GENERAL
The DO30G sensor for dissolved oxygen is designed for use in water treatment plants such as sewage treatment works, effluent activated sludge process, and potable water treatment. It is also effective in river monitoring, intake protection, fish farming and other fields where water quality is important.

This galvanic cell has a fast response time and good long term stability, and features replaceable diaphragm and cable for easy maintenance. A temperature sensor is incorporated for compensation. The DO30G sensor can be used in either the PB350G/PB360G floating ball holders or in the DOX8HS submersion type holder.

FEATURES
DO Sensor with Long-term Stability and Short Electrolyte Stabilization Time
- A DO sensor that uses a special electrolyte, shortening the electrolyte stabilization time and realizing stable measurements over a long period of time.
- Measuring range of 0 to 20 mg/L
- A membrane that is easily replaceable by anyone because of the cartridge type
- A membrane 50 mm thick that is hard to tear and has reduced influence from air bubbles

SYSTEM
Refer to GS 12J5D2-E for dissolved oxygen converter DO402G, GS 12A01F02-01EN for 4-wire Converter FLXA402, GS 12A01A03-01EN for 2-wire liquid analyzer FLXA202, GS 12A01A02-01E for 2-wire liquid analyzer FLXA21 and GS 12J05C02-00E for holders.

<table>
<thead>
<tr>
<th>DO Sensor</th>
<th>Holder, Holder with Cleaner</th>
<th>DO Converter</th>
</tr>
</thead>
<tbody>
<tr>
<td>• DO30G</td>
<td>• Guide pipe PH8HG</td>
<td>• FLXA402, DO402G or FLXA202/FLXA21</td>
</tr>
<tr>
<td>Accessories</td>
<td>• Submersion type holder DOX8HS</td>
<td></td>
</tr>
<tr>
<td>• DOX8A</td>
<td>Without cleaner</td>
<td>• Terminal Box</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• WTB10-DO3, -DO4</td>
</tr>
</tbody>
</table>

Note: “DO” of DO sensor means dissolved oxygen.

CAUTION
Installation Location of Holders (Guide Pipe, Submersion Type, etc)
The holder should be used in a place that is as vibration free as possible.
Using the holder in a place where it is affected by vibration, may result in damage to the holder.

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All other company and product names mentioned in this GS are registered trademarks or trademarks of their respective companies.
### General Specifications

**General Specifications of DO30G Sensor**
- **Dissolved Oxygen**: 0 to 20 mg/L (ppm)
- **Liquid Temperature**: 0 to 40°C
- **Liquid Pressure**: 0 to 100 kPa
- **Flow speed**: 20 cm/s or more
- **Sensor for Temperature Compensation**: Pt1000
- **Wetted Part Material**: rigid polyvinyl chloride, stainless steel, fluorinated ethylenepropylene, nitrile rubber, heat-resistant soft polyvinyl chloride, and polycarbonate

**Cable Length**: 3 m, 5 m, 10 m, 15 m and 20 m
**Weight**: Approx. 0.3 kg + 0.12 × N kg

**Characteristics of DO30G Sensor**
- **Repeatability**: 0.1 mg/L or 3% FS, whichever is greater (including sensor)
- **Temperature Compensation Error**: ±5°C change in the range of 0 to 40°C
- **Response Time**: Within 2 minutes
- **Within ±3% FS (including sensor) for a 45°C change in the range of 0 to 40°C

**WBT10 Terminal Box**
- Used when DO converter is installed at a distance from the DO sensor.
- **Ambient temperature**: -10 to 50°C
- **Case material**: JIS waterproof
- **Construction**: JIS A8 watertight plastic gland
- **DO converter side**: JIS A15 watertight plastic gland with cable (max. 40 m)
- **Conduit adaptor (optional) available**

**DOX8A Parts Set for Maintenance**
- **Contents**:
  - Zero adjusting reagent (sodium sulphite 500 g) 1 bottle
  - Membrane assembly (for membrane thickness of 50 µm) 3 sets
  - Electrolyte for sensor (50 mL) 1 bottle
  - Syringe for replacing electrolyte 1
  - Polish for silver electrode (30 g) 1 bottle
  - Polyethylene beaker (200 mL) 1

**DOX8W Calibration Set (optional)**
- This is necessary if the span calibration is to be done using a saturated dissolved oxygen solution. It is not necessary for air calibration.
- **Contents**: Air pump, stirrer, stirring element, bubbler, clamp, beaker, and thermometer.
  - Note: The calibration set can be used in common regardless of the type of holder.

---

### Model and Suffix Codes

#### 1. DO Sensor

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Option Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO30G</td>
<td>-NN</td>
<td>-FL</td>
<td>Dissolved Oxygen Sensor</td>
</tr>
</tbody>
</table>

**Membrane thickness**
- **-50**: 50 µm

**Cable length**
- **-03**: 3 m
- **-06**: 5 m
- **-10**: 10 m
- **-15**: 15 m
- **-20**: 20 m

**Cable terminal**
- **-PN**: Pin terminal (*1)
- **-FK**: Fork terminal
- **-FL**: M4 ring terminal (*2)

When terminal box is used, select WTB10-DO3.

