

# General Specifications

# DO30G Sensor for Dissolved Oxygen Analyzer

GS 12J05D03-01E

## ■ 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

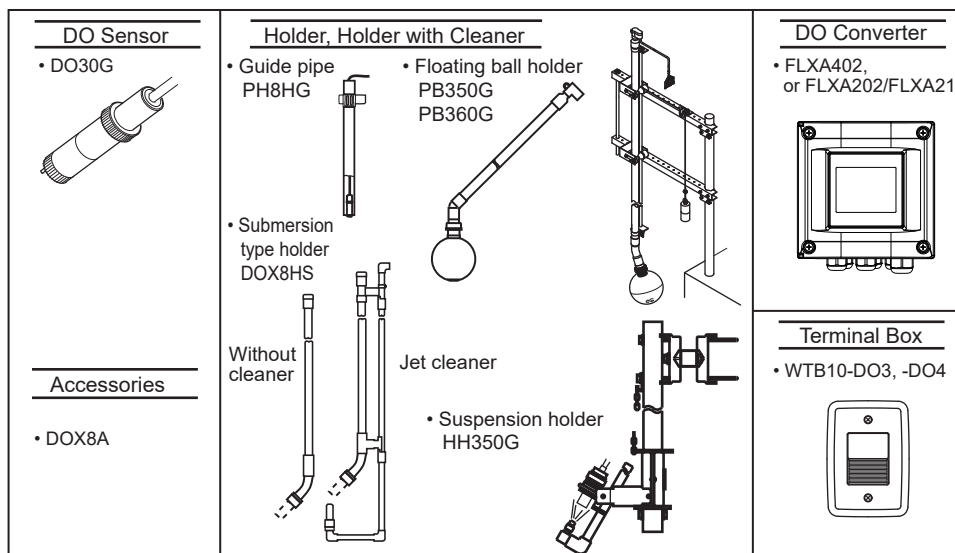
Refer to GS 12A01F02-01EN for 4-wire Converter FLXA402, GS 12A01A03-01EN for 2-wire liquid analyzer FLXA202, GS 12A01A02-01E for 2-wire liquid analyzer FLXA21 and GS 12J05C02-00E for holders.



DO30G Sensor



PB350G Floating ball holder



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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## ■ 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  
 N: cable length  
 (ex. for cable length of 5 m, approx. 0.9 kg)

### CHARACTERISTICS of DO30G SENSOR

Repeatability: 0.1 mg/L or 3% FS, whichever is greater  
 (including sensor)  
 Temperature Compensation Error:  
 Within ±3% FS (including sensor) for a  
 ±5°C change in the range of 0 to 40°C  
 Response Time: Within 2 minutes  
 (90% response)(including sensor)

### WTB10 Terminal Box

Used when DO converter is installed at a distance  
 from the DO sensor.  
 Ambient temperature: -10 to 50°C  
 Construction: JIS waterproof  
 Case material: Fiberglass reinforced polycarbonate resin  
 Electrical connections  
 DO sensor side: JIS A8 watertight plastic gland  
 DO converter side: JIS A15 watertight plastic gland  
 with cable (max. 40 m)  
 Conduit adaptor (optional) available  
 Case color: Grayish green  
 (Munsell 2.5GY5.0/1.0)  
 Weight: Body 0.5 kg Mounting hardware: 0.7 kg

### DOX8A Parts Set for Maintenance

A set of zero-adjusting reagent and maintenance parts  
 <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

Note: The calibration set can be used in common  
 regardless of the type of holder.

## ■ MODEL AND SUFFIX CODES

### 1. DO Sensor

Model	Suffix Code	Option Code	Description
DO30G	.....	.....	Dissolved Oxygen Sensor
—	-NN	.....	Always -NN
Membrane thickness	-50	.....	50 μm
Cable length	-03	.....	3 m
	-05	.....	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)
	-FM	.....	M3 ring terminal (*3)

\*1: Can be used for FLXA402, FLXA202/ FLXA21,  
 DO402G or DO202.

When terminal box is used, select WTB10-DO3.

\*2: Used to connection to FLXA202/FLXA21.

When terminal box is used, select WTB10-DO4.

\*3: Used to connection to FLXA402.

When terminal box is used, select WTB10-DO3.

