




INSTRUCTION MANUAL

TESTER SERIES 1-5

Summary

DATA SHEET	1
INTRODUCTION	2
SAFETY INSTRUCTIONS	2
PRODUCT DESCRIPTION	3
KEYPAD	3
Keypad Functions for Tester pH5 / Cond5 / PC5	3
Keypad Functions for Tester pH1 and Cond1	3
DISPLAY	4
CALIBRATION POINTS INDICATOR	4
POWER SUPPLY	4
INSTRUCTIONS FOR pH1 / Cond1	5
POWER ON	5
POWER OFF	5
SETUP MENU for pH1 / Cond1	5
MEASUREMENT	5
CALIBRATION PROCEDURE FOR CONDUCTIVITY (Cond1)	6
CALIBRATION PROCEDURE FOR TDS (Cond1)	6
CALIBRATION PROCEDURE FOR pH (pH1)	6
INSTRUCTIONS FOR pH5 / Cond5 / PC5	7
POWER ON	7
SETUP MENU for pH5 / Cond5 / PC5	7
MEASUREMENT	7
CALIBRATION PROCEDURE FOR CONDUCTIVITY (Cond5/PC5)	8
CALIBRATION PROCEDURE FOR pH (pH5/PC5)	8
POWER OFF	8
REPLACEMENT OF SENSOR	9
 SENSOR MAINTENANCE	9
SETUP MENU FUNCTIONS for all Testers	9
ERROR DESCRIPTION	10
DISPOSAL OF ELECTRONIC DEVICES	10

DATA SHEET

	pH 1	COND 1	pH 5 / pH 5 Food	ORP 5	COND 5	PC 5
pH Range	0...14	-	-2...16	-	-	-2...16
Resolution / Accuracy	0.1 / ±0.1	-	0.01 / ±00.1	-	-	0.01 / ±0.1
MultiPoint Calibration	1...2	-	1...3	-	-	1...3
Buffer Value	3 buffers USA	-	5 buffers USA	-	-	5 buffers USA
mV Range	-	-	±1000		-	±1000
Resolution	-	-	0.1 / 1		-	0.1 / 1
COND Range	-	0...2000µS / 0...20mS	-	-	0...200µS / 0...2000µS / 0...20mS	
Resolution / Accuracy	-	Automatic scale / ±1% f.s.	-	-	Automatic scale / ±1% f.s.	
MultiPoint Calibration	-	1...2	-	-	1...3	
Temperature compensation	-	1.9 %/°C	-	-	0.00...4.00%/°C	
Reference temperature	-	25 °C	-	-	20/25 °C	
TDS Range	-	0.1ppm...10ppt	-	-	0.1ppm...10ppt	
TDS factor	-	0.40...1.00	-	-	0.40...1.00	
Salinity Range	-	-	-	-	0.01...10 g/L	
Temperature Range	0...50°C (n.v)		0...50°C	0...50°C (n.v)	0...50°C	
Resolution / Accuracy	-	-	0.1 / ±0.2°C	-	0.1 / ±0.2°C	
Temperature unit	-	-	°C/°F	-	°C/°F	
Device Indication buffers used for calibration	Yes			-	Yes	
Auto power-off	8 min					
Display	LCD		LCD backlight 3 colors			
IP Protection	IP 67					
Power Supply	4X1.5V battery AAA					

INTRODUCTION

Congratulation for buying one of the most innovative and easy to use Pocket Tester.

Pocket testers series 1 and 5 are very handy for the routine measurements in all applications where fast indication of measurement is required.

These Testers are specially designed for applications like: Agriculture, water and waste water treatment, Hydroponics, Aquaculture, Environmental monitoring, Food and beverage manufacturing, Cooling towers, Printing, Education etc.

Tester series 1 is basic one with fixed sensor and only two keys for all functions.

Tester series 5 is advanced version with replaceable sensor, multicolour backlight display and 3 key for all functions.

