SPECIFICATION SHEET

TOA DKK

Industrial pH Transmitter HBM-160B
Industrial ORP Transmitter HBM-162B

CE

The HBM-160B/HBM-162B is a field installation type, 4-wire system (AC free-power supply) pH / ORP analyzer (transmitter) that is housed in a robust, die-cast aluminum enclosure. The unit features a dual transmission output (4 - 20mA DC) for pH / ORP and solution temperature and 2-point control alarm contact output (c-contacts, upper / lower alarm limits).

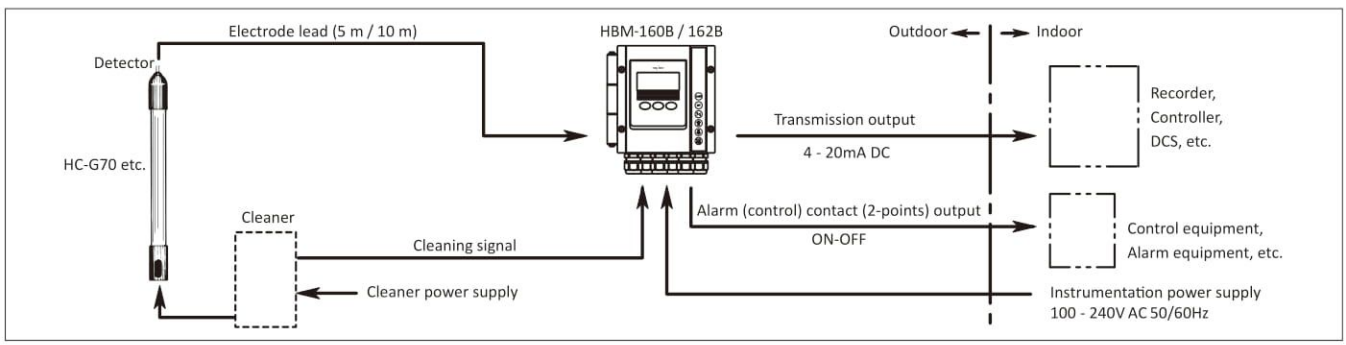
- ○Ten waterproof sheet keys in the front allow for all operations such as calibration without opening the front cover.
- ○The controller is equipped with an automatic single-action stability judgment function, which allows for accurate calibration using standard solutions and helps to eliminate operator errors. During calibration, the controller determines the status of the electrode by monitoring its characteristics and displays diagnostic information in the form of messages.

- ○Alarm (control) output has upper and lower limit operation (ON/OFF control) with adjustable sensitivity settings.
- ○Display is equipped with a backlight.
- ○The controller is certified with CE Marking according to EC Directives.

