

General Specifications

DO30G Sensor for Dissolved Oxygen Analyzer

EXA 00

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.



DO30G Sensor

■ FEATURES

DO Sensor with Long-term Stability and Short Electrolyte Stabilization Time

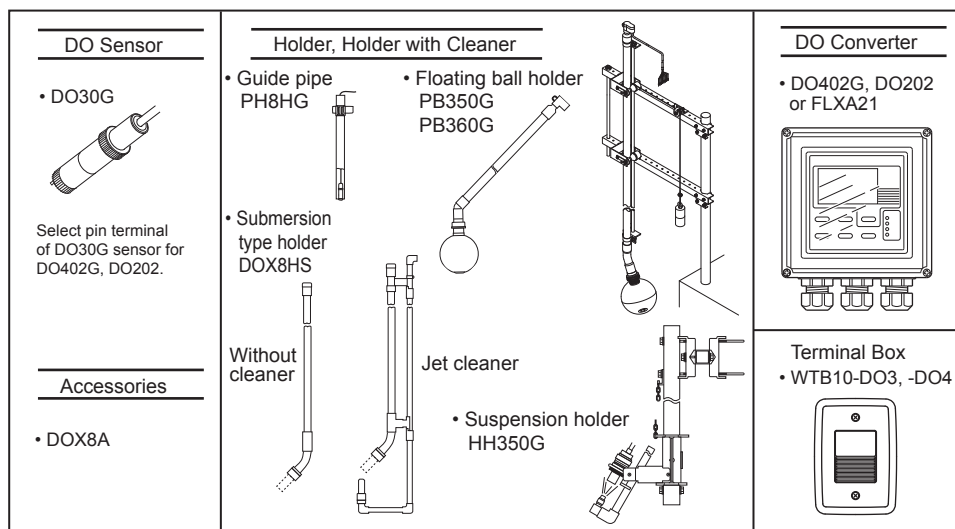
- A DO sensor that uses a special electrolyte, shortening the electrolyte stabilization time and realizing stable measurements over a long period of time.
- Measuring range of 0 to 20 mg/l
- A membrane that is easily replaceable by anyone because of the cartridge type
- A membrane 50 μm thick that is hard to tear and has reduced influence from air bubbles



PB350G Floating ball holder

■ SYSTEM

Refer to GS 12J5D2-E for dissolved oxygen converter DO402G, GS 12J05C01-01E for 2-wire transmitter DO202, GS 12A01A02-01E for 2-wire liquid analyzer FLXA21 and GS 12J05C02-00E for holders



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.

■ GENERAL SPECIFICATIONS, 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)

■ GENERAL SPECIFICATIONS, OTH-ERS

• 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, and thermometer.

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

■ CHARACTERISTICS

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)

■ 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 .....	.....	3m
	-05 .....	.....	5m
	-10 .....	.....	10m
	-15 .....	.....	15m
	-20 .....	.....	20m
Cable terminal	-PN ..	.....	Pin terminal *1
	-FK ..	.....	Fork terminal
	-FL ..	.....	M4 ring terminal *2

*1 Select pin terminal for DO402G, DO202, and FLXA21. When terminal box is used, select WTB10-DO3.

*2 Used to connection to FLXA21.

When terminal box is used, select WTB10-DO4.

2. Terminal Box

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

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. Caribration Set

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

5. Spare Parts

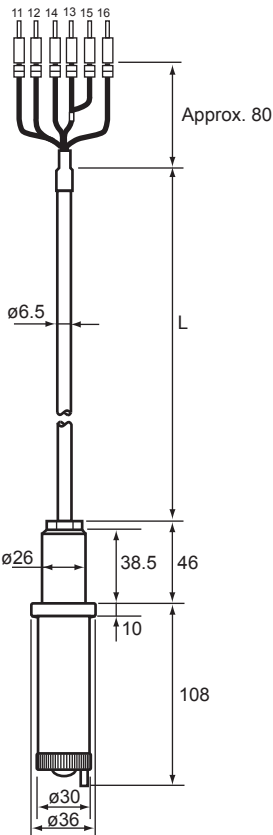
Part Name	Part No.	Remarks
Membrane and electrolyte for sensor	K9171HK	3 membrane assemblies (thickness of 50 μm) 50 ml of electrolyte
Zero adjusting reagent	L9920BR	Sodium sulfite 500g
Polisher	K9088PE	For polishing silver electrode 30g

DIMENSIONS

DO Sensor DO30G

Unit: mm

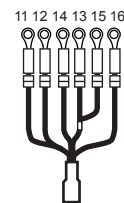
• Dissolved-oxygen sensor with pin terminals



