INSTRUCTION MANUAL

TESTER SERIES 10-15

Summary

INTRODUCTION

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

Pocket testers series 10 and 15 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 10 is basic one with fixed sensor and only two keys for all functions.

Tester series 15 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

EC-15-pH / EC-15-cond / EC-15-MULTI

EC-10-pH / EC-10-cond

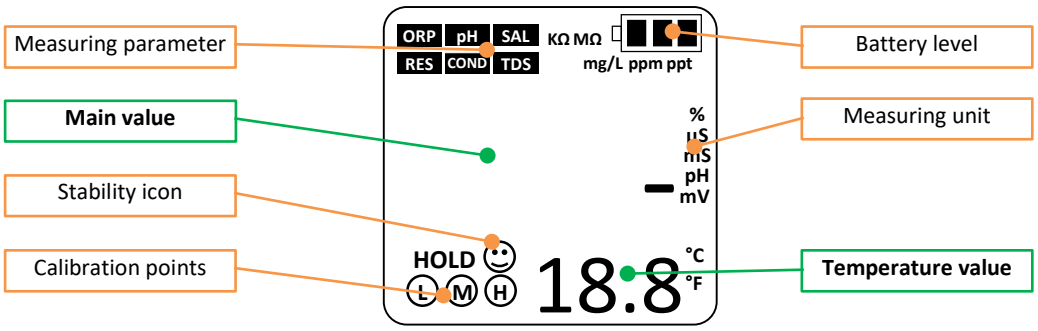
Keypad Functions for Tester EC-15-pH / EC-15-cond / EC-15-MULTI

Button	Function	Action
ESC	⏻	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 ▲	MODE	During measurement: Press to switch between pH -> mV -> Cond -> TDS.
	▲	During Setup: Press to scroll in the menu or increase the value of the selected parameter.
CAL ↵	CAL	During measurement: press to start the calibration of the selected parameter.
	↵	Press to confirm the calibration and setup value.

Keypad Functions for Tester EC-10-pH and EC-10-cond

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 ↵	CAL	During measurement: press to start the calibration of the selected parameter.
	↵	Press to confirm the calibration and setup value.

DISPLAY



CALIBRATION POINTS INDICATOR

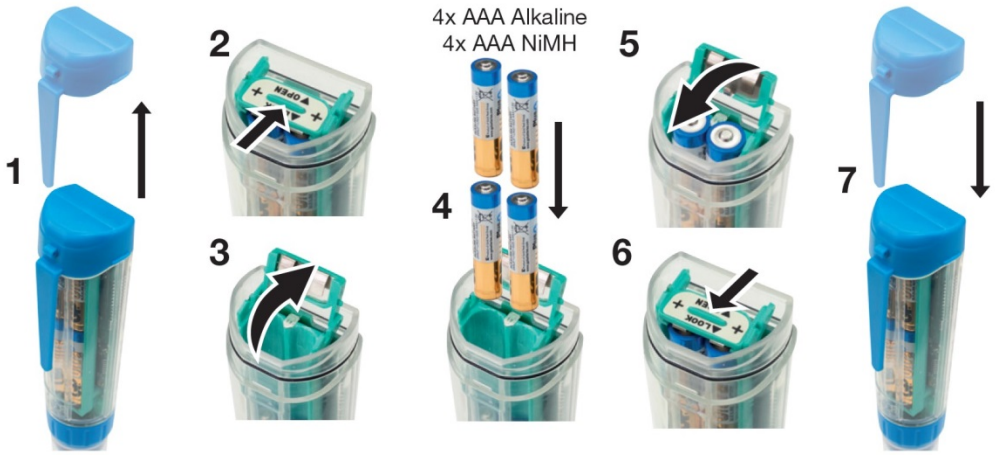
When a calibration is performed these icons indicate the points calibrated and

Icon	Working range	pH mode	Conductivity mode
Ⓛ	Low	4.01 pH	84 uS
Ⓜ	Medium	7.00 pH*	1413 uS
Ⓗ	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.

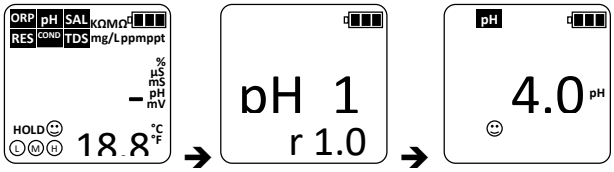
⚠ Dispose of discharge batteries correctly according to the applicable legislation.