*2: Used to connection to FLXA202/FLXA21.
When terminal box is used, select WTB10-DO4.

#### 2. Terminal Box

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Option Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTB10</td>
<td>-DO3</td>
<td>-FL</td>
<td>Terminal box</td>
</tr>
<tr>
<td></td>
<td>-DO4</td>
<td></td>
<td>For FLXA402, DO402G,DO202, and FLXA202/FLXA21 (*1)</td>
</tr>
<tr>
<td></td>
<td>-NN</td>
<td></td>
<td>For FLXA202/FLXA21 (*2)</td>
</tr>
</tbody>
</table>

**Specify cable length**
- **-00**: No cable
- **-05**: 5 m
- **-10**: 10 m
- **-20**: 20 m
- **-30**: 30 m
- **-40**: 40 m

**Mounting hardware**
- **P**: Pipe mounting hardware
- **W**: Wall mounting hardware
- **/AWTB**: G 1/2
- **/ANSI**: 1/2NPT

*1: Used for pin terminals, and cable with pin terminals.
*2: Used for M4 screw terminals, and cable with M4 ring terminals.

#### 3. Accessories (parts set for maintenance)

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Option Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOX8A</td>
<td>-NN</td>
<td></td>
<td>Parts set for maintenance (for membrane thickness of 50 µm)</td>
</tr>
<tr>
<td></td>
<td>*B</td>
<td></td>
<td>Style B</td>
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</table>

#### 4. Calibration Set

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Option Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOX8W</td>
<td>*A</td>
<td></td>
<td>Calibration set</td>
</tr>
</tbody>
</table>

#### 5. Spare Parts

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Part No.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membrane and electrolyte for sensor</td>
<td>K9171HK</td>
<td>3 membrane assemblies (thickness of 50 µm) 50 mL of electrolyte Syringe for replacing electrolyte</td>
</tr>
<tr>
<td>Zero adjusting reagent</td>
<td>L9920BR</td>
<td>Sodium sulfite 500g</td>
</tr>
<tr>
<td>Polisher</td>
<td>K9088FE</td>
<td>For polishing silver electrode 30g</td>
</tr>
</tbody>
</table>
DIMENSIONS
DO Sensor DO30G

Unit: mm

Dissolved-oxygen sensor with pin terminals

Dissolved-oxygen sensor with fork terminals

Dissolved-oxygen sensor with ring terminals

Model and Suffix Codes

<table>
<thead>
<tr>
<th>Model and Suffix Codes</th>
<th>L</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO30G - NN - 50 - 03 - PN</td>
<td>3 000</td>
<td>Approx. 0.6</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 05 - PN</td>
<td>5 000</td>
<td>Approx. 0.8</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 10 - PN</td>
<td>10 000</td>
<td>Approx. 1.4</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 15 - PN</td>
<td>15 000</td>
<td>Approx. 2.0</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 20 - PN</td>
<td>20 000</td>
<td>Approx. 2.6</td>
</tr>
</tbody>
</table>

Fork terminals

<table>
<thead>
<tr>
<th>Model and Suffix Codes</th>
<th>L</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO30G - NN - 50 - 03 - FK</td>
<td>3 000</td>
<td>Approx. 0.6</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 05 - FK</td>
<td>5 000</td>
<td>Approx. 0.8</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 10 - FK</td>
<td>10 000</td>
<td>Approx. 1.4</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 15 - FK</td>
<td>15 000</td>
<td>Approx. 2.0</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 20 - FK</td>
<td>20 000</td>
<td>Approx. 2.6</td>
</tr>
</tbody>
</table>

Ring terminals

<table>
<thead>
<tr>
<th>Model and Suffix Codes</th>
<th>L</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO30G - NN - 50 - 03 - FL</td>
<td>3 000</td>
<td>Approx. 0.6</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 05 - FL</td>
<td>5 000</td>
<td>Approx. 0.8</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 10 - FL</td>
<td>10 000</td>
<td>Approx. 1.4</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 15 - FL</td>
<td>15 000</td>
<td>Approx. 2.0</td>
</tr>
<tr>
<td>DO30G - NN - 50 - 20 - FL</td>
<td>20 000</td>
<td>Approx. 2.6</td>
</tr>
</tbody>
</table>

Terminal asign

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>IE</td>
</tr>
<tr>
<td>15</td>
<td>RE</td>
</tr>
<tr>
<td>11</td>
<td>T1</td>
</tr>
<tr>
<td>12</td>
<td>T2</td>
</tr>
<tr>
<td>14</td>
<td>Shield</td>
</tr>
<tr>
<td>16</td>
<td>Liquid earth</td>
</tr>
</tbody>
</table>

