OPERATION MANUAL

HANDHELD pH/ORP METER

CE

- 8651 pH/ORP Meter
- 8551 ORP Meter

INDEX

INTRODUCTION

Thank you for purchasing this handheld meter. Please read this manual thoroughly before operation.

Features:

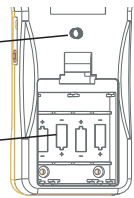
- Multi-display on one LCD screen.
- Automatic buffer recognition to avoid errors during calibration .
- Maximum 5 points pH calibration.
- Hold function to freeze the record.
- Max./Min. review of memorized data.
- Backlight for dark environment operation.
- Easy to view probe calibration data.
- "Ready" icon on LCD to indicate the reading is stable or not.
- RS232 connection for online logging or upload 99 memories to PC for analysis.
- Automatic or manual temperature compensation are allowed .
- Could be powered by adaptor for long time use.
- Auto power off to save battery power.

MATERIAL SUPPLIED

	8651	8551
Meter	✓	✓
9V Adaptor	Optional	Optional
Battery	✓	✓
pH probe	✓	
ORP probe	✓	✓
Manual & Case	✓	✓
RS232 + CD	Optional	Optional
Temp. Probe(87P6)	Optional	Optional
pH buffer	✓	

POWER SUPPLY

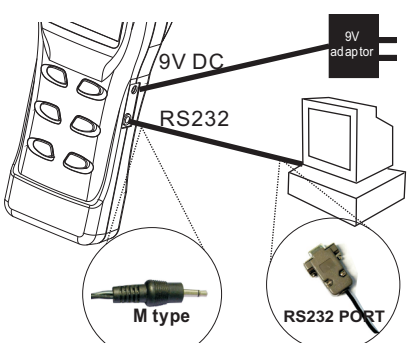
The meter is powered by 4pcs AAA batteries or one 9VDC adaptor. Please insert the batteries into the battery compartment with correct polarity and good contact.



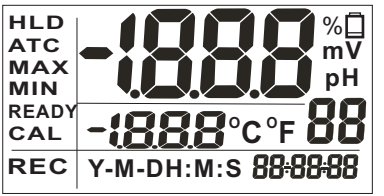
When Battery low icon" " appears on the LCD, please replace batteries to get correct reading.

METER SIDE VIEW

METER RIGHT SIDE VIEW

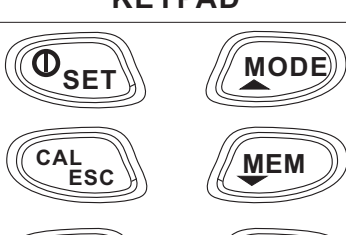


LCD DISPLAY



1. Top primary LCD displays pH, mV, ORP.
2. Icon" pH ", "mV ",appears on the right of LCD to indicate the meaning of the primary LCD value.
3. "READY " indicates the reading is stable.
4. "MAX " ,"MIN " indicates the maximum or minimum value of the memorized data.
5. " HLD " indicates the reading is freezing.
6. " REC " indicates the meter is in recall mode.
7. The digital number in the right-middle LCD is the total numbers of records . For example, "25" means there are 25 records saved in the meter.
8. The " " are real time display. Y-M-D is Year-Month-Date. H:M:S is Hour-Minute-Second.
9. "ATC" means the meter is in automatic temperature compensation mode.
10. The digital in the middle of the LCD shows the temperature value. The temperature unit ℃ or ℉ is selectable.
11. The " CAL " appears on the LCD to indicate the meter is in calibration mode.

KEYPAD



SET -Press to turn **ON/OFF** the meter. When the meter is on, it starts in the mode of last power off.
-In normal mode, press > 1sec to enter **SET** mode.

CAL ESC -Switch between " **normal** "and "**calibration**" mode.
-Press to enter manual temp. setting.
-In calibration, setting or recall mode, press to return to normal mode.

HLD REC -Press to freeze the reading. Press again to release.
-Press more than 1sec to switch between " **normal**" and "**recall**"

MODE -Press to switch measuring mode.
-Press to increase the setting value.