⚠ Replace all batteries together with same type.

INSTRUCTIONS FOR EC-10-pH / EC-10-cond

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

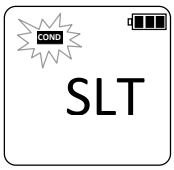
POWER OFF

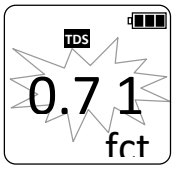
To turn off the meter press ⏻ key for 3 seconds, the meter will switch off.

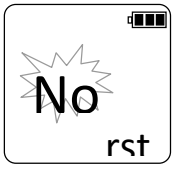
SETUP MENU for EC-10-pH / EC-10-cond

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 EC-10-cond).
4. Press ▲ to select the parameter between **COND** or **TDS** to be used for measurements and press ↵ to confirm (Only for EC-10-cond).
   - 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 EC-10-cond).
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

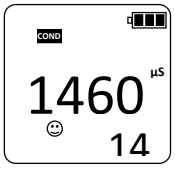
Rinse the electrode with distilled water or sample prior to start measurement.

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.

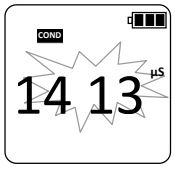
During measurement make sure that pH electrode membrane is free from air bubbles, and that there isn't any air bubble around or between conductivity sensor.

CALIBRATION PROCEDURE FOR CONDUCTIVITY (EC-10-cond)

1. Power ON the meter by pressing the ⏻ Key.
2. Rinse the probe with distilled water.
3. Immerse the probe in the calibration solution (1413µS 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.

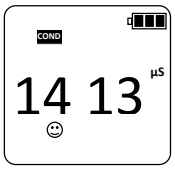


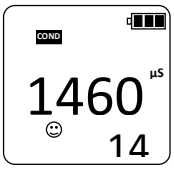
6. When stable press ↵ to confirm and complete the calibration.
7. The standard value will flash for 3 times and then the meter will go into the measurement mode.
8. If the 2nd point calibration is required then rinse the probe with distilled water and immerse in the second standard solution (1413µS 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.



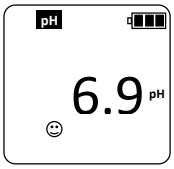


← Reading based on theoretical cell value C=1
← Standard solution

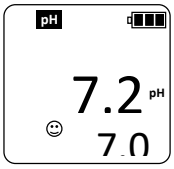
CALIBRATION PROCEDURE FOR TDS (EC-10-cond)

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.
For TDS standards please use the ppt (TDS) value of your conductivity solution 1413µS and 12.88mS.

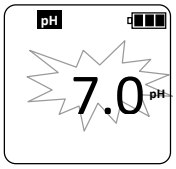
CALIBRATION PROCEDURE FOR pH (EC-10-pH)



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.

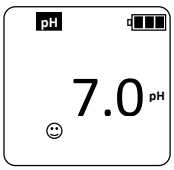


5. The meter will start calibration procedure and will recognise automatically the standard used.
6. When stable press ↵ to confirm and complete the calibration.
7. The standard value will flash for 3 times and then the meter will ask for next point for calibration. If only 1 point calibration is required 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 EC-10-pH0.0, wait for stability ☺.
9. Repeat the points 4 to 7.
10. The calibration process is completed and the meter is ready to use.

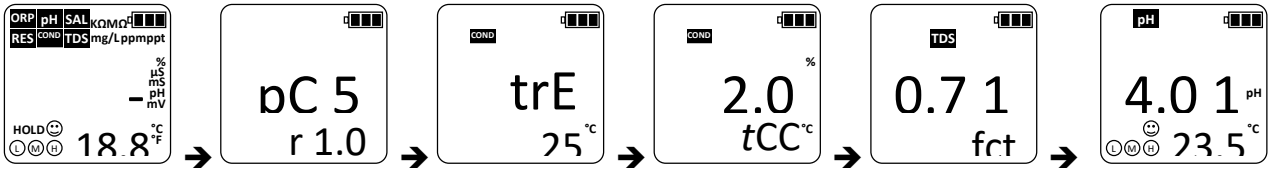
Note: Anytime press ⏻ key to abort and exit from calibration procedure.
Note2: when the first point calibration is confirmed (point 7) if the sensor is not removed from the buffer solution, the instrument may give wrong buffer error.