• 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

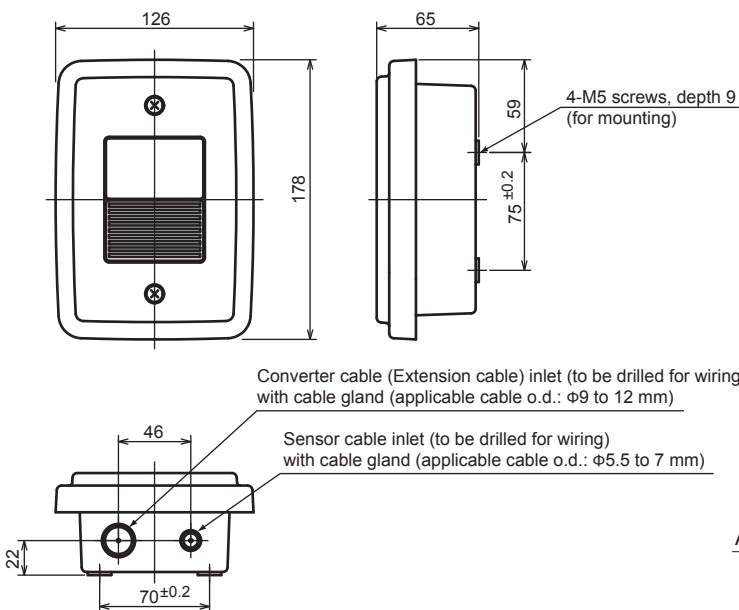
Fork terminals

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

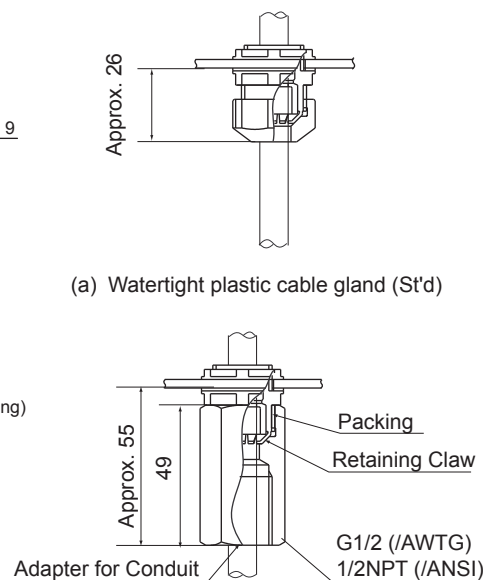
Ring terminals

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

Terminal Box WTB10



Detailed drawing of cable gland for terminal box



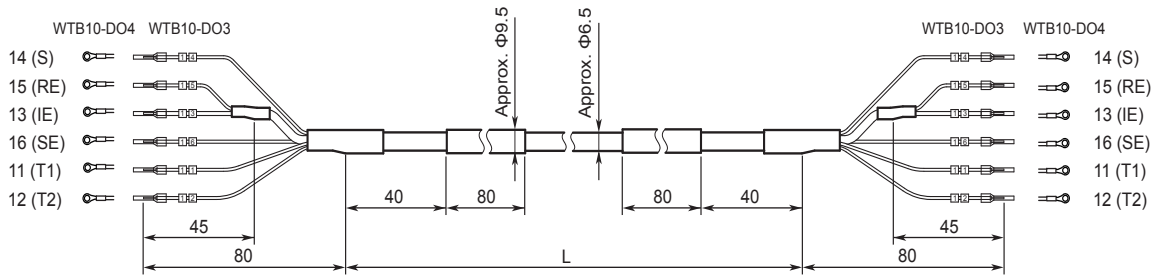
Please use the watertight cable gland of the attachment. If metallic conduit is directly connected with the case, it becomes the factor of the measurement error.

(b) Watertight plastic cable gland with conduit adaptor

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

Unit: mm

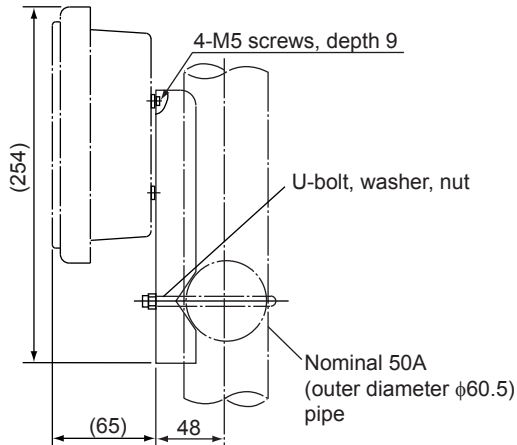
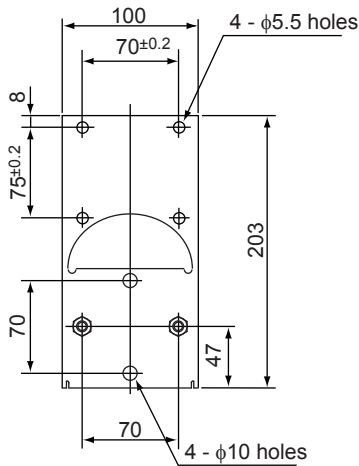


