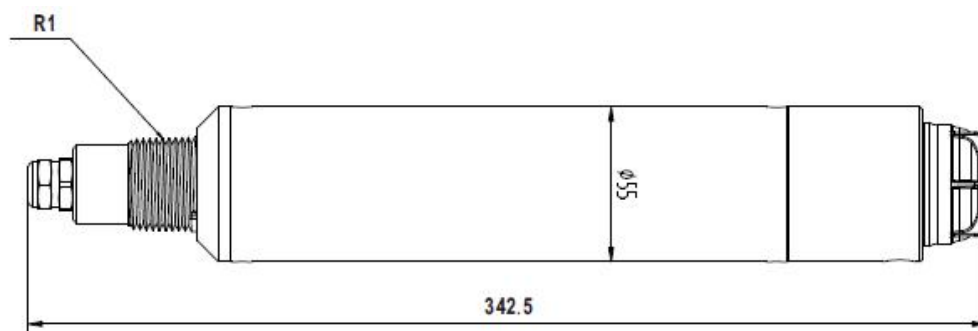
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### ① dissolved oxygen transmitter

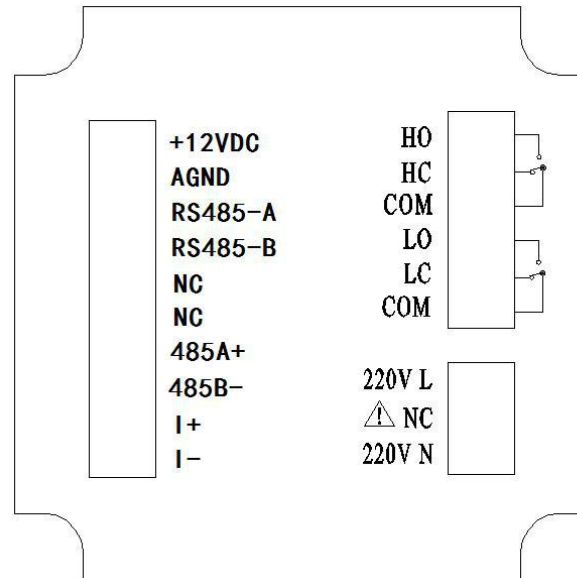
Open a 92.5 \* 92.5(mm) installation hole on the instrument cabinet or installation panel (the dimension is 100\*100\*150mm). Insert the instrument into the installation hole and latch on the butterfly clasp, as shown below.



### ② dissolved oxygen sensor



## Identification of terminal



Wiring diagram

+12VDC: Power supply of dissolved oxygen electrode

AGND: Power negative of dissolved oxygen electrode

RS485-A: Dissolved oxygen electrode communication-A

RS485-B: Dissolved oxygen electrode communication-B

NC: Null

RS485(A+): RS485 communication interface A+

Optical Dissolved Oxygen Online Analyzer – Operation Manual

RS485(B-): RS485 communication interface B-

I(+): 4-20mA output port +

I(-): 4-20mA output port -

HO: High alarm of normal open relay

HC: High alarm of normal close relay

COM: Common port

LO: Low alarm of normal open relay

LC: Low alarm of normal close relay

COM: Common port

220V L: AC220V fire wire

NC: Null

220V N: AC220V zero wire

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