INSTRUCTIONS FOR EC-15-pH / EC-15-cond / EC-15-MULTI

POWER ON

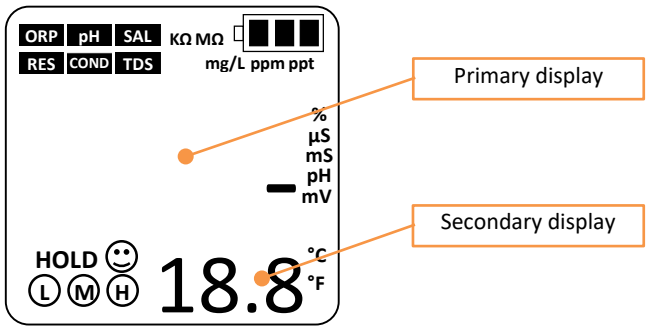
Press ⏻ key once, the meter will switch On and the display will show all the segments active for 2 sec. and then it will display the following:



All segments ON (blue backlight) -> model + SW release -> “set parameters one by one” -> measurement

SETUP MENU for EC-15-pH / EC-15-cond / EC-15-MULTI

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

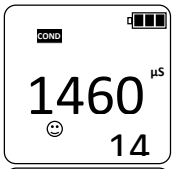
Rinse the electrode with distilled water or sample prior to start measurement.

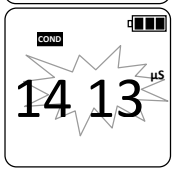
Fill the measuring cap with sample, switch on the meter with ⏻ and press **MODE** key to select desired parameter to be measured.

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 (EC-15-cond/EC-15-MULTI)

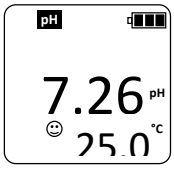


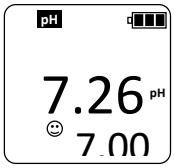


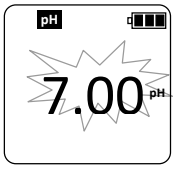
1. Power ON the meter by pressing the ⏻ Key.
2. Rinse the probe with distilled water.
3. Immerse the probe in the calibration solution (84µS or 1413µS or 12.88mS), wait for stability ☺.
4. Press **CAL** key, (green backlight during calibration).
5. The meter will start calibration procedure and will 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.

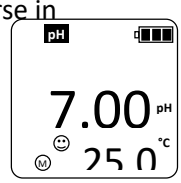
Note: Anytime press **ESC** key to abort and exit from calibration procedure.
Note: In case multipoint calibration is performed it's batter to start from the lower value standard first and then go increasing.

CALIBRATION PROCEDURE FOR pH (EC-15-pH/EC-15-MULTI)









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 (green 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 EC-10-pH0.01, 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.

REPLACEMENT OF SENSOR

Tester 5 series has replacement sensor which can be replaced in case it expires of 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.

EC-10-cond – EC-15-cond:

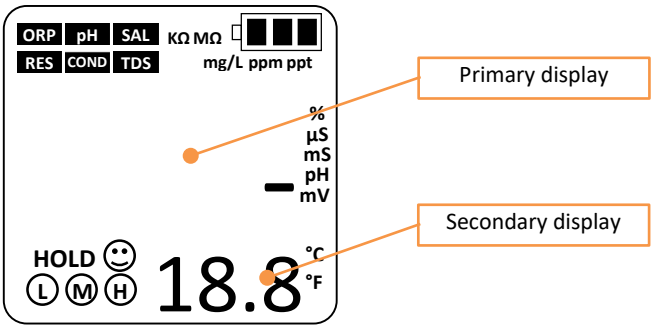
- Rinse the probe with distiller water or sample before use.
- For short time storage use distiller water. For long time store dry.

EC-10-pH – EC-15-pH – EC-15-pH Food – ORP5 – EC-15-MULTI:

- Rinse the probe with distiller water or sample before use.
- Store the probe in storage solution for regular use. For long time store dry.

⚠ 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	EC-10-pH	EC-10-cond	EC-15-pH / ORP5 / EC-15-pH Food	EC-15-cond	EC-15-MULTI	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	Description	Solution
Er 1	Wrong buffer solution or the recognition of calibration solution out of range.	1.Check whether buffer solution is correct. 2.Check whether the sensor is damaged.
Er2	Press ↵ key when measuring value is not stable during calibration.	Press ↵ key when ☺ icon appears.

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.