CLEAN
INSTRUMENTS

Operation Manual

pH/ORP
PH500 Benchtop Meter

25.0 ATC °C

6.86 pH

SLOPE   OFFSET

1   2   3

CLEAN

MODE ESC   CAL INFO   MI

SET   ENT HOLD   MR

PH500

www.cleaninst.com

Factory defaults

Item	Corresponding interface	Factory Defaults
Temperature	P01	Manual Temperature Compensation 25℃
Electrode setting	P02	Glass pH electrode
Standard Solution	P03	USA：1.68，4.01，7.00，10.01，12.46
Auto Lock	P04	OFF
Auto power off	P05	ON
Backlight		OFF

PH buffers corresponds to temperature

Temperature(℃)	pH4.01	pH6.86	pH9.18	pH4.00	pH7.00	pH10.01
0	4.01	6.98	9.47	4.01	7.12	10.32
5	4.01	6.95	9.38	4.00	7.09	10.25
10	4.00	6.92	9.32	4.00	7.06	10.18
15	4.00	6.90	9.27	4.00	7.04	10.12
20	4.00	6.88	9.22	4.00	7.02	10.06
25	4.01	6.86	9.18	4.00	7.00	10.01
30	4.01	6.85	9.14	4.01	6.99	9.97
35	4.02	6.84	9.10	4.02	6.98	9.93
40	4.03	6.84	9.07	4.03	6.97	9.89
45	4.04	6.83	9.04	4.04	6.97	9.86
50	4.06	6.83	9.01	4.06	6.97	9.83
55	4.08	6.83	8.99	4.07	6.97	9.81
60	4.10	6.84	8.96	4.09	6.98	9.79
70	4.12	6.85	8.92	4.12	6.99	9.76
80	4.16	6.86	8.89	4.16	7.00	9.74
90	4.20	6.88	8.85	4.20	7.02	9.73

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Thank you for selecting our premium quality mete Before using the meter relevant person must read and understand contents of this operation manual.

Besides the reasonable prices, our meters also have the following advantages:

-Simple operation. This operation manual provides you clear and easy operation guidance.
-Humanized design. Comfortable holding.
-Multiple accessories available, such as sensors, buffer solution etc.

Safety

-Never expose the meter in the explosive environment! Part of the shell case is not aittight and teh invasion of spark or the corrosion caused by the invasive gas may cause explosion.
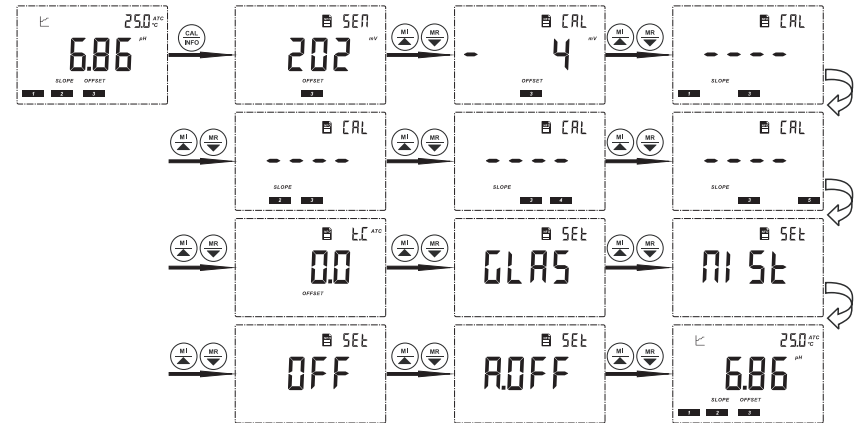
-Please follow the operation manual and the laboratory safety regulations when use the chemicals and solutions.

