

Dissolved Oxygen Transmitter

OBM-167H

The OBM-167H is a 2-wire type (24VDC power supply) dissolved oxygen transmitter housed in a robust, die-cast aluminum enclosure suitable for installation out in the field. This model is equipped with a wide range of useful features, such as HART communication.



Features

HART communication (version 7) supports the transmission of digital data such as DO measured value, temperature measured value, and equipment status commands.

CE mark compliant.

Freely adjustable transmission output range.

When maintenance mode is enabled, the "ST-BY" indication is on. In maintenance mode, the output signal is held at the value which was set before the mode was enabled.

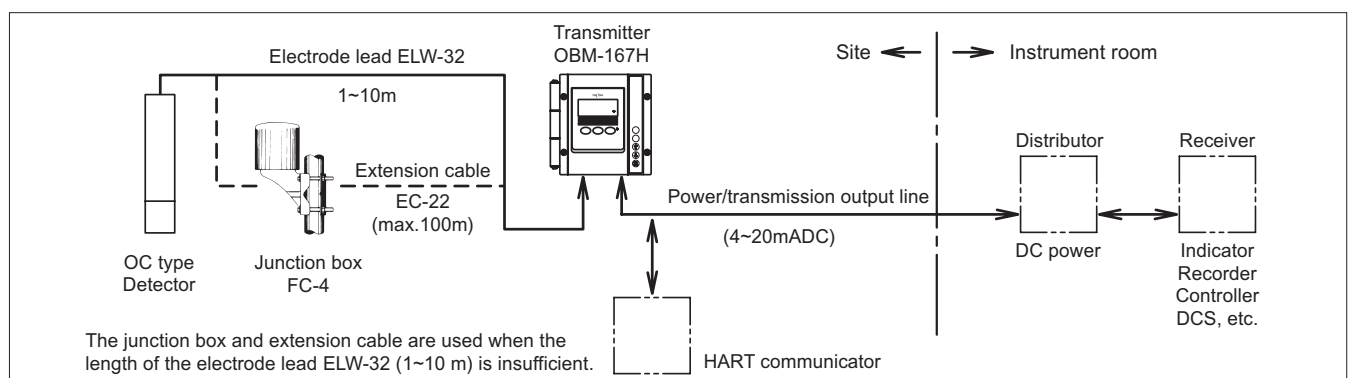
The instrument can also be configured to automatically return to measurement mode. This feature is especially useful when the instrument is inadvertently left in maintenance mode.

The instrument is equipped with a burn-out function. When the self-diagnostics function detects an error in the measurement system, such as a computer error or the failure of the temperature compensation resistor, the burn-out function provides notification of the problem by causing the transmission output to go off-scale (upper or lower limit).

The instrument automatically judges the quality of electrode characteristics during calibration, and provides diagnostic information in the form of error messages.

The system is equipped with a salinity compensation function.

System configuration



Standard Specifications

Product Name : Dissolved oxygen transmitter
Model : OBM-167H
Measurement range : Dissolved oxygen; 0.00~50.00mg/L (Minimum indication; 0.01mg/L)
 O₂; 0.0~30.0% (Minimum indication; 0.1%)
 SAT; 0.0~200.0% (Minimum indication; 0.1%)
 Temperature; -10.0~100.0°C (Minimum indication; 0.1°C)
 (Transmission output signal is provided for DO only.)
Performance (excluding detector) : DO linearity; Within ±1%FS (0~2mg/L range or less; within ±0.05mg/L) (by equivalent input)
 DO repeatability; Within ±0.8%FS (0~2mg/L range or less; within ±0.05mg/L) (by equivalent input)
Temperature compensation : Compensation range; 0~45°C
 Compensation accuracy; Within ±3%FS (equal input)
Indication : LCD (4 digit display*1)
Operating power and power consumption : 2-wire system, 24VDC, (18~30VDC with load resistance *2), 0.6VA or less