SAFETY INSTRUCTIONS

⚠ Read this instruction manual carefully before using your new tester.

⚠ The membrane of pH electrode is made of glass and can be danger in case it breaks.

To avoid damage check the electrode tip after each measurements.

⚠ Replace all batteries together with same type.

⚠ The manufacturer of these instruments can't be held responsible for any improper use.

⚠ Verification of the measuring results is the responsibility of the operator and the manufacturer doesn't respond to any direct or indirect damage occurred while using this instrument.

PRODUCT DESCRIPTION

KEYPAD








pH5 / Cond5 / PC5








pH1 / Cond1



Keypad Functions for Tester pH5 / Cond5 / PC5

Button	Function	Action
		Press to switch on/off the meter.
	ESC	Press to escape from setup menu or calibration procedure.
		During measurement: Press to turn on/off the back light.
	MODE	During measurement: Press to switch between pH -> mV -> Cond -> TDS -> SAL
		During Setup: Press to scroll in the menu or increase the value of the selected parameter.
	CAL	During measurement: press to start the calibration of the selected parameter.
		Press to confirm the calibration and setup value.

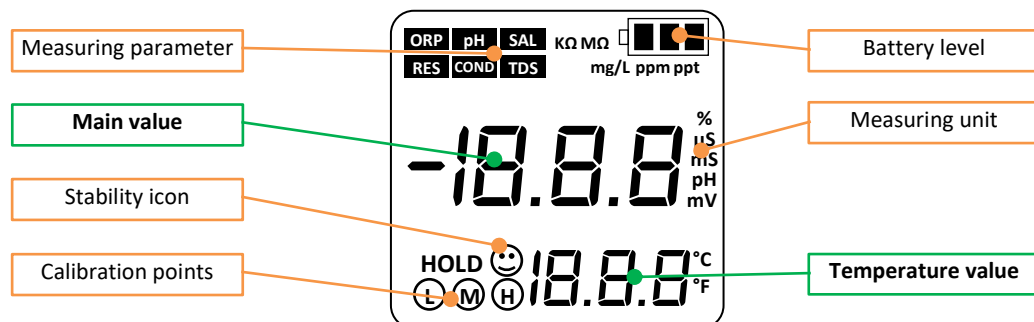
Keypad Functions for Tester pH1 and Cond1

Button	Function	Action
		Press to switch on/off the meter.
		During Setup: Press to scroll in the menu or increase the value of the selected parameter.
	CAL	During measurement: press to start the calibration of the selected parameter.
		Press to confirm the calibration and setup value.

DISPLAY

The device is endowed with LCD display for Series 1 and 3 colors backlight LCD for Series 5

- **GREEN**: Setup or measurement mode • **BLUE**: Calibration mode • **RED**: Error/Alarm



CALIBRATION POINTS INDICATOR

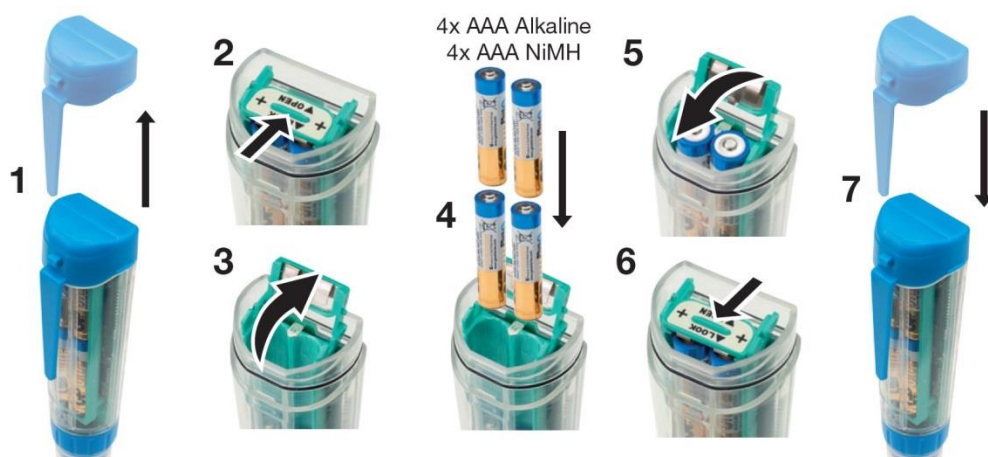
When a calibration is performed these icons indicate the points calibrated and

