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1. FEATURES

- * Microprocessor circuit assures high accuracy and provides special functions and features.
- * Super large LCD display with contrast adjustment for best viewing angle.
- * Dual function meter's display.
- * Heavy duty & compact housing case.
- * Records Maximum, Minimum and Average readings with RECALL.
- * Data hold.
- * Auto shut off saves battery life.
- * Operates from OO6P DC 9V battery.
- * RS 232 PC serial interface.
- * Used the durable, long-lasting components, including a strong, light weight ABS-plastic housing case.
- * Multi-measurement : PH, mV, Temperature.
- * Temperature function for °C or °F be selected by push button on front panel easily.
- * Show the PH & temperature values on the same LCD display at the same time.
- * High input impedance avoid measuring error.
- * Wide manual temperature compensation range from 0 °C to 100 °C, high accuracy.
- * Auto temperature compensation range via. the external optional temp. probe.
- * The values of "Manual temp. compensation" are reading from the LCD display directly, no errors & easy operation .
- * With the optional temp. probe for automatic temp, compensation of PH function or temp measurement.
- * The instrument build in mV(milli volt) measuring function, letting you make ion-selective, ORP, and other precise mV measurement.

* Wide applications: water conditioning, aquariums, beverage, fish hatcheries, food processing, photography, laboratory, paper industry, plating industry, quality control, school & college, water conditioning.

2. SPECIFICATIONS

2-1 General Specifications

Circuit Custom one-chip of microprocessor LSI circuit.

Display Dual function meter's display, 13 mm(0.5") Super large LCD display with contrast adjustment for best viewing angle.

Measurement PH 0 to 14 pH mV 0 to 1999 mV Temperature 0 to 65 °C / 32 to 150 °F Input 10 ~ 12ohms.

Impedance Temperature Manual 0 to 100 °C, adjusting by Compensation push button on front panel.

For Automatic With the optional TEMP. PH Range probe, 0 to 65 °C.

Calibration Built in SLOPE(PH 4) & CAL.(PH 7) For calibration VR (multi-turns potentiometers) PH Range on front panel, high reliability.

Data hold To hold the reading values on display.

Memory Records Maximum, Minimum and Average Recall readings with RECALL.

Power off Auto shut off saves battery life, or manual off by push button.

Data Output RS 232 PC serial interface.

Over input Indication of "- - - -".

indication PH Any combination PH electrode with

Electrode BNC connector/ Operating 0 °C to 50 °C(32 °F to 122 °F).

Temperature

Operating Max. 80% RH.

Humidity

Sampling Time Approx. 0.8 second.

Power Supply 006P DC 9V battery(Heavy duty type).

Power Current Approx. DC 5.7 mA.

Weight 270 g / 0.59 LB (included batteries)

Size (meter) 180 x 72 x 32 mm(7.1 x 2.8 x1.3 inch).

Standard Instruction manual.....1 PC.

Accessories

Optional Carrying case

Accessories pH electrode, PE-01, PE-11, PE-03.

ATC temp. probe, TP-07.

PH 4 buffer solution, PH-04.

PH 7 buffer solution, PH-07.

2-2 Electrical Specifications (23.5 °C)

Measurement Range Resolution Accuracy

PH 0 to 14 PH 0.01 PH 0.03 PH + 2 d)

mV 0 to 1999 mV 1 mV (0.5% + 1 d)

Temp.(°C) 0 to 65 °C 0.1 °C 1 °C(0 - 50 °C) 4 °C(> 50 °C)

Temp.(°F) 32 to 150 °F 0.1 °F .8 °F(32 - 122 °F) .2 °F(> 122 °F)

* PH accuracy are based on after calibration, meter only.

* Spec. tested under the environment RF Field Strength less than 3 V/M & frequency less than the 30 MHz only.

- 3-1 Display 3-10 Manual Temp. Button
- 3-2 Power Off/On button 3-11 Function Select Switch
- 3-3 Data Hold Button 3-12 SLOP(PH 4) Calibration
- 3-4 °C/ °F button Button VR
- 3-5 LCD Contrast Adjust 3-13 >> Button
VR (Manual Temp. adjust)
- 3-6 Memory "Record" Button 3-14 Battery Compartment/
Cover
- 3-7 Memory "Call" Button 3-15 Input Socket
- 3-8 > Button (BNC, for PH & mV)
(Manual Temp. adjust) 3-16 RS-232 Out Terminal
- 3-9 CAL.(PH 7) Calibration 3-17 Temp. Probe Input Socket

4. PH CALIBRATING PROCEDURE

4-1 Calibrating Consideration

The PH meter already calibrated by mV signal that simulated from the mV output of the ideal PH ELECTRODE (base on 25 °C environment). For an ideal electrode will produce 0 mV at PH 7.00, but most electrodes are slight off.

It is necessary to make the following calibration procedures (4-2, 4-3), if the user intend to keep instrument along the electrode within high accuracy or the first time use the meter & the electrode.

4-2 Requiring Equipment for Calibration

- 1) Combination PH ELECTRODE(optional).
- 2) Two buffer solutions (optional) : PH-07 & PH-04.