### 2. Terminal Box

Model	Suffix Code	Option Code	Description
WTB10	.....	.....	Terminal box
Combined system	-DO3	.....	For FLXA402, DO402G, DO202, and FLXA202/FLXA21 (*1)
	-DO4	.....	For FLXA202/FLXA21 (*2)
—	-NN	.....	Always -NN
Specify cable length	-00	.....	No cable
	-05	.....	5 m
	-10	.....	10 m
	-20	.....	20 m
	-30	.....	30 m
	-40	.....	40 m
Mounting hardware Option	/P	.....	Pipe mounting hardware
	/W	.....	Wall mounting hardware
	/AWTB	.....	G 1/2
	/ANSI	.....	1/2NPT
Conduit work adaptor			

\*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)

Model	Suffix Code	Option Code	Description
DOX8A		.....	Parts set for maintenance (for membrane thickness of 50 μm)
Sensor	-M	.....	For membrane replacing type sensor
—	*B	.....	Style B

### 4. Calibration Set

[Style: S2]

Model	Suffix Code	Option Code	Description
DOX8W	.....	.....	Calibration set
—	*A	.....	Always *A

### 5. Spare Parts

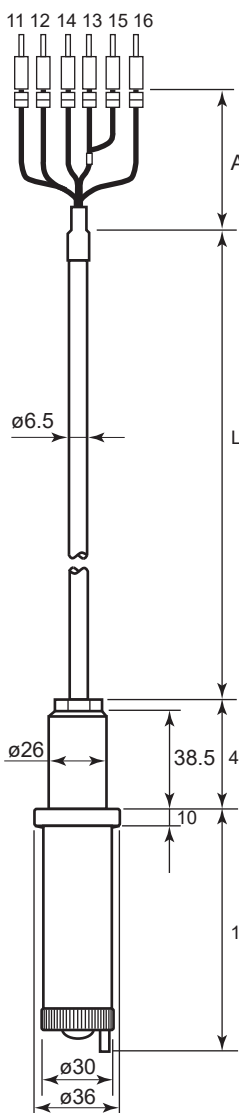
Part Name	Part No.	Remarks
Membrane and electrolyte for sensor	K9171HK	3 membrane assemblies (thickness of 50 μm) 50 mL of electrolyte Syringe for replacing electrolyte
Zero adjusting reagent	L9920BR	Sodium sulfite 500g
Polisher	K9088PE	For polishing silver electrode 30g

## DIMENSIONS

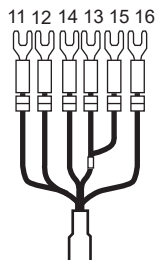
### DO Sensor DO30G

Unit: mm

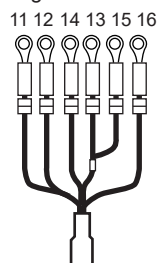
Dissolved-oxygen sensor with pin terminals



Dissolved-oxygen sensor with fork terminals



Dissolved-oxygen sensor with ring terminals



Terminal assign

- 13 IE
- 15 RE
- 11 T1
- 12 T2
- 14 Shield
- 16 Liquid earth

Pin terminals

Model and Suffix Codes	L	Weight (kg)
DO30G - NN - 50 - 03 - PN	3 000	Approx. 0.6
DO30G - NN - 50 - 05 - PN	5 000	Approx. 0.8
DO30G - NN - 50 - 10 - PN	10 000	Approx. 1.4
DO30G - NN - 50 - 15 - PN	15 000	Approx. 2.0
DO30G - NN - 50 - 20 - PN	20 000	Approx. 2.6

Fork terminals

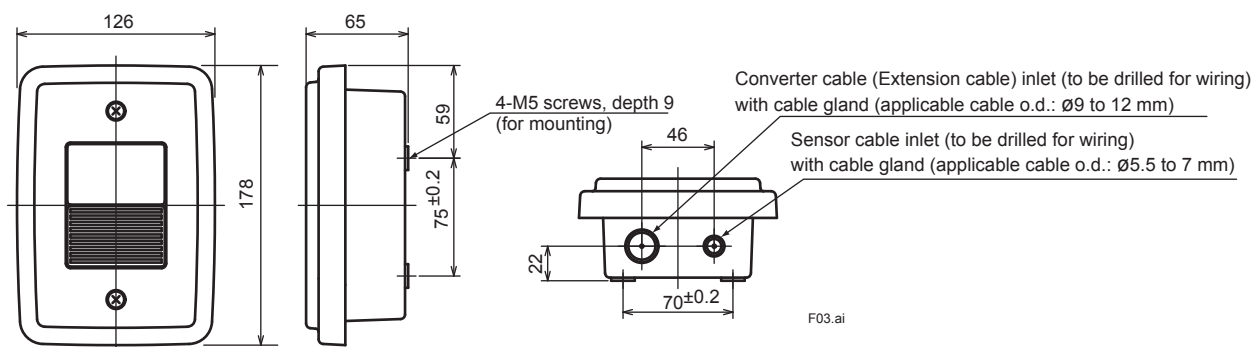
Model and Suffix Codes	L	Weight (kg)
DO30G - NN - 50 - 03 - FK	3 000	Approx. 0.6
DO30G - NN - 50 - 05 - FK	5 000	Approx. 0.8
DO30G - NN - 50 - 10 - FK	10 000	Approx. 1.4
DO30G - NN - 50 - 15 - FK	15 000	Approx. 2.0
DO30G - NN - 50 - 20 - FK	20 000	Approx. 2.6

