

General Specifications

DO70G
Optical Dissolved Oxygen Sensor

EXA 00

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

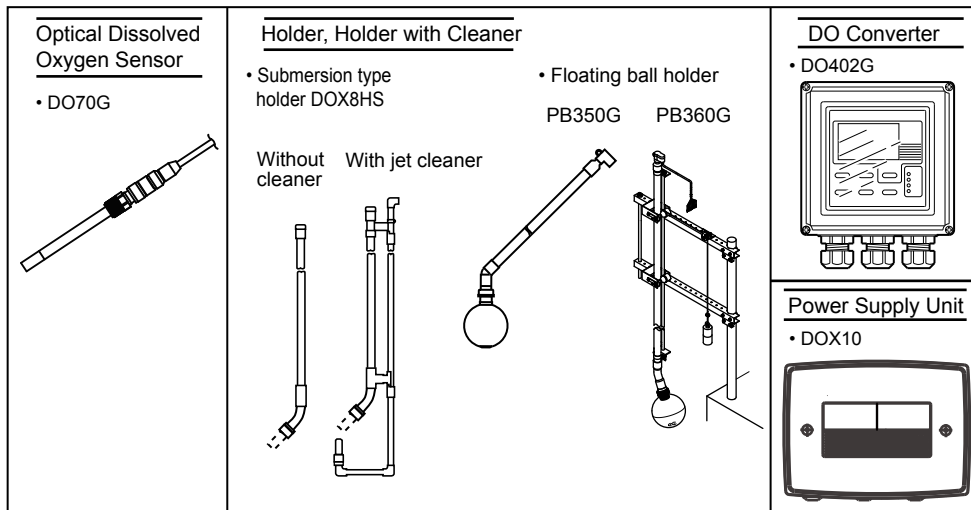
- A Optical DO sensor that uses a phase measurement method and realizing stable measurements over a long period of time.
- Measuring range of 0 to 25 mg/L.
- A sensor cap that is easily replaceable by anyone.



DO402G Dissolved Oxygen Converter

■ SYSTEM

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



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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.

■ 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:
Length; 3 m, 5 m, 10 m
Crimping terminal configuration;
Pin-type (for converter)
M4 Ring-type (for power supply unit)

Weight:
Sensor; Approx. 0.1 kg
Cable;
3 m Approx. 0.4 kg
5 m Approx. 0.6 kg
10 m Approx. 1.1 kg

■ CHARACTERISTICS

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

Temperature Compensation Error:
Within $\pm 3\%$ FS for a $\pm 5^\circ\text{C}$ change in the range of 0 to 40°C

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

■ GENERAL SPECIFICATIONS, OTHERS

• DOX10 Power Supply Unit

Used for supplying power to DO70G.

Construction: JIS waterproof (IP53)

Case material: Fiberglass reinforced polycarbonate resin

Case color: Grayish green (Munsell 2.5GY5.0/1.0)

Installation method:
Bracket mount (mounting bracket; not required)
Pipe mount (mounting bracket; Optional)
Wall mount (mounting bracket; Optional)

Electrical connections:
Watertight plastic gland with cable.
(applicable cable O.D.: $\phi 6 \sim \phi 12$)
Conduit adaptor (optional available)

Ambient temperature: -10 to 55°C

Humidity: 10 to 90% RH (no condensation)

Power supply: 100/115/230V AC 50/60 Hz

Acceptable range: Rated voltage $\pm 15\%$

Output voltage: 24V DC $\pm 1V$

Terminal block: M4

Weight:
Body; Approx. 1.6 kg
Mounting bracket; Approx. 0.7 kg
Attached cable; Approx. 0.3 kg

Note

The DOX10 may not be usable depending on the relevant standard of your region. If you need to do so, use a power supply that meets the following specifications.

- Use a power supply that is appropriate for the relevant standard in your region.
- Use a power supply with an output voltage in the range of 24 V DC $\pm 10\%$ and power consumption of 1 W or higher.
- For wiring the DO70G, connect the input and output cables of the 24 V power supply by separating them by a minimum spatial distance of 3 mm and creepage distance of 6 mm.

• 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, and thermometer.

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

■ 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)
-	-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")

2. Power Supply Unit

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	/SCT	Stainless steel tag plate
		/CB1	G1/2, 1pcs
	Conduit work adaptor	/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.

