

# Optical dissolved oxygen sensor

Committed to process automation solutions

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## Datasheet



**SUP-DO-7016**

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SUP-DO-7017 is an intelligent online optical analytical instrument which widely used in thermal power, chemical fertilizer, metallurgy, environmental protection, pharmaceutical, biochemical, food and tap water as a continuous monitor of dissolved oxygen, saturation, and temperature.

The continuous monitoring data can be monitored and recorded by remote transmission through the converter and output connected to the recorder. The RS485 interface can be connected to the computer to realize monitoring and control record through modbus-rtu protocol.

## Electrode characteristics

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- Optical technology without calibration
- Digital technology (Modbus RS-485)
- No drift, reduced maintenance
- Body in stainless steel (316 L) or titanium

## Controller characteristics

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- Circuit modular design
  - Isolated transmitter output with less interference influence
  - Isolated RS485 communication
  - Dissolved oxygen, saturation and temperature measurement
  - Available air calibration
  - Automatic temperature compensation
  - High and low alarm and hysteresis
  - Buzzer and LCD backlight switch setting
  - Language: Chinese、 English
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## Applications

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- Urban sewage treatment
- Industrial effluent treatment
- Surface water monitoring
- Sea water monitoring, fish farming, aquarium
- Drinking water

## Optical technology

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- The optical dissolved oxygen technology is based on luminescent optical technology. The sensor is approved by the ASTM International Method D888-05.
- Without calibration requirements and thanks to an ultra low power technology, the sensor meets the demands of field works and short or long term campaigns.
- Without oxygen consumption, this technology allows you an accurate measure in all situation and especially in very low oxygen concentrations

## Digital Technology

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- The "smart" sensor stores calibration and history data within the sensor. This allows you a "plug and play" system without re-calibration.
  - Thanks to the Universal Modbus RS485 protocol, the sensor can be connected to all devices commonly used (Datalogger, Controller, Automat, Remote System...).
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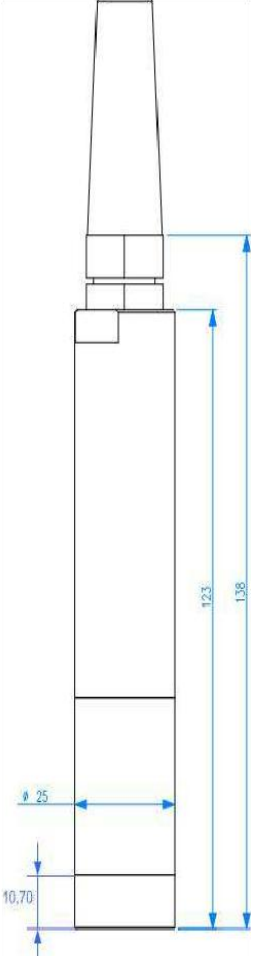
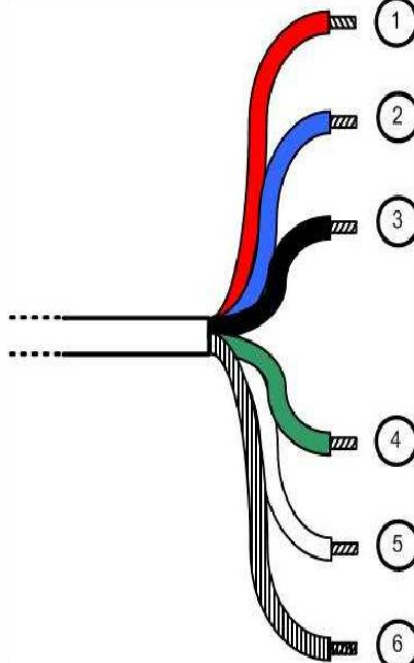
## Electrode parameter

