Elite PCTS Tester Operating Instructions

68X001281 Rev.0 June, 2017

ThermoFisher
SCIENTIFIC

This instruction manual is applicable for Elite PCTS Tester.

Replacing the Batteries

The Elite PCTS tester uses four AAA 1.5 V batteries.

1. To remove the battery cover, See Figure 1. Clear the front catch and then the back catch, before sliding the cover off.
2. To remove the battery plate, push the center tab towards the front of the tester as show in Figure 2. Once unlocked, remove the plate to access the batteries.
3. Invert the tester upside down to remove the batteries. Each side uses two AAA batteries. Orient each battery with positive terminal facing downward.
4. To lock the battery plate, align the small taps into the guide ribs on the housing and then press down. See Figure 4.

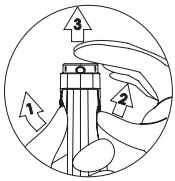


Figure 1: Removing Battery cover

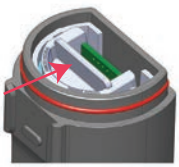


Figure 2: Push to unlock

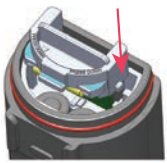


Figure 3: Align tabs

Figure 4: Push down to lock

Figure 5: Battery plate unlock position

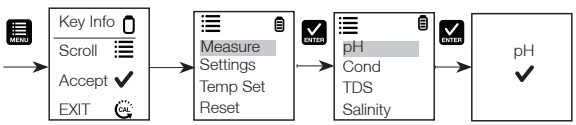
Figure 6: Battery plate lock position

Getting Started

The Elite PCTS tester has been factory calibrated and usually works well out of the box. However, after extended periods of non-use, it is best to remove the sensor cap and soak the sensor in warm tap water for 10 minutes or so. Prior to taking the measurements, periodic calibration with certified standards is recommended for best accuracy.

Measurement Parameter Setting

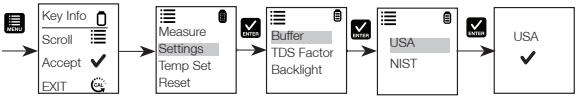
1. Press ⏻ to power the tester on.
2. Press MENU to enter setup window. Press ENTER to select Measure. The display shows pH, Cond, TDS and Salinity.
3. Scroll down by pressing MENU to toggle between pH, Cond, TDS and Salinity. Press ENTER to select pH.
4. The display shows the selected measure with a ✔.



pH Buffer Set Selection

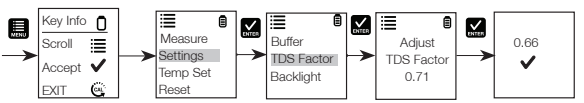
Elite PCTS tester features USA (pH 4.01, pH 7.00 and pH 10.01) or NIST (pH 4.01, pH 6.86, and pH 9.18) standards. Select either one to suit your requirements.

1. Press to enter setup window. Press ENTER to select Settings. The display shows Buffer, TDS Factor and Backlight.
2. Press ENTER to select Buffer. The display shows USA and NIST.
3. Press ENTER to select USA or scroll down by pressing MENU to toggle between the two buffer standards.
4. The display shows the selected buffer with a ✔.



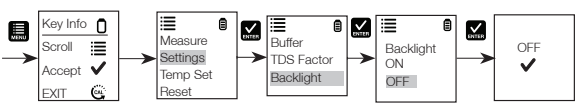
TDS Factor Setting

1. Press MENU to enter setup window. Scroll down by pressing MENU to select Settings.
2. Press ENTER to select settings. The display shows Buffer, TDS Factor and Backlight.
3. Scroll down by pressing MENU to toggle between the Buffer, TDS Factor and Backlight. Press ENTER to select the TDS Factor.
4. Press ENTER to select the default TDS factory setting or MENU to adjust the setting.
5. Press ENTER to confirm the selection of the setting. The display shows the selected temperature setting with a ✔.



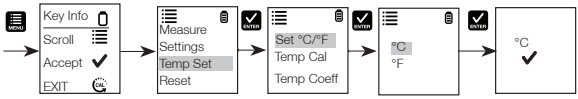
Backlight Settings

1. Press MENU to enter setup window. Scroll down by pressing MENU to select Settings.
2. Press ENTER to select Settings. The display shows Buffer, TDS factor and Backlight.
3. Scroll down by pressing MENU to toggle between Buffer, TDS Factor and Backlight. Press ENTER to select Backlight.
4. The display shows ON and OFF. Scroll down by pressing MENU to toggle between ON and OFF. Backlight ON increases readability in low light conditions.
5. Press ENTER to select the desired backlight option. The display shows the selected backlight option with a ✔.