3. Calibration Set

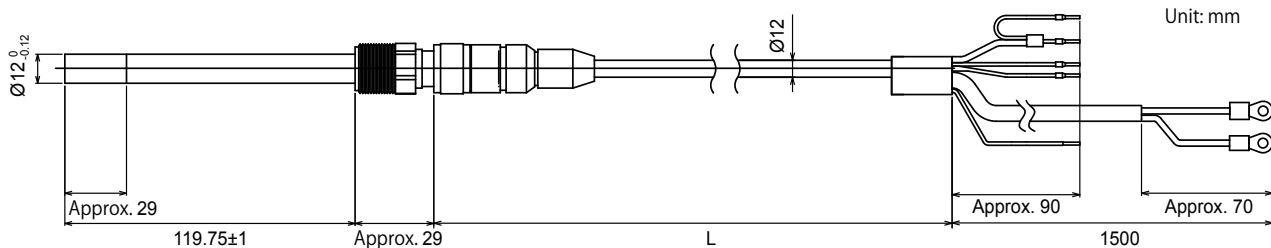
Model	Suffix Code	Option Code	Description
DOX8W	.....	.....	Calibration set
Style	*A	.....	Style *A

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 - 12 months.
Zero adjusting reagent	L9920BR	Sodium sulfite 500g
Adaptor	K9148NA	For submersion type holder (stainless steel)
	K9148NB	For submersion type holder (polypropylene)
	K9679CA	For float type holder (polypropylene)
Sensor cable	K9679BA	3 m
	K9679BB	5 m
	K9679BC	10 m

DIMENSION

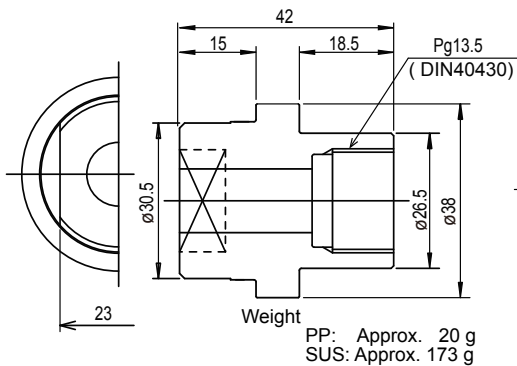
DO70G Optical dissolved Oxygen Sensor



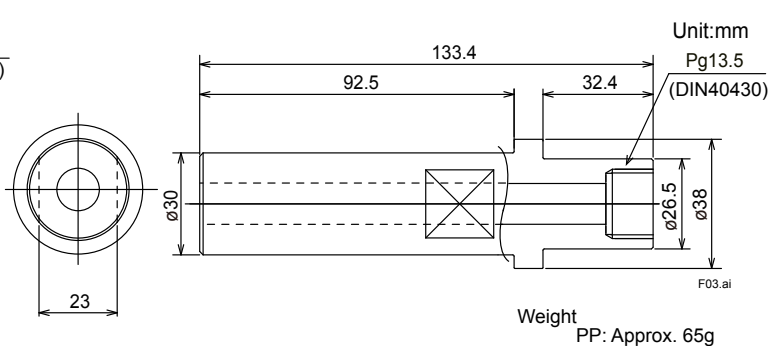
Model-Suffi x code	L (mm)	Weight (kg)
DO70G - 120 - E - 00N - N	No cable	Approx. 0.1
DO70G - 120 - E - 03E - N	3 000	Approx. 0.5
DO70G - 120 - E - 05E - N	5 000	Approx. 0.7
DO70G - 120 - E - 10E - N	10 000	Approx. 1.2

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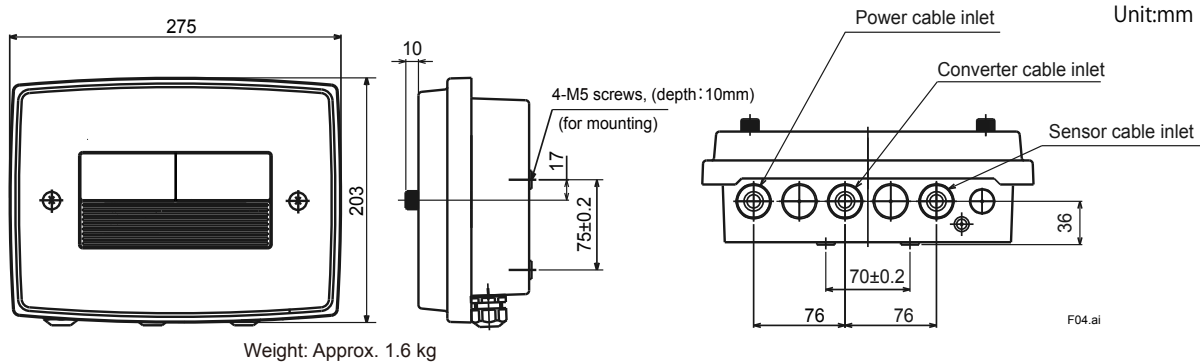
Adaptor (/S3, /PP)



