

Instruction Manual

DO 600

Waterproof Handheld Dissolved Oxygen Meter



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68X415303 Rev. 0 NOV 06

Preface

This manual serves to explain the use of the DO **600 Waterproof Handheld Dissolved Oxygen Meter**. The manual functions in two ways, firstly as a step by step guide to help the user operate the instrument. Secondly, it serves as a handy reference guide. This instruction manual is written to cover many anticipated applications of the DO 600 dissolved oxygen Meter. If you have doubts in the use of the instrument, please do not hesitate to contact the nearest Authorised Distributor.

The information presented in this manual is subject to change without notice as improvements are made, and does not represent a commitment on part of Eutech Instruments / Oakton Instruments.

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1. Getting Started

1.1 About the Meter

Thank you for purchasing the DO 600 series meter.

DO 600 series handheld meters are micro-controller based instruments and are designed with many user friendly features to measure dissolved oxygen in the percentage saturation mode and in the concentration mode. The meter ensures accurate measurement of the Dissolved Oxygen values through its temperature, barometric pressure and salinity compensation features.

For the model of your purchase, simply use the model's Table of Content to guide you to your meter's operating instructions.

Special Features:

- Automatic temperature compensation.
- Large Monochrome graphic display with 110X128 resolution and viewing area of 68X74 mm.
- Powered by ARM7TDMI-S cored microcontroller.
- Built in memory backup to save calibration and 500 sets of measured data.
- Real Time Clock, Calibration time also being stored.-- GLP
- One way serial data transmission through IrDA or RS232 through LED.
- "CAL-DUE" indication for user calibration.
- High, Low Alarm.
- Power source and Battery level indicator.
- Work either from mains power or battery and automatically detect and switch to mains if available.
- Alkaline Battery can last for more than 200Hours of continuous operation without Backlight and Serial data transferring.
- Water proof casing.
- User configurable password protection for calibration & setup data.

Useful hints will appear throughout the manual and also on the meter's screen to ease user during meter operation.

1.2 Display & Keypad

1.2.1 Display Overview

The large monochrome display shows detailed information about measurements, various indicators, annunciators, functions and useful tips. The display consists of 3 main sections when the meter is in the measurement mode:

- **Header** – Displays indicators for power source, battery level, data transmission mode, real-time clock, and user lock/unlock etc.
- **Body** – Displays measurement related information.
- **Footer** – Displays functions available for a given mode of operation. At any given time, up to four function names are displayed, that correspond to 4 function keys in the keypad. Left & Right arrow icons are displayed when there are more functions available than the 4-functions shown in the display. To access a function, press the corresponding function key (in keypad) just below the function name. To see other available functions, press left ◀ or right ▶ arrow key in the keypad.

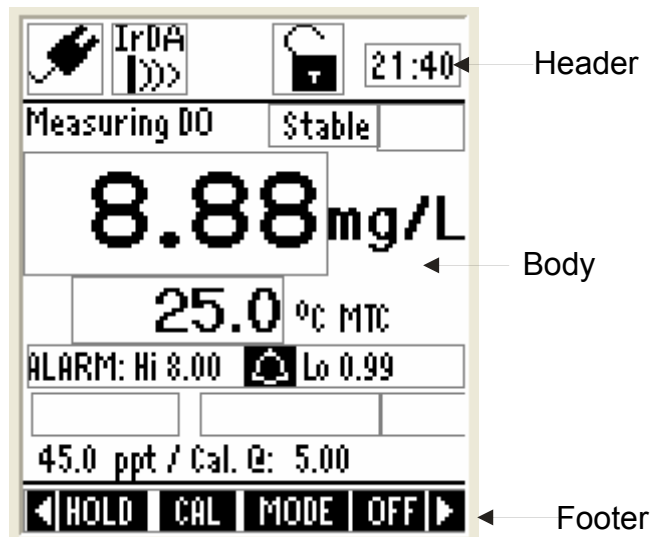


Figure 1: Display

Indicators Used in Header Area

	Power Source & Battery Level: Battery, level 80%-90%		Data Logging mode
	Power Source: DC Adapter	21:40	Current Time in 24 Hour format
	Data Transmission mode: LED		Password Protection: Disable
	Data Transmission mode: Infrared		Password Protection: Enable

Refer **calibration mode**, **measurement mode** & **setup mode** for details on indicators shown in body & footer sections.

1.2.2 Key Functions

The keypad consists of:

- 4 – Function keys (F1, F2, F3 & F4)
- 4 – Navigation key
- 1 – Enter key





Key	Description
	<ul style="list-style-type: none"> ▪ Selects the function shown (in the display) just above the key.
	<ul style="list-style-type: none"> ▪ Navigates to next available functions
	<ul style="list-style-type: none"> ▪ Increment/decrement values in Setup & Calibration modes. ▪ Navigates to sub groups in Setup selection screen.
	<ul style="list-style-type: none"> ▪ In Setup mode, confirms selection or modified values ▪ In Calibration mode, confirms calibration points or modified values



Figure 2 : Display & Keypad

1.3 Inserting Batteries

The meter supports dual-power sources.

