

## New 48/96 series Panel mount type water quality measuring instruments

### pH meters

#### HP-480

- pH meter of standard type
- One-touch calibration
- Automatically determines condition of the electrode
- Supports five types of temperature compensation elements
- Enables environmentally-friendly measurements in combination with a lead-free pH electrode



Common specifications  
Power supply: 100-240V AC/10 VA (max.)

Model	HP-480
Measurement range	pH 0-14: resolution of 0.01 pH Temperature 0-100: resolution of 1°C (display selectable)
Reproducibility	±0.05 pH (equivalent input)
Transmission output	4-20 mA DC, input/output isolated type Maximum load resistance 900Ω
Transmission output range	Free range
Contact output	Contact output : 2points Alarm contact output (R1 and R2) Contact type : relay contact, SPDT (1c) Contact capacity : 240V AC 3A , 30V DC 3A (resistance load) Contact function : selectable from upper/lower limit operation (ON/OFF control), alarm, and maintenance.
Calibration function	Two-point automatic calibration or manual calibration Two-point automatic calibration: automatically determines whether the electric potential is stable or not. Types of standard solution : pH2, 4, 7, 9 and 10 (JIS) Combination of standard solutions : pH7 and one of the others Manual calibration : Freely selectable, but the difference should be over 2pH. Temperature calibration (one point)
Hold function	Previous hold, Arbitrary hold, Continuous Selectable from the above (However, only the just previous hold is available in the maintenance mode.)
Self-check function	Calibration failure Asymmetry potential error, sensitivity error, response speed error and standard solution error Electrode self-check Temperature sensor short-circuit and temperature sensor disconnection Outside of the measuring range Transducer error
Temperature compensation element	Temperature compensation element Selectable from compensation ON (500(25°C), 6.8k(25°C), 350(25°C), 1k(0°C) or 10k(25°C)) and compensation OFF
Conforming standard	CE marking FCC regulations

#### 4-point alarm Time sharing proportional control

#### HP-960FTP

- High-end type equipped with a four-point alarm and time sharing proportional control
- Allows interlocking with a washer through the external input
- Supports five types of temperature compensation elements
- Enables environmentally-friendly measurements in combination with lead-free pH electrode



Model	HP-960FTP (standard)
Measurement range	pH 0-14 : Resolution 0.01pH Temperature 0-100 : Resolution 1°C (display selectable)
Reproducibility	±0.05 pH (equivalent input)
Transmission output	4-20 mA DC, Input and output insulation type, Maximum load resistance 900Ω
Transmission output range	Free range
Contact output	Contact outputs : 4 points (R1, R2, R3 and R4) Contact shape : Relay contact, SPDT (1c) Contact capacity : 240V AC 3 A , 30 V DC 3 A (Resistance load) Contact functions : Selectable from upper and lower limit operation (ON/OFF control, time sharing proportional control), abnormality alarm, and maintenance
Contact input	Number of contacts : 1 (external input for holding) Contact shape: Open collector no-voltage contact a
Control actions	ON/OFF control Time sharing proportional control Upper and lower limit setting range: 0.00-14.00 pH Proportional band: 0.01-4.00 pH Cycle: 5-300 seconds Control output shift function: Amount of shift 0-50% of the cycle Automatic cycle change function: When the deviation enters the range of (flexible zone), the cycle is automatically prolonged according to the deviation. Flexible Zone: 1-100% of the proportional band Maximum cycle extension time: 0-300 seconds Maximum control amount: 50-100% (operates independently of the proportional band)
Applicable standard	CE marking FCC regulations

### pH meters

#### Holder

#### Specifications

Model	Immersion type		Flow type
	CH-10	CF-30	CF-30 (pressurization type)
Wetted material	PP, CR, FKM		
Temperature of fluid being measured	-10-80°C		
Pressure of fluid being measured	—		0-0.15MPa
Flow velocity/Flow rate	2m/sec. or below		0.3-3.0L/min
Holder length	1m (standard), 1.5m, 2m		—
Flange	—		JIS 10K 25A flange

- Holder using conditions vary depending on the electrode combined.