MEM -Press to save the current reading.
-Press to decrease the setting value.

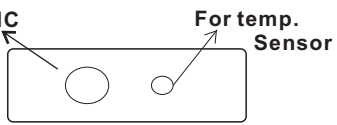
MX/AV -Press to confirm the calibration or parameter setting.
-Press to view the max./ min. of the memory in recall mode.

OPERATION

STARTING UP

1. Install batteries or connect with an adaptor from AC power source to the power jack. Slide in the adaptor jack into the meter, make sure it is firmly seated. The meter's operation voltage is 9VDC.

2. Connect a sensor electrode to the BNC port on the top of the meter. For pH probe with temp. sensor, connect a temperature sensor to the phone jack port next to BNC.



3. Connect RS232 cable to meter and computer if you intend to upload real time measurement and memories to computer for analysis.(OPTIONAL)

4. Available measurable parameters of each model:

	PROBE	PH	mV/ORP(mV)
8551	OPR probe		●
8651	pH probe	●	●
	ORP probe		●

NOTE: The temp. of the measured liquid must be stable.

PH MEASUREMENT

This meter is designed to take reading with automatic or manual temperature compensation. Automatic temperature compensation only occurs when a temp. sensor is plugged into the meter. For manual temperature compensation, the default setting is 25 ˚C. You can manually adjust the temperature to match your working conditions which is measured by a separate thermometer.

Be sure to remove the pH electrode soaker bottle from the electrode before measurement. To take the readings:

Step1
Rinse the probe with de-ionized or distilled water before use in order to remove any impurities adhering to the probe. If the electrode is dehydrated, soak it for 30 minutes in KCl solution.

Step2
Press SET to power on. "**ATC**" appears to indicate automatic temp. compensation probe is plugged.

Step3
Dip the electrode into the sample, the electrode must be completely immersed into the sample. Stir the probe gently to create a homogenous sample.

Step4
Wait until the reading is stabilized. If "**READY**" icon is activated, it will appear when the reading is stable.

Step5
To toggle between pH and mV, press the MODE key.

mV MEASUREMENT(± 499mV)

The mV measure range is from -499mV to +499mV with a pH probe **(8651** only).

Be sure to remove the **pH** electrode soaker bottle, to take the readings:

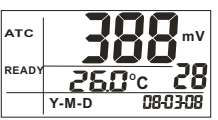
Step1
Rinse the probe with de-ionized or distilled water before use to remove any impurities adhering to the probe. If the electrode is dehydrated, soak it for 30 minutes in KCl solution.

Step2
Press Φ SET to power on the meter. Press MODE key to select **mV** mode.

Step3
Dip the electrode into the sample, the electrode must be completely immersed into the sample. Stir the probe gently to create a homogenous sample.

Step4
Wait until the reading is stabilized. if "**READY**" icon is activated, it will appear.

Step5
To toggle between mV and pH, press MODE key.



ORP (mV)MEASUREMENT(±1999mV)

Taking **ORP (Oxidation Reduction Potential)** (mV) measurements, the range is -1999mV to +1999mV with an ORP probe. Two kinds of ORP probe for your selection:
P/N:850P (Regular performance, Pt pin)
P/N:86P5 (High performance, Pt band)

Be sure to use an **ORP** probe , before measuring , please remove the electrode soaker bottle.To take the readings:

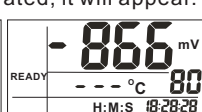
Step1
Rinse the probe with de-ionized or distilled water before use to remove any impurities adhering to the probe.

Step2
Press (SET) to power on the meter and press (MODE) to select mV measurement.

Step3
Dip the electrode into the sample, the electrode must be completely immersed into the sample. Stir the probe gently to create a homogenous sample.

Step4
Wait until the reading is stabilized. If "**READY**" icon is activated, it will appear.

8651



8551

NOTE:
NO need to take Temp. Compensation into consideration when using an ORP probe to measure.