Safety precautions

-Never split the shell case
-Only the OEM maintenance staff is allowed to maintain the meter.
-Following environment effect should be avoided:
 Violent vibration
 Expose to sunlight for a long time
 Atmospheric humidity more than 95%
 Corrosive gas
 Ambient temperature below than -10℃ or more than 60℃
 Strong electric or magnetic field

1. Long press "CAL/INFO" to enter into Setting parameter when in measurement mode.
Press "M1▲" or "MR▼" to check through all the Calibration parameters and Setting parameter.
2. Press "MODE/ESC" to quit and go back to measurement mode.

11.1 Storage of measuring data

1.If you need to save the measuring data once it is stabilized, press "⬆" , the "💾" will be shown on the upper of the screen and the Lot no. will be shown on the upper left of the screen.
Press "ENT HOLD" to save the data. You can also press "MODE ESC" to not save. The meter will automatically go back to measurement mode after the data saved. The unit at most can save 256 sets data.
The screen will show ''OVER" if more than 256 sets reminds you the memory card is full.
2.Enter into setting mode P-06 if you need to delete the saved data forever. You con refer to P-06 Clearing memory function.

11.2 Browse on data storage

1.Press "MR" to enter into the browse on the data storage. The Lot no. will be shown and data twinkling. Press"⬆" or"MR" to check all the saved data. Press "MODE ESC" to go back to measuring mode. If showed "NONE" means no data is saved yet
2.If you quit and re-entering during checking the data, the meter will freeze in the last set of data.

Electrode Installation

You can refer to the Electrode operation manual for use and maintenance. The direction of the red dot marker on the Electrode and the salient point on the unit should be the same when install the electrode to the unit. Remove the electrode by pulling out the clamp on the electrode.
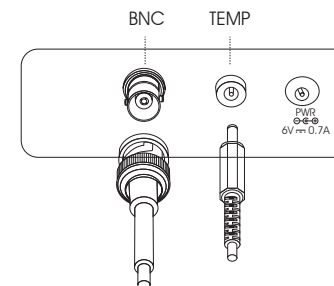
Shell

If the meter accidentally touches water or other fluids, please wipe it clean immediately. The meter function is not affected usually. But if affected and cannot use, please contact our company local customer service center. They will be very glad to help you.

Power on/off and Backlight

Power on:
Short press power on/off key to start the meter. The whole screen displayed within 1 second.
 Power off:
Long press the power on/off key to power off the meter.
Auto power off in 10 minutes if without any operation.
LCD backlight:
Short press power on/off key to control if turn on the backlight or not

3. Key Panel

Key instruction

Short press: Short press means release the key once after pressing.
(If there is no mark out below, default it as Short press)
Long press: Long press means press the key for 3 seconds and release.
Hold: Hold means not release the key; used in adjusting data and accelerate after a certain time.
Not release the key until the value is set as needed.

Key function

| Key	Description
(Power key)	Power on ON/OFF backlight Long press to Power off
MODE / ESC	Exit from current mode operation Mode switch
SET	Right shift data if press this button when setting Data setting
CAL / INFO	Enter into calibration mode Long press to enter into parameter browsing
ENT / HOLD	Freeze or unlock the displayed value Press to unlock in measurement mode
MI ▲	Store the displayed value into memory Increment values or scroll through the next options available Press to browse the saved data in measurement mode
MR ▼	Recall stored values from the memory Decrement values or scroll through the next options available Press to browse the saved data in measurement mode

10 Measurement Mode

1. You can first set the meter per your request. Otherwise, the setting will be factory defaults.
2. Use tap water or distilled water to clean the pH and the temperature electrode, removing the adhesive impurities on the surface of electrode.
3. After power on, press "MODE/ESC" to select the operation mode (pH or ORP).
4.Immerse the pH and the temperature electrode in the solution and stir gently. The measuring mark will twinkle. You can read the value once the data is stabilized and shows the stable mark.
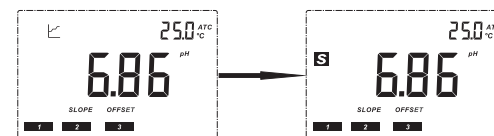
Note:
1.When the screen shows "ATC" means the temperature sensor is working and shows the actual temperature upper right corner. You can refer to the ''Temperature Offset setting" if a revision on the temperature is required. You can refer to P-01.
2.If the "Manual" is shown below the screen means the temperature electrode is disconnected and is manual temperature compensation. Factory default is 25°C. You can refer to P-01.
3.The measuring value is stabilized when the screen showed "S" . The "⚠" is showed if the Auto Lock Function is on.Press "ENT/HOLD" to o unlock.