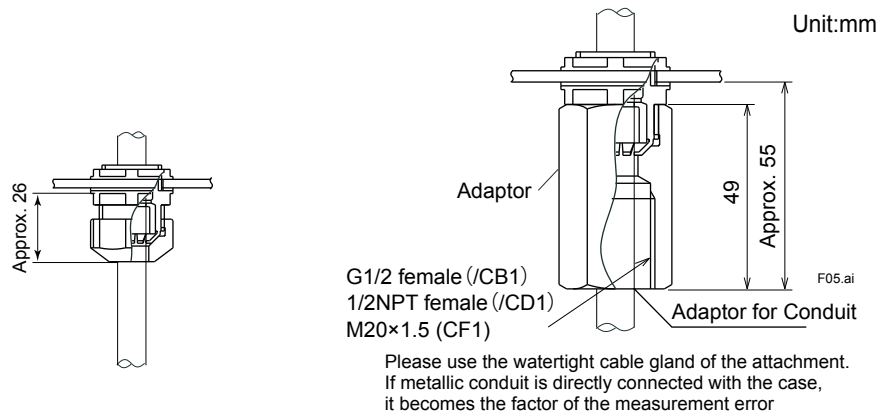
Adaptor (/FPP)



DOX10 Power Supply Unit



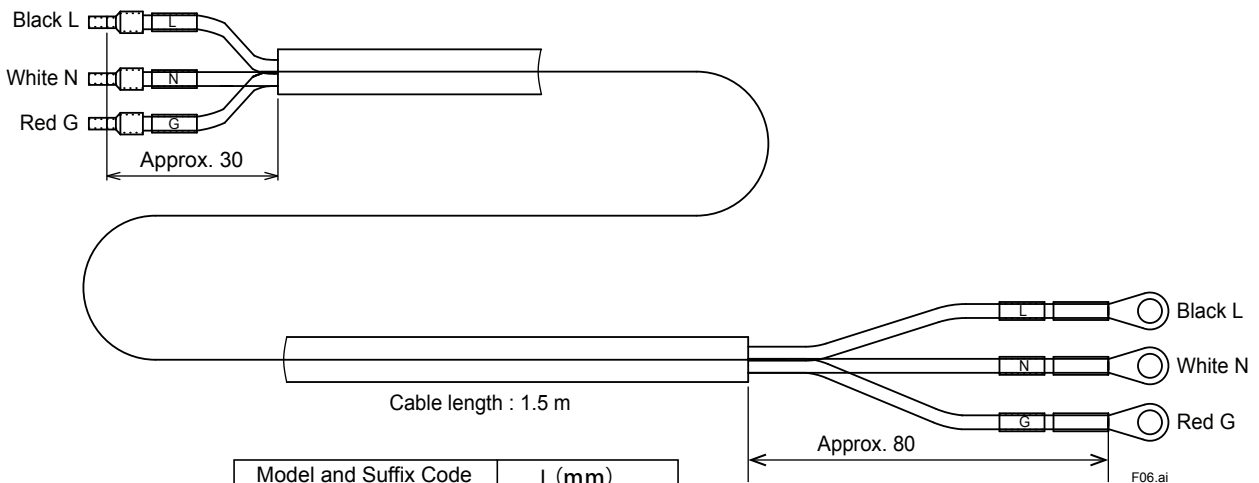
Detailed drawing of cable for power supply unit



(a) Watertight plastic cable gland (St'd) (b) Watertight plastic cable gland with conduit adaptor

Attached Cable with DOX10 (Not supplied if suffix code “-00-N” is selected)