Standard Specifications

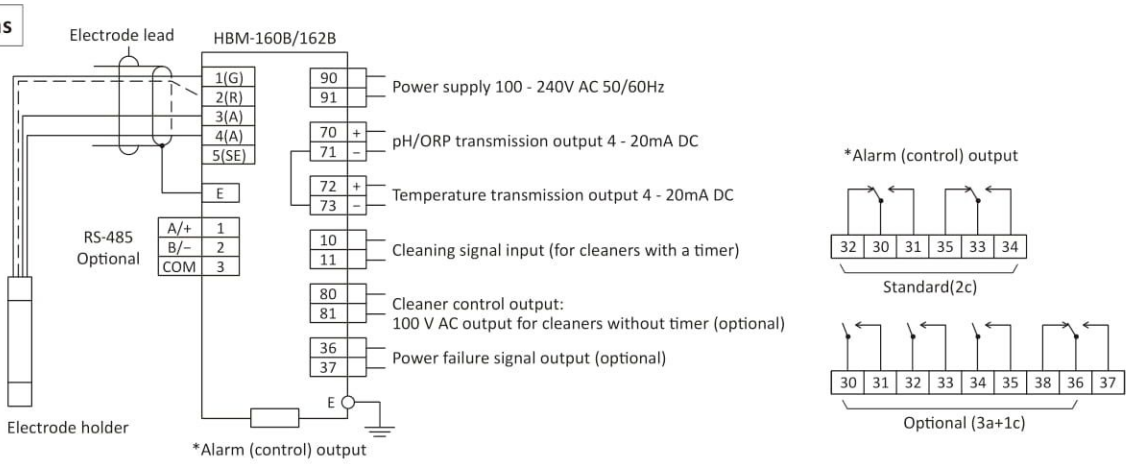
Product name	Industrial pH Transmitter (4-wire system transmitter)	Industrial ORP Transmitter (4-wire system transmitter)
Model	HBM-160B	HBM-162B
Measurement range	pH: -1.00 - 15.00 (Temperature: -5.0 - 100.0°C)	mV: -2000 - +2000 mV (Temperature; -5.0 - 100.0 °C)
Display type	Digital liquid crystal display instrument (equipped with LED backlight)	
Transmission output signal	4 - 20 mA DC isolated, max. load 650 Ω	
Transmission output range	pH: Adjustable in 0.1pH steps, with minimum width of 2pH | mV: Adjustable in 1mV steps, with minimum width of 400mV Temperature: Adjustable in 0.1°C steps, with minimum width of 10°C.	
Alarm (control) contact output	Output points: 2 contacts (upper and lower limits can be set freely) c-contacts Contact capacity: 250V AC, 3A or less (resistive load) Contact function: selectable from upper and lower limit operation (ON/OFF control, adjustable sensitivity setting) and Under maintenance / Under cleaning / Failure alarm	
Performance	Linearity: ±0.03pH or less (using equivalent input) Repeatability: ±0.02pH or less (using equivalent input)	Linearity: ±3mV or less (using equivalent input) Repeatability: ±3mV or less (using equivalent input)
	Response: 5 sec. for 90% response (factory setting)	
Power supply / Power consumption	100 - 240V AC ±10% 50/60Hz · approx. 6VA (100V AC)	
Ambient conditions	-20 - 55°C, 0 - 90%RH	
Dimensions / Weight	181 (W) × 180 (H) × 95 (D) mm · approx. 2.1 kg	
Construction	Outdoor installation, dust/jet-proof type (IP65 · NEMA4X equivalent)	

Configuration



Materials/Color	Main unit: Die cast aluminum alloy, Display etc.: Polyester resin/Metallic silver
Mounting	Mounted on a 50A pipe (optional: mounted on wall or rack)
Cable entry	G1/2 ×6 (Supplied with cable gland for Ø6-12)
Other functions	Cleaning signal input: The unit can receive a "cleaning" signal from the chemical cleaner, pulse air jet cleaner, and other cleaners to hold output during the cleaning process. Temperature compensation for sample pH value: Coefficient setting range…±0.100/°C Standard conversion temperature…25°C Manual temperature compensation for glass electrode: Manual temperature compensation is carried out by specifying the sample solution temperature. pH/ORP value shift: Measured value can be shifted within the range of ±1.00pH / ±100mV (temperature shift range: ± 9.9°C). Burnout: Output signal can be shifted to the upper or lower limit when there is an abnormality, such as an electrode abnormality or temperature sensor failure. Automatic return to measurement mode: The unit automatically switches back to measurement mode if it is left in maintenance (ST-BY) mode for a specified amount of time (1 - 999 min).
Optional functions	Alarm (control) output: 4 points (3a + 1c-contacts) Cleaner control output: The internal timer delivers 100V AC power to the chemical cleaner, brush cleaner, and other cleaners. Power cut-off output signal: Closed contact signal is outputted during power cut-off. RS-485 output: Modbus Communication Interface enables reading measured values and set values or cleaning command from outside.