Exchange of the measuring mode
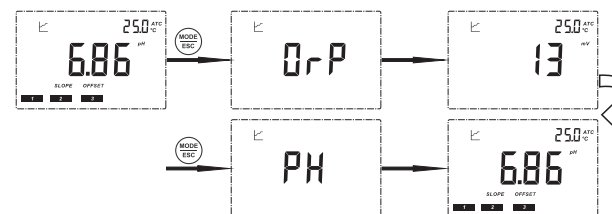
After power on, the meter will enter into measuring mode. Factory default is pH measuring mode. Press" MODE/ESC " to exchange between pH measuring mode and ORP measuring mode. Press "SET" to enter into parameter setting. Press "CAL/INFO" to enter into electrode calibration mode.

9.2 ORP Calibration
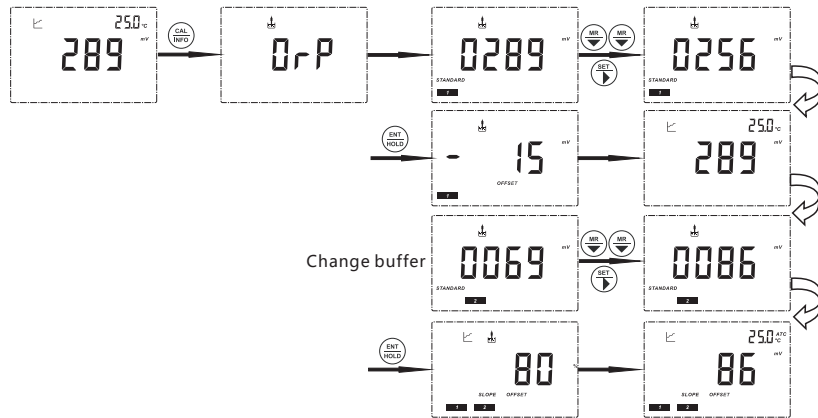
1.In ORP mode, put the electrode in quinhydrone buffer solution.
2.Press "CAL/INFO" , the screen will display "📊" . Wait the measuring value to be stabilized.
Press "M1▲ MR▼ SET▶" keys to set the data as same as the known buffer solution. Then press "ENT/HOLD"
to confirm. The meter will display the electrode slope and go to second point calibration. You
can also press " MODE/ESC " to quit.
3.The second point calibration can follow the above steps. After calibration, the meter will display
the electrode slop and go back to measurement mode.

Note:
1.When the measured value is out-ranged, the sign "Err" will be showed, possibly the aging
electrode or the polluted standard
2.You can press " MODE/ESC " key to quit and go back to measurement mode and the calibrated
points are already saved.
3.If you press "CAL/INFO" again, the meter will automatically clear all the previous saved calibration
points.

To make the buffer: Put a little quinhydrone in 4.00 pH buffer and you will get 256mV buffer.
Put a little quinhydrone in 7.00 pH buffer and you will get 86mV buffer.
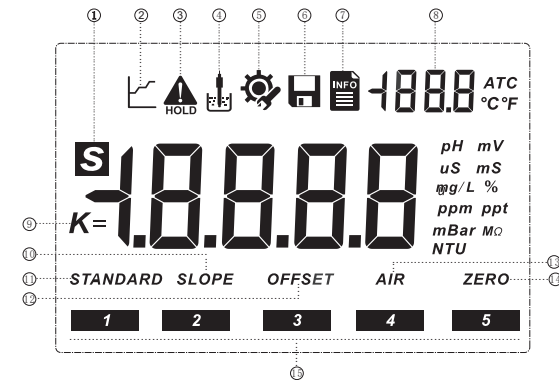
Display:

1 **S** Measuring Status-Stable Value
2 📈 Measuring Status-Calculating
3 🔒 Auto lock
4 📟 Electrode Calibration
5 ⚙ Setup display
6 💾 Memory
7 📋 Parameter browse
8 ┤88.8 Secondary display area
9 K = Cell constant
10 **SLOPE-** Electrode Slope
11 **STANDARD-**Buffer solution
12 **OFFSET-**Electrode offset
13 **AIR-**Air Calibration
14 **ZERO-**Zero Calibration
15 Buffer solution marking
16 mV、PH、mA、%、mS、μS、℃、mg/L、ppm、ppt g/L mBar-Unit of Measurement
17 **Auto/Manual-**Temperature Compensation
18 4.01、7.00、10.01 Calibrated Points-USA Buffer Standard
19 4.01、6.86、9.18 Calibrated Points-NIST Buffer Standard

Display Character Table:

|			
PH	pH	YES	YES
OrP	ORP	NO	NO
CON	CON	ON	on
tdS	TDS	OFF	off
SALt	Salinity	dEF	Factory defaults
d0.S	mg/L	d.CLr	Clear data
d0.P	%	A.OFF	Auto Power off
Err	Error	HOLd	Auto lock
SAVE	Save data	t.C	Temperature compensation
CLr	Clear data	t.OFS	Temperature offset
OVEr	Measuring Value Over	t.SEt	Manual temperature
UNdr	Measuring Value under	SENS	Sensor
OVr	Temperature Value Over	GLAS	pH glass sensor
Odr	Temperature Value under	ANtI	pH antimony sensor
d123	Stored data item	bUFF	Buffer solution
NONE	no stored data	NISt	Nist standard
FULL	Full data storage	USA	USA standard
SEN	Sensor	bArO	Barometric
CAL	Calilrate	t.rEF	Temperature base
SEt	Set Parameter	t.COE	Temperature coeffiecent
P-	menu item		

9.1 pH Calibration
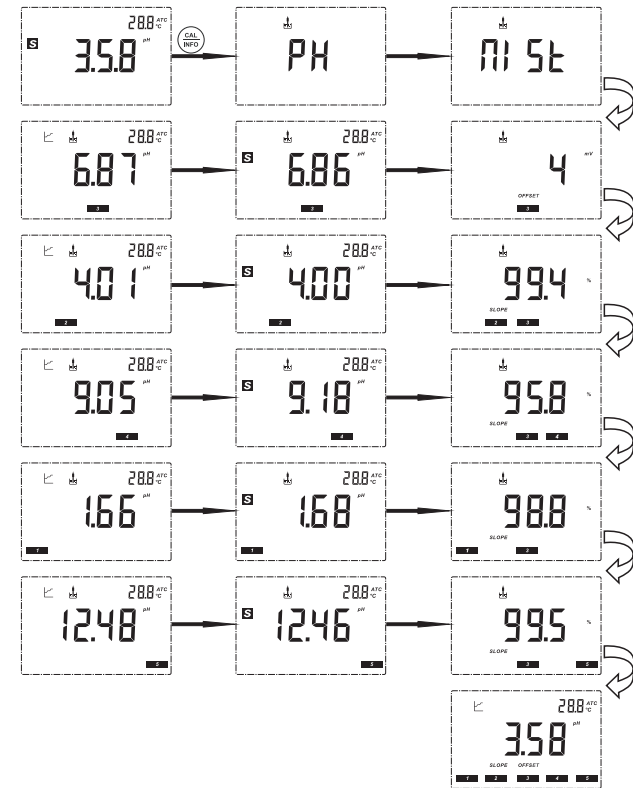
1.Inset the electrode in the pre-set standard solution. You can refer to P-03 explanation on the standard solution setting.