Ring terminals

Model and Suffix Codes	L	Weight (kg)
DO30G - NN - 50 - 03 - FL	3 000	Approx. 0.6
DO30G - NN - 50 - 03 - FM		
DO30G - NN - 50 - 05 - FL	5 000	Approx. 0.8
DO30G - NN - 50 - 05 - FM		
DO30G - NN - 50 - 10 - FL	10 000	Approx. 1.4
DO30G - NN - 50 - 10 - FM		
DO30G - NN - 50 - 15 - FL	15 000	Approx. 2.0
DO30G - NN - 50 - 15 - FM		
DO30G - NN - 50 - 20 - FL	20 000	Approx. 2.6
DO30G - NN - 50 - 20 - FM		

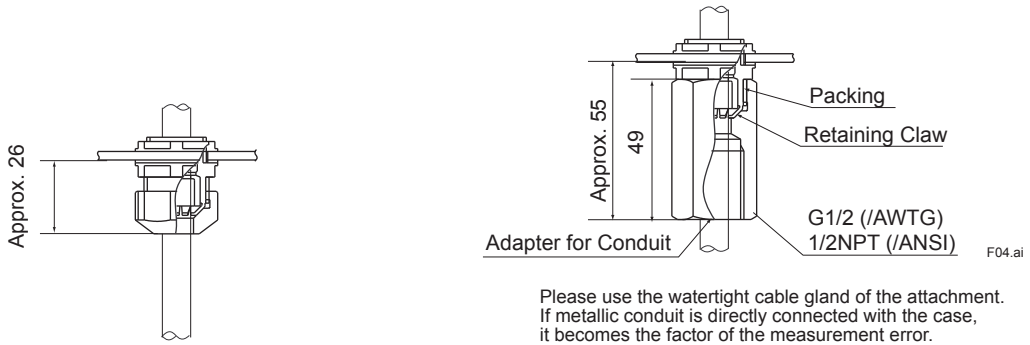
### Terminal Box WTB10

Unit: mm



Detailed drawing of cable gland for terminal box

Unit: mm



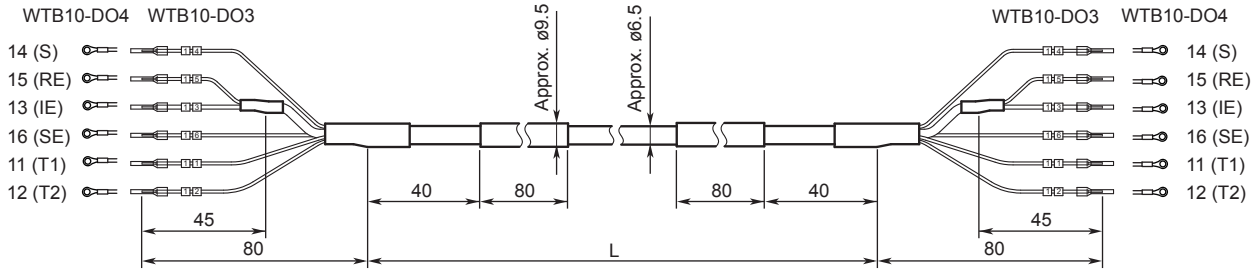
(a) Watertight plastic cable gland (St'd)

(b) Watertight plastic cable gland with conduit adaptor

Please use the watertight cable gland of the attachment. If metallic conduit is directly connected with the case, it becomes the factor of the measurement error.