Temperature Settings

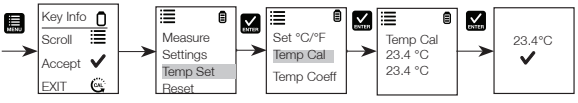
1. Press MENU to enter setup window. Scroll down by pressing MENU to select Temp Set. Press ENTER enter to select Temp set. The display shows Set °C/°F, Temp Cal and Temp Coeff.
2. Press ENTER to select Set °C/°F. Scroll down by pressing MENU to toggle between °C and °F.
3. Press ENTER to select temperature unit. The display shows the selected temperature setting with a ✔.



Temperature Calibration

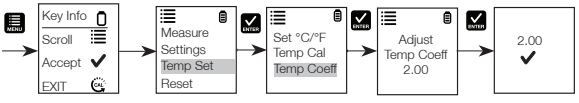
1. Press MENU to enter setup window. Scroll down by pressing MENU to select Temp Set.
2. Press ENTER to select Temp Set. The display shows Set °C/°F, Temp Cal and Temp Coeff.
3. Scroll down by pressing MENU to toggle between Set °C/°F, Temp Cal and Temp Coeff. Press ENTER to select Temp Cal.
4. The lower display shows the current measured temperature reading based on the last set offset and the upper display shows the current measured temperature reading based on factory default calibration.
5. Dip the tester into a solution of known temperature and allow time for the in built temperature sensor to stabilize.
6. Press MENU to adjust the temperature value or press the ENTER to confirm the calibrated value as the new temperature value of the solution.

Note: To exit this program without confirming the calibration, press CAL.



Temperature Coefficient

1. Press MENU to enter setup window. Scroll down by pressing MENU to select Temp Set.
2. Press ENTER to select Temp Set. The display shows Set °C/°F, Temp Cal and Temp Coeff.
3. Scroll down by pressing MENU to toggle between Set °C/°F, Temp Cal and Temp Coeff.
4. Press ENTER to select Temp Coeff or MENU to adjust the Temp Coeff.
5. Press ENTER to confirm the Temp Coeff value. The new value is automatically confirmed with a ✔.



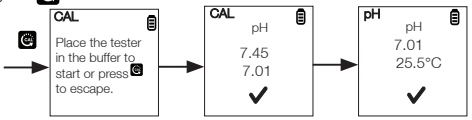
pH Calibration

Calibration should be done regularly, preferably once a week. Calibrate up to three points using either the USA or the NIST buffer set standards.

1. Press ⏻ to power the tester on if needed.
2. Dip electrode about 2 cm to 3 cm into the pH standard buffer solution.
3. Press the CAL to enter calibration mode. The CAL indicator will be displayed. The upper display will show the measured reading based on the last calibration while the lower display will indicate the pH standard buffer solution.

   Note: To abort calibration, press ↺ to escape.
4. Allow about 2 minutes for the tester reading to stabilize. The timer icon flashes during this time. Once the reading is stabilized, the timer stops flashing. Automatic confirmation happens when the buffer is found and the display returned to measurement window with reading calibrated to pH standard buffer solution.
5. Repeat with other buffers if necessary. Rinse electrode before dipping into next buffer.

Note: The calibration mode allows you to perform up to three calibration points. Calibration automatically is confirmed with the buffer identification. No user interaction is required after starting the calibration by pressing the ↺.

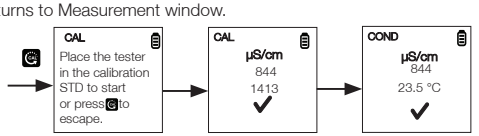


Calibration for Conductivity, TDS, or Salinity

For best results, periodic calibration with an accurate standard is recommended prior to measurement. Use the calibration standard value that is close to your intended sample value. The tester will retain one calibration value in each mode (conductivity, TDS, salinity) when the instrument is powered off. The conductivity value can be calibrated automatically or manually, while the TDS & salinity values require manual calibration. The tester will begin in the measurement mode that was used when it was powered off. See “Measurement Parameter Setting” to change the desired parameter.

Automatic Calibration for Conductivity

1. Remove the cap and press the ⏻ to power on.
2. Dip the sensor in at least 30 mm of calibration standard.
3. Stir gently and press CAL to begin the calibration.
4. The display will show CAL followed by the default value. CAL is indicated on the display during calibration mode.
5. If the reading is within the calibration range of the automatically recognized standards; 80 (84 µS/cm), 1410 (1413 µS/cm), or 12.90 (12.88 mS/cm), the ✔ icon is displayed when the automatic calibration standard value has been detected.
6. Press ENTER to accept the auto conductivity standard and finish the calibration.
7. Display returns to Measurement window.



Manual Calibration

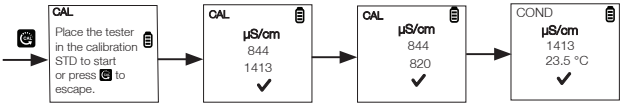
When the conductivity reading is outside calibration range of the automatic conductivity standards or when TDS or salinity is used, the tester will require manual adjustment.

