

# General Specifications

## DO70G Optical Dissolved Oxygen Sensor

GS 12J05D04-01E

### ■ GENERAL

**DO70G** optical dissolved oxygen sensor is designed for using in water treatment plants such as sewage treatment works and effluent activated sludge process. This optical sensor has a fast response time and good long term stability, and features replaceable sensor cap and cable for easy maintenance. A temperature sensor is incorporated for compensation. The DO70G sensor can be used in either the PB350G/PB360G floating ball holder or in the DOX8HS submersion type holder.



DO70G Optical Dissolved Oxygen Sensor

### ■ FEATURES

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

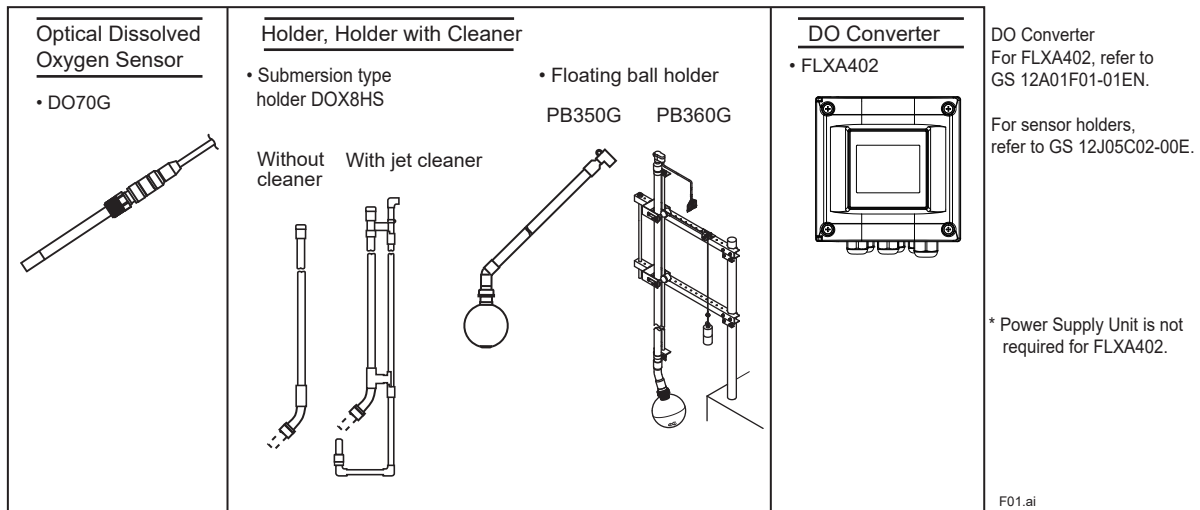
- A Optical DO sensor that uses a phase measurement method and realizing stable measurements over a long period of time.
- Measuring range of 0 to 25 mg/L.
- A sensor cap that is easily replaceable by anyone.



FLXA402 4-Wire Converter (DO)

### ■ SYSTEM

Refer to GS 12J05D02-00E for DO402G dissolved oxygen converter and GS 12J05C02-00E for Holders



#### CAUTION



Installation Location of Holders (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

Object of Measurement:

Concentration of oxygen dissolved in sewage and drainage (water); cannot be used with organic solvents.

Principle of Measurement:

Optical (fluorescence) measurement method

Measurement Range: 0 to 25 mg/L

Note: The measurement range must be entered through the dissolved oxygen converter.

