VEVOR 9011B Dissolved Oxygen Meter Instruction Manual

Contents [hide]

PRODUCT PARTS

This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

Symbol	Symbol Description
	**Warning:** To reduce the risk of injury, the user must read the instructions manual carefully.
	This symbol, placed before a safety comment, indicates a kind of precaution, warning, or danger. Ignoring this warning may lead to an accid ent. To reduce the risk of injury, fire, or electrocution, please always follow t he recommendation shown below.

	**CORRECT DISPOSAL:** This product is subject to the provision of European Directive 2012/ 19/EC . The symbol showing a wheelie bin crossed through indicates that t he product requires separate refuse collection in the European Union. T his applies to the product and all accessories marked with this symbol. Pro ducts marked as such may not be discarded with normal domestic waste, but must be taken to a collection point for recycling electrical and electroni c devices.

FCC INFORMATION

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment!

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This product may cause harmful interference.
2. This product must accept any interference received, including interference that may cause undesired operation.

WARNING: Changes or modifications to this product not expressly approved by the party responsible for compliance could void the user's authority to operate the product.
Note: This product has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This product generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception,which can be determined by turning the product off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the distance between the product and receiver.
- Connect the product to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.

Thank you for selecting the 9011B meter. The 9011B is a precision tool that measures dissolved oxygen in % and mg/L and temperature. A built-in microprocessor stores, calculates and compensates for all parameters related to DO determinations including DO electrode temperature characteristics. The 9011B is a new generation DO/temperature Bluetooth portable meter with iOS and Android mobile phone apps. The 9011B has a Type-c port for easy data transfer to PC and charging the battery pack.

This unit has a waterproof IP67 case. The touch mode keys are highly reliable with tactile and audio feedback. This meter uses a rechargeable battery pack, typical battery life is over 50 hours (tum off Bluetooth). Re-calibration is not required when power is timed on again.

The front of the meter has a large LCD that displays DO% saturation or mg/L, and temperature simultaneously along with user prompts and mode indicators. The unit prompts the user through calibration and measurement procedures.

The 9011B uses a Pornographic electrode with convenient screw-on cap membranes. The field probe comes with a built-in temperature sensor for automatic temperature compensation.

The unit is also equipped with a non-volatile memory allowing the user to store 750 point memory with date/time stamp for GLP. This unit will assign a site number for each set of readings so the user can review the data easily. And the stored data can be transferred to PC through the Type-c port.

This meter is user-friendly for field, industrial and laboratory applications.

Carefully unpack the unit and accessories. Inspect for damages made in shipment. If

any damage is found, notify your VEVOR representative immediately. All packing materials should be saved until satisfactory operation is confirmed.

This meter uses a rechargeable battery pack. It is recommended to charge the battery when the “Battery” icon flashes. The “Battery” icon stops flashing after the charging is full. The battery pack can be charged from the AC power adapter of the noncollectable, directly from a computer USB connection or from an external, portable USB battery pack.

A USB cable is included with the meter to charge the meter battery pack and connect the meter to a PC.

To charge the battery pack, connect the USB cable between the AC adapter or the PC USB port or the extemnal USB battery pack and the Type-C part of the meter. **(Fig.1)**.

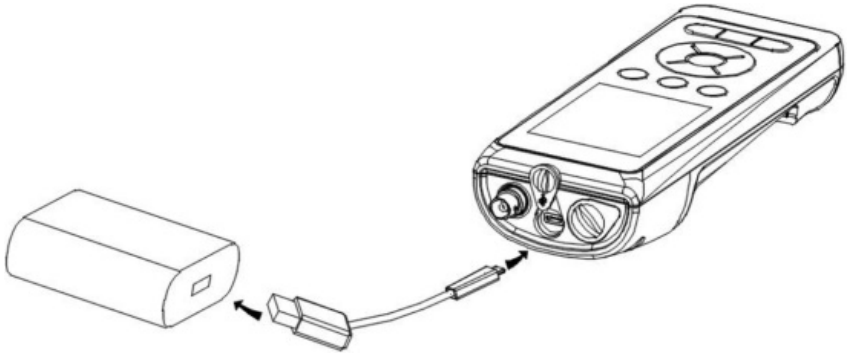


Figure 1: Connecting the meter to AC power supply

WARNING: Charge the battery pack in an open area away from flammable materials, liquids, and surfaces. Do not charge or handle a battery pack that is hot to the touch. Failure to follow the safety warnings and precautions can result in personal injury and/or meter damage not covered under warranty.

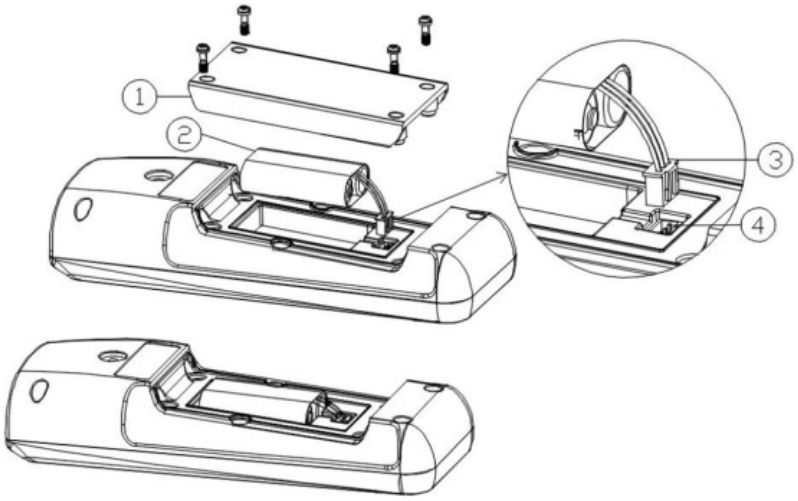
The life expectancy for a9011B rechargeable battery is 2 300 charge cycles at 25 °C.