Icon	Working range	pH mode	Conductivity mode
(L)	Low	4.01 pH	84 uS
(M)	Medium	7.00 pH*	1413 uS
(H)	High	10.01 pH	12.88 mS

* First point for pH calibration is always 7.00 pH

POWER SUPPLY

This tester series works with 4 x AAA Alkaline or NiMH rechargeable batteries.




Make sure the batteries have correct polarity with positive pole upside.

- ⚠ Dispose of discharge batteries correctly according to the applicable legislation.
- ⚠ Replace all batteries together with same type.

INSTRUCTIONS FOR pH1 / Cond1


POWER ON

Press  key once, the meter will switch On and the display will show all the segments active for 2 sec. and then it will display the following:











All segments ON -> model name + software release -> measurement

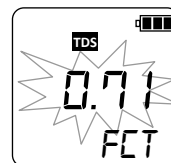
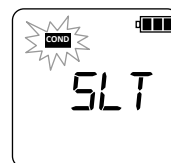
POWER OFF

To turn off the meter press  key for 3 seconds, the meter will switch off.

SETUP MENU for pH1 / Cond1



1. With meter switched off, press and hold **CAL** key and press  key once.
2. The meter will switch on with all the segments active, release **CAL** key, the meter will go into the Setup Menu.
3. The display will show SLT on primary display with **COND** flashing (only for Cond1).
4. Press  to select the parameter between **COND** or **TDS** to be used for measurements and press  to confirm (Only for Cond1).
 - Only if the **TDS** is selected then the display will show TDS Fct flashing, press  to change this factor and then press  to confirm (Only for Cond1).
5. The display will show rSt (RESET): **no** flashing.
6. Press  and select **YES** if a reset of the meter is required and then press  to confirm.
7. At this point the meter finishes SETUP menu and switches off.

NOTE: To skip the changing of the value simply confirm the flashing value with  key, the meter will go to the next Parameter.







MEASUREMENT


Rinse the electrode with distilled water or sample prior to start measurement.

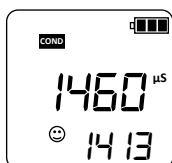
Fill the measuring cap with sample, switch on the meter with , immerse the Tester in sample and wait for stability, when stability icon  appears on display take the reading.

During measurement make sure that pH electrode membrane is free from air bubbles, and that there isn't any air bubble around or between conductivity sensor.

CALIBRATION PROCEDURE FOR CONDUCTIVITY (Cond1)

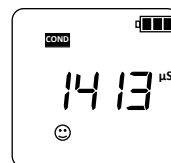
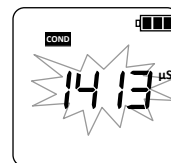
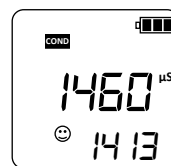
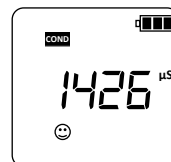
1. Power ON the meter by pressing the  Key.
2. Rinse the probe with distilled water.
3. Immerse the probe in the calibration solution (1413 μ S or 12.88 mS), wait for stability .
4. Press **CAL** key.
5. The meter will start calibration procedure and will recognise automatically the standard used.
6. When stable press  to confirm and complete the calibration.
7. The standard value will flash for 3 times and then the meter will go into the measurement mode.
8. If the 2nd point calibration is required then rinse the probe with distilled water and immerse in the second standard solution (1413 μ S or 12.88 mS), wait for stability .
9. Repeat the points 4 to 7.
10. The calibration process is completed and the meter is ready to use.

