SPECIFICATION SHEET

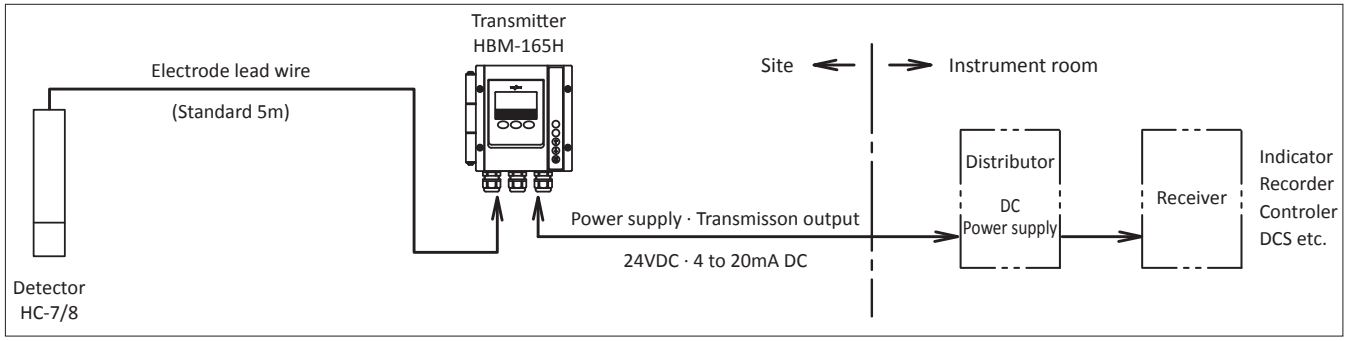
Industrial pH / ORP Transmitter HBM-165H

This is a field-installation 2-wire type (24 VDC power supply) pH/ORP analyzer (transmitter) with practical functions in a robust die-cast aluminum case.

Features

○Can be used as a pH or ORP meter by setting.
○Transmission output range can be set optionally.
○5 kinds data pH standard solutions data are stored in the built-in memory. A temperature sensor is built in the electrode, no need to input standard solution values or temperatures during calibration. The stability discrimination function allows accurate calibration of standard solutions without individual differences.
○To determine if the electrode characteristics are acceptable or not with the pH standard solution calibration or ORP check solution.
○Crack detection function for pH glass electrode is provided.
○In addition to temperature compensation for glass electrode electromotive force, a pH value temperature compensation function is provided to allow to set the pH temperature coefficient of sample water, which can be used for measurement control of boiler can water, etc. A manual temperature compensation function is also provided so that an electrode with a temperature compensation resistance different from the specification (10kΩ at 25°C) or an electrode without a temperature compensation resistance can be used.
○In the maintenance mode, ST-BY lights up on the LCD display and the transmission output is held at the value immediately before switching. Even you forget to remove the maintenance mode, it can be set to return to the measurement mode automatically.
○In addition to the 5600 type electrode, etc. The combination electrode can be combined with the GSS/PSS/ASS electrode (chip replacement type, KCl non-refilled type) with the Pt1000 temperature sensor (Automatic detection).