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

Unit: mm



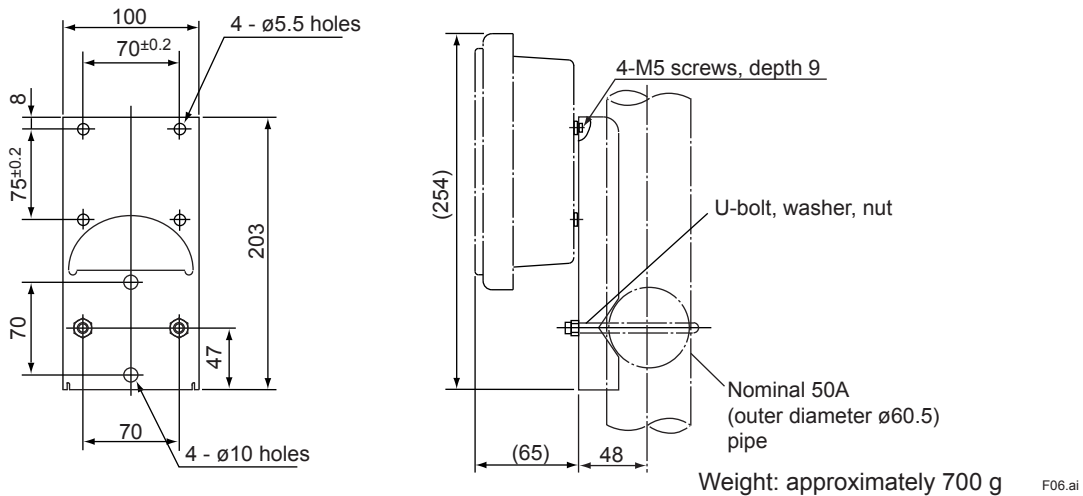
Model and Suffix Code	L (mm)
WTB10 - DO3 - NN - 05, WTB10 - DO4 - NN - 05	Approx. 5000
WTB10 - DO3 - NN - 10, WTB10 - DO4 - NN - 10	Approx. 10000
WTB10 - DO3 - NN - 20, WTB10 - DO4 - NN - 20	Approx. 20000
WTB10 - DO3 - NN - 30, WTB10 - DO4 - NN - 30	Approx. 30000
WTB10 - DO3 - NN - 40, WTB10 - DO4 - NN - 40	Approx. 40000

Weight : Approx. 0.12 kg/m

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

Unit: mm

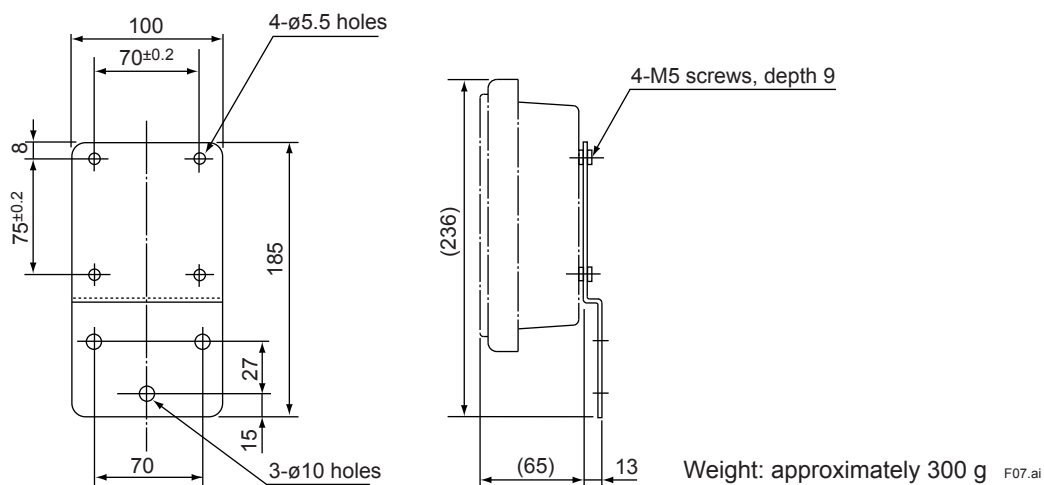
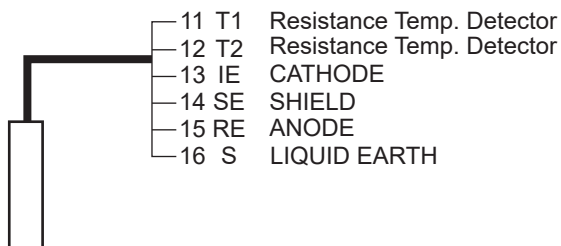


Weight: approximately 700 g

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**Wall Mounting Bracket (Optional) (Option Code: /W)**

Unit: mm


**■ WIRING DIAGRAM EXAMPLE**


Note: WTB10 Terminal Box is used when DO converter is installed at a distance from the DO sensor.

## 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 \_\_\_\_\_ Hz  DC

### 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 : \_\_\_\_\_