Bante810 Benchtop Dissolved Oxygen Meter

Instruction Manual

Introduction

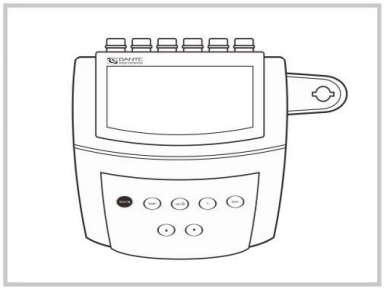
Thank you for selecting the Bante810 benchtop dissolved oxygen meter. This manual provides a step-by-step guide to help you operate the meter, please carefully read the following instructions before use.

Unpacking

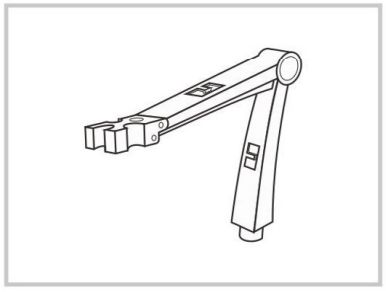
Before unpacking, ensure that the current work environment meets following conditions.

- Relative humidity is less than 80%.
- Ambient temperature is greater than 0°C and less than 60°C.
- No potential electromagnetic interference.

The following list describes the standard components of the meter. After the unpacking, please check all components are complete. If any are damaged or missing, please contact nearest distributor.



Bante810 Dissolved Oxygen Meter



Electrode Arm

DO100 Dissolved Oxygen Probe

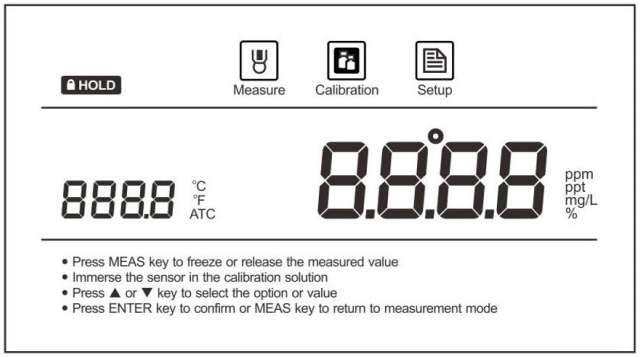
Electrolyte Solution

Membrane Cap

DC9V Power Adapter

Display

The Bante810 dissolved oxygen meter is equipped with an easy-read LCD display that used to show measured values and mode icons. The following table describes the function of each icon.



INDEX:

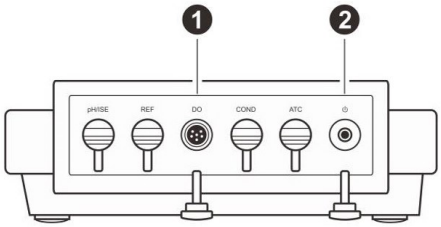
Measure	Measurement mode icon: Indicates the meter is in the measurement mode.	HOLD	Hold icon: Indicates the measuring value has been locked.
Calibration	Calibration mode icon: Indicates the meter is in the calibration mode.	ATC	Automatic Temperature Compensation: Indicates the temperature compensation is enabled.
Setup	Setup mode icon: Indicates the meter is in the setting mode.		

Keypad

The meter has a succinct membrane keypad, names and symbols describe the each function key controls.

KEY	FUNCTION
MEAS|	• Switches the meter ON/OFF. • Locks the measured value, press the key again to resume measuring. • Exits the calibration or setting and returns to measurement.
MODE	• Toggles between % saturation and concentration measurement modes.
CAL|	• Starts calibration. • Enters the setup menu (Press and hold the key for 3 seconds).
°C	• Sets the temperature.
▲	• Increase the setting value.
▼	• Decrease the setting value.
ENTER	• Confirms the calibration, settings or displayed options.