AUTOMATIC TEMPERATURE COMPENSATION (ATC)

With pH probe-

Plug the Temp. sensor connector into phone jack port on the top of meter (see page 5)

With ORP probe-

NO need to take Temp. Compensation into consideration.

MANUAL TEMPERATURE COMPENSATION(MTC)

With pH probe-

Simply disconnect the Temp. connector from meter and select the mode as pH. To set the temp., press (M/AV) more than 1 second, " CR " will flash on LCD. Then, press (MODE) or (MEM) key to change the temperature value and press (M/AV) to save and return to normal measurement mode.

With ORP probe-

NO need to take Temp. Compensation into consideration.

NOTE: In 8551,you can order 87P6 probe to measure solution temperature.

HOLD FUNCTION

This function lets you freeze current readings on LCD in normal measurement mode. To hold the readings:

Step1

Press (HLD REC) in measurement mode. " HLD "appears on the display.

Step2

To release the holding value, press (HLD REC) again.

ORP in **HOLD (8651)**

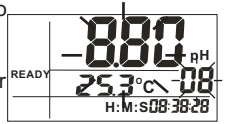
MEMORY RECORD

The following meters can store each parameter up to 99 records. For example, 8651 can store 99 pH values, 99 mV values and 99 ORP(mV) values.

MODEL	PH	mV/ORP(mV)
8551		99
8651	99	99

To record:

1. In any measurement or **HOLD** mode, press (MEM) key to save data.



2.Memory number &measured value will flash, then return to measurement mode.

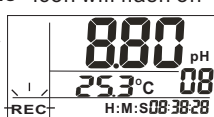
NOTE:

New data can not be saved into meter if the memory is full. To continuously save new memory, it is needed to clear up existing 99 memories.

MEMORY RECALL

This function can recall previous readings which are stored in the meter:

1. Press (HLD REC) key > 2 seconds to enter **recall** mode. "REC" icon will flash on the LCD.
2. Press (MODE) key to select next memory. Press (MEM) key to select previous memory.



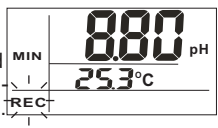
3. To exit memory recall, press (HLD REC) > 2 sec. to return to measurement mode.

NOTE:
All records are retained even if the meter is powered off. To clear records, please see page 13.

RECALL MAXIMUM & MINIMUM

To view maximum or minimum values from stored memory:

1. Press HLD REC key > 2 seconds to enter **recall** mode. " REC " icon will flash on the LCD.
2. Press M/AV key to view the minimum value of the memory. Press M/AV again to view the maximum value of the memory.
3. To exit memory recall, press HLD REC > 2 second to return to measurement mode.



BACKLIGHT

Press any key to activate the backlight function. The backlight turns off automatically after 10 seconds of inactivity.

AUTO POWER OFF

The meter turns off automatically after 20 minutes of inactivity. To override the function, hold down SET and HLD REC for 2 seconds to turn on the meter until " **n** " appears.

NOTE:
Auto sleep function will be disabled while in calibration mode.

SETUP

The advanced **SETUP** mode lets you customize your meter's preferences and defaults.

	8651	8551
P1.0 Memory transmitting	●	●
P2.0 MEM clear	●	●
P3.0 Electrode (pH probe)	●	
P4.0 Buffer solution (pH)	●	
P5.0 Ready Function	●	●
P6.0 Temp unit	●	●
P7.0 Real time clock	●	●
P8.0 RESET	●	●

To enter the SETUP mode, press SET >2 seconds when meter is in measurement mode.

NOTE:

To exit the function without saving, press CAL Esc until the measurement mode appears. If the meter is under the set up program, press CAL Esc twice to escape.

P1.0 MEMORY TRANSMITTING- tr

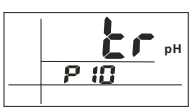
To transmit the stored data from meter to computer through RS232 interface

1. Connect the RS232 cable to right side of the meter, then connect D-sub connector to computer, now run the software.(page 27)

2. Enter setup mode as describe in above section. tr icon appears on middle of LCD and **P1.0** displays under tr.

3.
Press (M/AV) key to enter P1.1."out" icon flashes on the upper display and **P1.1** displays under out . It means the memories are under transmitting. After transmitting, the LCD will return to **P1.0**.