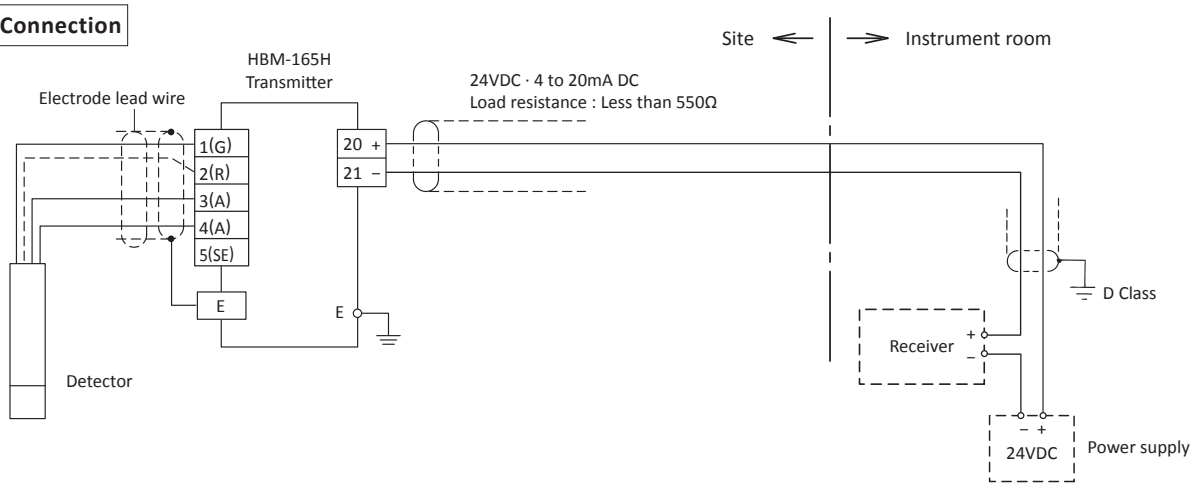
System Configuration



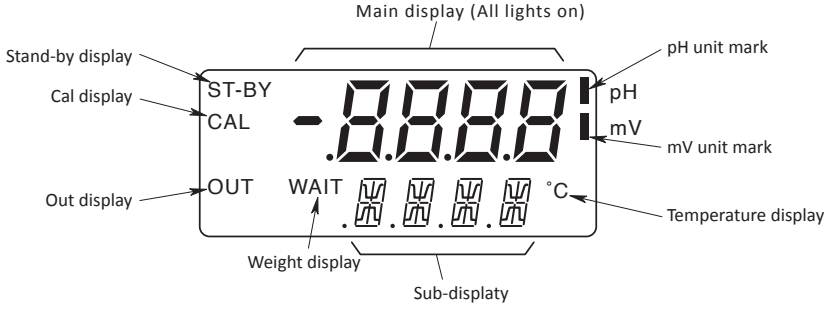
Standard Specifications

Product name	: pH/ORP meter transmitter
Model	: HBM-165H
Measurement item	: pH ORP
Measurement range	: pH ; − 1.00 to 15.00 (Min indicator...0.01pH) ORP; −2000 to 2000mV (Min indicator...1mV) Temperature; 5 to 100°C (Min indicator...0.1°C)
Performance (Detector not included)	: [Linearity] pH ; ± 0.02pH or less (In equivalent input and standard conditions) ORP; ±3mV or less (In equivalent input and standard conditions) [Repeatability] pH ; ±0.01pH or less (In equivalent input and standard conditions) ORP; ±1mV or less (In equivalent input and standard conditions)
Indicator	: LCD Display (4-digital display)
Power supply · power consumption	: 2-wire type 24VDC, less than 0.6VA
Transmission output range	: pH; 0.01pH unit, set in 2pH range or more optionally ORP; 1mV unit, set in 400mV range or more optionally
Transmission output	: 4 to 20mA DC isolated type. Load resistance Less than 550Ω
Control operation	: By microcomputer
Ambient temperature and humidity	: −20 to 55°C, less than 95%RH (During transportation; −30 to 65°C, less than 98°CRH)
Structure	: IP65 (Equivalent to NEMA4X)
Mounting method	: 50A Pipe mounting (Option: wall, rack mounting)
Weight	: Approximately 2kg
Case material / coating	: Diecast aluminum / metallic silver (Display key operation panel; Polyester resin Munsell N1.5)
Wiring port	: 3 cable gland locations (For φ6 to φ12 cable)
Combination detector	: [Electrode] pH ; GSS-304B/314B, 5600, 5610, etc. ORP; PSS-304B/314B, 2600, 2610, etc. [Electrode Holder] HC-7, HC-8, etc.