1. Four 'AA' size 1.5 V alkaline batteries (supplied) or,
2. 9V DC power adapter (Optional in some models).

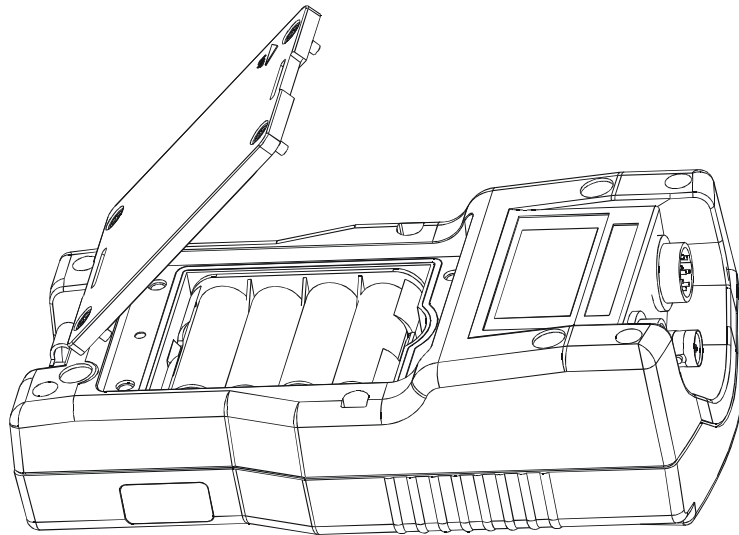



Figure 3 : Battery compartment

1.3.1 Inserting batteries for the first time

1. Use a Phillips screw driver to remove four screws holding the battery cover.
2. Remove the battery cover.
3. Follow the polarity indicated in the battery compartment and insert the batteries.
4. Replace the battery cover onto its original position using the four screws. Note the **▲UP** symbol marked on the cover.
5. The meter is ready to operate. Use **ON (F4)** key to switch on the meter. The **ON (F4)** key has to be kept pressed until the display comes up.
6. Set the system date & time before you start operating the meter for the first time. Refer ' : System Settings - Page 2' in page 42 for details on how to set date & time.

1.3.2 Changing batteries subsequently

The LCD has battery voltage level indicator.  Number of bars indicates the voltage level. See Table 1 for details. When the empty battery indicator starts blinking, it is time to change the batteries.


The system time might be automatically reset during the battery change. To prevent that happening, always connect the DC adapter during battery change.

Alternatively, if the DC adapter is not available, switch off the meter and change the batteries within **30** seconds to avoid resetting the clock.

Number of Bars	Approximate battery voltage (V)
4	6.0 to 5.4
3	5.4 to 4.8
2	4.8 to 4.2
1	4.2 to 3.8
No bars (Empty battery blinks)	Below 3.8

Table 1 : Battery level indication

1.3.3 Connecting DC Power adapter

Connecting the DC adapter saves battery life. The power adapter indicator  appears in LCD when you connect the DC power adapter to the meter.

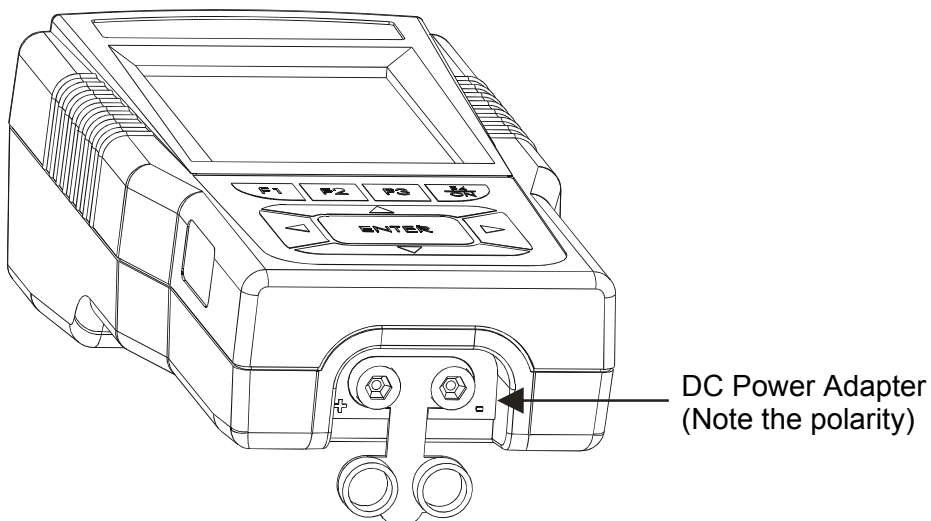


Figure 4 : Connecting DC power adapter

1.4 Attaching Safety Belt

The safety belt provides secured support when you hold the meter on your palm.