1. Use a screwdriver to remove the four screws and battery compartment cover to expose the battery compartment. **(Fig.2)**
2. With two fingers, grasp the battery pack connector and pull the connector straight up to disconnect and remove the battery pack. Properly dispose of the old battery pack.
3. Correctly align and seat the new battery pack into the meter.
4. Properly align the battery pack connector wire terminals with the meter pin connector,

then connect the battery pack to the meter. Incorrect installation can damage the battery pack connectors or meter pins.

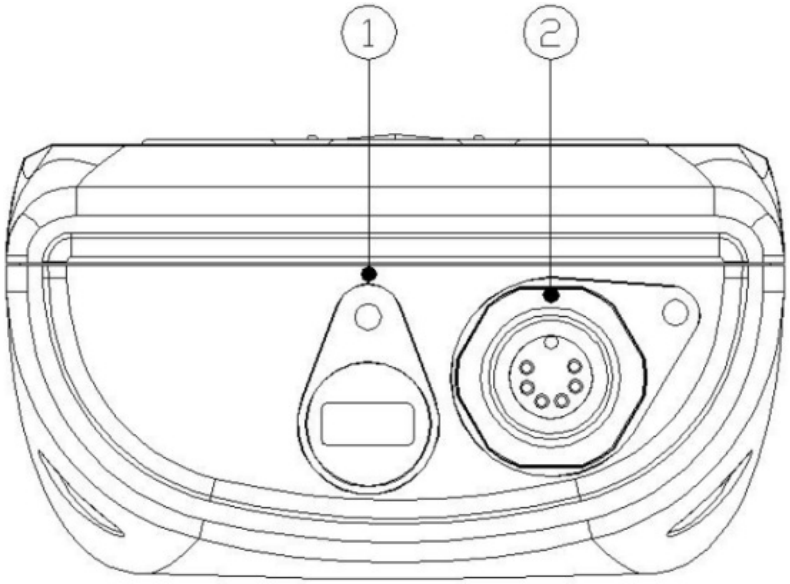
5. Replace the battery cover and make sure to secure the four screws for the water-tight feature.

Figure 2: Battery replacement



1. Battery compartment cover
2. Battery pack
3. Battery pack connector
4. Meter pin connectors

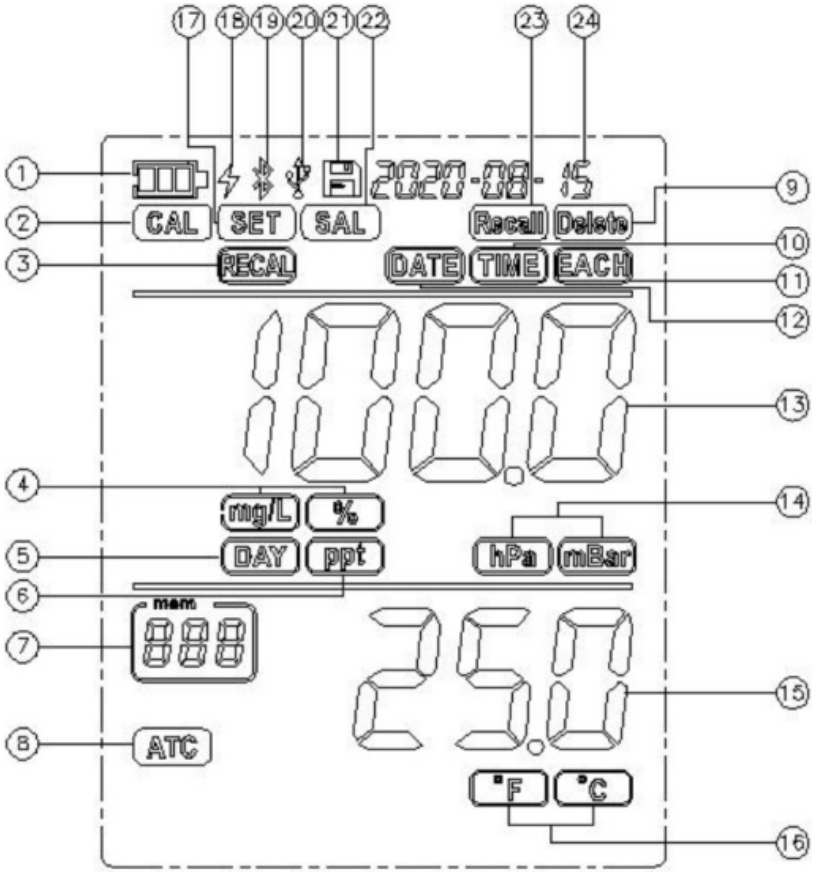
Figure 3: 9011B Connectors



1. Type-C connector
2. DO probe connector (6 PIN Waterproof connector)

A.Display

Figure 4: Active LCD screen



1.Battery charge.	2. **CAL-** In the calibration mode.
3.**RECAL-** Re calibrate meter.	4.**mg/L & %-** Dissolved oxygen unit.
5. **DAY-** Represents the time unit “days” required f or recalibration.	6. **ppt**– Display salinity units in calibration mode.
7. Data storage site number.	8. **ATC-** Auto temperature compensation.
9.**Delete-** In the delete mode.	10. **TIME-** In the time setting mode.