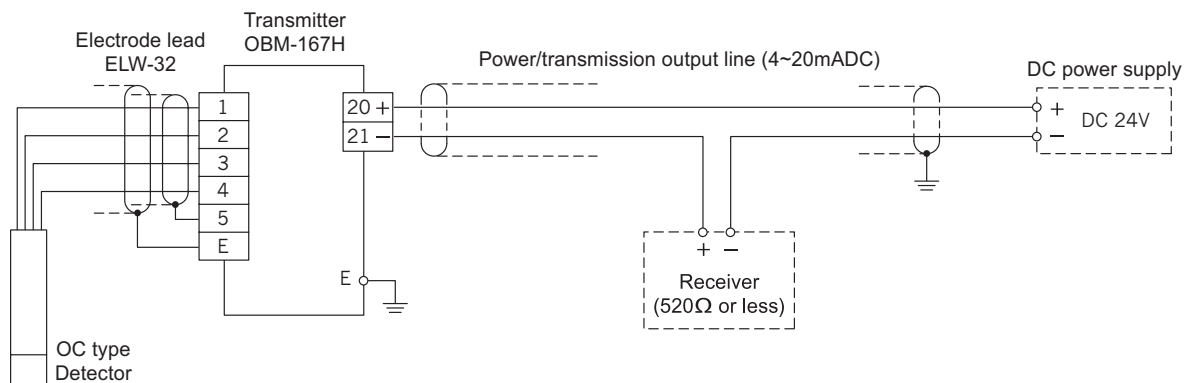
Transmission output range : Dissolved oxygen; The upper limit range can be adjusted in 0.01 mg/L increments within a range of 1.00~50.00 mg/L.
Transmission output : 4~20mADC, isolated. Max. load resistance; 520Ω
Control operation : Microcomputer
Ambient conditions : -20~55°C, 95%RH or less (During transport: -30~65°C, 98%RH or less)
Construction : IP65 (NEMA4X compliant)
Dimensions : 181 (W)x95 (D)x180 (H) mm
Mounting : 50A pipe (Option; wall or rack mount)
Weight : Approx. 2kg
Case materials and surface finish : Aluminum die-cast, metallic silver (Display keypad on the operation panel; Polyester resin, Munsel N1.5)
Cable entry : Cable gland for ø6~12 cable, 3 ports
 G1/2 conduit threads can be connected when the cable gland is removed.
Available detectors : OC-711, NOC-814, OC-950C, and other models
 *1: The number of digits displayed for DO measurements varies by measurement range. However, all ranges can display 2 decimal places.
 *2: Note that HART communication requires a minimum load resistance of 250Ω and a supply voltage of 18VDC or more.

Applicable Standards

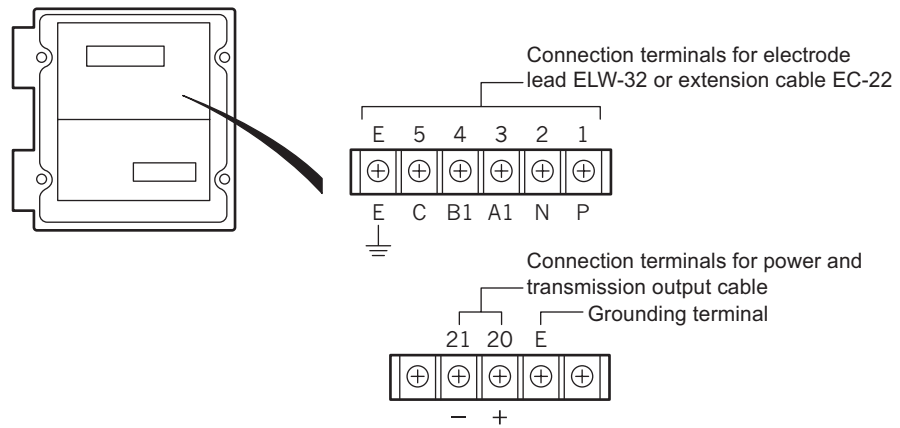
CE mark	Product safety	EN/IEC61010-1
	EMC	EN/IEC61326-1*