#### Electrode

Model	Temperature compensation resistivity	Operating temperature range
6105-50B	500Ω	0-60°C
6106-50B	500Ω	0-100°C
6107-50B	500Ω	0-80°C
6300	6.8kΩ	0-60°C
6301	6.8kΩ	0-60°C
8200 [immersion type]	—	0-50°C
8300 [immersion type]	6.8kΩ	—
6161-60B(C)	6.8kΩ	-5-110°C

**Pb Free** Environmentally-friendly "Lead-free electrode"  
Conforms to the RoHS directive by adopting the lead-free glass as the main material, as well as by achieving lead-free conditions in almost all the parts, including the lead wires and joint solder.

ToupH

Glass electrode strong against impacts and hard to break

#### Immersion type holder CH-10



#### Flow type holder CF-30 (pressurization type)



#### Cleaning devices



Ultrasonic cleaning devices  
Flow type UCF-30



Water/air jet cleaning devices  
Flow type JCF-30

#### Relay box

##### CT-20PH

Install Connector Box near Electrode Holder if there is over 3m between Meter Body and Electrode Holder.  
Connect Connector Box and Electrode with Transmission Cable.



#### Cleaning devices

Chemical cleaning devices  
CCH-10  
Chemical brush cleaning devices  
CBCH-10



pH electrode  
6105-50B  
(General-purpose pH electrode)

pH electrode  
6106-50B (Tough pH electrode for processes)

pH electrode  
6107-50B  
(Tough sleeve pH electrode for protein and high-viscosity sample)



Ultrasonic cleaning devices  
Immersion type  
CH-10



Water/air jet cleaning devices  
Immersion type  
JCH-10



Brush cleaning devices  
Immersion type  
BCH-10

## ORP meter

### Time sharing proportional control

# HP-480TP

- pH meter equipped with the time sharing proportional control function
- Achieves the neutralization optimum for Flexible zone
- Supports five types of temperature compensation elements
- Enables environmentally-friendly measurements in combination with lead-free pH electrode



### Pulse proportional control

# HP-480PL

- pH meter equipped with the pulse proportional control function
- Drives the pulse pump directly
- Supports five types of temperature compensation elements
- Enables environmentally-friendly measurements in combination with lead-free pH electrode



# HO-480

- Measures oxidation-reduction potential
- Enables environmentally-friendly measurements in combination with lead-free ORP electrode



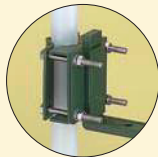
Model	HP-480TP (standard)
Measurement range	pH 0-14 : Resolution 0.01 pH Temperature 0-100 : Resolution 1°C (display selectable)
Reproducibility	±0.05 pH (equivalent input)
Transmission output	4-20mA DC, Input and output insulation type, Maximum load resistance 900Ω
Transmission output range	Free range
Contact output	Contact output : 2points Alarm contact output (R1andR2) Contact shape : Relay contact, SPDT (1c) Contact capacity : 240V AC 3A , 30V DC 3A (Resistance load) Contact functions : Selectable from upper and lower limit operation (ON/OFF control, time sharing proportional control), abnormality alarm, and maintenance
Control actions	ON/OFF control Time sharing proportional control Upper and lower limit setting range : 0.00-14.00pH Proportional band : 0.01-4.00pH Cycle : 5-300 seconds Control output shift function : Amount of shift 0-50% of the cycle Automatic cycle change function : When the deviation enters the range of (flexible zone), the cycle is automatically prolonged according to the deviation. Flexible Zone : 1-100% of the proportional band Maximum cycle extension time : 0-300 seconds Maximum control amount : 50-100% (operates independently of the proportional band)
Calibration function	Automatic 2-point calibration or manual calibration Temperature calibration (1point)
Applicable standard	CE marking FCC regulations