Note: Anytime press  key to abort and exit from calibration procedure.



← Reading based on theoretical cell value C=1

← Standard solution









CALIBRATION PROCEDURE FOR TDS (Cond1)

When the meter is set to read **TDS** then the calibration is done on TDS with 1 or 2 points.

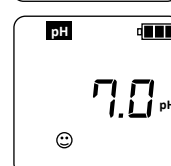
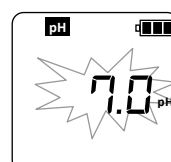
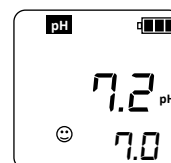
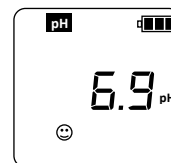
The calibration procedure for TDS is same as for Conductivity.

CALIBRATION PROCEDURE FOR pH (pH1)

1. Power ON the meter by pressing the  Key.
2. Rinse the electrode with distilled water.
3. Immerse the electrode in the 1st buffer solution pH7.0 and wait for stability .
4. Press **CAL** key.
5. The meter will start calibration procedure and will recognise automatically the standard used.
6. When stable press  to confirm and complete the calibration.
7. The standard value will flash for 3 times and then the meter will ask for next point for calibration. If only 1 point calibration is required then press  to finish and exit.
8. If the 2nd point calibration is required then rinse the electrode with distilled water and immerse in pH4.0 or pH10.0, wait for stability .
9. Repeat the points 4 to 7.
10. The calibration process is completed and the meter is ready to use.


Note: Anytime press  key to abort and exit from calibration procedure.

Note2: when the first point calibration is confirmed (point 7) if the sensor is not removed from the buffer solution, the instrument may give wrong buffer error.

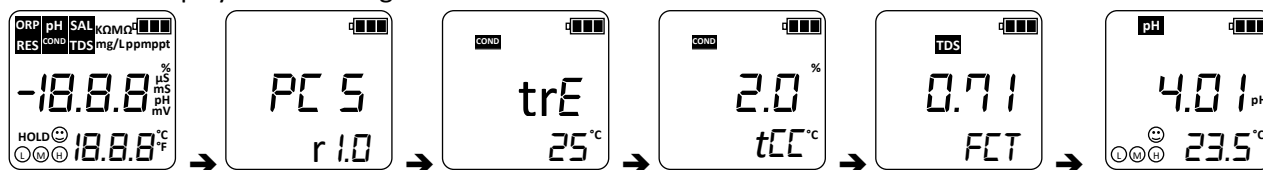


INSTRUCTIONS FOR pH5 / Cond5 / PC5



POWER ON

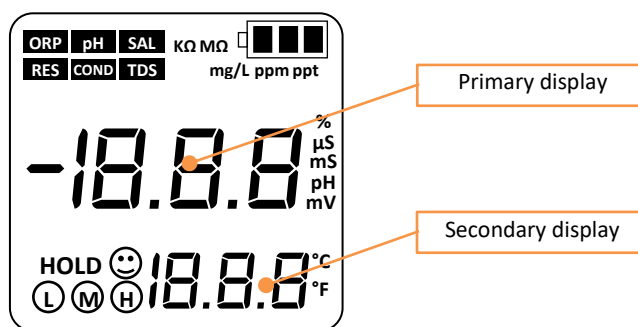
Press  key once, the meter will switch On and performs a test of 3 colors backlight display and then show all the segments active for 2 sec.

Then it will display the following:







SETUP MENU for pH5 / Cond5 / PC5

1. With meter switched off, press and hold **CAL** key and press  key once.
2. The meter will switch on with all the segments active, release **CAL** key, the meter will go into the Setup Menu (green backlight during setup).
3. Press  key to select the parameter to be changed between:




Function	Primary display	Secondary display	Default value
Temperature unit (°C/°F)	t.U	-	°C
Reference temperature for conductivity	trE	20 - 25 °C	25°C
Coefficient for temperature compensation	0...4 %/°C	tCC	1.9
TDS factor	0.40 - 1.00	Fct	0.71
Reset to factory default	nO - YES	rSt	nO

4. Press  to enable the value changing of the selected parameter.
5. The value of selected parameter will start flashing.
6. Press  to change the value and then press  to confirm.
7. The value stops flashing.
8. Press  to select other parameters or press **ESC** to exit the setup menu.