10.**EACH-** To delete a single set of data	12.**DATE-** In the date setting mode.
13.**MAIN DISPLAY-** Main display for dissolved oxygen values. from the data storage.	14. **mBar/hPa-** Display pressure units in calibration mode.
15. Temperature values	16. Temperature unit.
17.**SET-** In the setting mode.	18.In the charging mode.
19.In the Bluetooth mode.	20.USB/PC connection indicator.
21.**Save-** To save a reading into the data storage.	22.**SAL-** Display salinity compensation in setting m ode.
23.**Recall-** To recall data from the data storage.	24.Date/Time

B. Operational Keys Description

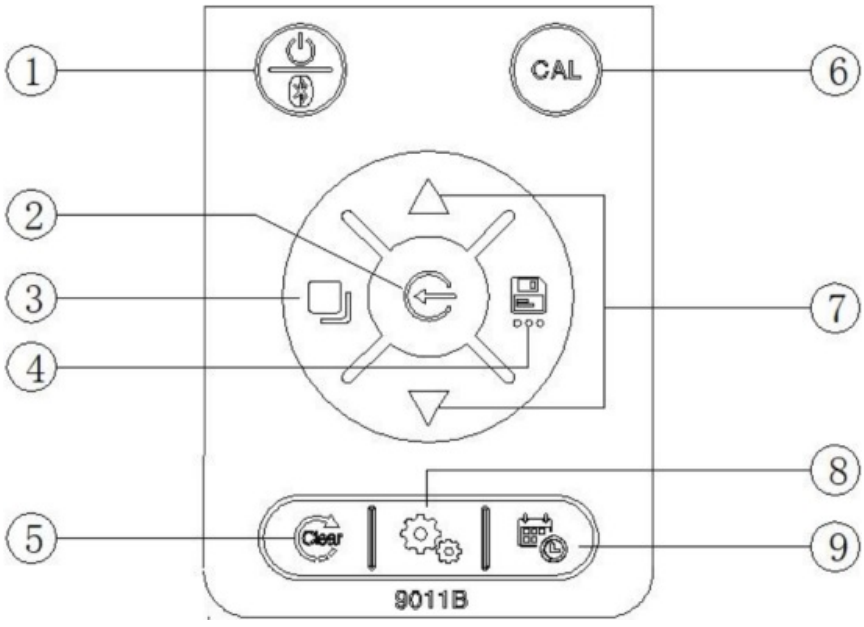
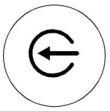
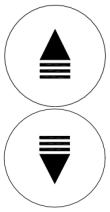
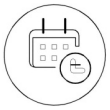
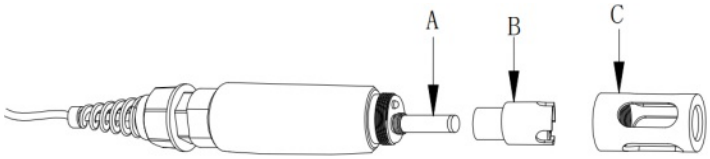


Figure 5

NO.	Key	Description
1		**Power/BLE (Bluetooth)-** Press and hold this key for 3 seconds to power on and shut off the meter. In the measure mode, press this key to turn Bluetooth on or off.
2		**Enter-** This key is used to confirm the setting data or parameter. At the Recall mode, press **"Enter"** key to display the last set of saved data. In the "Delete All" mode, press **"Enter"** and enter the selection screen. In the "Delete EACH" mode, press **"Enter"** key to delete a single set of data.
3		**Mode-** This key is used to select display mode. Pressing this key changes the display sequentially to display Dissolved Oxygen or Dissolved Oxygen% saturation. In the "Recall" and "Delete" modes, press this key to exit "Recall" and "Delete" modes respectively. In the calibration mode, press **"Mode"** key to exit calibration mode. In the SET mode, press **"Mode"** key to exit SET mode.
4		**Save-** In the measure mode, press **"Save"** key for 3 seconds, to save reading into the data storage site. Press this key to select "Recall", "Delete EACH" and "Delete ALL" mode, sequentially.
5		**Clear-** In the measure mode, when the **"Clear"** key is pressed for 5 seconds, the meter clears all calibration values stored in internal memory.

6	CAL	**CAL-** In the Measure mode, press and hold this key for 3 seconds to enter into “Calibration” mode.
7		**Up & Down-** In the “calibration” mode, press the **“Up”** or “**Down”** key to change t he pressure correction. In the “setting” mode, press the **“Up”** or **“Down”** key to change the r elated parameters. In the “Recall” mode, view saved data and data storage site number by pressing these keys. In the “Delete ALL” mode, select between the “Yes” and “No” for data all deleted. In the “Delete One” mode, view to be deleted data and data site num bers by pressing these keys.
8		**SET-** Press this key to enter system setup mode.
9		**Date/Time-** In the measure mode and recall mode, press this key to switch date or time display.

