



USER MANUAL

pH / ORP METER

pH 302

1. Introduction

SANSEL pH 302 Model pH / ORP meter that offer high Accuracy pH, ORP and Temperature Measurement in a Single Unit. It has 16 Character x 2 Line LCD Display and read pH / ORP and Temperature at a time with Engineering Unit.

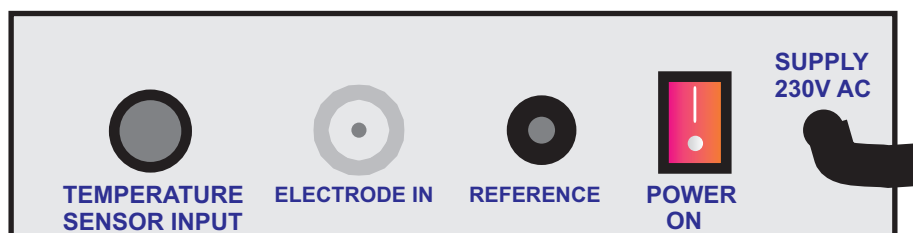
These Technologically advanced Meter build with easy Calibration Steps. Automatic and Manual Temperature Compensation is Selectable for pH Parameter. Two Point Calibration is provided for ORP Measurement.

2. Specification

Model	pH 302
Measuring Parameter	pH / ORP (User Selectable) & Temperature (° C)
Input Impedance	$>10^{12}$ Ohms
Range	0 - 14 pH / 0 to + 1999 mV / 0 - 150 ° C
Resolution	0.01 pH / 1 mV / 0.1 ° C
Temperature Compensation	0 - 150°C Manual / Automatic
Electrode	Combined Electrode for pH with BNC attachment
Input Connection	BNC Socket
Accuracy	± 0.01 pH ± 1 digit / ± 1 mV ± 1 digit ± 0.5 ° C ± 1 digit
Display	16 Character x 2 Line LCD Display
Calibration	2 & 3 Points for pH (7 , 4 , 9.2 pH) ,2 Point (presettable) for ORP
Operating Environment	0 - 50°C / 5 to 95 % RH Non Condensing
Power Supply	90 to 270V AC / 50Hz
Dimension	185 (W) x 185 (D) x 80 (H) mm
Standard Accessories	Operation manual, pH electrode, stand set, electrode clip, ORP Electrode (optional)
Weight	1.7 Kg (Approx.)

Note: Due to continuous product improvements, Published specifications may change with out notice

3. Terminal Arrangement



4. Configuration Setup

4.1. Display Parameter Mode

1 : Press  CONF key continuously for 5 sec, till the display shows



2 : To select “ pH ” or “ ORP ” press  UP or  DOWN key , then Save by  ENT Key.

3 : Then Display Shows

4.2. Temperature Compensation Mode



MTC - Manual Temperature Compensation
ATC - Automatic Temperature Compensation

4 : To select “ ATC ” or “ MTC ” press  UP or  DOWN key, then Save by  ENT Key.

5 : Then Display Shows

4.3. Calibration Point Selection Mode



2 - 2 Point Calibration (4 & 7 pH)
3 - 3 Point Calibration (4 , 7 , 9.2 pH)

6 : To Change the Calibration Point , Press  UP or  DOWN keys to Select any One (2 Point or 3 Point).

7 : Then Save by  ENT key and Return back to Read Mode



5. Temperature Compensation

5.1. Manual Temperature Compensation (0 - 150.0 °C)

NOTE : If Temperature Compensation is MTC display Shows



1 : To Modify the MTC, Press  TEMP key Continuously for 5 sec till the Display Shows



2 : Press  UP and  DOWN keys to select the Desire Value (Roll over the Blinking Digit between 0 - 9) and Press  MODE Key to Next Digit Selection and Repeat the Above for all the four Digit and Select the Desire Value and Save by  ENT Key.

5.2. Automatic Temperature Compensation (0 - 150.0 °C)

Note : 1. Connect External Temperature Sensor Before Select this Mode.
2. Dip Temperature Sensor Parallel with Electrode on Test Liquid.

1 : If Temperature Compensation mode is ATC , then the display shows test Liquid Temperature as

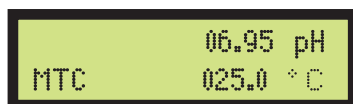


6. pH Calibration (Automatic)

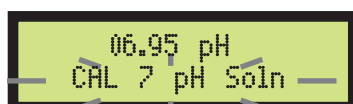
NOTE :

1. Before pH Calibration Ensure the “Parameter ” was selected as “pH”.
2. For Best results, calibrate with certified accurate pH Buffer standard Solutions. (4 , 7 , 9.2 pH)

1 : Connect the Combined pH Electrode on Specified Terminal given on Rear side of Instrument. Then Switch ON the Instrument, the Display Shows

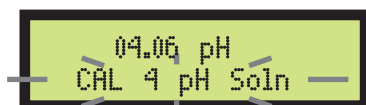


2. Rinse the Electrode with Distilled Water. Immerse the Electrode into the Standard , Wait for Stabilize and Press  CAL Key for 5 Sec the Display Shows



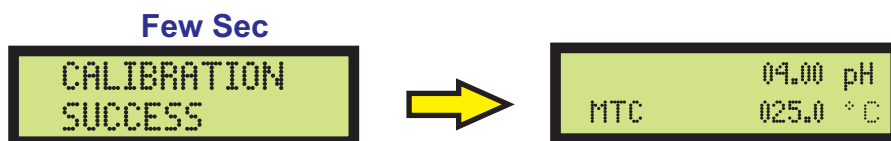
3 : The Primary display will Show the Un-calibrated Value, while the secondary display shows standard solution Value, Wait Until the Display Stabilize.