NOTE: Any time press **ESC** key to exit from SETUP menu.

MEASUREMENT






Rinse the electrode with distilled water or sample prior to start measurement.

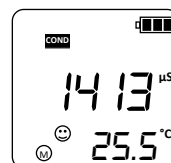
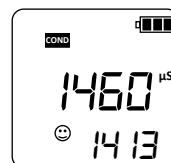
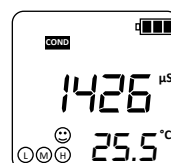
Fill the measuring cap with sample, switch on the meter with  and press **MODE** key to select desired parameter to be measured (green backlight during measurement).

Immerse the Tester in sample and wait for stability, when stability icon ☺ appears on display take the reading.

During measurement make sure that pH electrode is free from air bubbles, and that there isn't any air bubble around or between conductivity sensor.

CALIBRATION PROCEDURE FOR CONDUCTIVITY (Cond5/PC5)







1. Power ON the meter by pressing the  Key.
2. Rinse the probe with distilled water.
3. Immerse the probe in the calibration solution (84 μ S or 1413 μ S or 12.88mS), wait for stability .
4. Press **CAL** key, (blue backlight during calibration).
5. The meter will start calibration procedure and will recognise automatically the standard used.
6. When stable press  to confirm and complete the calibration.
7. The standard value will flash for 3 times and then the meter will go into the measurement mode.
8. If the 2nd point calibration is required then rinse the electrode with distilled water and immerse in the 2nd Standard, wait for stability .
9. Repeat the points 4 to 7.
10. If the 3rd point calibration is required then rinse the electrode with distilled water and immerse in the 3rd Standard, wait for stability .
11. Repeat the points 4 to 7.
12. The calibration process is completed and the meter is ready to use.

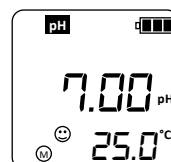
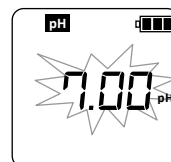
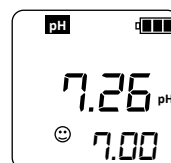
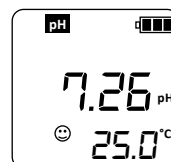


Note: Anytime press **ESC** key to abort and exit from calibration procedure.

Note: In case multipoint calibration is performed it is better to start from the lower value standard first and then go increasing.


CALIBRATION PROCEDURE FOR pH (pH5/PC5)

1. Power ON the meter by pressing the  Key.
2. Rinse the electrode with distilled water.
3. Immerse the electrode in the 1st buffer solution pH7.00 and wait for stability.
4. Press **CAL** key (blue backlight during calibration).
5. The meter will start calibration procedure and will recognise automatically the standard used.
6. When stable  press  to confirm and complete the calibration.
7. The standard value will flash for 3 times and then the meter will ask for next point for calibration. If only 1 point calibration is required then press  to finish and exist.
8. If the 2nd point calibration is required then rinse the electrode with distilled water and immerse in pH4.01 or pH10.01, wait for stability , otherwise press **ESC** to finish and exit.
9. Repeat the points 4 to 7.
10. If the 3rd point calibration is required then rinse the electrode with distilled water and immerse in the last buffer, wait for stability , otherwise press **ESC** to finish and exit.
11. Repeat the points 4 to 7.
12. The calibration process is completed and the meter is ready to use.



Note: Anytime press **ESC** key to abort and exit from calibration procedure.

