SPECIFICATION SHEET

Panel Mount pH Analyzer HBM-100B
Panel Mount ORP Analyzer HBM-102B

HBM-100B/HBM-102B is a compact DIN size (96 x 96mm) panel mount pH/ORP controller. 2-point alarm (control) contact output and 4 - 20mA DC transmission output are equipped as standard.

○The unit 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 unit determines the status of the electrode by monitoring its characteristics and displays diagnostic information in the form of messages.

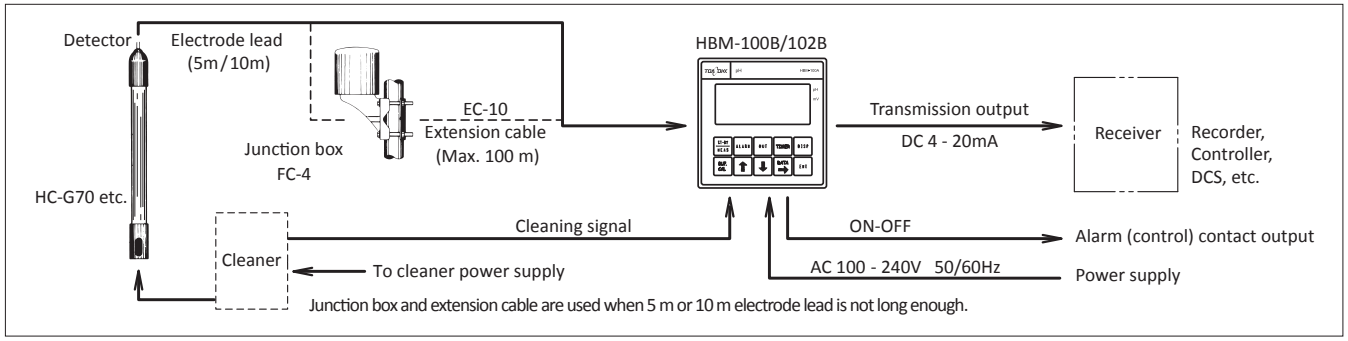
○Alarm (control) output is upper and lower limit operation (ON/OFF control) with adjustable sensitivity settings.

○Display is equipped with a backlight.
The unit is certified with CE Marking according to EC Directive.

Standard Specifications

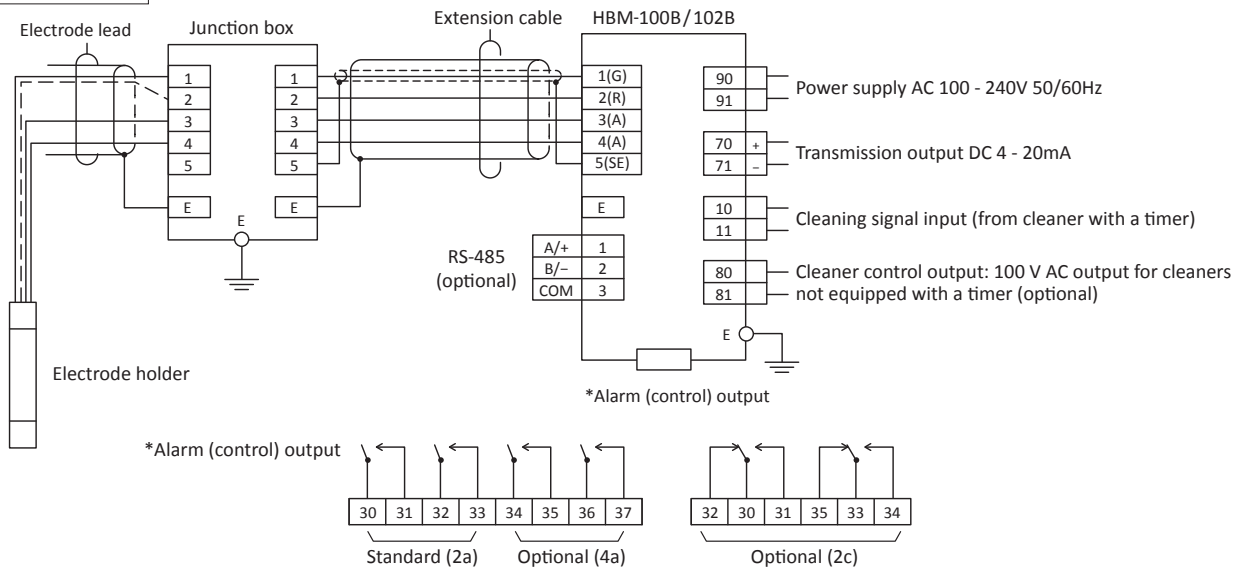
Product name	pH analyzer / controller	ORP analyzer / controller
Model	HBM-100B	HBM-102B
Measurement range Display type	pH: -1.00 - 15.00 (Temp: -5.0 - 100.0°C)	mV; -2000 - +2000mV (Temp: -5.0 - 100.0°C)
Transmission output signal	Digital liquid crystal display instrument (equipped with LED backlight)	
Transmission output range	4 - 20mA DC isolated, Max. resistance 650Ω or less.	
	Adjustable (0.01pH steps). Minimum width of 2pH.	Adjustable (1mV steps). Minimum width of 400mV.
Alarm (control) contact output	Output contacts: 2 contacts (upper and lower limits can be set freely) a-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 requirements/ Power consumption	100 - 240V AC, ±10% 50/60 Hz · approx. 6VA (100V AC)	
Ambient conditions	-10 - 50°C 0 - 90% RH	
Dimensions/Weight	96 (W) × 96 (H) × 90 (D) mm (panel cut-out 92 × 92 mm) · approx. 0.6kg	
Construction/Materials	Indoor-use installation type (IP20) · Main unit: aluminum, Display: polyester resin	