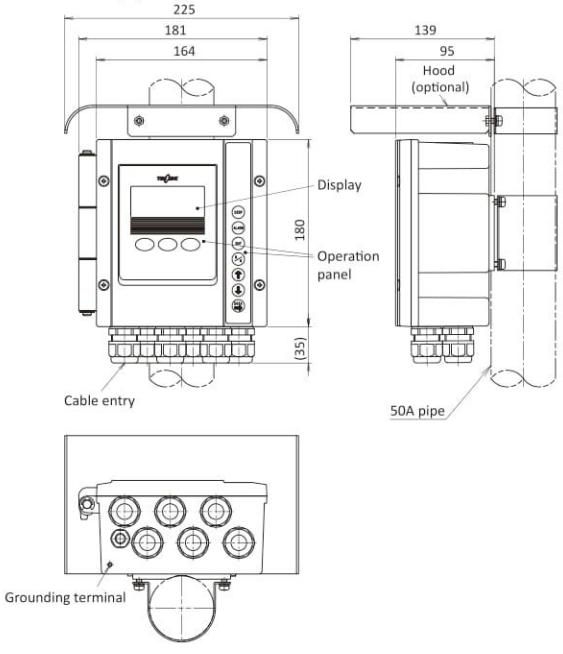
Wiring diagrams



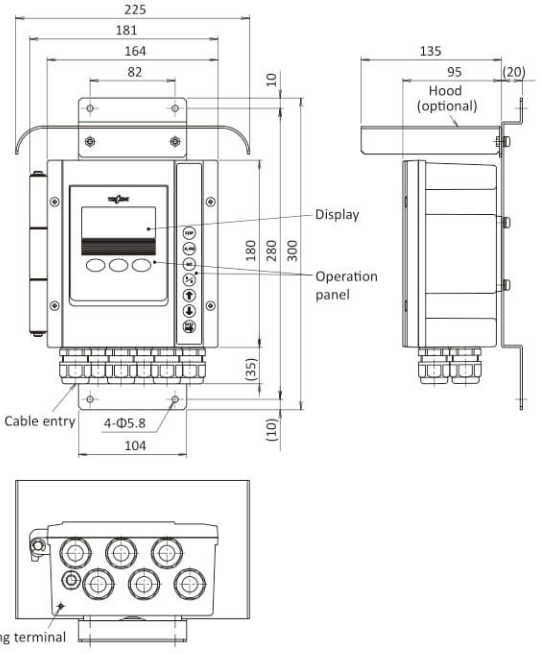
Dimensions

Unit : mm

● Mounted on a pipe



● Mounted on wall or rack



Applicable detectors

There are two types of detectors (electrode holders) that can be connected to the HBM-160B / 162B type. One is chip exchangeable electrodes and the other is integrated (conventional) type electrodes.

Please select the detector such as immersion type or flow-through type, and materials of detector, that best suits for your measuring conditions.

● Detectors for replaceable-tip electrodes

Classification		Application	Model	Wetted part material	pH electrode	ORP electrode
KCl Refillable	Immersion type	General use (below 60˚C)	HC-G70	PVC	GSS-314B (general use) GSS-314A (high alkali resistant) GSS-314F (hydrofluoric acid resistant)	PSS-314B (Pt) ASS-314B (Au)
		High temperature (below 80˚C)	HC-G70	PP		
	Flow-through type	General use, pressurized type (below 60˚C)	HC-G80P	PVC		
		High temperature, pressurized type (below 80˚C)	HC-G82P	PP SUS316		
	Micro flow rate type	For boiler and pure water	HC-G65	Acrylic	GSS-314P	–
KCl Replenish-Free	Immersion type	Effluent treatment (below 60˚C)	HC-G70	PVC	GSS-304B (general use) GSS-304A (high alkali resistant) GSS-304F (hydrofluoric acid resistant)	PSS-304B (Pt) ASS-304B (Au)
		High temperature effluent treatment (below 80˚C)	HC-G70	PP		
			HC-G72	SUS316		
		Effluent treatment, drop-in type	HC-G95	PVC SUS316		
	Flow-through type	Effluent treatment (below 60˚C)	HC-G80	PVC		
		High temperature effluent treatment (below 80˚C)	HC-G82	PP SUS316		

● Detectors for integrated (conventional) KCl refillable type electrodes

Classification	Application	Model	Wetted part material	pH electrode	ORP electrode
Immersion type	General process/effluent treatment (below 60˚C)	HC-703C	PVC	5600 (general use) 5605 (hydrofluoric acid resistant)	2600: Pt 2605: M
	High temperature process (below 80˚C)	HC-763	PP	5601	2601: Pt
	High temperature process, chemical resistant	HC-703F	PVDF	5601	–
	High temperature process, organic solvent resistant	HC-703T	PFA PTFE	5602	–
Flow-through type	General process use/effluent treatment, insertion type, pressurized type	HC-880	PP or PVC	5610 (normal temperature) 5611 (high temperature)	2610: Pt
	General process use/effluent treatment, pressurized type, supplied with PP or PVC case	HC-882	PP or PVC		
	General process use/effluent treatment, pressurized type, supplied with SUS case	HC-883	PP or PVC SUS316		

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