NOTE:
The meter can store up to 99 records for each parameter. If you want to transmit the data, press (MODE) key to select the parameter you desired before entering setup mode.



P2.0 MEMORY CLEAR-CLr

To clear the stored data from meters :

1.
Press (MODE) key to select the parameter you want to clear before entering setup mode.

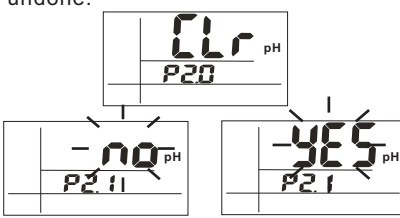
2.
Enter setup mode as describe in page 12. Press (MODE) to select memory clear function. CLr icon appears on the middle display and **P2.0** shows in the lower display

.

3.
Press (M/AV) key to enter **P2.1**.The default "no "icon flashes on the middle display and **P2.1** shows in the lower display.

4.
Press (MODE) key to change the status from no to YES, press (M/AV) key again to confirm clearing all memory. LCD will return to **P2.0** when memories are deleted.

NOTE:
The memory clear program is designed to clear 99 memories at a time. Please consider carefully if you decide to clear the memory. This operation can not be undone.



P3.0 ELECTRODE-pH probe- ELE

To view the pH electrode data (slope & offset value) from 8651meter:

1.
Press (MODE) to select electrode type as pH. Enter setup mode. "ELE " appears on the middle of display and **P3.0** shows in the lower display.

2.
Press (M/AV) key to enter **P3.1**,LCD displays one of 4 available slope values (**P3.1- P3.4**),If the value is <75% or >115%, suggest to change electrode immediately.

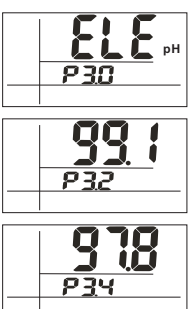
Note:
The solution range definition is different between NIST and Custom buffers.

3.
Press (M/AV) key to enter **P3.2**, **P3.3** & **P3.4**.

4.
Press (M/AV) key to enter **P3.5** to view the offset value.
Offset value is the mV value of pH 7 and the default offset value is **0.0**. The offset value will be different after calibration. Once the value is out of ±60mV, strongly suggest you to replace with a new probe.

NOTE: Slope definition of buffer:

	P3.1	P3.2	P3.3	P3.4
NIST	0.00~4.01	4.01~6.86	6.86~9.18	9.18~14.00
CUST	0.00~4.50	4.50~7.00	7.00~9.50	9.50~14.00



P4.0 PH BUFFER -pH probe- buF

Two available pH buffer types for 8651:

NIST buffer:
PH1.68, 4.01, 6.86, 9.18, 12.45.

Custom buffer,5 ranges:
PH 1.00~3.00, 3.50~5.50,6.00~8.00, 8.50~10.50,11.50~13.50.

1.

This meter allows you to select two different types pH buffer: NIST type or your own custom buffer type. To select correct buffer you are using can help meter to recognize the buffer and calibrate the probe more precisely.

2.

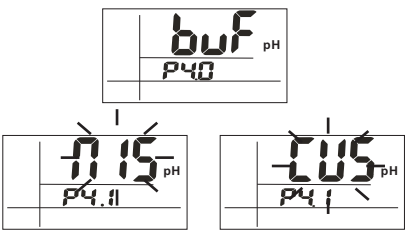
Enter setup mode first. Press MODE to select pH buffer program. buF icon appears on the middle of LCD and **P4.0** shows in the lower display.

3:

Press M/AV key to enter **P4.1**.The default " nIS "icon (NIST)flash on the LCD and **P4.1** shows in the lower display. If your buffer is NIST type, press M/AV key to confirm it, now meter returns to **P4.0**

4.

If your buffer is not NIST, press MODE key to change the status to custom buffer. Then, press M/AV key to confirm and meter will return to **P4.0**.