Installation

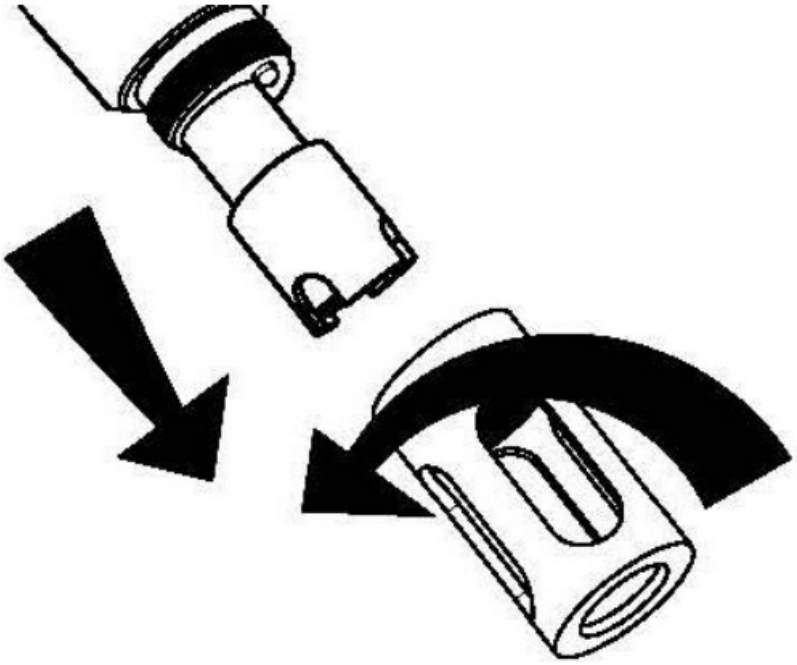


(A) Lead

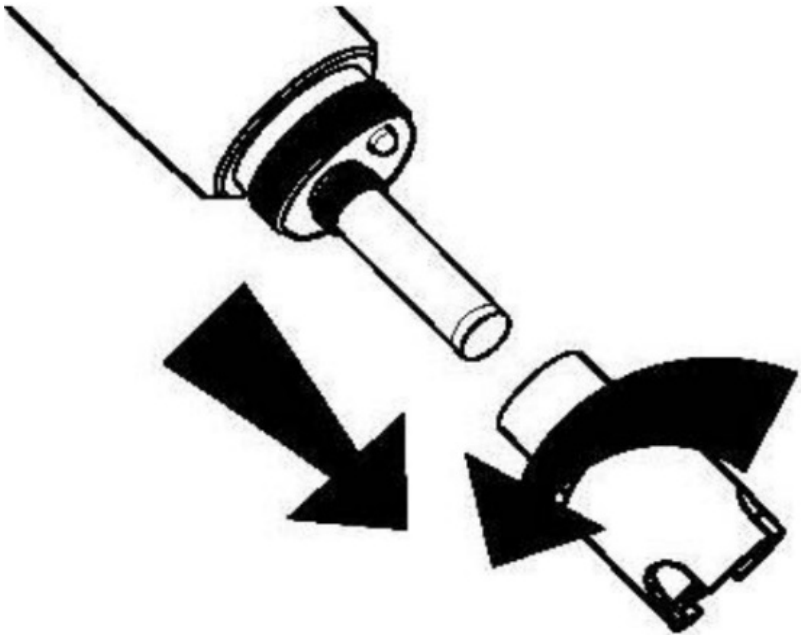
(B) Membrane Cap

(C) Guard Cap

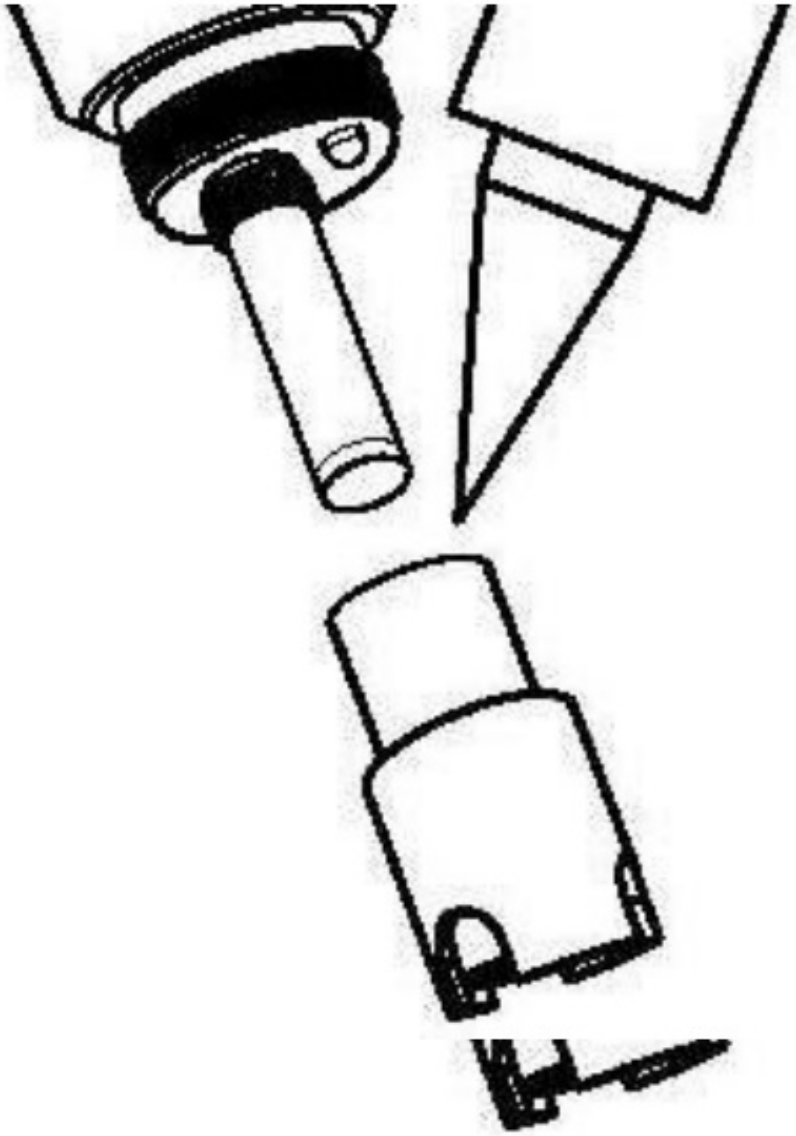
1. Remove the guard cap.