POWER OFF

To turn off the meter press  key for 3 seconds, the meter will switch off. The instrument can not be switched off during calibration

REPLACEMENT OF SENSOR

Tester 5 series has replacement sensors which can be replaced in case it expires or damages.

- 1) To replace the sensor unscrew the dial in anti-clock wise.
- 2) Pull out sensor from unit body.
- 3) Put a new sensor by matching correctly the sign of dent.
- 4) Be sure that all the gaskets are good and in correct position.
- 5) Screw the dial tightly.

! SENSOR MAINTENANCE

Before first time use or after long time dry storage, leave the probe in tap water or storage solution for at least 30 minutes to activate the sensor.

Cond1 – Cond5:

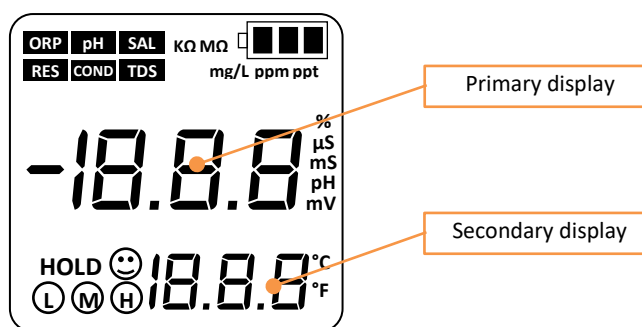
- Rinse the probe with distilled water or sample before use.
- For short time storage use distilled water. For long time store dry.

pH1 – pH5 – pH5 Food – ORP5 – PC5:

- Rinse the probe with distilled water or sample before use.
- Store the probe in storage solution for regular use. For long time store dry.
- Never store pH sensor in distilled water




! Never touch conductivity probe with paper, for cleaning purpose only rinse with distilled water. If touched the probe may damage.

SETUP MENU FUNCTIONS for all Testers



Function	pH1	Cond1	pH5 / ORP5 / pH5 Food	Cond5	PC5	RESET
COND / TDS selection		✓				-
TDS factor		0.40 - 1.00		0.40 - 1.00	0.40 - 1.00	0.71
°C / °F			✓	✓	✓	°C
T ref for COND		25 °C		20 / 25 °C	20 / 25 °C	25 °C
T Coefficient				0 ... 4% / °C	0 ... 4% / °C	1.9
RESET	✓	✓	✓	✓	✓	

ERROR DESCRIPTION

Error	Contents	Checking
<i>Er 1</i>	Wrong pH buffer solution or the recognition of calibration solution out of range	1.Check whether buffer solution is correct. 2.Check whether the meter connects the electrode well. 3.Check whether the electrode is damaged.
<i>Er 2</i>	Press  key when measuring value is not stable during calibration.	Press  key when  icon appears
<i>Er 3</i>	During calibration, the measuring value is not stable for ≥ 3 min.	1.Check whether there are bubbles in glass bulb. 2.Replace with new electrode.
<i>Er 4</i>	Electrode zero electric potential out of range ($< -60\text{mV}$ or $> 60\text{mV}$)	1.Check whether there are bubbles in glass bulb.
<i>Er 5</i>	Electrode slope out of range ($< 85\%$ or $> 110\%$)	2.Check whether pH buffer solution is correct. 3.Replace with new pH electrode.
<i>Er 6</i>	pH measuring range out of range ($< 0.00\text{ pH}$ or $> 14.00\text{pH}$) 1 Series ($< -2.00\text{ pH}$ or $> 16.00\text{pH}$) 5 Series	1.Check whether the electrode is suspended. 2.Check whether the meter connects the electrode well. 3.Check whether the electrode is damaged

DISPOSAL OF ELECTRONIC DEVICES



The electrical and electronic equipment marked with this symbol cannot be disposed of in public landfills.

According to the UE Directive 2002/96/EC, the European users of electrical and electronic equipment can return it to the dealer or manufacturer upon purchase of a new one.

The illegal disposal of electrical and electronic equipment is punished with an administrative fine.