2.Press "(CAL/INFO)" ,the screen will display " ". Wait the measuring value to be stabilized.The offset slope will be shown on the screen and the meter will automatically complete the calibration and save the data. (You can also press "(ENT/HOLD)" to save the calibration data before the scree shows " S "). Then you can calibrate the rest 4 points.

Note: System defaults first point calibration is 6.86pH or 7.00pH.

3.After calibration of the first point, you can arbitrarily calibrate the rest 4 points. The meter will automatically recognize buffers.

Note:

1.The meter can automatically save calibration data during calibration once the data is stabilized. You can also press "(ENT/HOLD) " to save the calibration data before the scree shows " S " . When the measured value is out-ranged, the sign "Err" will be showed, possibly the aging electrode or the polluted standard solutions lead to this.

2.You can press "(MODE/ESC)" key to quit and go back to measurement mode and the calibrated points are already saved.

3.If you press "(CAL/INFO)" again, the meter will automatically clear all the previous saved calibration points.

8.7 P07 Reverting to Factory Default Setting
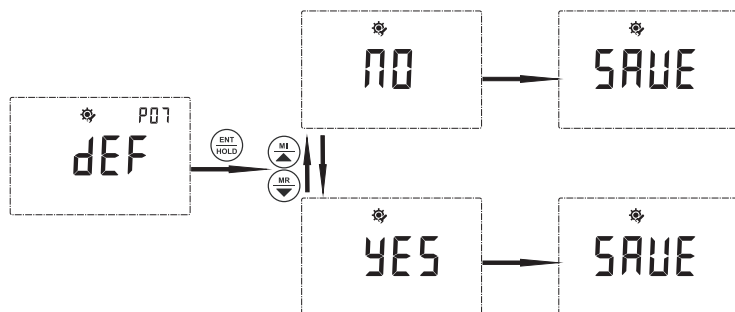
After entering P-07, you can select NO or YES to not reverting or reverting to factory settings by pressing (M↑) (MR↓) . If select YES, the meter will revert all the settings to factory defaults and all the settings will lost forever. The unit will restart at the same time.

You can go to next parameter setting by pressing (M↑) (MR↓) , or pressing (MODE ESC) key to quit and go back to measurement mode.

pH / mV

PH500 Benchtop Meter

New Model ! Brief and exquisite design, space saving, easy calibration with calib rated points displayed, optimum accuracy, simple operation comes with high luminant backlight. It is your reliable partner for routine applications in laboratories, productions plants and schools.

-All-weather precise, Comfortable holding, Easy carrying , Simple Operation
-Large LCD with backlightfor easy meter information reading
-IP65rated
-Up to 5 points auto-buffer-recognition: Zero offset, Slope of Acid/Alkali segment ensure accurate measuring results for the full range
-One key to check through all the settings, including: Zero offset Slope ofcid/Alki segment d all the settings
-Auto lock function
-256 data sets memory stores and recalls
-Auto Power off saves battery after 10-mins non-use
-Detachable Electrode Stand oranizes multiple electrodes neatly, easy installing at either left or right side and holds them firmly in place.

6 Technical Specifications

|		
pH	Range	-2.00 ~ 16.00 pH
	Resolution	0.01 pH
	Accuracy	±0.2% F.S.
ORP	Range	-2000~2000 mV
	Resolution	1 mV
	Accuracy	±0.2% F.S.
Temperature	Range	-10.0 ℃~110.0 ℃
	Resolution	0.1 ℃
	Accuracy	±0.2℃
pH Buffer Kinds	NIST	1.68 4.01 6.86 9.18 12.46
	USA	1.68 4.01 7.00 10.01 12.46
Others	Environment	-5 ℃~60 ℃, Relative humidity 90%
	Memory	256 sets
	Dimensions	140*210*35 mm (W*L*H)
	Weight	650g