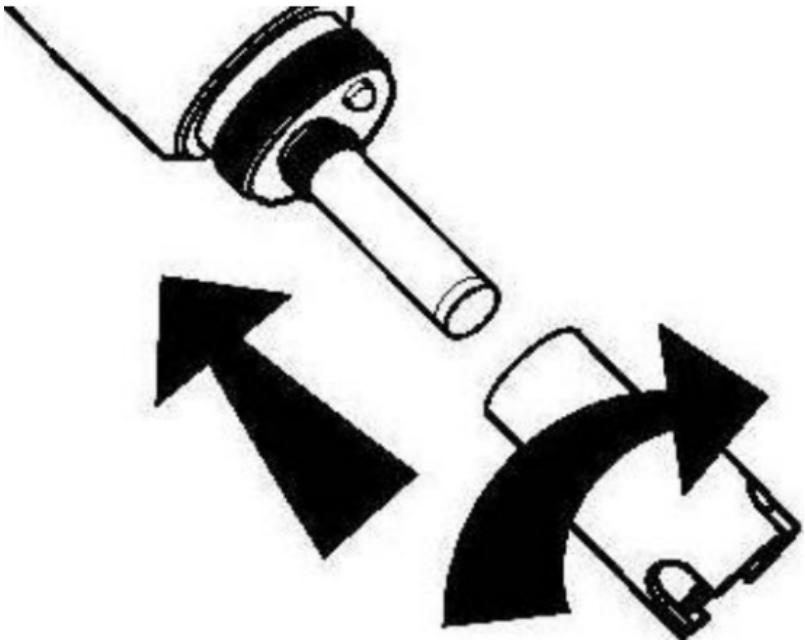
2. Remove the membrane cap.



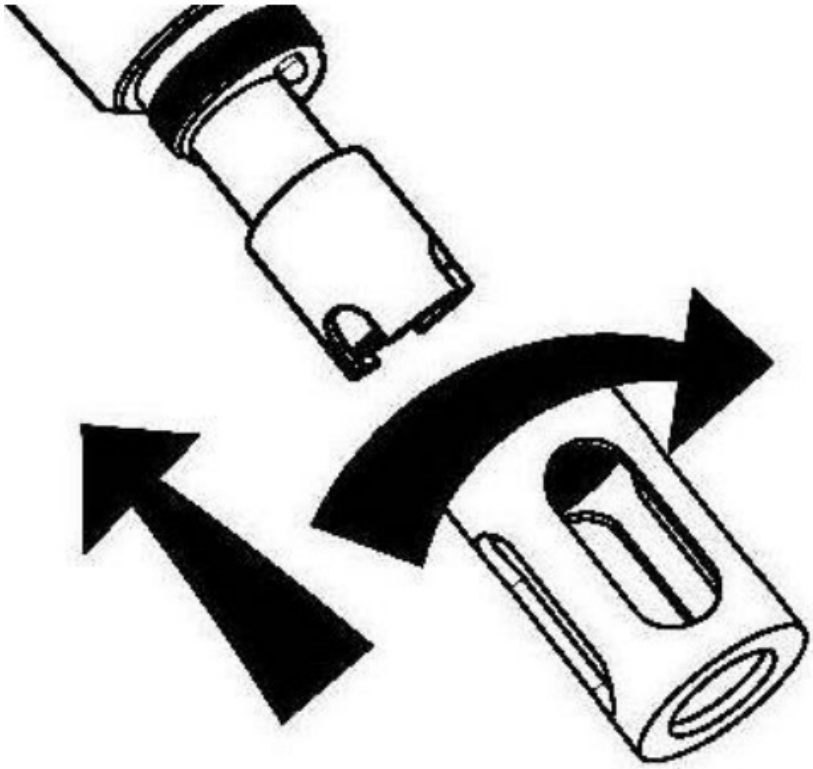
3. Fill solution into cover cap.



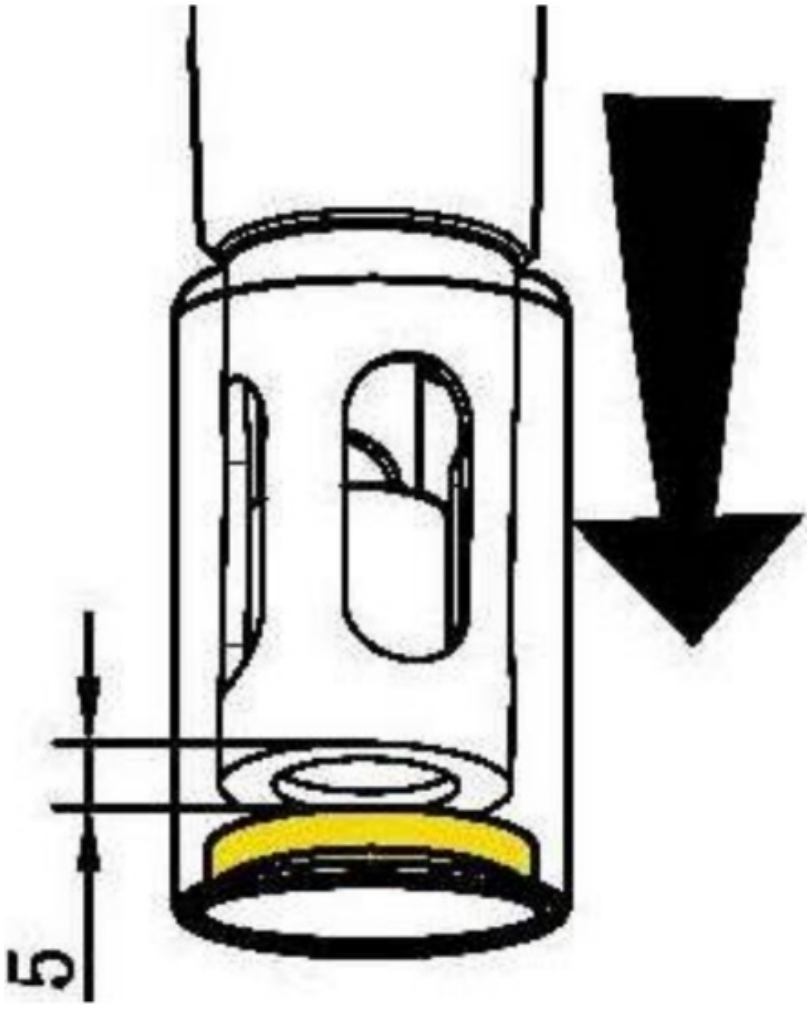
4. Twist the membrane cap back on to the probe. Rinse the probe well with distilled water, and wipe the end of the probe dry.