*(Measure variations during testing (when used with the electrode): ±10%FS or less)

Wiring diagrams



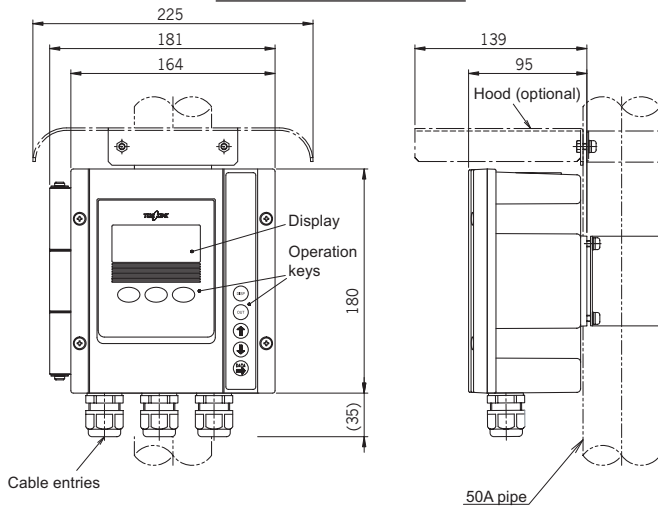
External terminals



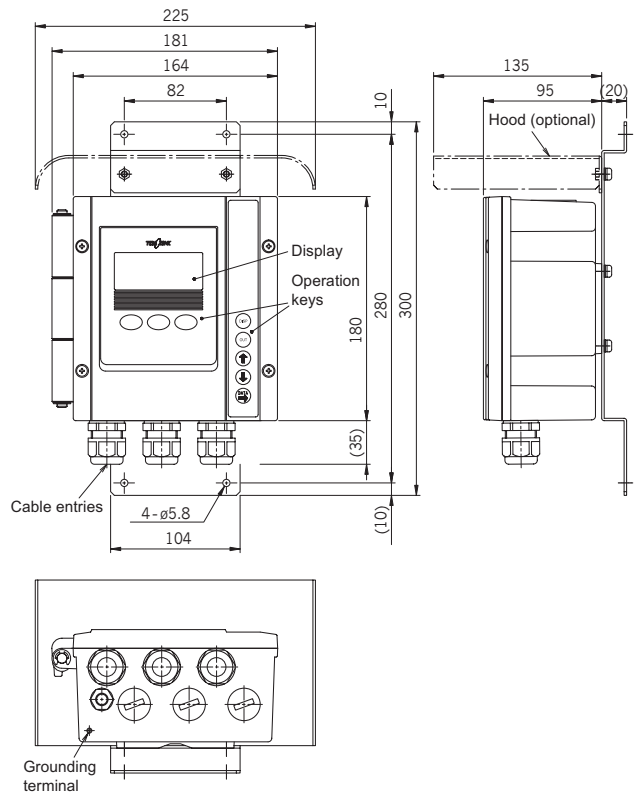
Dimensions

Unit : mm

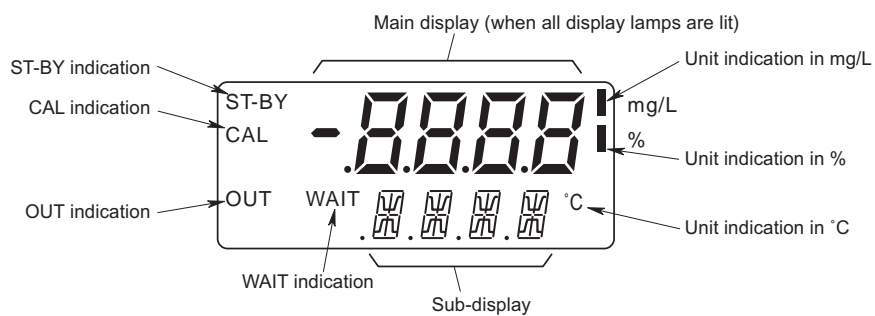
Mounted on a 50A pipe



Mounted on a wall or rack



Display panel



Product code

OBM167H-0-	□	□	□	□	□	□	
	A						Measurement range (transmission output range)
	B						0.00~5.00mg/L
	C						0.00~10.00mg/L
	Y						0.00~20.00mg/L
							Custom specifications *1
							Combined electrodes (ordered separately) *2
					1		7533L, 7699L (for general use and sewage treatment applications)
					2		7536L, 7695L (for night soil treatment applications)
					3		7546L (for float-type detectors)
					4		Polarographic electrode for fermentation process (765□L/766□L/767□L)
							Surface finish (coating) *3
					A		Standard coating
					B		High performance coating
							Arrester *4
					0		None
					1		Included
							Cable entries for power and transmission cable *5
					0		Cable gland for ø6~12 cable (standard)
					1		Cable gland (Conduit threads G1/2 when cable gland is removed)
					2		NPT1/2 supplied with 3 adapters
							Mounting brackets
					A		50A pipe mount
					B		Wall or rack mount
							Hood (sunshade)
					0		None
					1		Equipped (50A pipe mount) (Code No. 7049930K)
					2		Equipped (wall mount) (Code No. 69304500)
							Markings
					0		Japanese (standard)
					1		English

Custom spec. code;
 Numeric digit: 9
 Alphabet: Z

- *1. Specify the measurement output range in 0.01mg/L steps at a minimum width of 1.00mg/L, within a range of 0.00~50.00mg/L.