8.5 P05 Auto Power Off Setting
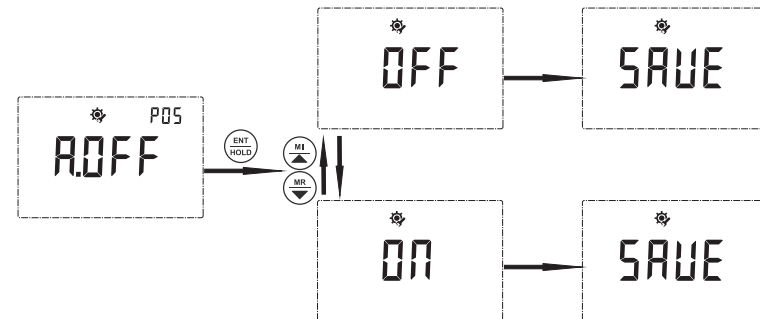
After entering P-05, you can select ON or OFF the Auto Power Off by pressing (MI▲) (MR▼). If the Auto Power Off is ON, the meter will power off if no operation in 10mins.
You can go to next parameter setting by pressing (MI▲) (MR▼), or pressing (MODE ESC) key to quit and go back to measurement mode.

8.6 P06 Clearing Memory Function
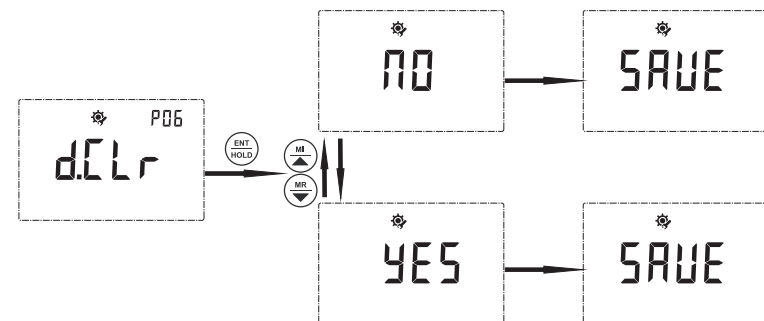
After entering P-06, you can select NO or YES to not clear or clear the data by pressing (MI▲) (MR▼).
If select YES, the meter will clear all the saved data.
You can go to next parameter setting by pressing (MI▲) (MR▼), or pressing (MODE ESC) key to quit and go back to measurement mode.

8.4 P04 Auto Lock Function setting
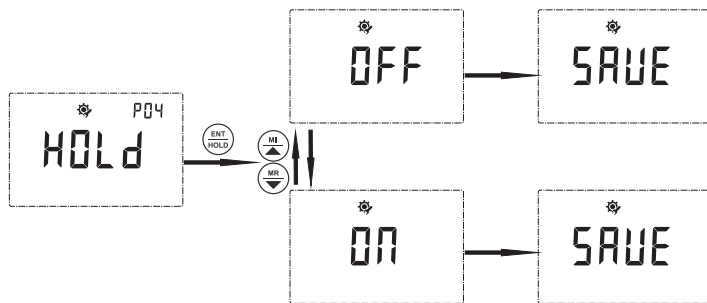
After entering P-04, you can select ON or OFF the Auto Lock Function by pressing (MI) (MR). If the Auto Lock Function is ON, the meter can lock the measured value after the reading had stabilized and display ⚠. Press (ENT HOLD) to unlock.

You can go to next parameter setting by pressing (MI) (MR), or pressing (MODE ESC) key to quit and go back to measurement mode.

Long press (CAL INFO) for 3 seconds in measurement mode.

Then press (MI) or (MR) to browse the parameters

1. Electrode input signal
2. Zero offset
3. Electrode Slope between 1.68-7.00 or 1.68-6.86
4. Electrode Slope between 4.01-7.00 or 4.01-6.86
5. Electrode Slope between 10.01-7.00 or 9.18-6.86
6. Electrode Slope between 12.46-7.00 or 12.46-6.86
7. Offset of temperature electrode
8. Electrode kinds
9. Buffer kinds
10. Hold, Auto Lock
11. Auto power off