Temperature of Measurement water: 0 to 50°C

Flow rate: 2 m/sec or less

Pressure: 0 to 500 kPa

Resistance Temperature Detector (RTD): 22k NTC

Construction:

Sensor unit; Stainless steel (316L SS)

O-ring; Ethylene Propylene Rubber (EPDM)

Permeable membrane; Silicone resin

Cable shielding; Heat-resistant flexible PVC

Sensor Cable:

For code -03E, -05E, -10E

Length; 3 m, 5 m, 10 m

Terminal shape;

pin (for converter),

M4 Ring (for power supply unit)

For code -05D, -10D, -15D, -20D

Length; 5 m, 10 m, 15 m, 20 m

Terminal shape; pin

Weight:

Sensor; Approx. 0.1 kg

Cable;

For -□□E: Approx. 0.1 kg/m + 0.1 kg

For -□□D: Approx. 0.8 kg/m + 0.8 kg

### • CHARACTERISTICS

Repeatability: 0.1 mg/L or 3% FS, whichever is greater

Temperature Compensation Error:

Within ±3% FS for a ±5°C change in the range of 0 to 40°C

Response Time: Within 120 sec. (90% response) (including sensor)

### • DOX8W Calibration Set (optional)

This is necessary if the span calibration is to be done using a saturated dissolved oxygen solution.

<Contents>

Air pump, stirrer, stirring element, bubbler, clamp, beaker

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

Note: Zero adjusting reagent (Parts number : L9920BR) is not included. Customer needs to prepare it by referring to the next page 4. Spare Parts.

## ■ MODEL AND SUFFIX CODES

### 1. Optical Dissolved Oxygen Sensor

Model	Suffix Code	Option Code	Description
DO70G	.....	.....	Optical dissolved oxygen sensor
Insert length	-120	.....	120 mm
Type	-E	.....	Always -E
Cable length	-00N	.....	No cable
	-03E	.....	3 m (*1)
	-05E	.....	5 m (*1)
	-10E	.....	10 m (*1)
	-05D	.....	Digital 5 m (*2)
	-10D	.....	Digital 10 m (*2)
	-15D	.....	Digital 15 m (*2)
	-20D	.....	Digital 20 m (*2)
-	-N	.....	Always -N
Option	Adaptor	/S3	Submersion type holder (stainless steel)
		/PP	Submersion type holder (polypropylene)
	Tag plate	/FPP	Froat holder (polypropylene)
		/SCT	Stainless steel tag plate

\*1: The power cable is +1.5m. (Refer to "DIMENSION")  
For connection to DO402G

\*2: For connection to FLXA402

### 2. Calibration Set

[Style: S2]

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

### 3. Power Supply Unit

Used when the converter is connected to DO402G (obsolete model).

Model	Suffix Code	Option Code	Description
DOX10	.....	.....	Power supply unit
Power supply	-U	.....	Always -U
Cable length	-00	.....	No cable
	-15	.....	1.5m (DO402G power supply use)
-	-N	.....	Always -N
Option	Mounting bracket	/P	Pipe mounting bracket
		/W	Wall mounting bracket
	Tag plate Conduit work adaptor	/SCT	Stainless steel tag plate
		/CB1	G1/2, 1pcs
		/CD1	1/2 NPT, 1pcs
	/CF1	M20 x 1.5, 1pcs	

Note: The DOX10 may not be usable depending on the relevant standard of your region.

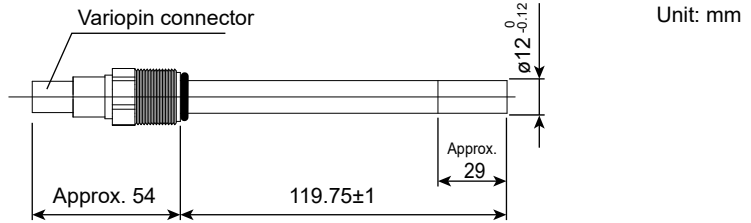
#### 4. Spare Parts

Part Name	Part No.	Remarks
Sensor cap	K9679AN	Please shade the light during safe keeping. The recommendation exchange cycle of a sensor cap is 1 time in 6 to 12 months.
Zero adjusting reagent	L9920BR	Sodium sulfite 500g
O-Ring (EPDM)	K9691KB	For Adaptor Mounting
Adaptor	K9148NA K9148NB K9679CA	For submersion type holder (stainless steel) For submersion type holder (polypropylene) For float type holder (polypropylene)
Sensor cable	K9679BA K9679BB K9679BC K9679BD K9679BE K9679BF K9679BG	3 m (Cable length: -03E) 5 m (Cable length: -05E) 10 m (Cable length: -10E) 5 m (Cable length: -05D) 10 m (Cable length: -10D) 15 m (Cable length: -15D) 20 m (Cable length: -20D)