 Ex. 0.00~8.00mg/L
- *2. The output characteristics vary according to the type of electrode used. There are 4 available categories of electrodes. Select the electrode that best fits the specifications.
- *3. Standard coating: Melamine primer and topcoat. Average film thickness: Greater than 30µm. Glossiness: G40.
 High performance coating: Epoxy primer and middle coat, polyurethane resin topcoat. Average film thickness: Greater than 100µm. Glossiness: G80.
- *4. A ceramic surge arrester (simplified) can be mounted on the power and transmission line.
- *5. There are 3 cable entries with cable glands for ø6~12 cable (G1/2 conduit threads when the cable gland is removed).
 The NPT1/2 is supplied with 3 SUS316 adapters. After removing the cable glands, screw the required number of adapters into the cable entries. The standard cable glands should be left in the cable entries that are not used in order to seal them shut.

Note 1. The OBM-167H is a 2-wire type dissolved oxygen transmitter that supports HART communication (version 7). It has a measurement range of 0.00~50.00mg/L.
 The instrument comes with a number of other features, such as temperature (-10.0~100.0°C), self-diagnostics, burn-out, and DO value adjustment.
 Note that the external input terminal used to receive output hold commands from the cleaner used with this instrument is not available as an option.

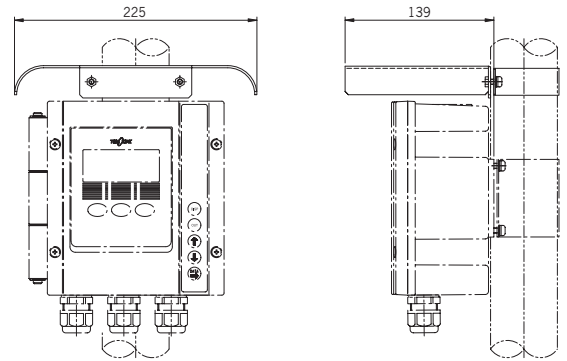
Note 2. The combined detectors are the OC-711, NOC-814 and others. Separately order the detector together with the ELW-32 electrode lead.