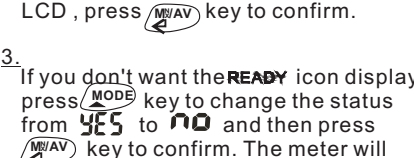
P5.0 READY ICON -rdy

Use this program to decide whether the ready icon will display or not. If you select " **YES**", icon rdy will appear when the measured reading is stable.

1.
Enter the setup mode first. Press MODE to select the **ready** icon program. rdy icon appears on the LCD and **P5.0** is in the lower display.

2.
At **P5.0**, press M/AV key to enter **P5.1**. Default "YES" flashes on the main display and **P5.1** is in the lower display. If you want rdy icon displays on the LCD , press M/AV key to confirm.

3.
If you don't want the **READY** icon display, press MODE key to change the status from YES to no and then press M/AV key to confirm. The meter will return to **P5.0**.



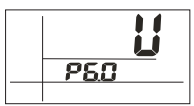
P6.0 TEMPERATURE UNIT -U

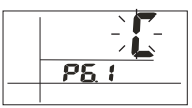
To select the unit of the temperature:

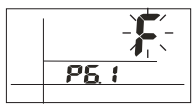
1:
Enter setup mode first. Press MODE to select the temp. unit program. U icon appears on the primary display and **P6.0** is in the lower display.

2.
At **P6.0**, press (MODE) key to enter **P6.1**. The default " C " flashes on the main display and **P6.1** is in the lower display. If the unit you need is degree C , press (M/AV) key to confirm.

If the unit you want is degree F, press (MODE) key to change the status from C to F and then press (M/AV) key to confirm. The meter will return to **P6.0**.







P7.0 REAL TIME CLOCK - rtc

Use this program to adjust local time of the meter. A CR2032 battery inside drives the real time clock ,so the real time clock will not be suspended even the meter is off.

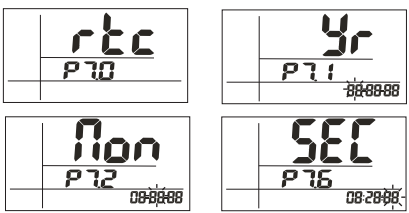
Symbol	Y-M-D	H:M:S
Meaning	Year-Month-Day	Hour-Minute-Second
Range	99-12-31	23-59-59

1.
Enter the setup mode first. Press (MODE) to select **real time clock** program. rtc appears on the main display and **P7.0** is in the lower display.

2.
At **P7.0**, press (M/AV) key to enter **P7.1**. The year value flashes on the right corner .

3.
Press MODE key or MEM key to select the value of Year. Press M/AV key to confirm. Now the display enters **P7.2** and the month value flashes to indicate it is ready for editing.

4.
Repeat step 3 to select the value of month and enter Day, Hour, Minute, Second setting in turns.



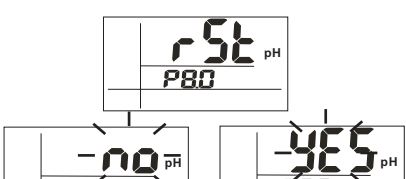
P8.0 RESET - rSt

Use this program to reset the meters to factory default setting.

1.
Enter the setup mode as describe in page xx. Press MODE to select the reset program. The rSt appears on the primary LCD and the **P8.0** is in the middle display.

2.
At P8.0, press M/AV key to enter **P8.1**. The default "no " icon flash on the primary LCD. If you don't want to reset, press M/AV key to confirm.

3.
If want to reset the meter, press MODE to change the status from no to YES and then press M/AV key to confirm. The LCD will return to **P8.0.**



CALIBRATION-PH PROBE

We recommended that you operate at least a 2-point calibration. If you can only perform a 1-point calibration, please make sure the buffer value is close to the sample you are measuring and the buffer temperature must be stable enough.

1.

Power on the meter and press to select "**pH"** mode. Rinse the electrode in de-ionized water or rinse solution. DON'T wipe the pH probe dry. Wiping the probe may cause static and cause calibration and measurement instability.

2.