5. Twist the guard cap back on to the probe.



6. Place 5 to 6 drops of clean water into the sponge inside the calibration bottle.Slide the probe into the calibration bottle. Be sure the membrane does not touch the sponge, at least 5mm space between the probe and the sponge.



A. System Setup

Use the System Setup to customize operation of the 9011B meter.

Press the “SET” key to enter system setup mode and enter first setup, RECAL.

1. **RECAL setup**
   - **a.** This function is to prompt end user to re calibrate the meter.
   - **b.** “SET”, “RECAL” and “DAY” icons will lit up. Main LCD will show 00 day, 00 will flash.
   - **c.** Press “Up” or “Down” key to set desire recalibration period, between 0 to 60 days. Then press “Enter” key to save and enter next setting, DATE setup.
   - **d.”**RECAL” icon will flash when pre-set recalibration time is due.
2. **DATE setup**
   - **a.** This function is for setting the correct date.
   - **b.** “SET”, “DATE” icons will lit up. Main LCD will show flashing “tYP 1” and upper LCD will show yyyy-mm-ddxx.
     tYP 1 date format : yyyy-mm-ddxx, x: no display
     tYP 2 date format: xxmm-dd-yyyy
     tYP 3 date format: xxdd-mm-yyyy
     Upper LCD display will follow the type number to be selected.
   - **c.** Press “Up” or “Down” key to select desired date format. Press “Enter” key to save date format setting and enter calendar setup. The upper LCD will show the date format selected by user.
   - **d.** “Year” will flash first. Press “Up” or “Down” key to set the correct year. Then press “Enter” key to save.
   - **e.** “Month” will flash. Press “Up” or “Down” key to set the correct month. Then press “Enter” to save.
   - **f.** “DAY” will flash. Press “Up” or “Down” key to set the correct day. Then press “Enter” to save.
3. **TIME setup**
   - **a.** This function is for setting the correct time.
   - **b.** “SET”, “TIME” icons will lit up. Main LCD will show flashing “12H” or “24H”.
   - **c.** Press “Up” or “Down” key to select desired time format. Press “Enter” key to

save time format setting and enter real time setup.

- **d.** “Hour” will flash first. Press “Up™ or “Down” key to set the correct hour and press “Eentr” key to save hour setting and enter minute setup.
  [**Note: 24 H format:** Hour will cycle from 0 to 24.
  12 H format: Hour will cycle from Oam, …12 am, 1 pm,….12 pm,0 am. Last digit will show Afor a.m., P for p.m.]
- **e.** “Minute” will flash. Press “Up” or “Down” key to set the correct minute and press “Enter” key to save minute setting and enter second setup.
- **f.** “Second” will flash. Press “Up” or “Down” key to set the correct second and press “Enter” key to save minute setting and enter pressure units set setup.

4. **Pressure units and pressure setup**
   - **a.** This function allows end user to select between “mbar” or “hPa” Pressure units.
   - **b.** “SET” icon will lit up. Main LCD will show “1013” and the “mbar” or “hPa” icon will flash.
   - **c.** Press “Up” or “Down” key to select. Press “Enter” key to save pressure unit and enter pressure value setup.
   - **d.** Main LCD “1013” will flash. Press “Up™ or “Down” key to adjust the value between 600 and 1100 mBar. Press “Enter” key to save the new value and enter Salinity units setup.
5. **Salinity units and salinity setup**
   - **a.** This function allows end user to select between “ppt” or “g/L” Salinity units.
   - **b.** “SET” and “SAL” icons will lit up. Main LCD will show “00” and the “ppt” or “g/L” icon will flash.
   - **c.** Press “Up” or “Down” key to select. Press “Enter” key to save Salinity unit and enter salinity value setup.
   - **d.** Main LCD “00” will flash. Press “Up” or “Down™ key to adjust the value between 0.0 and 40.0 ppt. Press “Enter” key to save the new value and enter temperature units setup.
6. **Temperature unit setup**
   - **a.** This function allows end user to select between “°C” or “°F” temperature unit.
   - **b.** “SET” icon will lit up. Main LCD will show “Atc”. Lower LCD will show “unit” and “°C” or “°’F” unit will flash.
   - **c.** Press “Up” or “Down” key to select the desired temperature unit. Press “Enter” key to save temperature unit and enter shut down time setup.