1. Repeat steps 1 to 4 from “Automatic Calibration for Conductivity”.
2. Press MENU to manually adjust the value to the desired reading.

Note: The adjustment will decrease only, however the adjustment will eventually cycle to the highest available value after decreasing by 40% of the initial value.

3. Press ENTER to accept and finish the calibration when the desired value is selected.
4. To abort calibration, press CAL to escape.
5. Once the calibration is finished and user has accepted the changes, measurement window will now show the calibrated reading.

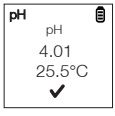
Note: The auto conductivity standards are 84 µS/cm, 1413 µS/cm & 12.88 mS/cm.



Measurement

1. Press ⏻ to power tester on if needed.
2. Dip the electrode about 2 cm to 3 cm into the test solution. Stir and let the reading stabilize. The timer icon will blink during this time. Once the reading is stabilized, the timer stops blinkin and ✔ will appear to indicate the stability of the reading.

   CAUTION: Testing dry samples is not accurate and can lead to sensor damage or breakage. Soils must be wet and free of particulates that may scratch the glass sensor. Excessive force into dry samples can cause glass breakage.

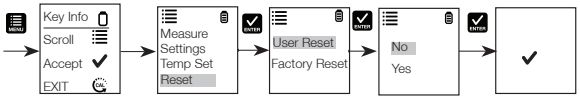


3. Note the value or press ENTER to freeze the reading. To release the reading, press ENTER again.
4. Press ⏻ to turn off tester. If you do not press a button for 8.5 minutes, the tester will automatically shut off to conserve batteries.

User Reset

Reset to the user’s default settings by using the User Reset function. Buffer selection and temperature user calibration are not affected by the user reset function.

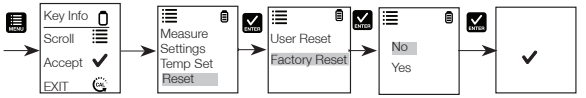
1. Press MENU to enter setup window. Scroll down by pressing MENU to select Reset. Press ENTER to select Reset. The display shows User Reset and Factory Reset.
2. Press ENTER to select User Reset.
3. The display automatically shows No and Yes. Scroll down by pressing MENU to toggle between No and Yes.
4. Press ENTER to confirm either No or Yes. The display shows the user reset option with a ✔.



Factory Reset

Reset to the Factory Reset default by using the Factory Reset function.

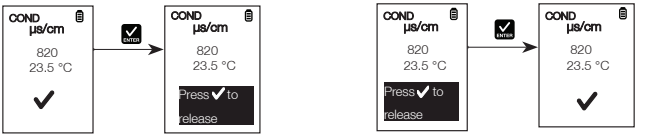
1. Press MENU to enter setup window. Scroll down by pressing the MENU to select Reset. Press ENTER to select Reset. The display shows User Reset and Factory Reset.
2. Scroll down by pressing the MENU to toggle between the resets. Press ENTER to select Factory Reset.
3. The display automatically shows No and Yes. Scroll down by pressing MENU to togglebetween No and Yes.
4. Press ENTER to confirm either No or Yes. The display shows the factory reset option with a ✔.



HOLD Function

This feature lets you freeze the display for a delayed observation.

1. Press ENTER button to freeze the measurement.
2. Press ENTER again to release the measurement.



Sensor Maintenance

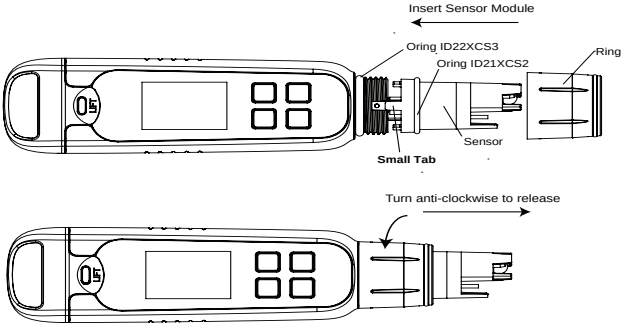
1. Always keep the sensors electrodes clean. Rinse the electrodes with de-ionized water and wipe them dry with clean cloth before storing with its protective cap. For cup type electrodes, remove the white plastic cup and insert to thoroughly clean viscous solutions. Never scratch electrodes with a hard substance.
2. For better performance, soak the electrode in alcohol for 10 to 15 minutes and rinse with de-ionized water before starting any measurement process. This is to remove dirt and oil stains on the electrode which may affect the accuracy of the measurements.

Sensor Replacement

You can replace the sensor module at the fraction of the cost of a new tester. When the tester fails to calibrate or gives fluctuating readings in calibration standards, you need to change the electrode.