4-3 Two Points Calibration

- 1) Power on the instrument using the " Power On/Off Button"(3-2, Fig.1).
- 2) Select the " Function Switch " (3-11, Fig.1) to the "PH MANUAL TEMP." position.
- 3) Adjust the " Temperature Compensation Values " to be same as the temperature values of the PH-04 be same as the temperature values of the PH-04 buffer solution.

The adjusting procedures, please refer to 5-1

- 4) Connect the combination PH ELECTRODE to the BNC socket(3-15, Fig. 1) and place the electrode " BNC socket " (3-15, Fig. 1) and place the electrode into the buffer solution PH-07.

Push the "PH 7 calibration Button" (3-9, Fig.1) Use the screw to adjust the " PH 7 calibration VR " (3-9, until the display show the values same as 7.00 exactly. Fig.1) until the display reading reach to 7.00 0.01.

- 5) Rinse the electrode in the distilled water.

Place the electrode into the PH-04 buffer solution.

solution. Use the screw to adjust the " PH 4 calibration VR " (3-12, Fig.1) until the display reading reach to 4.00 0.01 (or 10.00 0.01 for PH-10).

- 6) Rinse the electrode in the distilled water again.

- 7) Repeat above (4) to (5) procedures two times at least.

- 8) The instrument and electrode are now finished the " TWO POINTS CALIBRATION " & ready for the measurement.

4-4 Single Point Calibration

- 1) Power on the instrument by pushing the " Power On/Off On/Off Button(3-2, Fig.1).
- 2) Select the " Function Switch " (3-11, Fig.1) to the "PH INT. TEMP." position.
- 3) Connect the combination PH ELECTRODE to the " "BNC socket"(3-15, Fig. 1) and place the electrode into BNC socket " (3-15, Fig. 1) and place the electrode into the PH-07 buffer solution.

Use the screw to adjust the " PH 7 calibration VR " (3-9, Fig.1) until the display reading reach to 7.00 0.01.

4) Repeat above (3) procedures two times at least.

5) The instrument and electrode are now finished the "SINGLE POINTS CALIBRATION" & ready for the " SINGLE POINTS CALIBRATION " & ready for the measurement.

5. PH TEMPERATURE COMPENSATION

Enables the meter to read solutions at various temperatures. The meter corrects for an electrode's temperature dependency.

The compensation may be manual with a button adjustment on the meter, or it may be automatic with an optional temperature sensing probe immersed in the test solution.

5-1 Manual temperature compensation

1) Select the " Function Switch " (3-11, Fig.1) to the " PH MANUAL. TEMP." position.

2) Push the " MANUAL Temp. Button " (3-10, Fig.1) first, then the display will show " 25.0 °C " for the initial manual setting temp.

3) Push the " > Button " (3-8, Fig. 1) once will up 0.1 °C to the manual setting temperature.

4) Push the " >> Button " (3-13, Fig.1) once will up 1 °C to the manual setting temperature.

Push the ">> Button" continuously will up 1 °C to Push the " >> Button " continuously will up 1 °C to setting temperature for every half seconds.

5-2 Automatic temperature compensation

1) Select the " Function Switch " (3-11, Fig.1) to the " PH "PH AUTO TEMP." position.

2) Plug in the " Optional Temp. Probe, TP-07 " into the " Temp. Socket " (3-17, Fig. 1).

3) Place the "Temp. Probe" into the tested solution, then the PH function will be temperature compensated automatically.

6. MEASURING PROCEDURE

6-1 PH Measurement

After the instrument and PH electrode are calibrated, the unit is now ready for measuring.

1) Connect the combination PH ELECTRODE to the " BNC socket(3-15, Fig. 1).

2) Power on the instrument by pushing the " Power On/Off Button(3-2, Fig.1).

3) If the operating is under the " Manual temperature compensation", then please according the above 5-1 compensation ", then please according the above 5-1 measuring procedures.

If the operating is under the "Automatic temperature If the operating is under the " Automatic temperature compensation", then please according the above 5-2 compensation ", then please according the above 5-2 measuring procedures.

4) Place the electrode into the measured solution, then the instrument will display the PH value.

5) After make the measurement, please rinse the electrode in distilled water.

6-2 mV Measurement

The instrument build in mV(milli volt) measuring function, letting you make ion-selective, ORP (oxidation-reduction potential), and other precise mV measurements.

Select the "Function Switch"(3-11, Fig.1) to the "mV" position. Then the meter will show the mV values on the display.

6-3 Temp. Measurement

- 1) Select the "Function Switch"(3-11, Fig.1) to the " PH AUTO TEMP. " position.
- 2) Plug in the " Optional Temp. Probe " into the " Temp. Input Socket " (3-17, Fig. 1).
- 3) * If intend to measure the " °C ", then push the " °C/ °F button " to select the " °C " unit.
* If intend to measure the " °F ", then push the " °C/ °F button " to select the " °F " unit.
- 4) Place the "Temp. Probe" into the tested solution, then the meter will show the temperature value.