Configuration



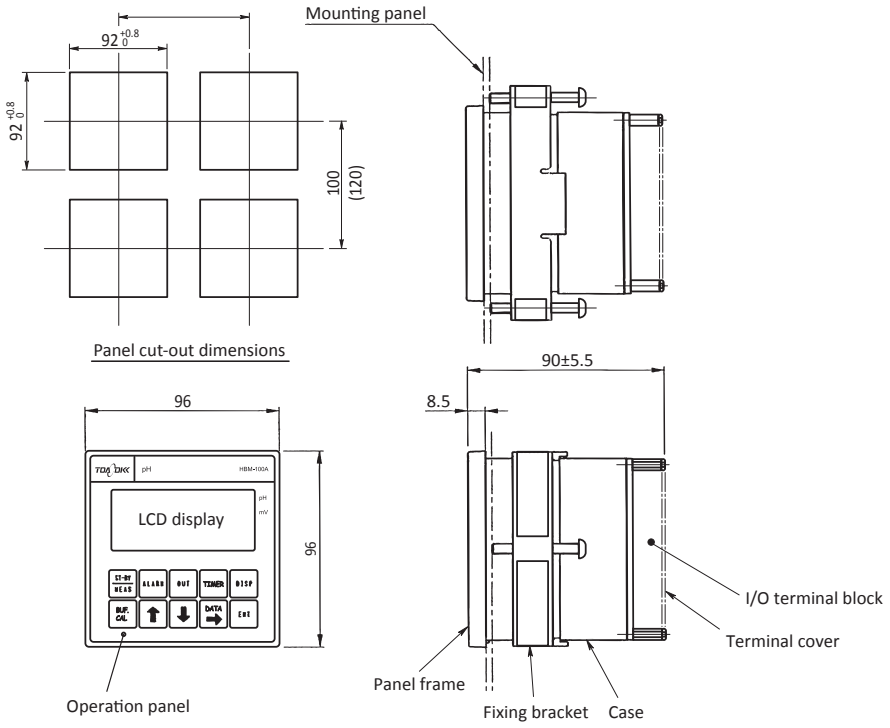
Other functions	Cleaning signal input: The unit can receive a “cleaning” signal from the chemical cleaner, pulse air jet cleaner, and other cleaners to hold output during the cleaning process. Temperature compensation for sample pH value: Coefficient setting range…±0.100/°C Standard conversion temperature…25°C Manual temperature compensation for glass electrode: Manual temperature compensation is carried out by specifying the sample water temperature. pH/ORP value shift: Measured value can be shifted within the range of ±1.00 pH/±100 mV. (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.
Optional features	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.). Alarm (control) output: 2 contacts (c-contacts) or 4 contacts (a-contacts) Cleaner control output: The internal timer delivers 100V AC power to the chemical cleaner, pulse air jet cleaner, and other cleaners. RS-485 output: Modbus Communication Interface enables reading measured values and set values, or cleaning command from outside.