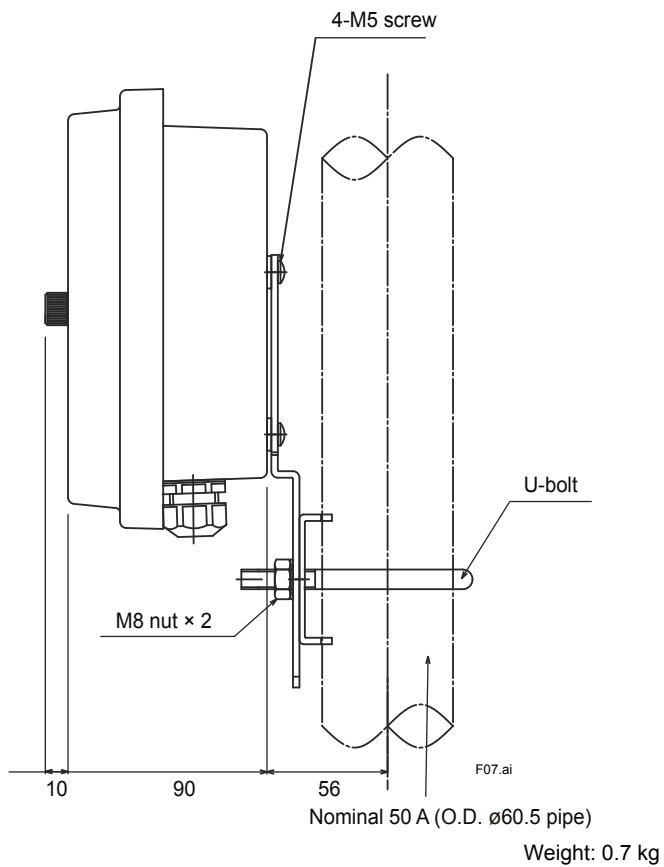
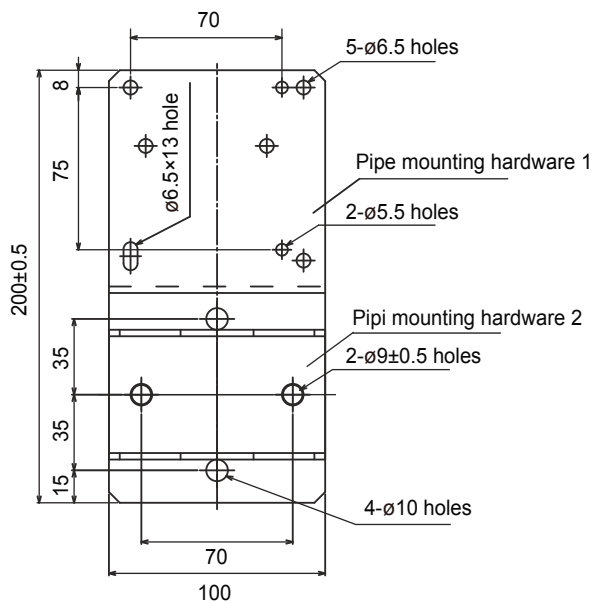
Unit: mm



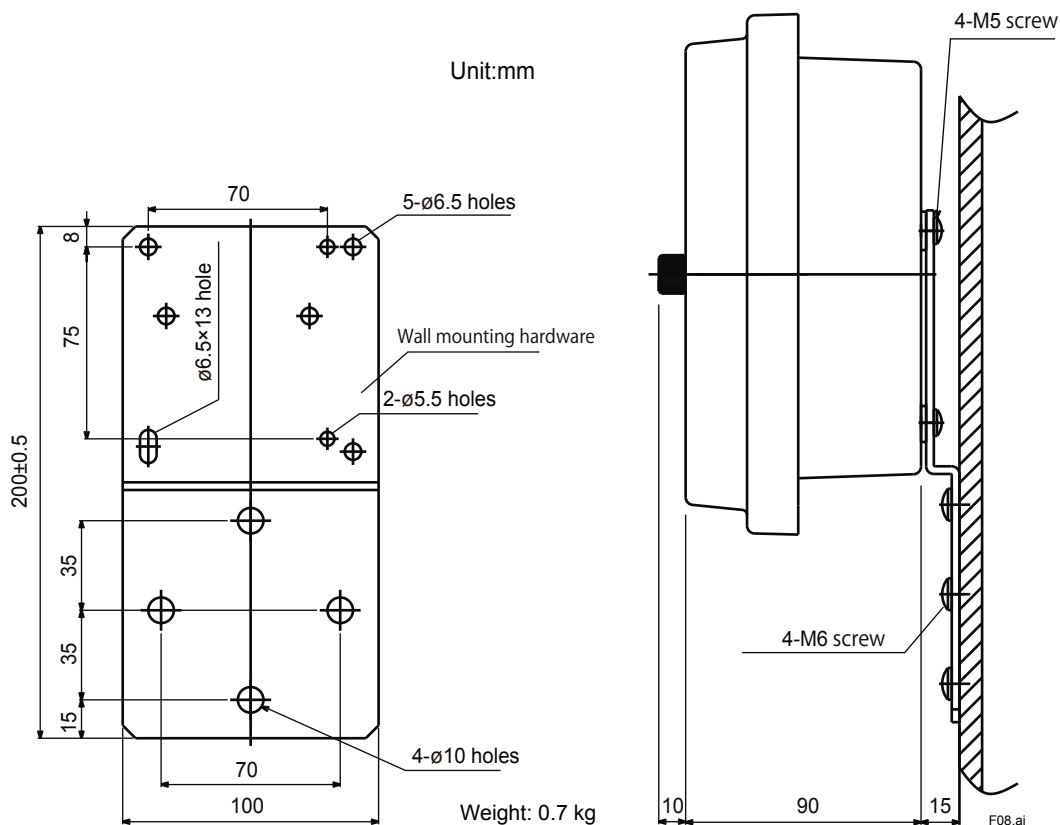
Weight: Approx. 0.3kg (1500 mm)