Connectors



INDEX:

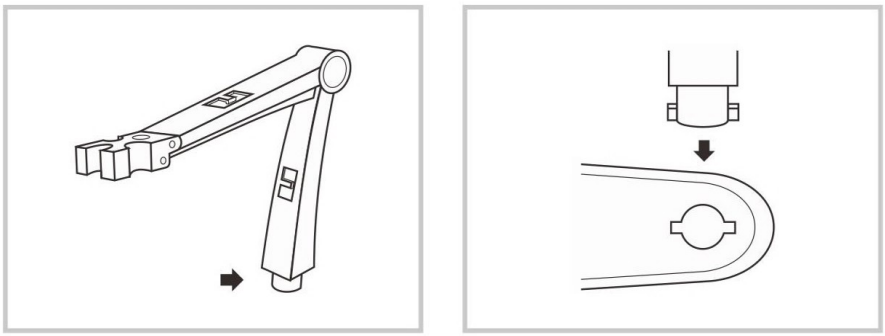
NO.	CONNECTOR	DESCRIPTION
1	DO	Used for connecting the dissolved oxygen probe
2	⏻	Used for connecting the power adapter

Filling the Electrolyte Solution

1. Take out the dissolved oxygen probe and electrolyte solution from the packaging. Unscrew the membrane cap.
2. Fill the membrane cap halfway with electrolyte solution.
3. Screw the membrane cap onto the probe, excess electrolyte solution will drain out.
4. Be sure the cathode of probe makes contact with membrane cap, the electrolyte solution in membrane cap should be without an air bubble.

Installing the Electrode Holder

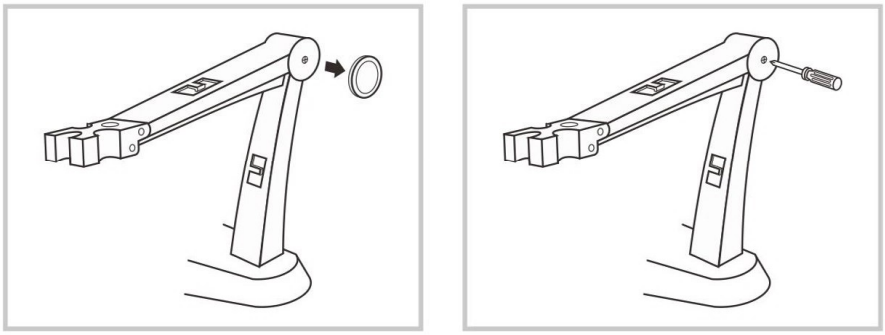
Take out the electrode arm from the packaging. The base plate of the electrode holder has a circular hole, the electrode arm has a connecting rod. Insert the connecting rod into the circular hole and swivel the electrode arm 90°. Electrode holder is now ready to swing into desired position.



Adjustment of electrode arm

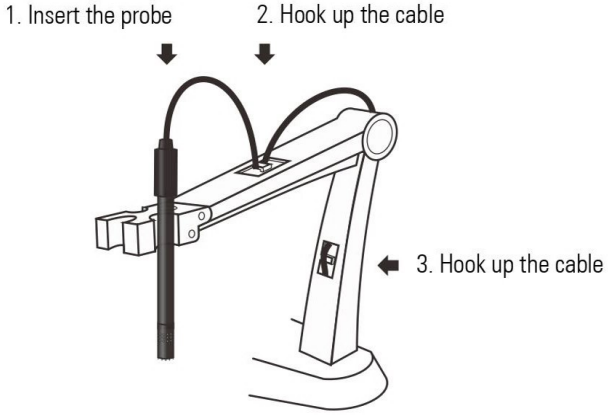
After installation, if the electrode arm automatically rises or falls, you need to adjust the screws until arm locate at any position.

1. Remove the plastic cover from the electrode arm.
2. Use the screwdriver to tighten the screw moderately.
3. Insert the plastic cover to previous position. Installation is completed.