Model	HP-480PL (standard)
Measurement range	pH 0-14 : Resolution 0.01pH Temperature 0-100 : Resolution 1°C (display selectable)
Reproducibility	±0.05 pH (equivalent input)
Transmission output	4-20 mA DC, Input and output insulation type, Maximum load resistance 900Ω
Transmission output range	Free range
Contact output	Contact output : 2points Alarm contact output (R1andR2) Contact shape : Relay contact, SPST-NO (1a) Contact capacity : 240V AC 0.3A , 100V DC 0.3A Contact functions : Selectable from upper and lower limit operation (ON/OFF control, pulse proportional control), abnormality alarm, and maintenance
Control actions	ON/OFF control Pulse proportional control Upper and lower limit setting range : 0.00-14.00 pH Maximum output pulse number : Can be set to any value in a range of 1to 360SPM Proportional band : 0.01-4.00pH Control output shift function : 0-50%
Calibration function	Automatic 2-point calibration or manual calibration Automatic 2-point calibration : Automatic judgment of electric potential stability Combination of standard solution pH2.4, 9.10(JIS) and pH7(JIS) Manual calibration : Any difference of 2pH or larger Temperature calibration (1point)
Hold function	Previous hold, Arbitrary hold, Continuous Selectable from Previous Hold, Arbitrary Hold and Continuous
Temperature compensation	Selectable from 500Ω, 6.8kΩ, 1 kW, 10kW, 350W and no compensation
Applicable standard	CE marking FCC regulations

Model	HO-480
Measurement range	±200mV : Resolution 1 mV
Reproducibility	within ±5mV (equivalent input)
Linearity	within ±5mV (equivalent input)
Transmission output	4-20mA DC, Input and output insulation type, Maximum load resistance 900Ω
Transmission output range	Free range
Calibration function	Sensitivity compensation Adjust : ±200mV Span variable range : 50.0-150.0%
Contact output	Contact output : 2points Alarm contact output (R1andR2) Contact shape : Relay contact, SPDT (1c) Contact capacity : 240V AC 3A , 30V DC 3A (Resistance load) Contact functions : Selectable from upper and lower limit operation (ON/OFF control), abnormality alarm, and maintenance Selectable from holding immediately before, holding at a certain value and continuous holding Measurement out-of-range error
Hold function	Previous hold, Arbitrary hold, Continuous Selectable from Previous Hold, Arbitrary Hold and Continuous
Self-check function	Outside of the measuring range Transducer error
Applicable standard	CE marking FCC regulations

### Mount fittings

Easy removal and attachment using the dedicated fittings, which facilitates standard solution calibration and maintenance.



Mount fittings BA-1A/BA-1S

### Sensor cable

Special cable dedicated for pH meters. Used for connecting the indication converter and the relay box.



Model	C-5A
Outer diameter	φ10
Maximum extension length (cannot be relayed halfway)	50m

## ORP meter

### Electrode

Model	Temperature compensation resistivity	Operating temperature range
6805-50B(Pt)	—	0-80°C
6815-50B(Au)	—	
2500(Pt submersible type)	—	0-50°C
6865-60B (C)	—	-5-80°C



Environmentally-friendly "Lead-free electrode" Conforms to the RoHS directive by adopting the lead-free glass as the main material, as well as by achieving lead-free conditions in almost all the parts, including the lead wires and joint solder.



ORP electrode (Pt) 6805-50B

### Sensor cable

Special cable dedicated for ORP. Used for connecting the indication converter and the relay box.

Model	C-2A
Outer diameter	φ6
Maximum extension length (cannot be relayed halfway)	50m

## Conductivity meter High density type

### Long cell type Sensor

### Specifications

	FES-125	FES-126
Cell constant	1.0/cm	
Measurement range	0-500mS/cm, 0-50S/m	
Wetted material	PVC, titanium	PPS, titanium
Temperature of fluid being measured	0-50°C	0-100°C
Pressure of fluid being measured	0-1.0MPa	0-1.0MPa
Lead length	10m (standard) Use the relay box CT-20EC for further extension. Maximum extension length: 50 m	
Installation	1. Submersible type 2. Threaded type - Use the thread adapter EA-20.	Thread diameter : R(PT)3/4
Holder to be combined	Flow type EF-20 series	

### Conductivity sensor FES-126



Flow type holder EF-20

### Flow type holder

### Specifications (combined with FES-12X)

Model	EF-20	EF-20P	EF-20S
Wetted material	PVC	PVDF	SUS316
Temperature of fluid being measured	0-50°C	0-100°C	0-100°C
Pressure of fluid being measured	0-1.0MPa	0-0.1MPa	0-0.5MPa
Flow rate of fluid being measured	0-10L/min		
Connecting pipe diameter	Inlet : Rc(PT)1/2, Outlet : Rc(PT)1/2		