Terminal Box WTB10

Converter cable (Extension cable) inlet (to be drilled for wiring) with cable gland (applicable cable o.d.: Ø9 to 12 mm)

Sensor cable inlet (to be drilled for wiring) with cable gland (applicable cable o.d.: Ø5.5 to 7 mm)
Detailed drawing of cable gland for terminal box

Unit: mm

(a) Watertight plastic cable gland (St’d)

(b) Watertight plastic cable gland with conduit adaptor

Dedicated Extension Cable with WTB10 (Not supplied if suffix code “-00” is selected)

Unit: mm

<table>
<thead>
<tr>
<th>Model and Suffix Code</th>
<th>L (mm)</th>
<th>Weight: Approx. 0.12 kg/m</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTB10 - DO3 - NN - 05, WTB10 - DO4 - NN - 05</td>
<td>Approx. 5000</td>
<td></td>
</tr>
<tr>
<td>WTB10 - DO3 - NN - 10, WTB10 - DO4 - NN - 10</td>
<td>Approx. 10000</td>
<td></td>
</tr>
<tr>
<td>WTB10 - DO3 - NN - 20, WTB10 - DO4 - NN - 20</td>
<td>Approx. 20000</td>
<td></td>
</tr>
<tr>
<td>WTB10 - DO3 - NN - 30, WTB10 - DO4 - NN - 30</td>
<td>Approx. 30000</td>
<td></td>
</tr>
<tr>
<td>WTB10 - DO3 - NN - 40, WTB10 - DO4 - NN - 40</td>
<td>Approx. 40000</td>
<td></td>
</tr>
</tbody>
</table>

Pipe Mounting Bracket (Optional) (Option Code: /P)

Unit: mm

Weight: approximately 700 g
Wall Mounting Bracket (Optional) (Option Code: /W)

Unit: mm

**WIRING DIAGRAM EXAMPLE**

Output signal
(4 to 20 mA DC or 0 to 20 mA DC)

Output signal
(4 to 20 mA DC or 0 to 20 mA DC)

Contact input
(cleaning start command)

WTB10 Terminal box *4

DO402G

L 1
N 2
G 3

S1 31 NC
32 NC
33 NO
34 C
35 NC
36 NO

S2 41 NC
42 NC
43 NO

S3 51 NC
52 NO
53 C
54 NC
55 NO

S4 61 NC
62 NO
63 C
64 NC
65 NO

*1: Always use a shielded cable with an OD of 6 to 12 mm.

*2: Be sure to ground the DO converter case grounding terminal (grounding resistance of 100Ω or less).

*3: Always use a cable with an OD of 6 to 12 mm.

*4: Terminal box is used only where DO converter is installed long distance from DO sensor. (ordinary not needed)

*5: This cable is specified in the Basic Code for the WTB10.

*6: Liquid earth to detect membrane failure. This function is available when using PB350G/PB360G float type holder. Connect only when using this function.

*7: Refer to GS of "DO402G (GS 12J05D02-00E)" when contact input of DO402G is used.

---

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---
Inquiry Specifications Sheet for Dissolved Oxygen Analyzer

For inquiries on the Yokogawa dissolved oxygen analyzer, please tick (✔) the appropriate box (☐) and write down the relevant information in the blanks.

1. **General**
   - Name of your company: _______________________________
   - Name of person: ____________________ Dept. or sect: ____________________ (Phone No. ____________________)
   - Name of plant: _______________________________
   - Measuring point: _______________________________
   - Purpose of use: ☐ Indication ☐ Recording ☐ Alarm ☐ Control
   - Power supply: ☐ V AC ☐ DC ☐ Hz

2. **Measurement Conditions**
   - (1) Liquid temperature: _______ to _______ Normal [°C]
   - (2) Liquid pressure: _______ to _______ Normal [kPa]
   - (3) Flow speed: _______ to _______ Normal [m/s]
   - (4) Name of liquid to be measured: ____________________________
   - (5) Components of liquid to be measured: ____________________________
   - (6) Other conditions: _______________________________________

3. **Installation environment**
   - (1) Ambient temperature: approx. _______ [°C]
   - (2) Location: ☐ Outdoors ☐ Indoors ____________________________
   - (3) Other information: _______________________________________

4. **Requirements**
   - (1) Measurement range: ☐ 0 to 20 mg/L ☐
   - (2) System component selection: ☐ Sensor ☐ Holder ☐ Converter ☐ Cleaning system ☐ Calibration set
     ☐ Parts set for maintenance ☐ Terminal Box
   - (3) Length of sensor cable: ☐ 3 m ☐ 5 m ☐ 10 m ☐ 15 m ☐ 20 m
   - (4) Type of holder: ☐ Guide pipe ☐ Submersion ☐ Floating ball ☐ Suspension
   - (5) Cleaning method: ☐ No cleaning ☐ Jet cleaning
   - (6) Other requirements: _______________________________________

Subject to change without notice.