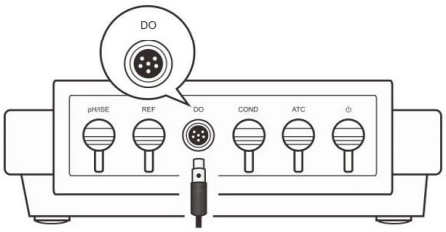


Connecting the Dissolved Oxygen Probe

1. Follow the steps below to place the probe into left or right side of the electrode arm.

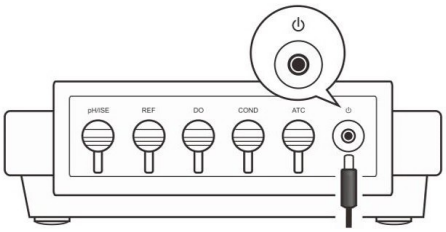


2. Insert the 6-pin connector into the connector socket labeled DO. After the connection is completed, DO NOT pull on the cable. Always make sure that the connector is clean and dry.



Connecting the Power Adapter

1. Before plugging in the power adapter, ensure that its voltage matches the local main voltage.
2. Insert the connector to the power socket. The meter is now ready for use.



Switching the Meter On and Off

- Press the **Meas** key to switch on the meter, the display shows the measured values.
- Press and hold the **Meas** key for 5 seconds, the meter will switch off.

ⓘ To enable the Auto-Power Off feature, please refer to chapter SETUP MENU.

Prior to Use

Connect the dissolved oxygen probe to meter. Turn on the meter 10 to 15 minutes and wait for the probe to polarize.

Setup Menu

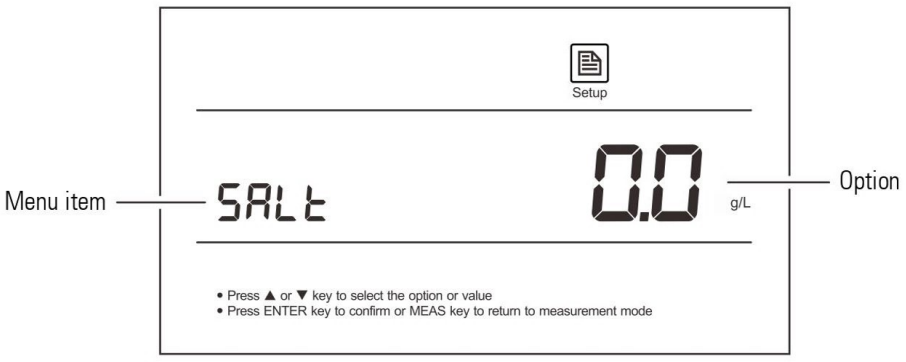
The Bante810 dissolved oxygen meter contains an integrated setup menu that is used to customize the displayed option to meet measurement requirements. The following table describes the functions of the menu items.

MENU	DESCRIPTION	OPTIONS	DESCRIPTION	DEFAULT
SALt	Set the salinity coefficient of sample.	0.0	Range: 0~35ppt	0.0ppt
PrES	Set the barometric pressure coefficient.	760	Range: 450~850mmHg	760mmHg
CAL	Set the number of calibration points.	1	1 point	1 point
		2	2 points	
UNIt	Set the default measurement unit.	mg/L	Concentration Unit	mg/L, °C
		ppm		
		%	% saturation	
		°C	Degrees Celsius	
		°F	Degrees Fahrenheit	
HOLd	When the option is enabled, the meter will automatically sense a stable reading and lock the measurements.	YES	Enable	Disable
		nO	Disable	
OFF	When the option is enabled, the meter will automatically switch off if no key is pressed within 180 minutes.	YES	Enable	Disable
		nO	Disable	
rSt	When the option is enabled, all of the calibration data and selected parameters will back to factory default settings, the meter must be recalibrated.	YES	Enable	Disable
		nO	Disable	

Setting a default option

1. In the measurement mode, press and hold the 🖹 key for 3 seconds to enter the setup menu.
2. Press the ▲ or ▼ key select the desired option.
3. Press the **Enter** key to confirm and move to the next menu item.
4. Repeat the steps above until the meter returns to the measurement mode. Setting is completed.

ⓘ During the setting process, press the **Meas** key, the meter will exit the setting and return to the measurement mode.