Select the pH buffer and pour some into a clean container. Dip the probe into the buffer. The end of the probe must be immersed into the buffer. Stir the probe gently to create a homogenous sample.

3.

Press (CAL ESC) key to enter " **calibration**" mode. The CA icon will flash on the right of the LCD. The main display shows the measured value but the middle display is depended on the buffer type (page 15).

4.

- If choose NIST, middle display shows the real value of buffer at current temp..If this value keeps changing means the buffer or probe need to be checked. (trouble shooting, page 25)
- If choose CUST, middle display shows the default 2.00, short press (HLD REC) to select the buffer range (page 15) you are using. Then, press (MODE) or (MEM) to adjust the middle LCD value meet with buffer value at current temperature.

.

5:

Once the measured pH value is stable and if you have set **Ready** function in **P5.1** , **READY** icon will display on the LCD left side. Press (M/AV) to confirm.

6:

Change buffer & repeat step 4~5 to do multiple points calibration or press (M/AV) to end the calibration and return to normal mode.

NOTE:

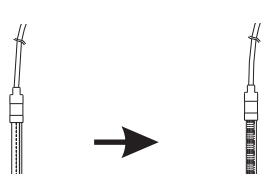
When in calibration, the buffer temp. must be stable enough.

MAINTENANCE

PH PROBE

It is important to keep pH probe wet when the meter is in storage.

The probe is well protected by a plastic bottle with solution in it. To use or store the probes :



1:
Rotate the bottle to remove the bottle away from the probe.

2:
Pull down the cover and remove it from the probe.

After using, first put back the cover on to probe, plug the probe into bottle and then rotate the bottle to fit into the cover tightly.

PH PROBE MAINTENANCE:

✓Always keep the pH glass bulb wet by using the plastic bottle to protect and store the electrode, you can also store in a 3M KCL solution. Never use distilled water for storage.

✓Always rinse the pH electrode in de-ionized water before next use.

✓Never touch or rub glass bulb for lasting pH electrode life.

✓This probe is designed with fiber junction. To prolong the life of the electrodes, it is recommended to clean them monthly by immersing with cleaning solution for half an hour. Afterwards, rinse it with tap water and re-calibrate with the meter.

✓The other way to prolong the life of the electrodes is to extend the fiber junction and cut the dirt portion.

The extendable fiber reference junction is used to eliminate the reading errors from clogged junction.

To expose the new unused portions :

1.
Use tweezers to pull out the fiber junction and expose the new unused portion.

2.
Cut the clogged fiber and expose the new portion.

ORP PROBE

Preparation:

Before using, remove the soaking bottle , then soak electrode into distilled water and rinse, and then take out and make dry. Now the electrode is ready for use.

NOTE:

Do not rub sensing element forcibly

Test the electrode:

✓Connect ORP electrode to meter and make sure the connection is correct.

✓Put electrode in buffer solution of pH 7.00 with saturated quinhydrone. After stirring, mV reading(E1) should be 86±15mV.

✓Rinse electrode with distilled water, then set it in buffer solution of pH4.01 with saturated quinhydrone. After stabilizing, record mV meter reading (E2). The difference between E1 and E2 should be 165mV.

Storage:

✓Rinse the electrode with distilled water during the interval of each use.

✓Keep ORP electrode wet. If not use for long period of time, it should be rinsed and stored in the provided soaking bottle which is filled with soaking solution.

ORP electrode cleaning:

If sensing element got contaminated, it will result in slow response and inaccurate reading. Clean it as following:

✓If contamination is a mineral matter, put sensing element in HCL solution 0.1N for 10 minutes and then rinse it with distilled water.

✓If the contamination is oil or grease coating, clean sensing element with detergent and rinse with distilled water.

✓After above treatments, put electrode in saturated buffer pH4.01 for 15min and then rinse with distilled water.

NOTE:

After cleaning, soak electrode in solution at least 8 hours, it may be used again.

Electrode response time and accuracy:

Sensing element of ORP electrode is made of high purity metal, it truly reflects the tested solution's ability of oxidation -reduction, but slow response time and inaccurate reading may occur from time to time.