Option

● Hood

Recommended for installation outdoors at a location exposed to direct sunlight.

Material : SUS304
 Mounting : Mounted on 50A pipe
 Code Number : 7049930K

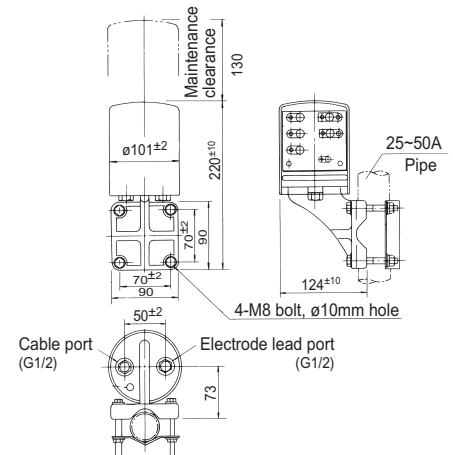


Related equipment

● Junction box

When the transmitter and electrode are installed away from each other and the standard electrode lead length (5m) is too short.

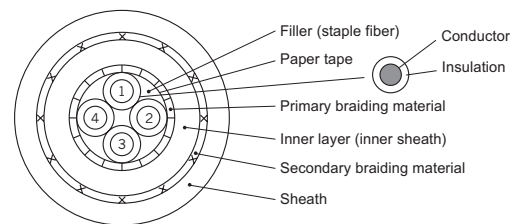
Model : FC-4
 Construction : Outdoor installation
 Weight : Approx. 0.9kg
 Case : ABS resin
 Material : ABS resin
 Finish : Pearskin finish chromium plating
 Mounting : 25 ~ 50A pipe, wall or panel mount



● Extension cable

The extension cable is a special cable specifically manufactured for a DO analyzer. It connects the transmitter and junction box.

Model : EC-22
 Outside diameter : $\varnothing 8$
 Insulation : Polyethylene and vinyl
 Sheath : Vinyl
 Insulation resistance between core conductors : $10^9 \text{M}\Omega$ or greater/100m
 Maximum cable length : 100m, no cable splicing
 Standard length : 5m ~ 100m (5m unit step)
 Weight : Approx. 0.5kg/5m

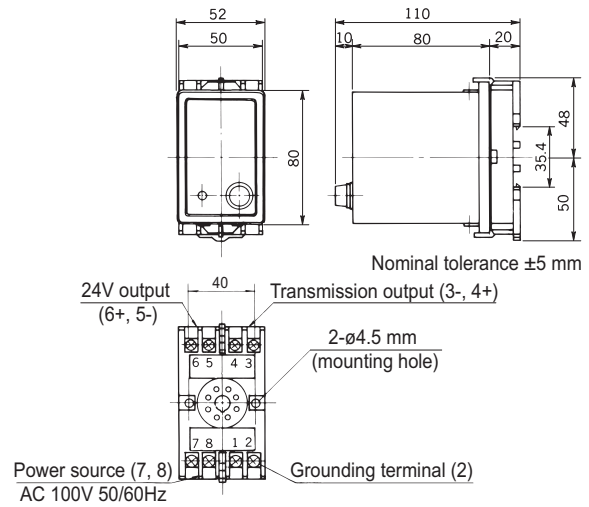


Cross section of EC-22

A power supply unit (24VDC) for the 2-wire type transmitter.