Setting the Salinity Coefficient

Salt dissolved in water will influences oxygen content of water. If your sample contains high levels of salinity, ensure that setting an applicable salinity coefficient prior to measurement.

1.1 In the measurement mode, press and hold the ▤ key for 3 seconds to enter the setup menu, the display shows SALt (salinity coefficient) option.
1.2 Press the ▲ or ▼ key to set the value.
1.3 Press the **Enter** key to confirm, the display shows the next menu item.
1.4 Press the **Meas** key to exit the setting and return to the measurement mode.

Setting the Barometric Pressure

The following table describes the relationship between altitude and barometric pressure. Prior to the calibration or measurement, you need to set a compatible parameter according to the local altitude.

ALTITUDE (m)	kPa	mmHg	ALTITUDE (m)	kPa	mmHg
0	101.3	760	1600	82.9	622
100	100.1	750	1700	81.9	614
200	98.8	741	1800	80.9	607
300	97.6	732	1900	79.9	599
400	96.4	723	2000	78.9	592
500	95.2	714	2100	77.9	584
600	94.0	705	2200	76.9	577
700	92.8	696	2300	76.0	570
800	91.7	688	2400	75.0	563
900	90.5	679	2500	74.1	556
1000	89.4	671	2600	73.2	549
1100	88.3	662	2700	72.3	542
1200	87.2	654	2800	71.4	536
1300	86.1	646	2900	70.5	529
1400	85.0	638	3000	69.6	522
1500	84.0	630	3100	68.7	515

2.1 In the measurement mode, press and hold the ▤ key for 3 seconds to enter the setup menu, the display shows SALt (Salinity Coefficient) option.
2.2 Press the **Enter** key, the display shows PrES(Barometric Pressure Coefficient) option.
2.3 Press the ▲ or ▼ key to set the value.
2.4 Press the **Enter** key to confirm, the display shows the next menu item.
2.5 Press the **Meas** key to exit the setting and return to the measurement mode.

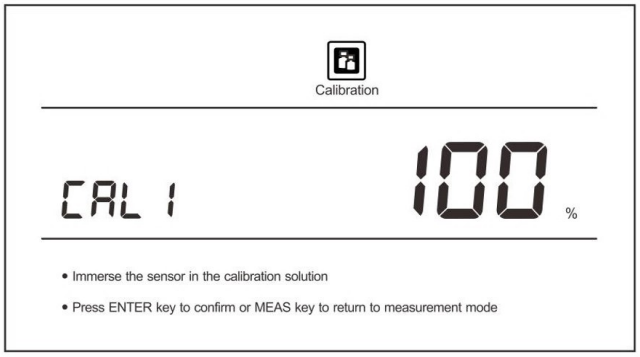
DO Calibration in % Saturation Mode

The Bante810 dissolved oxygen meter can perform 1 or 2 points calibration. For single point calibration, we recommend that you perform 100% saturation calibration in the air-saturated water. If the 2 points calibration is selected, the zero oxygen solution needs to be used.

Single point calibration - 100% saturation

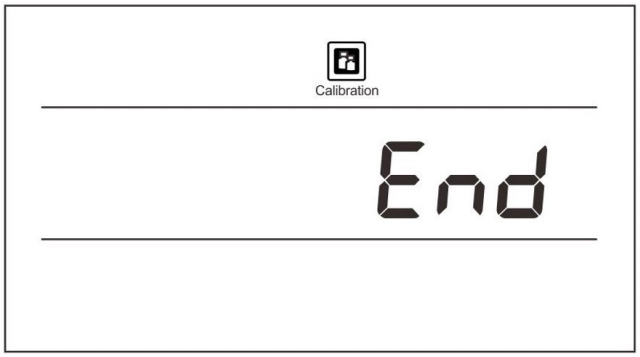
1.1 Make sure that you have selected 1 point calibration in the setup menu.

1.2 Press the **Cal** key, the meter shows "CAL1/100%".



1.3 Hold the dissolved oxygen probe in the air at 100% relative humidity or place the probe into the air-saturated water for 15 minutes.