Terminal Connection



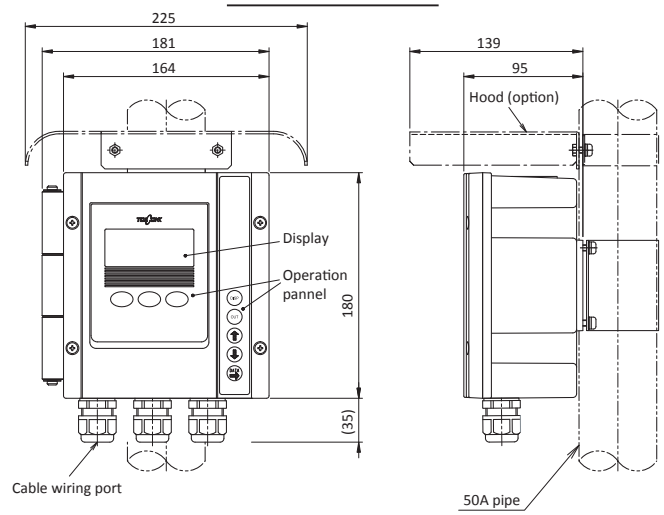
Display Panel

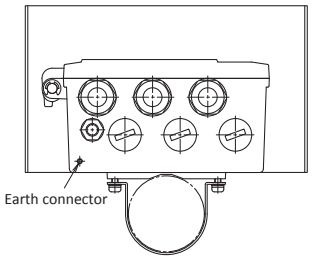


Dimensions

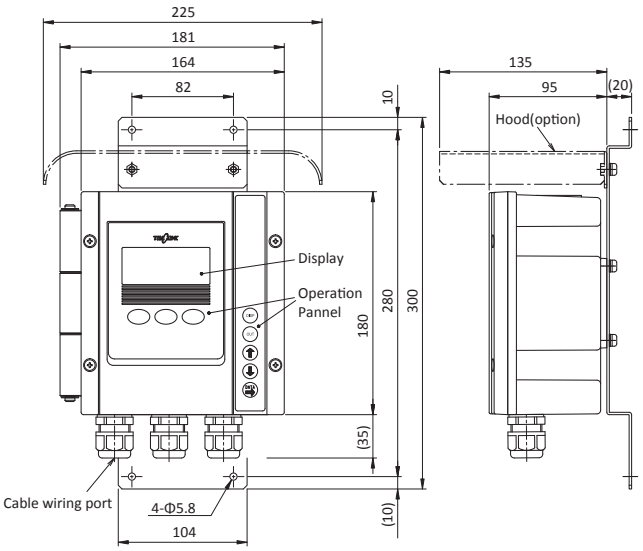
Unit : mm

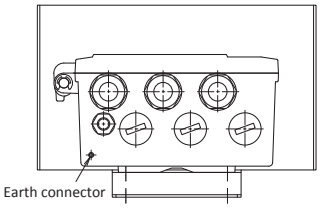
50A Pipe mounting





Wall / rack mounting





Product code

HBM165H-□□□□□□□□

- Transmission output (4 to 20mA DC) range
  - A: pH 0 to 14
  - B: pH 2 to 12
  - C: pH 4 to 14
  - D: ±500mV
  - E: ±700mV
  - F: 0 to 1000mV
  - Y: Other specification (to be specified in external comments)*1
- Surface finish (Coating)*2
  - A: Standard coating
  - B: Heavy duty anti-corrosion coating
- Built-in arrestor*3
  - 0: No
  - 1: Yes
- Power transmission cable wiring port*4
  - 0: Cable gland (standard) for φ6 toφ12
  - 1: G 1/2 (3 adapters included)
  - 2: NPT 1/2 (3 adapters included)
- Mounting bracket
  - 1: 50A Pipe mounting
  - 2: For wall / rack mounting
- Hood (with sunshade or not)
  - 0: No
  - 1: Yes (50A Pipe mounting (Code No.7049930K)
  - 2: Yes (Wall mounting No.69304500)
- Notation
  - A: Japanese (Standard)
  - B: English

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

*1. The settable range of the transmission output (DC 4 to 20 mA) is as follows, please specify within this range. pH: From -1.00 to 15.00 with a 2pH range or more in 0.1 pH units. ORP: From -2000 to +2000 mV with a 400mV range or more in 1 Mv units.