Wiring diagrams



Dimensions

Unit : mm



Product code

HBM-100B (pH analyzer/controller)

HBM100B-□□□□

- Alarm (control) contact output*1
  - A ····· 2 points (2 circuits a- contacts)
  - B ····· 4 points (4 circuits a-contacts)
  - C ····· 2 points (2 circuits c-contacts)
  - Z ····· Special
- Cleaner control 100 V AC output*2
  - 0 ····· N/A
  - 1 ····· Equipped (when used with JHC/PHC/RHC)
  - 9 ····· Special
- Digital interface RS 485 (Modbus)
  - 0 ····· N/A
  - 1 ····· Equipped
  - 9 ····· Special
- Markings
  - A ····· Japanese (Standard)
  - B ····· English
  - Z ····· Special

HBM-102B (ORP analyzer/controller)

HBM102B-0-□□□□

- Alarm (control) contact output*1
  - A ····· 2 points (2 circuits a-contacts)
  - B ····· 4 points (4 circuits a-contacts)
  - C ····· 2 points (2 circuits c-contacts)
  - Z ····· Special
- Cleaner control 100 V AC output*2
  - 0 ····· N/A
  - 1 ····· Equipped (when used with JHC/PHC/RHC)
  - 9 ····· Special
- Digital interface RS 485 (Modbus)
  - 0 ····· N/A
  - 1 ····· Equipped
  - 9 ····· Special
- Markings
  - A ····· Japanese (Standard)
  - B ····· English
  - Z ····· Special

*1. This function is assigned to the control (alarm) contact output terminals. When "Equipped" is specified, the control (alarm) contact output (upper/lower limits) or status signal (Maintenance/Cleaning/Instrument error) output can be selected.

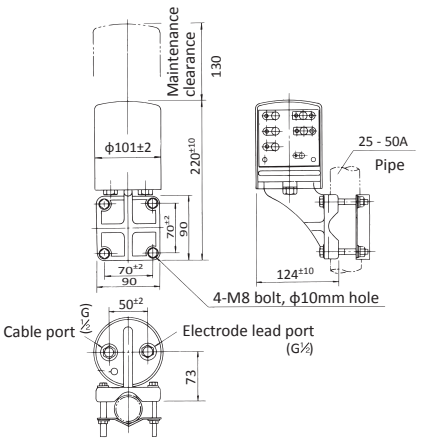
*2. The output is required to be used together with cleaners not equipped with a timer (JHC-7E, BHC-7E, RHC-7EC) or PHC-7D. Since these cleaners run on a 100V AC power supply, only 100V AC is supplied to the HBM-100B when "Equipped" is specified. To run the unit on a supply voltage greater than 100V AC, the ZP-30 step-down transformer is required.

Related equipment

● Junction box

A junction box is required when the transmitter and electrode are installed away from each other and the standard electrode lead length is too short.

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

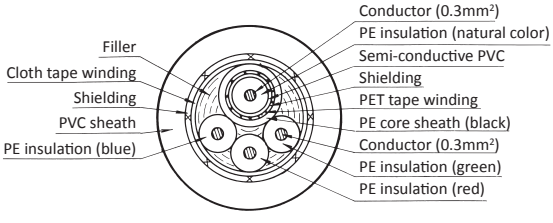


FC-4 dimensions

● Extension cable

The extension cable is a special cable specifically manufactured for a pH/ORP analyzer. It connects the controller and junction box.

Model	: EC-10
Outside diameter	: 8Ø
Insulation	: Polyethylene and PVC
Sheath	: PVC
Insulation resistance between core conductors	: 10^5MΩ 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-10

Applicable detectors

Two types of detectors (electrode holders) can be used together with the HBM-100B/102B: one is for replaceable tip type electrodes and the other for conventional integrated type electrodes. Select the detector that best fits the measurement conditions such as immersion type, flow-through type, and materials. For detailed specifications, see the attached detector specification sheet.

● 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-314F (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 producuts.