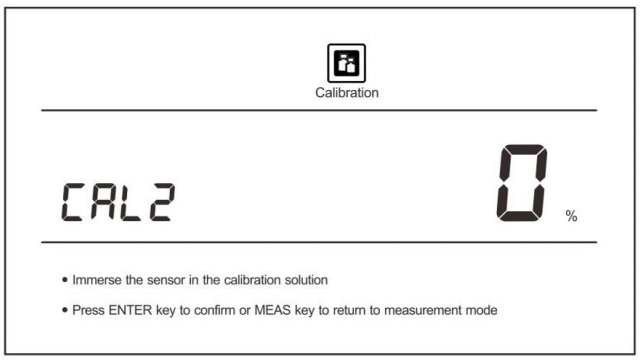
1.4 Press the **Enter** key. Wait for the reading to stabilize, the meter automatically shows END. Single point calibration is completed.



2 points calibration

2.1 Make sure that you have selected 2 points calibration in the setup menu.

2.2 Repeat the steps 1.2 to 1.4 above. When the first calibration point is completed, the display will show "CAL2/0%". The meter prompts you to continue with second point calibration.



2.3 Immerse the dissolved oxygen probe into the zero oxygen solution, stir the probe gently.

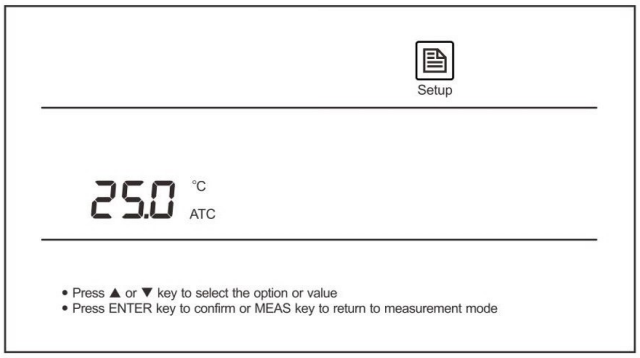
2.4 Press the **Enter** key to confirm. Wait for the reading to stabilize (this can often take more than 10 minutes), the display automatically shows END. The meter returns to the measurement mode. Calibration is completed.

ⓘ Performing a percentage saturation calibration will simultaneously calibrate the corresponding mg/L (or ppm) concentration value. Therefore, additional mg/L calibration is not required in most circumstances.

Temperature Calibration

During the measurement process, if the temperature reading displayed differs from that of an accurate thermometer, the meter needs to be calibrated.

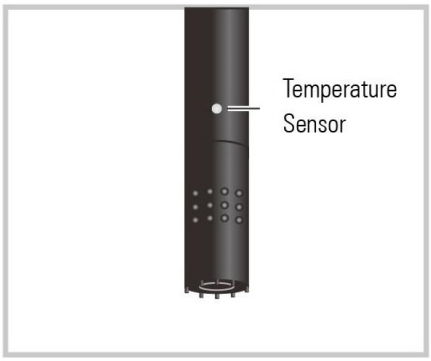
1. Place the dissolved oxygen probe into a solution with a known accurate temperature.
2. Press the **°C** key to enter the temperature setting mode.
3. Press the ▲ or ▼ key to set the temperature value.
4. Press the **Enter** key, the meter returns to the measurement mode. Calibrating is completed.



Dissolved Oxygen Measurement

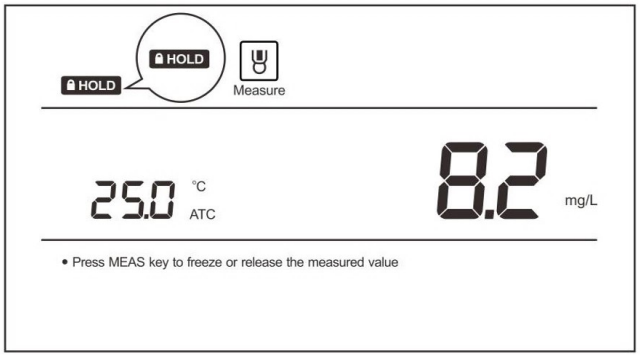
The Bante810 dissolved oxygen meter is suitable for measuring the water, wastewater, brine and other liquids. If the sample is belong to the seawater or other water containing large amounts of salt, please setting the salinity coefficient before measurement. Some gas and steam such as chloride, sulfur dioxide, sulfureted hydrogen, ammonium, carbon dioxide and iodin can permeate the membrane via diffusion. So their existence will influence the measurement of dissolved oxygen. If the sample contains the solvent, grease, sulfide and alga, the membrane on the probe will be blocked, damaged or eroded.