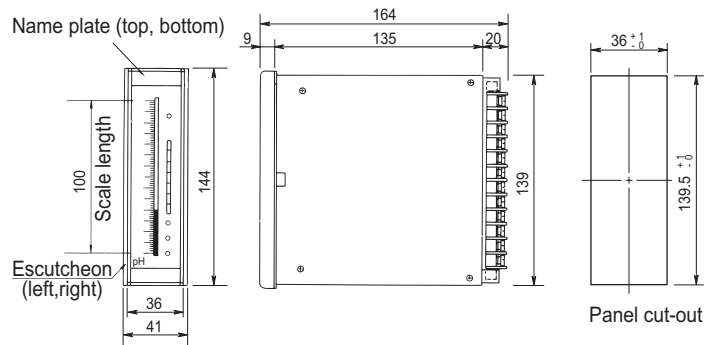
● Power supply unit

- Model : PA-24
- Output voltage rating : 24VDC+3/-1V
- Output current rating : 2~22mA (Parallel connection between two instruments cannot be made.)
- Power requirements : 100VAC±10%, 50/60Hz
- Ambient conditions : -5~55°C
- Construction : Indoor installation, plug-in type
- Weight : Approx. 300g
- *Output transmission signal of 4~20mA DC can be drawn from the terminal block.




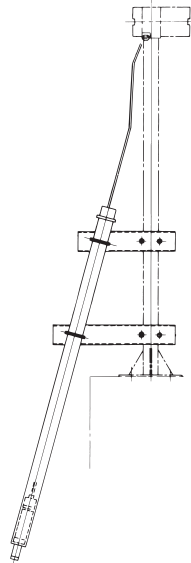
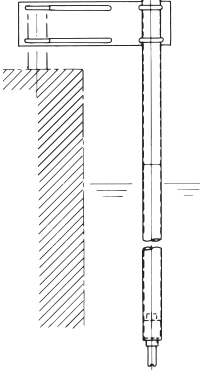
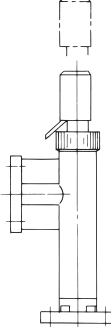
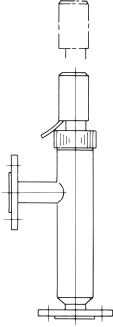
● Bar graph meter relay with DC power source

- Model : BMR-24
- Output voltage : 24VDC±1V
- Input : 4~20mA DC (input resistance; 10Ω)
- Alarm outputs : High-high, high, low, low-low, 4 contacts (Contact rating; 125VAC, 0.5A)
- Scale : Custom specifications
- Scale length : 100mm
- Display : Red LED, 101 dots
- Power requirements : 85V~264VAC, 50/60Hz, Approx. 5VA
- Power consumption : Approx. 5VA
- Ambient conditions : 0~45°C, 40~80%RH
- Weight : Approx. 450g



Detectors used with the OBM-167H

The following table lists the model type, general specifications, and configuration of the detectors that can be used together with the OBM-167H. Select the detector that best fits the installation and measurement conditions in which you intend to use the unit. The DO electrodes available for use are the 7533L (for general use and sewage treatment applications) and 7536L (for night soil treatment applications). The dedicated electrode lead is the ELW-32. For details about the specifications, see the separate specification sheet for the detectors used with the dissolved oxygen analyzer/transmitter.

Product name	Immersion type DO electrode holder	Drop-in type DO detector	Drop-in type DO electrode holder	Flow-through type DO electrode holder	Flow-through type DO electrode holder
Model	OC-711	OC-950	OC-991	NOC-814	NOC-815
Installation configuration	Immersion-type	Immersion-type (drop-in type)		Flow-through type	
Sample temperature	0~45°C (no freezing)				
Ambient temperature	-5~50°C				
Working pressure range	0.03MPa or less	0.1MPa or less		0.15MPa or less	0.3MPa or less
Weight	Approx. 1kg (when total length is 1m)	Approx. 17kg (when protection tube length is 5m)	Approx. 3kg (when protection tube length is 2m)	Approx. 2kg	Approx. 5kg
Applicable electrode	7533L (for general use) or 7536L (for night soil treatment applications)				
Wetted part materials	Holder: PVC, PP	Detector: SUS316, PVC, PP Protection tube: SUS304		Holder: PVC, PP Case: PVC	Holder: PVC, PP Case: SUS316
Configuration					



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CAUTION

Do not operate products before consulting instruction manual.