TDSscan20 Pocket TDS Tester
USER MANUAL

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Overview

Thank you for selecting the TDSscan series pocket TDS tester. This user manual provides a step-by-step guide to help you operate the tester, please carefully read the following instructions before use.
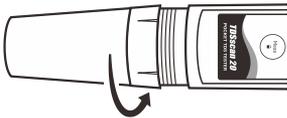
Installing the Batteries

1. Twist the electrode collar counter clockwise, pull the electrode away from the tester.
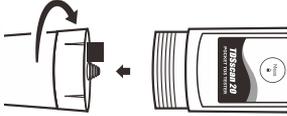
2. Insert two AAA alkaline batteries into the battery compartment, note polarity.

3. Push the electrode into the tester and twist the electrode collar clockwise until tight.

Keypad

| Key	Function
Meas 🔒	• Switch the tester on or off • Lock or unlock measurement • Exit the calibration, settings and return to the TDS measurement
◄ Cal ►	• Start calibration • Press and hold the key to enter the setup menu • Select an option
Enter	• Confirm the calibration, settings or displayed option

Display

Icon	Description
🔋	When the battery voltage falls below the minimum power requirements, the icon automatically disappears

| MEAS	Indicates that the tester is in the measurement mode
CAL	Indicates that the tester is in the calibration mode
SETUP	Indicates that the tester is in the setup mode
ATC	Indicates that the automatic temperature compensation is enabled

Prior to Use

Remove the protective cap from the bottom of the tester. If the sensor has dried out, soak the electrode for about 10 minutes in tap water.

Sensor
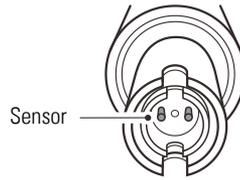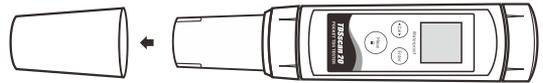
Switching the Tester On and Off

• Press and hold the **Meas** key for about 5 seconds to switch on the tester.
• Press and hold the **Meas** key to switch off the tester.

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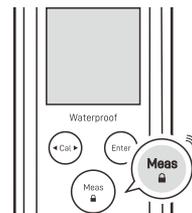
If you do not press any key within 8 minutes, the tester will switch off automatically to conserve energy.

Setup Menu

The TDSscan20 tester contains 7 menu items in the setup menu, the following table describes the functions of each option.

| Menu Item	Option and Description	
	Calibration Points Set the number of calibration points.	
CAL	1	1 point (default)
	2	2 points
	3	3 points
	TDS Factor Set the default TDS conversion factor.	
tdS	0.5	0.1 to 1.0%/°C (default 0.5)
	Measurement Unit Set the default temperature unit.	
UNIt	°C	Degrees Celsius (default)
	°F	Degrees Fahrenheit
	Temperature Calibration Refer to page 3.	
CAL	°C	Reading ±10°C
	°F	Reading ±10°F
	Auto-Hold If enabled, the tester will automatically sense and lock the measurement endpoint.	
HOLd	YES	Enable
	NO	Disable (default)
	Auto-Power Off If enabled, the tester will automatically switch off if no key is pressed within 8 minutes.	
OFF	YES	Enable (default)
	NO	Disable
	Factory Reset If enabled, all of the calibration values and current settings will be deleted or reset to the factory defaults, the tester must be recalibrated.	
rSt	YES	Enable
	NO	Disable (default)

Setting the Default Option

1. In the measurement mode, press and hold the **Cal** key to enter the setup menu.
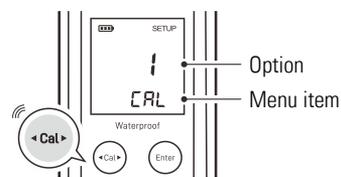
2. If necessary, press the **Cal** key again to select an option.
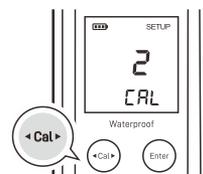
3. Press the **Enter** key, the tester saves the current option and moves to the next menu item.
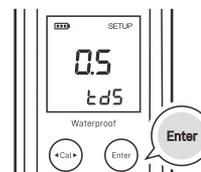
4. Repeat steps above until the tester returns to the measurement mode.