1. With dry hands, grip the ring with sensor facing you. Twist the ring clockwise. Save the ring for later use.
2. Pull the old sensor module away from the tester.
3. Align the four tabs on the new module so that they match the four slots on the tester.
4. Gently push the module onto the slots to sit it in position. Push the smaller O-ring fully onto the new sensor module. Push the other O-ring over the module and thread it into place by firmly twisting counter clockwise.

Note: It is necessary that you recalibrate your tester prior to measurement after a sensor replacement.



Applications

The Elite PCTS tester can be used for the following:

- Agriculture
- Aquaculture
- Aquariums and fish farms
- Boiler blow-down
- Car Washes
- Drinking water Hydroponics
- Ecology
- Electroplating rinse tanks
- Food Sectors
- Labs
- Printing industry
- Swimming pools
- Verification of reverse osmosis system operation
- Water and wastewater treatment
- Others

Warranty

This instrument is supplied with a warranty against manufacturing defects for a period of one year from the date of purchase.

Return of Items

Authorization must be obtained from your distributor before returning items for any reason. When applying for authorization, please include information regarding the reason the item(s) are to be returned.

We reserve the right to make improvements in design, construction and appearance of products without notice. Prices are subject to change without notice.

Self Diagnostic Messages

	Batteries are weak and need replacement soon.
stable error	Appears when calibration is attempted but the reading is not yet stable. Wait for the reading to stabilize or manually confirm the calibration by pressing enter.
buffer error	The buffer is outside of the calibration range.
slope error	The 2nd or 3rd calibration point is not within 80% to 120% slope range.
over range	The reading is above the measuring range of tester.
under range	The reading is below the measuring range of tester.

Specifications

Specification	Elite PCTS
pH	
pH range	-1.00 to 15.0 pH
Resolution	0.01 pH
Relative accuracy	± 0.01 pH
Calibration points	Up to 3 points
Buffer set standard selection	USA 4.01/7.00/10.01NIST 4.01/6.86/9.18
Calibration window	±1.00 pH
Calibration type	Point to Point
Conductivity	
Conductivity range	0.0 to 200.0 µS, 200 to 2000 µS, 2.00 to 20.00 mS
Resolution	0.1 µS, 1 µS, 0.01 mS
Relative accuracy	±1% full scale
Normalization temperature	25.0ºC (77ºF)
Temperature Co-efficient	0.0% to 10.0%
Calibration Points	Up to 3 points
TDS	
TDS Range	0.0 to 100.0 ppm 100 to 1000 ppm 0.10 to 10.00 ppt (TDS factor 0.5)
Resolution	0.1 ppm, 1 ppm, 0.01 ppt
Relative accuracy	±1% full scale
Calibration points	Up to 3 points
TDS Factor	0.40 to 1.00 (Selectable)
Salinity	
Salinity range	0.00 to 10.00 ppt
Resolution	0.10 ppt
Relative accuracy	±1% full scale
Calibration points	One
Temperature	
Temperature range	0°C to 60°C (32.0°F to 140.0°F)
Temperature resolution	0.1°C / 0.1°F
Temperature accuracy	from 0°C to 50ºC (±0.5ºC / ±0.9ºF + 1 LSD); from 50ºC to 60ºC (±1.0ºC / ±1.8 ºF + 1 LSD)
Temperature compensation	Yes (Automatic Temperature Compensation)

Specification	Elite PCTS
General	
Display	Graphics, Dot Matrix 80X100 Pixel
Backlight	Yes, Selectable (30sec from the last key press)
Auto off	8.5 minutes (From Last Key press)
Reset	User / Factory
Power requirement	Four AAA 1.5 V batteries
Battey life	>150 hours
Water proofing	IP67
Regulatory Certifications	CE, FCC
Environmental Operating Conditions	
Ambient operating temperature	5°C to 45°C
Relative humidity	5% to 85% Non-Condensing
Storage temperature	-20°C to 60°C
Storage humidity	5% to 85% Non-Condensing

Accessories

Ordering Code	Product Description
PCTS Tester	
ELITEPCTS	pH/Conductivity/TDS/salinity pocket tester with batteries
Conductivity Standard Solutions and Sachets	
ECCON100BT	100 µS/cm KCl, 480 mL
ECCON1413BT	1413 µS/cm KCl, 480 mL
ECCON1288BT	12.88 mS/cm KCl, 480 mL
ECCON1413BS	1413 µS/cm KCl, box of 20 x 20 mL sachets
TDS 442* Standard Solutions	
EC442300BT	300 ppm 442, 480 mL
EC4421000BT	1000 ppm 442, 480 mL
Salinity (NaCl) Solutions	
ECNACL5PPT	5 ppt NaCl, 480 mL
Other Accessories	
ELITECAP	Replacement sensor cap
TFLANYARD	Tester lanyard