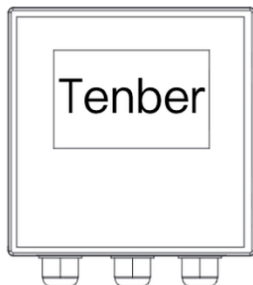


PH-303 Series pH/ORP manual



96 Series



Contents

Safe Operation	2
Instrument Use	2
Product Contents and Warranty	2
Specifications	3
Instrument Installation	4
Wiring Guidance	5
Relay Functions - PH-302 only	6
Display Description	7
Button Description	8
Hold Mode	8
Analog Current 1 Setting	9
Measurement Settings	11
Temperature Settings	11
Output Test	12
Date Setting	12
Backlight Settings	12
Restore Factory Settings	13
Calibration	13
Factory Value	16
RS485 Communication - PH-302 only	17
Support Note	18



Safe Operation

Please read the following operating instructions carefully before use:

1. Before use, check whether the instrument appearance has been damaged during transportation.
2. The instrument must be operated by trained professional technicians.
3. Read this manual thoroughly before use to avoid incorrect wiring that may cause safety problems or instrument damage.
4. After all wiring is completed, carefully check that every connection is correct before powering on.
5. Install the instrument away from high temperature, high humidity, corrosive environments and direct sunlight.
6. Avoid a power supply with surge interference. If interference is present, separate the instrument power supply from other interfering equipment.

Intended Use

The instrument measures pH/ORP and temperature in industrial applications such as wastewater, environmental monitoring, fermentation, food production, dosing pump proportion control and frequency control. It can be panel mounted, wall mounted or pipeline mounted, and provides one analog output with a maximum load of 500 ohm.

Package Contents and Warranty

96 Series: product package includes 1 instrument and 2 sets of brackets (screws, fixing blocks and fixing rods).

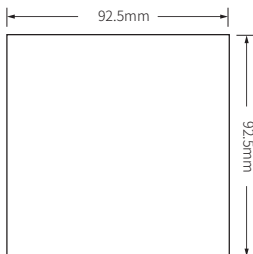


Specifications

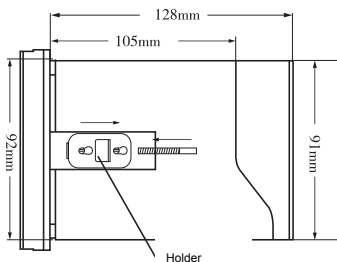
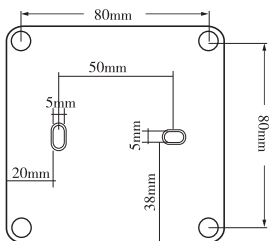
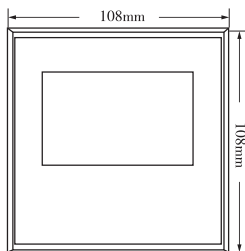
Function	pH	ORP
Measurement range	-2.00 to +16.00 pH	-2000 to +2000 mV
Resolution	0.01 pH	1 mV
Accuracy	+/-0.01 pH	+/-1 mV
Temperature compensation	Pt1000 / NTC10K	
Temperature measurement range	-10.0 to +130.0 deg C	
Temperature compensation range	-10.0 to +130.0 deg C	
Temperature resolution	0.1 deg C	
Temperature accuracy	+/-0.2 deg C	
Operating temperature	0 to +70 deg C	
Storage temperature	-20 to +70 deg C	
Input impedance	>10 ¹² ohm	
Display	Large backlit color LCD	
pH/ORP analog output	Isolated 4-20 mA; max. load 500 ohm	
Analog output accuracy	+/-0.05 mA	
RS485	Not available	Not applicable to PH-303
Communication rate	Not applicable to PH-303	
Relay contact rating	Not available	Not applicable to PH-303
Protection rating	IP65	
Power supply	90-260 VAC; power <5 W	
Installation	Panel / wall / pipe mounting	
Instrument weight	96 Series: 0.70 kg	

Instrument Installation

96 Series: The instrument can be installed in panel, pipe or wall mounting. Panel installation: Open a 92.5mmx92.5mm square hole on the distribution box panel, place the instrument from the front of the distribution box panel, and install holders on both sides of the machine.