4 : Then Press  CAL key to Confirm the Calibration value. The Secondary display will Enter to Next Remaining Standard Solution, the display Shows



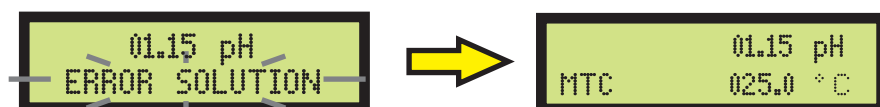
5 : Remove the Electrode, Rinse with Distilled water. Immerse into Next Standard Solution as displayed on Secondary display.

6 : Repeat Steps 3 to 5 with additional calibrations standards if desired and return to Read Mode



NOTE :

AT CALIBRATION MODE, THE SOLUTION IS MORE DEVIATION FROM THE STANDARD VALUE, THE DISPLAY SHOWS “ ERROR SOLUTION ” FOR FEW SEC AND AUTOMATICALLY RETURN TO READ MODE.



7 . ORP Calibration (manual)

NOTE :

1. Before ORP Calibration Ensure the “Parameter ” was selected as “ORP”.
2. For Best results, calibrate with certified accurate ORP Buffer standard Solutions.

1 : Connect the Metallic ORP Electrode on Specified Terminal given on Rear side of Instrument. Then Switch ON the Instrument, the Display Shows



2. Rinse the Electrode with Distilled Water. To Calibrated the Zero, Switch OFF the Instrument and ON by pressing the  CAL Key the display shows



for Few Seconds & automatically Offset the Zero, then Return Back to Read Mode.

3. Rinse the Electrode with Distilled Water. Immerse the Electrode into the Standard , Wait for Stabilize and Press  CAL Key for 5 Sec the Display Shows



4 : The Primary display (A) will Show the Un-calibrated Value, while the Primary display (B) should be calibration value settable by User.

5 : Press  UP and  DOWN keys to select the Desire Value (Roll over the Blinking Digit between 0 - 9) and Press  MODE Key to Next Digit Selection and Repeat the Above for all the four Digit and Select the Desire Value.

6 : Press  CAL Key to Calibrate the Selected Calibration and Return Back to Read Mode.

8. Temperature Calibration for ATC

The Factory temperature calibration should last for the life of the original sensor since it does n't normally drift Temperature calibration is always recommended upon sensor replacement. It may also be desirable to adjust the temperature to match a certified accurate thermometer or another Instrument. To perform temperature calibration

1 : Place the Reference Thermometer and pH Meter Temperature Sensor into the sample solution. Allow enough time for both to stabilize.

2 : Note down the Difference between them, for adjustment.

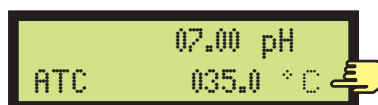
3 : Switch OFF the pH Meter and ON by Pressing ▲ TEMP Key, the display shows



Default Value was "50.0"

4 : If the Error Value Difference is +5.0 °C, Increase the Default Value "50.0" to "55.0" or If the Error Value Difference is - 5.0 °C, Decrease the Default Value "50.0" to "45.0".

5 : To Adjust the Error value, Press ▲ UP or ▼ DOWN keys (Roll over the Blinking Digit between 0 - 9) and Press ► Mode Key to Next Digit Selection and Repeat the Above for all the Three Digit . Then Save ● ENT Key and return Back to Read Mode



ATC Temperature Reading
After Error Adjustment

9. Instructions for Electrode

The Combined Electrode is Combination of Glass Electrode and Reference Electrode in a single entity. When the electrode is in use or in storage the reference solution drops down, it should be filled with freshly prepared 2M Potassium Chloride solution saturated with Silver Chloride through a filling hole provided below the Electrode Cap (Not applicable for Glass Electrode).

PREPARATION FOR USE :

Shake the Electrode gently to ensure that the internal solution covered the whole membrane and no air bubbles are interrupted. Soak the Glass Bulb in distilled water or 4.00 pH buffer for over night. Rinse the bulb in distilled water a number of times before use. A white bottom cap is provided for Gel-filled Combined Electrode and Un-breakable Electrodes, which should be removed gently. This cap is filled with saturated KCl to make the Electrode ready to use.

MAINTENANCE :

The Electrode should be cleaned every time by rinsing with distilled water (don't use ordinary tap water). Sticky solution may be removed by wiping the electrode with a moist pad of cotton. In an event of prolonged storage

the outer surface of the bulb may remain dry, for reuse the electrode must be soaked in 4.00 pH buffer for 24 hours. the Electrode, which fails to respond to the above treatment, can be further activated by dipping in N/10 HCl for 2 hours and wash with distilled water thoroughly. For prolonged storage Gel-filled and Unbreakable Gel-filled, fill the bottom cap with Saturated KCl. So that the Bulb and Gel will not remain dry and can be used without soakiReference Electrode solution is Saturated KCl.

PRECAUTION :

Don't use Electrode beyond the pH and Temperature Range, permanent damage may occur if used beyond the range.

⚠ Caution : Electrode will get permanently damaged if wrong solution is used.

For further clarification kindly contact us.



SANSEL INSTRUMENTS AND CONTROLS
1/46, GANGA NAGAR, TNHB COLONY, MADURAVOIL,
CHENNAI - 600 095, TAMIL NADU, INDIA
PH : +91 - 44 - 23783951, E MAIL : enquiry@sansel.net
WEBSITE : www.sansel.net