Pipe Mounting Bracket for Power Supply Unit (Optional) (Option Code: /P)

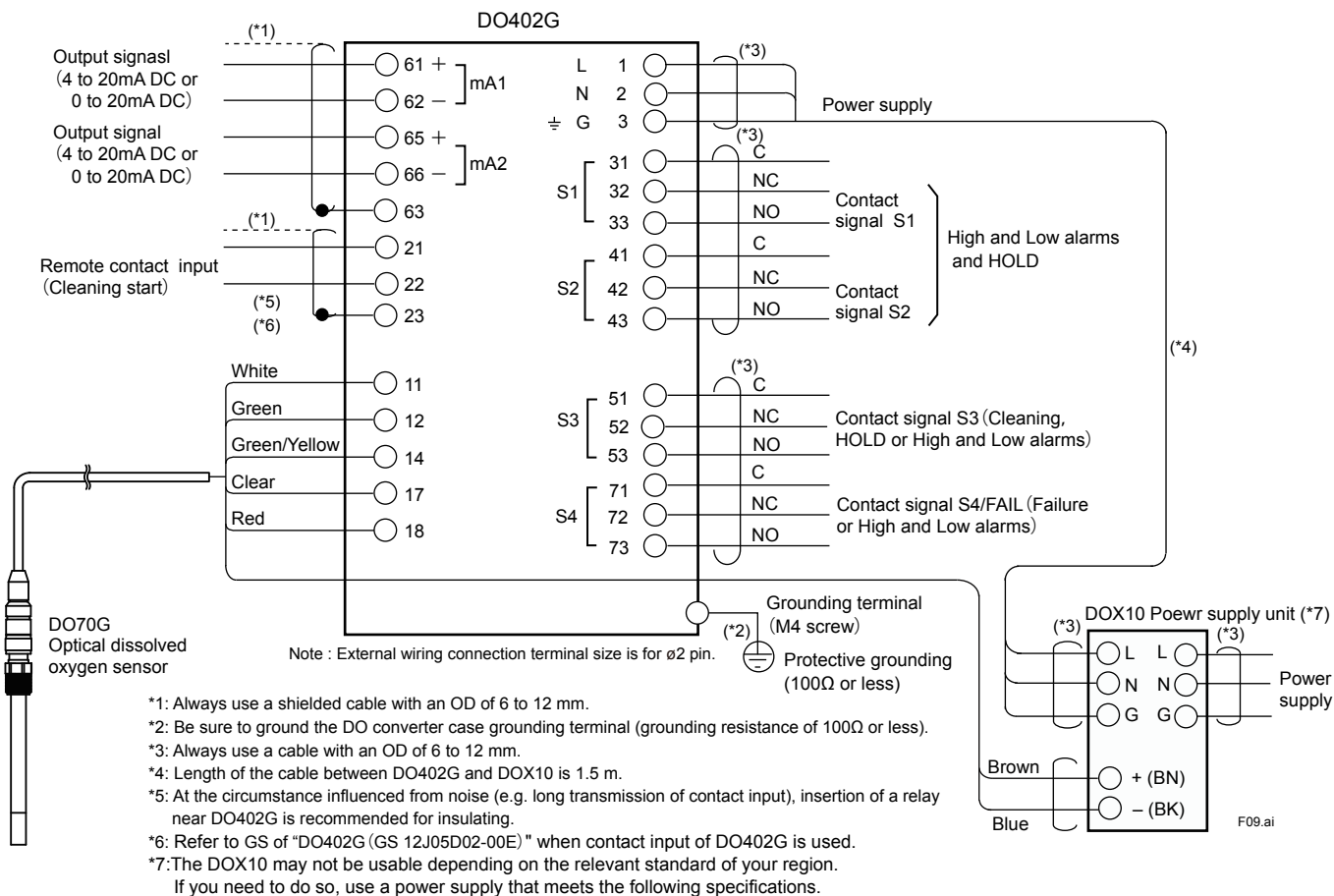
Unit: mm



Wall Mounting Bracket for Power Supply Unit (Optional) (Option Code: /W)



WIRING DIAGRAM EXAMPLE



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 : _____