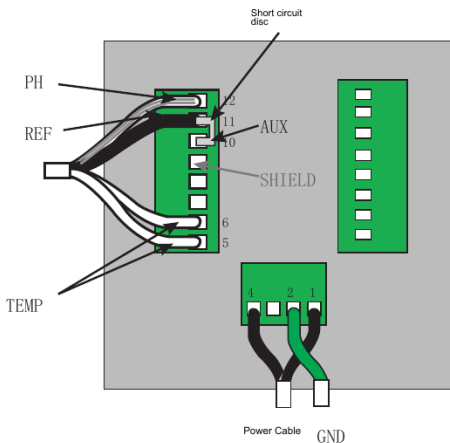
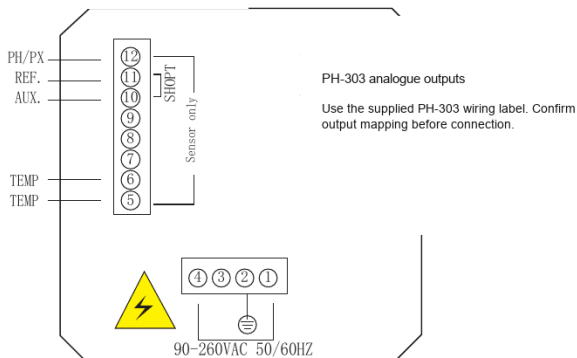


96 Series opening size drawing



96 Series drilling dimension drawing 96 Series overall dimension drawing

Terminal Labels



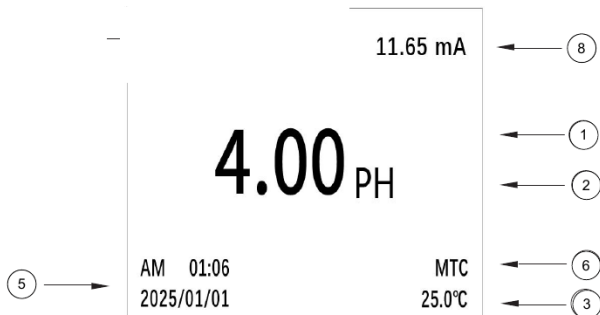


Relay Contact Protection

This page applies to PH-302 relay outputs only. Relay control and relay contact protection are not documented for PH-303. Do not connect a pump, valve or alarm relay to terminals identified only in PH-302 documentation.



Display Description



1. Main display
2. Unit
3. Temperature and unit
4. Time display
5. Temperature compensation mode
6. Current 1 display

Note: If the pH measurement value exceeds the positive and negative range, -9.99/99.99 will be displayed. If the ORP measurement value exceeds the positive and negative range, -9999/9999 will be displayed. If the temperature exceeds the positive and negative range, -99.9/999.9 will be displayed.



Key Description



SET



CAL



UP



DOWN



ENTER

Key	Measurement	Settings	Calibration	Record
SET	Enter settings	Exit	Exit	Exit
CAL	Enter calibration	Move digit	Move digit	Move digit
UP	None	Increase value	Increase value	Increase value
DOWN	None	Decrease value	Decrease value	Decrease value
ENTER	Backlight on/off	Confirm	Confirm	Confirm

Hold Mode

Main Screen

Settings 1/2

Analog Output 1 Settings
Measurement Settings
Temperature Settings

Settings 2/2

Output Test
Date and Time Settings
Restore Factory Settings
Language Settings

Description:

First page Second page

1. If the entered value is outside the specified range, 'error' appears at the top of the display. 2. Press ENTER to save the value. 3. Press SET at any time to leave settings. 4. If no key is pressed for more than 10 minutes, the instrument returns to measurement mode.



Analog Output 1 Settings

Analog Output 1 Settings

4.00 mA = +0.00 pH
20.00 mA = +14.00 pH
Offset = +0.00 mA

Analog Output 1 Settings

4.00 mA = +14.00 pH
20.00 mA = +0.00 pH
Offset = +0.00 mA

or

Analog Output 1 Settings

4.00 mA = -2000 mV
20.00 mA = +2000 mV
Offset = +0.00 mA

Analog Output 1 Settings

4.00 mA = +2000 mV
20.00 mA = -2000 mV
Offset = +0.00 mA

or

1. Set the pH/ORP value for 4.00 mA. 2. Set the pH/ORP value for 20.00 mA. The minimum span is 1.00 pH or 100 mV ORP. 3. The 4-20 mA direction may be reversed. 4. Set output offset within +/-1.00 mA.



Relay Settings

Relay settings are not available on PH-303. The relay menus and relay contact parameters shown in the PH-302 manual do not apply to this model.