It is because that sensing element of electrode was soaked in a certain solution for a long time and an oxidation -reduction coating was formed outside. A simple way to solve this problem is to clean the probe.

Moreover, because concentration of oxidation-reduction matter is low and ion exchange rate is slow, they may also cause slow response and inaccurate reading. Under this condition, it may take 8-24 hours to get a reliable and correct reading.

TROUBLESHOOTING

? METER CAN NOT BE POWERED ON

- Press "**POWER/SET**" key > 0.3sec.
- Check the connection status of adaptor

? UNSTABLE READING

- Stir the solution to make homogeneous status and make sure the sensor is completely immersed in solution.

- Make sure the measurement is processed in container.
- Clean or re-calibrate or replace with a new probe
- Move to another room and try again , it is supposed that the unstable reading is caused by strong RF interference field.

? THE READING IS NOT CHANGED

- If the status is in "**HOLD**", release the status.
- If the measurement is in **MTC**, input temperature value.

? SLOW RESPONSE

- Clean and re-calibrate the probe.
- Replace with a new probe.

? WRONG REAL TIME

- The wrong real time display will not affect the measurement. Contact the distributor to purchase battery and acquire replacement procedures.

? ERROR CODES STAND FOR:

Error	Problem
E02	Reading is under the lower limit.
E03	Reading is over the upper limit .
E04	The original data error result in this error
E12	Factory calibration data error **Solution :** Re-start meter might solve this error.
E13	Slope or offset value of pH probe is out of the range.
E31	Measuring circuit failure. **Solution:** Re-start meter might solve this error.
E32	Memory IC failure.

PC CONNECTION

The meter can link with personal PC to capture on-line or stored data. You can retrieve file, save the data for further analysis, check record statistics .... etc.

CONNECTION PROCEDURES:

1. Plug RS232 cable onto the RS232 jack port at the rear side of the meter.
2. Instert the D-sub 9P type connector onto computer's COM.1 or 2 or.... COM8 port.
3. Start to set up RS232 software by inserting the CD-ROM.
4. When installing the RS232 software, please follow the procedure of operation manual in the software CD.

PROTOCAL:

1. RS232 Protocol: 9600 bps, 8 data bits, no parity.

2. Format in Normal mode: (Transmitting ASCII code every second.)

1) Normal data:

pxx.xxpH:mxx.xxmV:Txxx.xC(F) @ 2007-04-18 18:48:48LRCCRLF

2) When error occurs:

ExxNul:ExxNul:ExxNul @ 2007-04-18 18:48:48LRCCRLF

3) Description:

$pH:mV:TpH LRC CRLF

Note:

The 1st value is pH reading in pH, 2nd value is Voltage reading in mV, 3rd value is Temperature of pH probe in C/F.The x means one of {0|1|2|...|9|-}

3.Format in Memory transmit pH mode.
1) Normal data: pxx.xxpH: Txxx.xC(F) #xx @2007-04-18 18:48:48LRCCRLF
2) When error occurs: ExxNul: ExxNul #xx @2007-04-18 18:48:48LRCCRLF
3) Ddescription:$pH: Temp LRC CRLF

4.Format in Memory transmit mV mode
1)Normal data: mxx.xxmV: Txxx.xC(F) #xx @2007-04-18 18:48:48LRCCRLF
2)When error occurs: ExxNul:ExxNul #xx @2007-04-18 18:48:48LRCCRLF
3)Description: $mV:Temp LRC CRLF

APPENDIX : TEMPERATURE EFFECT ON PH NIST BUFFER

	0°C	5°C	10°C	15°C	20°C	25°C
PH1.68	1.67	1.67	1.67	1.67	1.68	1.68
PH4.01	4.01	4.01	4.00	4.00	4.00	4.01
PH6.86	6.98	6.95	6.92	6.90	6.88	6.86
PH9.18	9.47	9.38	9.32	9.27	9.22	9.18
PH12.45	13.43	13.21	13.00	12.81	12.63	12.45