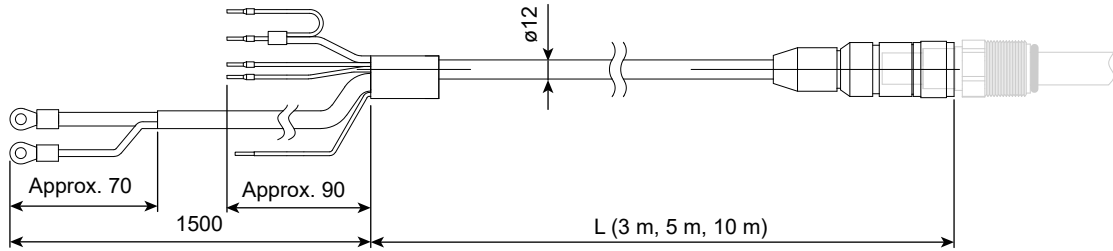
**■ DIMENSION**

**DO70G Optical Dissolved Oxygen Sensor**

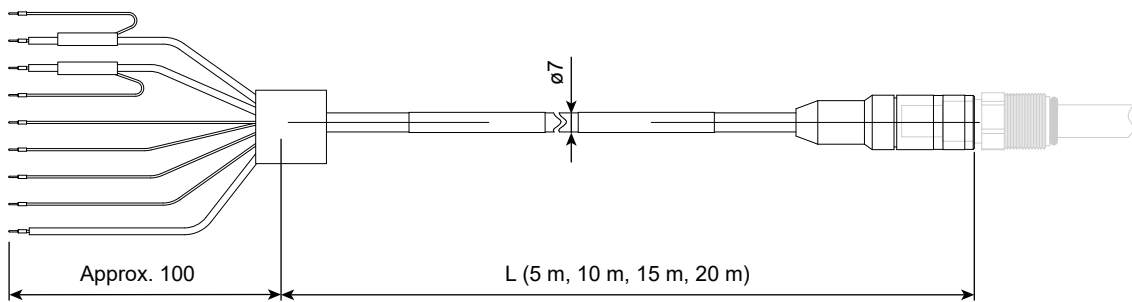
No cable type



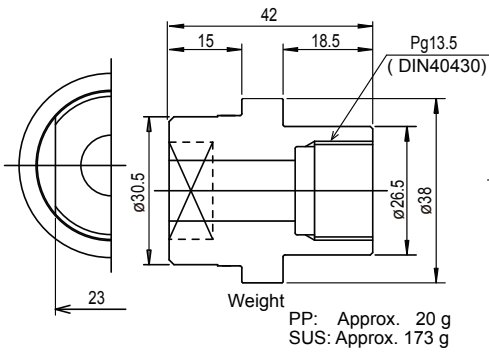
Cable length (code): -03E, -05E, -10E



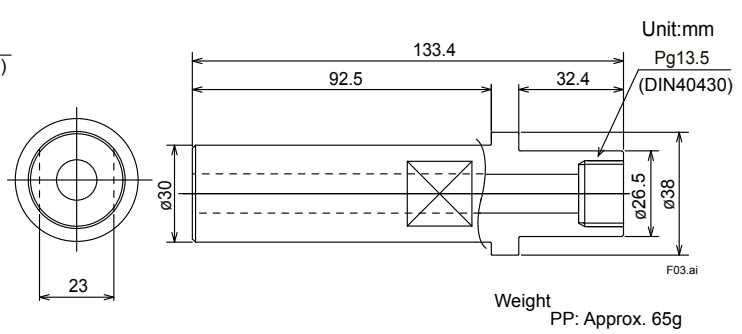
Cable length (code): -05D, -10D, -15D, -20D