Measurement Settings

Measurement Settings

Mode = pH / ORP

Offset = +0.00 pH

1. Select pH or ORP mode with UP/DOWN. 2. Enter the measurement offset within +/-1.00 pH or +/-100 mV.

Temperature Settings

Compensation = Automatic / Manual

Probe = Pt1000 / NTC10K

Offset = +0.0 deg C

1. Select automatic or manual temperature compensation. 2. Select Pt1000 or NTC10K. 3. Automatic offset range: +/-5.00 deg C. 4. Enter the manual temperature when manual mode is selected.

Communication Settings

RS485 communication is documented for PH-302 only and is not available on PH-303.

Output Test

Output Test

Current 1 = 4.00-20.00 mA

Relay outputs: not available on PH-303

Test the analogue current output from 4.00 to 20.00 mA. Relay tests are not applicable to PH-303.

Date and Time Settings

Year / Month / Day

Hour / Minute

Press UP/DOWN to set the date and time. The clock remains for about two days after power loss.

Backlight Settings

Automatic 60 seconds

Manual backlight

Press UP/DOWN to choose automatic backlight-off after 60 seconds or manual backlight.



Language Settings

Language Settings

English
Chinese language

Press UP/DOWN to select English or Chinese language.

Restore Factory Settings

Factory Reset

Factory reset = No
Factory reset = Yes

Press UP/DOWN to select whether to restore all settings. Restoration does not affect pH/mV calibration values.

Calibration

Calibration

Two-point calibration
Restore factory settings

Press CAL to enter calibration. Use UP/DOWN to select the function and ENTER to confirm.

First-Point Calibration

Factory Reset

Slope = 59.16 mV/pH
Waiting for confirmation

First Point Calibration

Reading = 7.00 pH
Standard = 7.00 pH
Wait, then press Confirm

1. Place the electrode into the first standard solution. 2. Use UP/DOWN to select the first standard solution, then press ENTER to start automatic calibration. 3. If waiting takes too long, press ENTER to force calibration. 4. The reading shows the current ideal pH value. 5. If the electrode value exceeds pH 7.00 (+/-1.5 pH) or temperature exceeds 0.0-60.0 deg C, an Error message appears below the display.

First-Point Calibration

Second Point Calibration

Reading = 4.00 pH
Standard = 4.01 pH
Wait, then press Confirm

Calibration Completed

Status = Passed
Standard = 59.84 mV/pH
OK

1. Place the electrode into the second standard solution. 2. Use UP/DOWN to select the second standard solution, then press ENTER to start automatic calibration. 3. If waiting takes too long, press ENTER to force calibration. 4. The reading shows the current ideal pH value. 5. If the electrode value exceeds 30% of the standard pH range or temperature exceeds 0.0-60.0 deg C, an Error message appears below the display.



ORP Calibration

This function restores ORP calibration values to the factory state.

Restore Factory Calibration

Factory reset = No
Factory reset = Yes

Note: restoration returns calibration values to factory settings and does not change other parameters.

ORP Calibration

Calibration

One-point calibration
Restore factory settings

Use UP/DOWN to select the function and ENTER to confirm. One-point calibration enters the standard solution value; restore factory settings returns the original calibration value.

Calibration

Reading = 5 mV
Standard value = 83 mV

1. Place the electrode in the standard solution. 2. Enter the standard value with UP/DOWN. 3. When the reading is stable, press ENTER to complete calibration. The reading shows the current ideal ORP value.

Calibration Completed

Status = Passed

Standard solution = 0086 mV

OK

When efficiency is below 80%, the electrode is aging and should be replaced. Press ENTER to confirm completion of calibration.

Factory Default Values

pH 20.00 mA value	14.00 pH	Range -2.00 to 16.00
pH 4.00 mA value	0.00 pH	Range -1.00 to 15.00; min. span 1.00
ORP 20.00 mA value	2000 mV	Range -2000 to 2000
ORP 4.00 mA value	-2000 mV	Range -2000 to 2000; min. span 100
Analog output offset	0.00 mA	Range +/-1.00
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Relay setting - not available		
Storage interval	60 s	Range 5-120 s
Communication address: not applicable to PH-303		
pH offset	0.00 pH	Range +/-1.00
ORP offset	0 mV	Range +/-100 mV
Measurement mode	pH	pH / ORP
Temperature compensation	Manual	Automatic / Manual
Temperature probe	Pt1000	Pt1000 / NTC10K



RS485 Communication

RS485 Modbus RTU communication is documented for PH-302 only. It is not available on PH-303. Do not wire or program RS485 on a PH-303 unit unless Tenber supplies written model-specific confirmation.



PH-303 Support Note

For quotation, replacement or troubleshooting, provide the PH-303 model label, serial number, power marking, electrode information, temperature element, output mapping, wiring photos and process conditions.