1. Connect the dissolved oxygen probe to meter and wait for 15 minutes to polarize the probe.
2. If necessary, to set the barometric pressure and salinity coefficient in the setup menu (Refer to page 7).
3. Immerse the probe in the sample solution, make sure the temperature sensor on the probe is fully immersed.
4. Stir the probe gently. Record the measured value when the reading is stable.



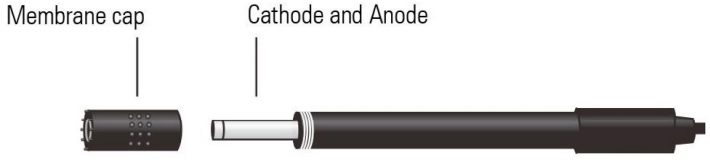
Auto-Hold

The meter contains an Auto-Hold function. If enabled, the meter will automatically sense a stable reading and lock the measurements, the HOLD icon appears on the display. If disabled, press the 🔒 key, the meter will immediately lock the displayed value. Press the **Meas** key to resume measuring.



Electrode Care and Maintenance

- Always keep the membrane of the dissolved oxygen probe is wet or moist.
- If you do not use the probe for long periods, please screw off membrane cap and rinse the cathode, anode and membrane with deionized water, then soak up residual water on them with filter pape. Install the probe again.



Troubleshooting

LCD DISPLAY	CAUSE	CORRECTIVE ACTION
- - -	DO probe does not connect to meter	Check the connector of probe.
	Measured value is out of range	Check the DO membrane whether clogged, dirty or broken.
Err	Electrolyte solution is depleted	Refilling electrolyte solution.
	Zero oxygen solution is contaminated	Replace the calibration solution.

Specifications

Dissolved Oxygen	Model	Bante810
	Range	0.0~20.0mg/L
	Accuracy	±0.5mg/L
	Resolution	0.1mg/L
% Saturation of Oxygen	Range	0.0~200.0%
	Accuracy	±2.0%
	Resolution	0.1%
General	Temperature Compensation	0~40°C, 32~104°F, Automatic
	Barometric Pressure Correction	60.0~112.5kPa, 450~850mmHg
	Salinity Correction	0~35g/L
	Connector	6-pin
	Display	LCD (135 × 75mm)
	Operating Temperature	0~60°C
	Relative Humidity	<80%
	Power Requirements	DC9V, using AC adapters, 220VAC/50Hz
	Dimensions	210 (L) × 205 (W) × 75 (H)mm
	Weight	1.5kg

Addendum: Preparation of the Zero Oxygen Solution

Dissolve 500mg of sodium sulfate (Na_2SO_3) reagent and a small amount of cobalt(II) chloride hexahydrate ($CoCl_2 \bullet 6H_2O$) in the 250mL distilled water, mix the solution until the reagent is completely dissolved.

Hazardous Substance Statement

Instruments is committed to the reduction and eventual elimination of all hazardous substances in both the manufacturing process and finished products we supply. We have an active manufacturing and procurement program to minimize and eliminate the use of harmful heavy metals such as cadmium, lead, mercury and the like. New technologies and design parameters are also promoting these efforts and we expect to have little or no such materials in our product in the coming years. We welcome our customer suggestions on how to speed up these efforts.

Warranty

The warranty period for meter is one year from the date of shipment. Above warranty does not cover the sensor and calibration solutions. Out of warranty products will be repaired on a charged basis. The warranty on your meter 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 nearest authorized distributor.