7. **Shut down time setup**
    - **a.** This function allows end user to set the auto shut down time.
    - **b.** “SET” icon will lit up. Main LCD will show “Shut”. Lower LCD will show flashing “OFF” or last time set parameter.
    - **c.** Press “Up” or “Down” key to select desire shut down time, “OFF”, “10 “, “20” or “30” minutes. Press “Enter” key to save shut down time and enter reset setup.
8. **Reset setup**
    - **a.** This function allows end user to revert the meter back to manufacture default settings.
    - **b.** “SET” icon will lit up. Main LCD will show “rSt”. Lower LCD will flash “no”.
    - **c**. Press “Up” or “Down” key to select “YES” or “no”.
    - **d**. If select “no”, press “Enter” key to exit setup mode (return to measure mode).
    - **e.** If select “YES”, press “Enter” to reset all parameters to factory default and exit setup mode.

      [**Note:** Day and time data will not change. User can press “Mode” key to exit setting anytime.]

B. Dissolved Oxygen Calibration

The 9011B can be calibrated quickly and easily in air.

1. Turn the unit on. In the measure mode, press “Clear” key for 5 seconds, all LCD elements will lit up. The meter clears all calibration values stored in the internal memory.
2. Connect the DO probe to the unit.
3. For the field probe, place 5 to 6 drops of clean water (tap, distilled, or deionized) into the sponge inside the calibration bottle. Turn the bottle over and allow any excess water to drain out of the bottle. The wet sponge creates a 100% water-saturated air environment, the probe remains in a water saturated air atmosphere and is not submerged.
4. In the measure mode, hold the probe in the air gently with the sensor facing down.
5. Wait 10 to 15 minutes for the dissolved oxygen and temperature reading to stabilize, press and hold for 3 seconds to enter the “Calibration” mode. The “CAL” icon appears on the LCD. In this interface, the user can view the calibration value in the secondary display. Once the value in the main display stabilises, press “Enter” key to save the

new value. Then press the “Mode” key and exit the calibration mode. If “Mode” key is pressed instead of the “Enter” key, any changes made will be cancel ed and the previous calibration settings will be retained.

C. Dissolved Oxygen Measurements

Press “Mode” key to choose the dissolved oxygen in % mode or dissolved oxygen in mg/L mode. Rinse the DO probe with distilled water and immerse it in the sample to be measured.

D. Save, Recall And Delete Data

1. **Saving readings to memory.**
    - **a.** In the measure modes, press and hold “Save” key for 3 seconds to save data. The “Save” icon and number with the corresponding site number will lit up for a brief moment to indicate a successful data save. Data is now saved. b. If the “Full” icon is displayed, this means that all 750 data saving sites are used up. No new data can be saved until existing saved data are deleted.
2. **Recalling readings from memory.**
    - **a.** Press “Save” key until the “rCL” appears. Press “Enter” key to go into “Recall” mode. The “Recall” icon will lit up.
    - **b.** To view data, press “Up” or “Down” key to select the storage site number.
    - **c.** Press “Mode” key to exit “Recall” mode.
3. **Deleting data.**
    - **a.** Press “Save” key until the “dEL EACH” or “dEL ALL” appears. Then press the “Enter” key to go into the corresponding “Delete EACH ” or “Delete ALL” mode.
    - **b.** In the “Delete ALL” mode, press the “Enter” and enters the selection screen. Use the “Up” or “Down” key to select YES/no for clearing all stored data. To clear all data, select “YES” and press the “Enter” key. “nonE” will appear after data is completely deleted.
    - **c.** In the “Delete EACH” mode, use “Up” or “Down” key to select data to be deleted. Then press “Enter” key to delete. Deletion is now complete. The next set of saved data will automatically move up a slot in the storage site.
    - **d.** Press “Mode” key to exit “Delete” mode.

E. Viewing Data And Calibration Records On PC

1. **Meter driver Installation**
   Driver is embedded in the meter, connect the meter to PC and power up. The driver will automatically download from the meter and install to the PC.
2. **Locating data files in Windows Explorer**
   Navigate to Windows Explorer and the PC will recognize the meter as the “VEVOR” removable drive. There is one CSV file that can be copied to a location on your PC: Record contains all of the data currently stored in the meter, including the most recent 5 calibration records for DO. CSV file is recreated every time when data is saved to the meter and/or when the meter is turned on.
3. **Viewing data files in Excel**
   Once the CSV files are in your PC, they can be easily opened in Excel. When opening CSV file, it is not necessary to use Excel Text Import Wizard for the data to appear correctly, as the CSV files have a line of text at the top of the file (sep=;) that directs Excel to use a semi-colon as the delimiter.

A. App Functions

The 9011B is a DO/temperature Bluetooth Portable meter with iOS and Android apps for tablets or mobile phones. Functions of the App include GLP compliant data storage and data sharing, GPS, Cloud data storage and user-defined compliance policies.
9011B is capable of storing 750 sets of measurement data. Uploading stored records to tablet or mobile phone, can be performed through App when connected to tablet or mobile phone.

B. App Download and Installation

Download the companion App for the 9011B from the Apple Store or Google Play Store. Continue to the next step after the correct App is installed to the tablet or mobile phone.

C.Connecting the Meter with the App

1. **Prepare the 9011B for Bluetooth Connection.**
   Press the “Power/BLE” key for 3 seconds to turn on the 9011B device. Press and release the “Power/BLE” key again to turn on the 9011B Bluetooth connection. The

Bluetooth icon on the 9011B will fast blink and it is ready for Bluetooth connection.