8 pH Set Up

8.1 P01 Temperature setting
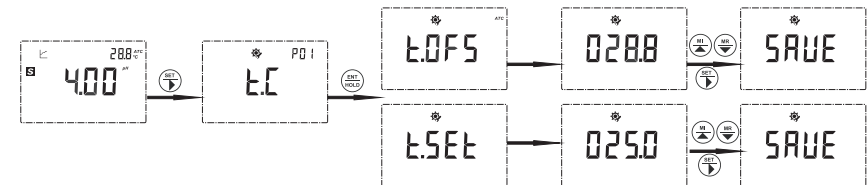
After power-up, the unit will enter the measurement mode. Factory default is pH measuring mode. You can switch between the pH measurement mode and the ORP measurement mode by pressing the "(MODE ESC)" key. Press "(SET)" to enter into parameter setting. Press "(CAL INFO)" to enter into electrode calibration mode.

 "Auto" will be displayed after the temperature when the meter is connected with temperature electrode. If you need to correct the actual temperature measurement, please do as following: Press "(SET)" to enter P01, then press "(ENT HOLD)" to display the actual temperature. Afterwards, press " (MI)(MR)(SET) " keys to correct. Press "(ENT HOLD)" to confirm. Screen display back to P01. You can go to next parameter setting by pressing "(MI)" or "(MR)" keys or pressing "(MODE ESC)" key to quit and go back to measurement mode. Range of temperature correction is 10℃.

Factory default is 25℃ when the meter is unconnected with temperature electrode. You can also follow the above steps to set the manual temperature compensation. Setting range: 0-100℃.

Note:

The meter will display "ERR" and go back to setting if the setting temperature is out of range during setting temperature offset and manual temperature setting.

8.2 P02 Electrode kind setting
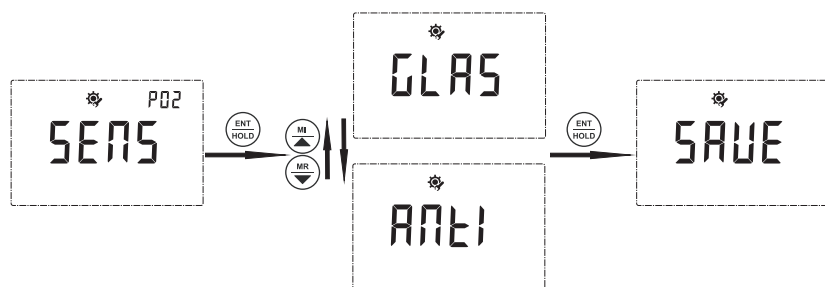
Press " ENT/HOLD " in P02. Then press " MI ▲ " or " MR ▼ " key to select "**GLAS** " PH electrode or " **ANTI** " antimony electrode. Press" ENT/HOLD " to confirm. You can go to next parameter setting by pressing " MI ▲ " or " MR ▼ " keys or pressing " MODE/ESC " key to quit and go back to measurement mode.

8.3 P03 pH Standard Solution
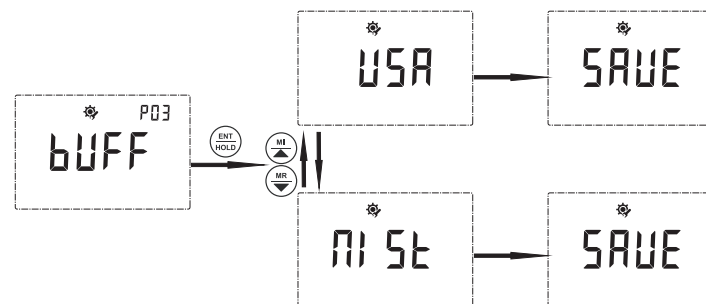
Press " ENT/HOLD " in P03. Then press " MI ▲ " or " MH ▼ " key to select NIST (including 1.68,4.01,6.86,9.18,12.46) or USA(including 1.68,4.01,7.00,10.01,12.46). Press " ENT/HOLD " to confirm. You can go to next parameter setting by pressing " MI ▲ " or " MR ▼ " keys or pressing " MODE/ESC " key to quit and go back to measurement mode.