*2. The standard coating is a melamine resin for base and top coat with an average film thickness of 30 μm or more. Heavy duty anti-corrosion coating is epoxy resin for base and middle coat, and polyurethane resin for top coat, with an average film thickness of 100 μm or more.

*3. Install a ceramic surge arrester (simple type) on the power transmission line.

*4. Three wiring ports are provided with φ6 to φ12 cable glands. Select G 1/2 or NPT 1/2 when using conduit. Three SUS adapters (with gaskets) are provided, remove the cable gland and attach the required number of adapters to the wiring ports. Leave the unused cable glands attached at the wiring port and use them as plugs (hole plugging).

Applicable Detectors

Many kinds of detectors are available to combine with HBM-165H as shown in the table below. Please select the correct one according to the immersion type, flow-through type, and measurement conditions. For detailed specifications, please refer to the separate detector specification sheet.

Classfication		Application		Model	Wetted part material	pH electrode	ORP electrode
Immersion type	KCl refilled integrated type	For process /Effluent treatment	General use (below 60°C)	HC-703C	PVC FKM	5600 5605 : HF resistant	2600 : P 2605 : M
			High temperature (below 80°C)	HC-763	PP FKM	5601	2601 : Pt
			High temperature · Chemical resistant	HC-703F	PVDF FKM	5601	–
			Chemical resistant · High temperature	HC-703T	PFA	5602	–
			Presurized (below 60°C)	HC-753C	PVC FKM	5610	2610 : Pt
	KCl refilled chip exchangeable type	For process	General (below 60°C)	HC-G70	PVC FKM	GSS-314B GSS-314F : HF resistant	PSS-314B : Pt ASS-314B : M
			High temperature (below80°C)		PP FKM		
	KCl non-refilled chip exechangeable type	For effluent treatment	General (below 60°C)	HC-G70	PVC FKM	GSS-304B GSS-304F : HF resistant	
			High temperature (below80°C)		PP FKM		PSS-304B : Pt
			High temperature (below80°C)	HC -G72	SUS316		ASS-304B : M
			Drop in type (below 60°C)	HC-G95	PVC SUS316		
Flow-through type	KCl refilled integrated typel	Process use	Insertion type pressurized (below 80°C)	HC-880	PP FKM	5610 5611 (High temperature)	2610 : Pt
			With PP case (below 80°C)	NHC-882			
			With SUS case (below 80°C)	NHC-883	PP SUS316 FKM		
			With SUS case Head type (below 80°C)	NHC-893	PP SUS316 FKM	5600 5601 (High temperature)	2600 : Pt 2605 : M
	KCl refilled chip exechangeable type	For effluent treatment	General (belwo 60°C) With PV Ccase	HC-G80P	PVC	GSS-314B GSS-314F : HF resistant	PSS-314B : Pt ASS-314B : M
			High temperature (below 80°C) With SUS case	HC-G82P	PP SUS316		
	KCl non-refilled chip exechangeable typ	For effluent treatment	General (below 60°C) With PVC case	HC-G80	PVC	GSS-304B GSS-304F : HF resistant	PSS-304B : Pt ASS-304B : M
			High temperature (below 80°C) With SUS case	HC-G82	PP SUS316		
Micro flow rate type	KCl refilled	For boiler and pure water (below 50°C)		HC-G65	Acrylic FKM	GSS-314P	–

ORP Electrode (Metal) Material
Pt : platinum
M : Gold alloys

<Note> The operating temperature range of HF-resistant electrodes is −5 to 50°C.

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⚠ CAUTION Please read the operation manual carefully before using producuts.

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