2. **Pair the 9011B to the Tablet or Mobile phone.**
    - **a.** Tap “Settings” tab at in the navigation bar of the App screen.
    - **b.** Tap the “Pair” button.
    - **c.** The tablet or mobile phone will search for any VEVOR Bluetooth devices. When the App discovers and displays the “9011B”, tap the “Connect” button.
    - **d.** Once the 9011B is successfully connected to the tablet or mobile phone, the Bluetooth icon on display of the meter will lit up and “Ready for data” will be shown on the App.

D. Key Operations

1. **Upload and save data**
    - **a.** Tap the “Saved” tab in the navigation bar.
    - **b.** “Sync Data” button is displayed. Tap “Sync Data” button.
    - **c.** The App will display the loading diagram and the estimated time at the bottom. The display shall rectum to the Saved screen when the data transmission is completed.
2. **View saved readings and add Notes to saved readings**
    - **a.** Tap the “Saved” tab in the navigation bar.
    - **b.** Saved readings are displayed. Tap on a saved reading to view its detail information.
    - **c.** From the saved reading detail screen, tap the Notes field to add notes.
    - **d.** Tap the “<” button to save and exit the screen.
3. **Share saved readings**
    - **a.** Tap the “Saved” tab in the navigation bar.

- **b.** Saved readings are displayed. Tap the “Share” icon on the upper left area of the screen.
- **c.** Tap to check the saved readings you want to be shared.
- **d.** Tap “Send” on the upper right comer of the screen.
- **e.** Tap to select the App to receive the selected saved readings.

4. **Delete saved readings**
    - **a.** Tap the “Saved” tab in the navigation bar.
    - **b.** Saved readings are displayed. Tap “Edit” on the upper right area of the screen.
    - **c.** Tap to check if the saved readings need to be deleted.
    - **d.** Tap “Done” on the upper right comer of the screen.

E. Notes:

1. One meter can be paired to only one App at a time. To put an already – paired meter into pairing mode, one must first close the App it is paired to.
2. Turn on tablet or mobile phone and activate Bluetooth. (Select Optimised Power Mode on Android tablets or mobile phone).
3. Grant Bluetooth and GPS permissions during App installation.
4. After first pairing with the meter, App records the meter’s Bluetooth information. Hence, no pairing is needed the next time when opening the same App. After App is successfully connected to the meter, tablet or mobile phone displays meter reading values on the “Settings Screen.
5. On Android OS system, if the connection between the App and the meter is lost for over 2 minutes, force close and reopen the same App for normal operation.
6. Log data on the meter can be in sync with the App saved data but not vice versa.

Symptom	Possible Cause(s)
Instrument will not turn on, the BAT symbol displays on the screen.	1. Low battery voltage. Charge the battery pack. 2. Batteries installed incorrectly. Check battery polarity. 3. Return system for service.

Temperature values display Over or Under.	1. Sample temperature is less than -6°C or more than +46°C. Increase or decrease the sample temperature to bring within the allowable range. 2. Contact VEVOR Tech Support. Possible temperature sensor failure
Instrument will not calibrate dissolved oxygen.	1. Verify calibration routine – correct barometric pressure, salinity input, and calibration environment. 2. Allow sufficient stabilisation time for dissolved oxygen and
DO readings are in accurate.	1. Verify temperature readings are accurate. 2. Sample temperature should be between -6 and 46°C. 3. DO sensor not properly calibrated. Re calibrate the sensor. 4. Contact JENCO Tech Support.
Dissolved Oxygen values display Over or Under on Run screen.	1. Sample dissolved oxygen concentration is more than 50 mg/L or 500%, or less than 0.0 mg/L or 0.0%. 2. Verify temperature readings are accurate. 3. DO sensor not properly calibrated. Re calibrate the sensor. 4. Contact VEVOR Tech Support.

[Note: If the meter still does not perform normally after the above measures are taken, call VEVOR Service Department.]

Display	**Range**	**Resolution**	**Accuracy**

Dissolved Oxygen	0.00 to 50.00 mg/L	0.01 mg/L	0 to 20 mg/L, ± 2% of the reading or ±0.2 mg/L, whichever is greater; 20 to 50 mg/L, ± 6% of the reading
Dissolved Oxygen %saturation	0.0 to 500.0%	0.1%	0 to 200% air saturation, ± 2% of the reading or ±2% air saturation, whichever is greater; 200 to 500 % air saturation, ± 6% of the reading
Temperature	-6.0 to 46.0 °C 21.2 to 114.8 °F	0.1 °C 0.2 °F	±0.3 °C ±0.6 °F

Pressure compensation	600 to 1100 mBar (hPa)
Salinity compensation	0.0 to 40.0 ppt (g/L)
Calibration	1 point
Calibration Back-up	EEPROM
Data logging capabilities	750 data sets
Connectivity	Bluetooth, Type-c
Automatic shut off function	10, 20, 30 minutes or non-use
Audio Feedback	All Touch Keys
Screen	Segmented LCD
Power	Rechargeable battery
Ambient Temperature Range	0 to 50 °C
Relative Humidity	At 90% RH

Manufacturer: Shanghaimuxinmuyeyouxiangongsi

Address: Shuangchenglu 803nong11hao1602A-1609shi, baoshanqu, shanghai 200000 CN.

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VEVOR

Documents / Resources

	VEVOR 9011B Dissolved Oxygen Meter [pdf] Instruction Manual 9011B Dissolved Oxygen Meter, 9011B, Dissolved Oxygen Meter, Oxygen Meter

References

- User Manual

VEVOR 9011B, 9011B Dissolved Oxygen Meter, Dissolved Oxygen Meter, Oxygen Meter, VEVOR

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