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- During the setting process, if you do not need to calibrate the temperature, press the **Enter** key to skip the °C/CAL or °F/CAL option.
- To exit the setup menu, press the **Meas** key.

TDS Calibration

The TDSscan20 tester allows 1 to 3 points calibration. We recommend that you perform 3 points calibration or select a standard solution closest to the sample TDS you are measuring. When the calibration is completed, all new calibration values will automatically override existing data.

Make sure that using the fresh standard solution during the calibration. DO NOT reuse the standard solution after calibration, contaminants in solution will affect the calibration and eventually the accuracy of the measurement.

Single Point Calibration

Ensure that you have selected 1 point calibration in the setup menu.

1.1　Press the **Cal** key, the tester shows ----/CAL 1.
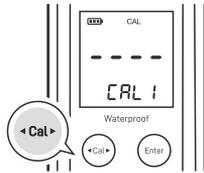
1.2　Rinse the electrode with distilled water and place into the standard solution. Stir tester gently to remove air bubbles trapped in the slot of the sensor. The tester will automatically recognize the standard solution and show the calibration value.
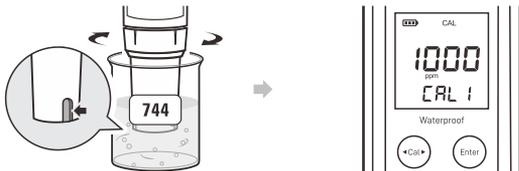

1.3　Press the **Enter** key, the default calibration value begins flashing.

1.4　If necessary, press the **Cal** key to modify the calibration value, press the **Enter** key to confirm and move to the next digit. When the setting is completed, make sure that the displayed value matches the calibration standard.

1.5　Press the **Enter** key, the tester begins the calibration. When the reading has stabilized, the display will show End. Calibration is completed.
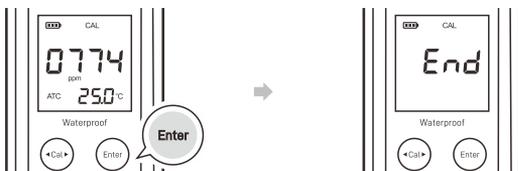
Multipoint Calibration

Ensure that you have selected 2 or 3 points calibration in the setup menu.

2.1　Repeat steps 1.1 through 1.5 above. When the first calibration point is completed, the display will show ----/CAL 2, the tester prompts you to continue with second point calibration.

2.2　Repeat steps 1.2 through 1.5 above until the display shows End. Calibration is completed.

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To exit the calibration without saving calibrated value, press the **Meas** key.

Temperature Calibration

The TDSscan20 tester is installed with a built-in temperature sensor for automatic temperature compensation. During the measurement, if the measured temperature reading differs from that of an accurate thermometer, the tester needs to be calibrated.
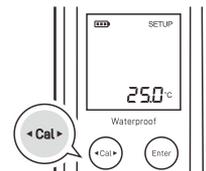
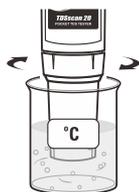1.　Press and hold the **Cal** key to enter the setup menu.
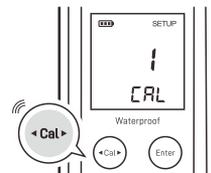
2.　Press the **Enter** key until the display shows ℃/CAL or ℉/CAL.
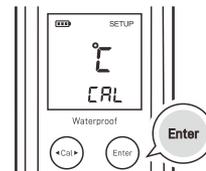
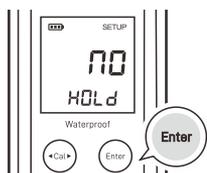3.　Press the **Cal** key, the tester enters the temperature calibration mode.

4.　Place the electrode into a solution with a known accurate temperature and wait for the measurement to stabilize.

5. Press the **Cal** key to modify the temperature value.

6. Press the **Enter** key to save and press the **Meas** key to return to the measurement mode.
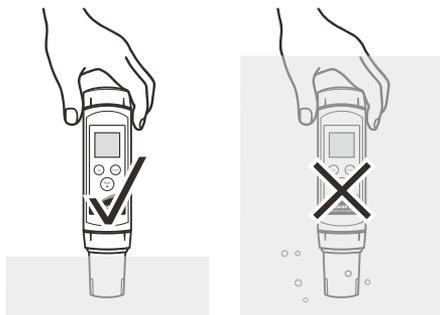
Measurement

Rinse the electrode with distilled water, place the electrode into the sample solution and stir gently, make sure that no air bubbles on the sensor surface. Wait for the measurement to stabilize and record the reading.