Model and Suffix Code	L (mm)
WTB10 - DO3 - NN - 05, WTB10 - DO4 - NN - 05	Approx. 5000
WTB10 - DO3 - NN - 10, WTB10 - DO4 - NN - 10	Approx. 10000
WTB10 - DO3 - NN - 20, WTB10 - DO4 - NN - 20	Approx. 20000
WTB10 - DO3 - NN - 30, WTB10 - DO4 - NN - 30	Approx. 30000
WTB10 - DO3 - NN - 40, WTB10 - DO4 -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

Weight : Approx. 120 g / m

Pipe Mounting Bracket (Optional)

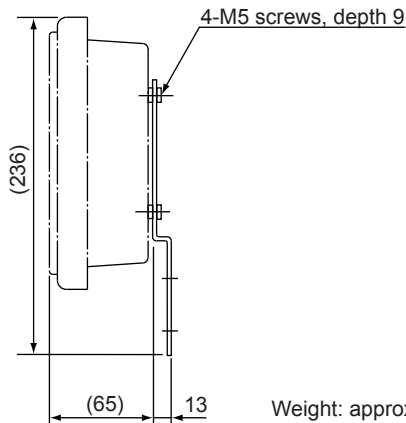
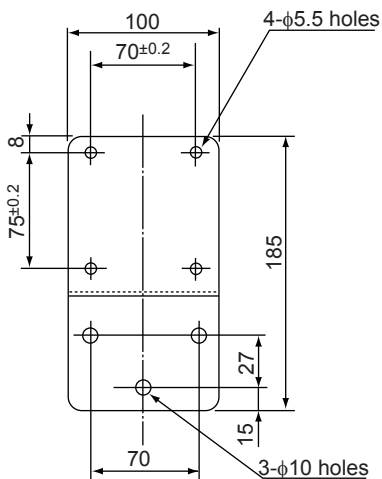
(Option Code: /P)



Weight: approximately 700 g

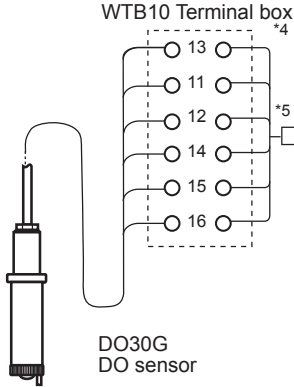
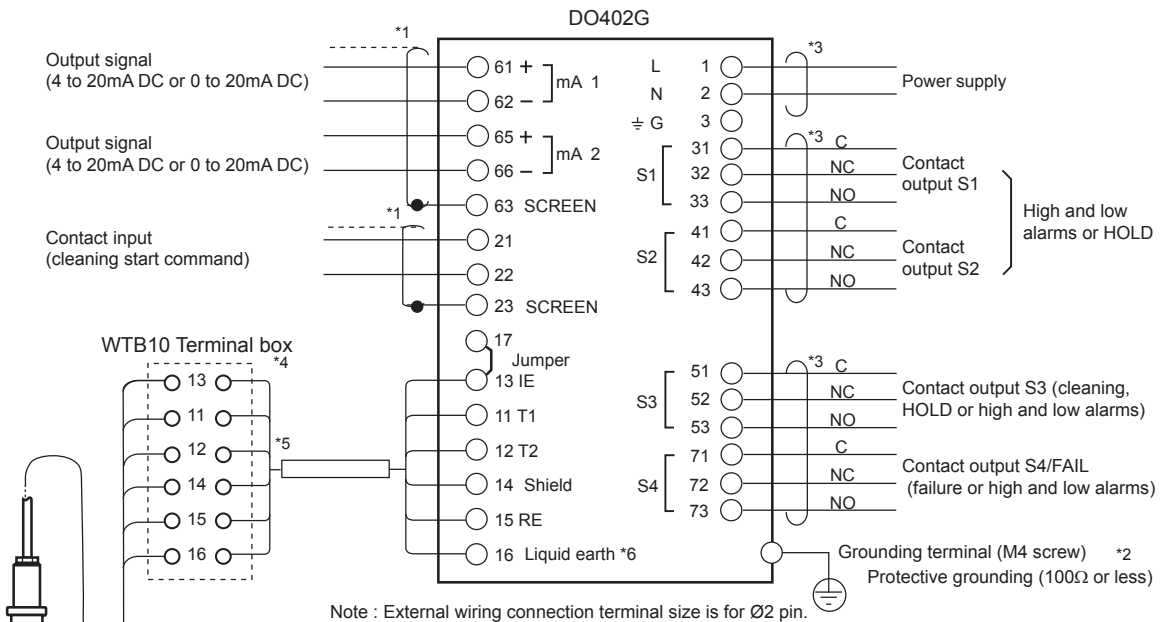
Wall Mounting Bracket (Optional)

(Option Code: /W)



Weight: approximately 300 g

■ WIRING DIAGRAM EXAMPLE



- Note : External wiring connection terminal size is for Ø2 pin.
- *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.

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 : _____