<b>Measures</b>	
Measure principle	Optical measure by luminescence
Measure ranges	0,00 to 20,00 mg/L 0,00 to 20,00 ppm 0-200%
Resolution	0,01
Accuracy	+/- 0,1mg/L +/- 0,1 ppm +/- 1 %
Response time	90% of the value in less than 60 seconds
Frequency of recommended measure	>5 s
Water move	No necessary move
Temperature compensation	Via NTC
Stocking temperature	- 10°C to + 60°C
Signal interface	Modbus RS-485 (standard) and SDI-12 (option)
Sensor power-supply	5 to 12 volts
Consumption	Standby 25 $\mu$ A Average RS485 (1 measure/ second) : 4,4mA Average SDI12 (1 measure/ second) : 7,3mA Current pulse : 100 mA
<b>Sensor</b>	
Dimensions	Diameter : 25 mm ; length : 146 mm
Weight	Stainless steel version 450g (sensor + cable 3 m) Titanium version 300 g (sensor + cable 3 m)
Material	Stainless steel 316L, New : body in Titanium
Maximum pressure	5 bars
Connection	9 armoured connectors, polyurethane jacket, bare- wires or waterproof Fisher connector
Protection	IP68

## Controller parameter

Display	2.8 inch monochrome LCD(liquid crystal display) with a resolution of 128*64
Size	Overall dimension: 100mm * 100mm * 150mm Cutout dimension: 92.5mm*92.5mm
Thickness	1.5mm~13mm
Weight	0.65Kg
Measure variables	Dissolved Oxygen、 saturability
Measure range	Dissolved Oxygen: 0~20mg/L Saturability: 0~200%
Current output	4~20mA output, maximum loop is 500Ω,±0.2%FS
RS485 Digital signal output	Isolated, MODBUS-RTU RS485(option)
Contact output	245VAC 3A Max.
Relative humidity	10~85%RH (No condensation)
Operating temperature	0~60℃
Power supply	AC220V±10%, 5W Max, 50Hz
Storage conditions	Temperature: -15~65℃ Relative humidity: 5~85%RH (No condensation) Altitude:<2000m

## Dimensions and wiring

Dimensions	Wiring diagram																													
 <p>Technical drawing of a cable connector showing dimensions: diameter 25, length 10.70, 12.31, and 1.38.</p>	 <p>Wiring diagram showing 6 colored wires (1-6) connected to a cable. Wire 1 is red, 2 is blue, 3 is black, 4 is green, 5 is white, and 6 is green/yellow shield.</p> <p>Cable length up to 15m</p> <table border="1" data-bbox="518 1209 925 1489"> <tbody> <tr> <td>1- Red</td> <td>Power supply V+</td> </tr> <tr> <td>2 - Blue</td> <td>SDI-12</td> </tr> <tr> <td>3 - Black</td> <td>Power supply V-</td> </tr> <tr> <td>4 - Green</td> <td>B " RS-485 "</td> </tr> <tr> <td>5 - White</td> <td>A " RS-485 "</td> </tr> <tr> <td>6 – Green/yellow</td> <td>Cable shield</td> </tr> </tbody> </table>	1- Red	Power supply V+	2 - Blue	SDI-12	3 - Black	Power supply V-	4 - Green	B " RS-485 "	5 - White	A " RS-485 "	6 – Green/yellow	Cable shield	<p>Cable length 15 to 100 meters</p> <table border="1" data-bbox="1037 616 1412 1108"> <tbody> <tr> <td>Red</td> <td rowspan="5">Power supply V+</td> </tr> <tr> <td>Purple</td> </tr> <tr> <td>Yellow</td> </tr> <tr> <td>Orange</td> </tr> <tr> <td>pink</td> </tr> <tr> <td>2 - Blue</td> <td>SDI-12</td> </tr> <tr> <td>3 - Black</td> <td>Power supply V-</td> </tr> <tr> <td>4 - Green</td> <td>B " RS-485 "</td> </tr> <tr> <td>5 - White</td> <td>A " RS-485 "</td> </tr> <tr> <td>6 – Green/yellow</td> <td>Cable shield</td> </tr> </tbody> </table>	Red	Power supply V+	Purple	Yellow	Orange	pink	2 - Blue	SDI-12	3 - Black	Power supply V-	4 - Green	B " RS-485 "	5 - White	A " RS-485 "	6 – Green/yellow	Cable shield
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