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• During the measurement, DO NOT completely immerse the tester in water.

• If the display shows ---- indicating the measurement exceeds the range, remove the tester from the sample immediately.

• If the HOLd option is enabled in the setup menu, the tester will automatically lock the measurement endpoint and show HOLD icon. Press the **Meas** key to resume measuring.

Electrode
Maintenance and Replacement
• Rinse the electrode thoroughly with distilled water after use.
• Do not touch the platinum black coating on the sensor surface and always keep it clean.
• If there is a build-up of solids inside the sensor, remove carefully, then recalibrate the tester.
• If you do not use the tester for long periods, remove the batteries.

Replacing the Electrode
If the tester fails to calibrate or gives fluctuating readings, you should consider replacing the electrode.
1. Twist the electrode collar counter clockwise, pull the electrode away from the tester.

2. Align the slot on the new electrode, gently push the electrode into the tester.

3. Twist the electrode collar clockwise until tight.

Appendix

Calculating the TDS Conversion Factor

The TDSscan20 tester allows setting the conversion factor according to the type of sample. The factory default is 0.50. The following formula describes the calculation method.

$$Factor = \frac{Actual\ TDS}{Actual\ Conductivity\ @\ 25°C}$$

Where:
Actual TDS = Value from the high purity water and precisely weighed NaCl or KCL reagent
Actual Conductivity = The tester measured conductivity value

For example:
Dissolve 64 grams of the potassium chloride (KCl) reagent in 1 liter distilled water. If measured conductivity is 100 mS/cm, then TDS factor is 0.64.

Preparation of TDS Standard Solutions

Place the analytical grade potassium chloride (KCl) in a beaker and dry in an oven for about 3 hours at 105°C (221°F), then cool to room temperature. Add the reagent to a 1 liter volumetric flask according to the instructions in table below.

TDS Standard	Reagent	Weight
71.8 ppm	KCl	74.4 mg
744.7 ppm	KCl	745.5 mg
7447 ppm	KCl	7.45 g

Fill the distilled water to the mark, mix the solution until the reagent is completely dissolved.

Optional Accessories

Order Code	Description
E-ECscan-C1-10K	2-pole conductivity cell, K=1
TDSCS-718	Standard solution 71.8 ppm, 480 ml
TDSCS-744	Standard solution 744 ppm, 480 ml
TDSCS-7447	Standard solution 7447 ppm, 480 ml

Tester Specifications

Model	TDSscan20
TDS	
Range	0 to 10.00, 100.0, 1000 ppm, max. 20.00 ppt
Resolution	0.01, 0.1, 1
Accuracy	±1% F.S.
Calibration Points	1 to 3 points
Temperature	
Range	0 to 60°C (32 to 140°F)
Resolution	0.1°C (0.1°F)
Accuracy	±1°C (±1.8°F)
Calibration Point	1 point
Calibration Range	Reading ±10°C/°F
Other Specifications	
Temperature Compensation	0 to 60°C (32 to 140°F), automatic
TDS Factor	0.1 to 1.0
Operating Temperature	0 to 50°C (32 to 122°F)
Storage Temperature	0 to 60°C (32 to 140°F)
Relative Humidity	< 80% (non-condensing)
IP Rating	IP54
Display	LCD, 21 × 21 mm (0.82 × 0.82 in.)
Power Requirements	2 × 1.5V AAA alkaline batteries
Auto-Off	8 minutes after last key pressed
Dimensions	185 (L) × 40 (Ø) mm (7.28 × 1.57 in.)
Weight	100 g (3.5 oz.)

Disposal

This product is required to comply with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC and may not be disposed of in domestic waste. Please dispose of product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

Warranty

The warranty period for tester is one year from the date of shipment. Above warranty does not cover the electrode and standard solutions. Out of warranty products will be repaired on a charged basis.
The warranty on your tester shall not apply to defects resulting from:
• Improper or inadequate maintenance by customer
• Unauthorized modification or misuse
• Operation outside of the environment specifications of the products
For more information, please contact the supplier.

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