	30°C	35°C	40°C	45°C	50°C
PH1.68	1.69	1.69	1.70	1.70	1.71
PH4.01	4.01	4.02	4.03	4.04	4.06
PH6.86	6.85	6.84	6.84	6.83	6.83
PH9.18	9.14	9.10	9.07	9.04	9.01
PH12.45	12.29	12.13	11.99	11.84	11.70

SPECIFICATION

MODEL	PROBE	PH	mV	ORP(mV)
8551	ORP probe			●
8651	pH probe	●	●	
	ORPprobe			●

Item \ Measure	pH	ORP
Range	0.00 to 14.00 pH	-1999 to +1999 mV
Resolution	0.01 pH	0.1 mV (-199.9 to +199.9mV) 1 mV (others)
Accuracy	+/-0.02pH	+/-0.2 mV (-199.9 to +199.9mV) +/-2 mV (others)
ATC or MTC	Yes	
Calibration	Max. 5 points automatic Buffer recognition	
Calibration acceptable window	NIST: +/-1.25 at 6.86, +/-1.00 (others) CUST:+/-1.00	
pH Slope /Offset display	Yes	
Slope Alarm	<75% or >115%	
Offset Alarm	Out of +/-60mV.	

-Operation temperature: 5~40°C

-Operation RH%: up to 95% w/o condensation

-Storage Temperature: -20~60°C

-Storage RH%: up to 95% w/o condensation

-Size:175x70x33mm (LxWxT)

-Weight: Approx. 150g (meter only)

-PH/mv Default Preferences (display “pH”)

Program	Preference	Default	Display content
P1.0 P1.1	Memory transmitting MEM sent by RS232	No default	“tr” “out”
P2.0 P2.1	MEM clear CLR confirm	Always defaults “no”	“CLr” “no” or “yES”
P3.0 P3.1~3.4 P3.5	Electrode Slope Offset	 100.0% 0.0mV	“ELE” Slope value Offset value
P4.0 P4.1	Buffer solution Select buffer	 “NIST”	“buF” “NISt” or CUSt””
P6.0 P6.1	Ready function Enable or disable it	 “yES”	“rdy” “no” or “yES”
P7.0 P7.1	Temp unit Select C or F	 “C”	“U” “C” of “F”
P8.0 P8.1~8.6	Real time clock Setting YMD,HMS	 No default	“rtc” “rtc”
P9.0 P9.1	RESET Reset confirm	Always defaults “no”	“rSt” “no” or “yES”

WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of one year from the date of purchase. This warranty covers normal operation and does not cover battery, misuse, abuse, alteration, tampering, neglect, improper maintenance or damage resulting from leaking batteries.

Proof of purchase is required for warranty repairs. Warranty is void if the meter has been opened .

RETURN AUTHORIZATION

Authorization must be obtained from the supplier before returning items for any reason. When requiring a RA (Return Authorization), please include data regarding the defective reason, the meters are returned along with good packing to prevent any damage in shipment and insured against possible damage or loss.

OTHER RELATED PRODUCTS

Other related pH products:

Benchtop Series

a.86501/86551 pH,mV meter/printer
b.86502/86552 pH, mV, ORP meter/printer
c.86504/86554 pH, mV, ORP, Cond. meter/printer
d.86505/86555 pH, mV, ORP, Cond.,TDS,Salinity meter /printer

Handheld Series

a.8601: pH, mV meter
b.9861: pH, mV logger/ printer
c.9661: pH, mV logger

Pen type Series

a.8690: pH/temp. pen
b.8680~8682: pH pen
c.8684~8686: pH pen

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Hygrometer/Psychrometer
Thermometer
Anemometer
Sound Level Meter
Air Flow meter
Infrared Thermometer
K type Thermometer
K.J.T. type Thermometer
K.J.T.R.S.E. type Thermometer
pH Meter
Conductivity Meter
T.D.S. Meter
D.O. Meter
Saccharimeter
Manometer
Tacho Meter
Lux / Light Meter
Moisture Meter
Data logger
Temp./RH transmitter
Wireless Transmitter .....

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