**Adaptor (/S3, /PP)**

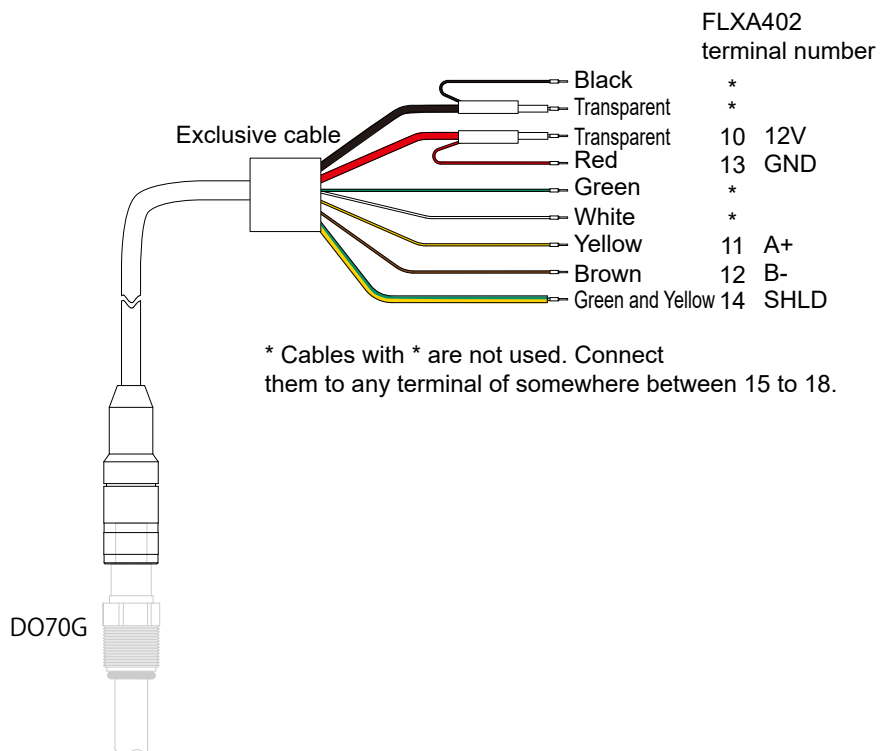


**Adaptor (/FPP)**



## ■ WIRING DIAGRAM EXAMPLE

Example with FLXA402



**Inquiry Specifications Sheet for Optical Dissolved Oxygen Sensor**

For inquiry on the Yokogawa optical dissolved oxygen sensor, please tick (✓) the appropriate box (□) and fill up the relevant information in the blanks.

**1. General**

Name of your company: \_\_\_\_\_  
Name of inquirer : \_\_\_\_\_ Dept. or sect : \_\_\_\_\_ (Telephone; \_\_\_\_\_ )  
Name of plant : \_\_\_\_\_  
Measuring point : \_\_\_\_\_  
Purpose of use :  Indication  Recording  Alarm  Control  
Power supply : \_\_\_\_\_ V AC

**2. Measurement Conditions**

(1) Liquid temperature : \_\_\_\_\_ to \_\_\_\_\_ , normal [°C]  
(2) Liquid pressure : \_\_\_\_\_ to \_\_\_\_\_ , normal [kPa]  
(3) Flow rate : \_\_\_\_\_ 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: \_\_\_\_\_  
(2) Location :  Outdoors  Indoors \_\_\_\_\_  
(3) Other information : \_\_\_\_\_

**4. Requirements**

(1) Measurement range :  0 to 25 mg/L   
(2) System component selection:  Sensor  Converter  Power supply unit  Holder  Cleaning system  
 Calibration set  
(3) Length of sensor cable :  3 m  5 m  10 m  
(4) Type of holder :  Submersion  Floating ball  
(5) Cleaning method :  No cleaning  Jet cleaning  
(6) Other requirements : \_\_\_\_\_