To attach the safety belt:

1. Use a Phillips screw driver to remove four screws holding the battery cover.
2. Remove the battery cover.
3. Insert the safety belt through the two slots as indicated in the Figure 5.
4. Replace the battery cover onto its original position using the four screws. Note the ▲UP symbol marked on the cover.
5. Insert your palm in between the belt and the body of the meter and adjust the hook & loop fastener.

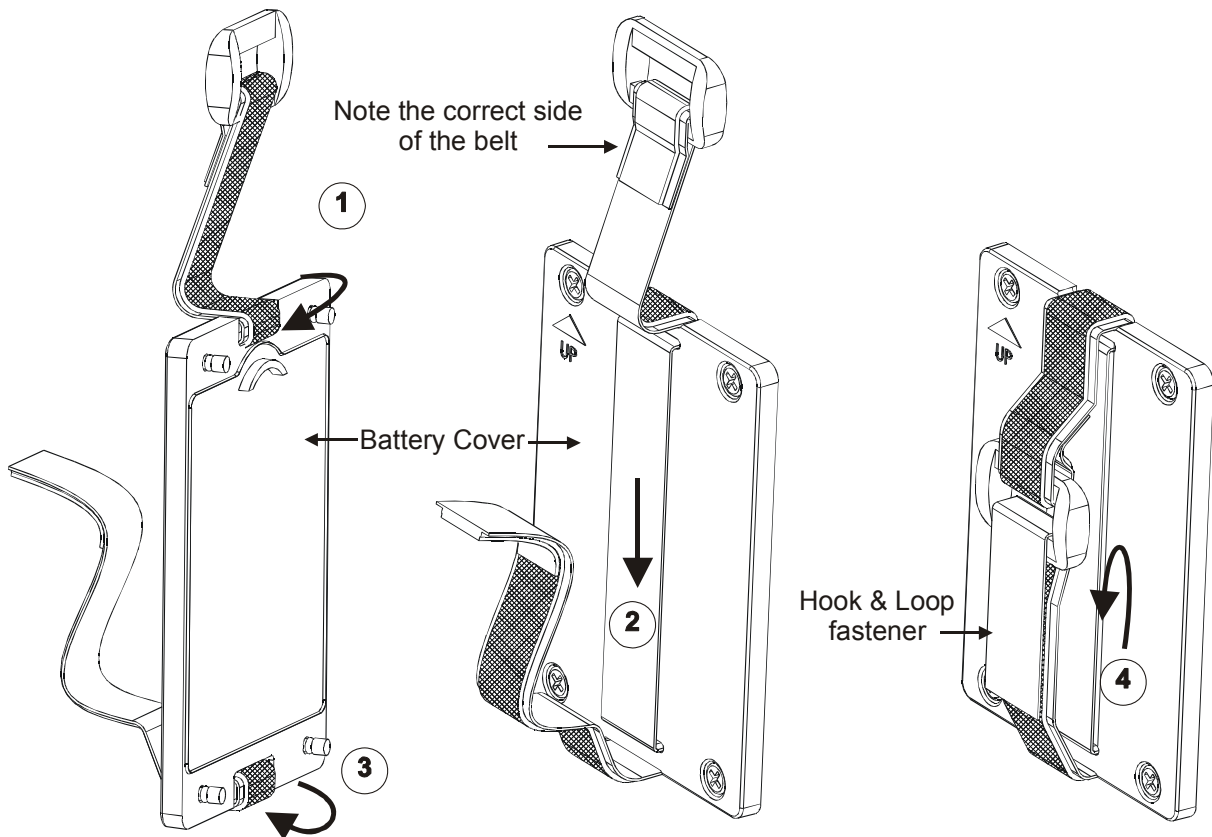


Figure 5 : Attaching safety belt

1.5 Connecting Peripherals

1.5.1 DO probe

The DO 600 meter is designed to operate with a Dissolved Oxygen Probe that works on galvanic principle, that is, it does not require any polarizing voltage from your meter. The galvanic probe design lets you take measurements immediately – without the typical 15 minute wait of other dissolved oxygen probes.

The DO probe comes with an in-built Temperature Compensation for the membrane variation and consists of two parts. The upper part consists of an anode, a cathode, and cable, and lower part consists of a membrane cap, membrane, and electrolyte solution.

Oxygen diffuses through the membrane onto the cathode, where it is consumed. This process produces an electrical current which flows through the cable to the meter. The electric current produced is proportional to the oxygen that passes through the membrane and the layer of electrolyte. This makes it possible to measure the partial pressure of oxygen in the sample at a given temperature.

1.5.2 Connecting the DO probe to the meter

The DO meter uses a special notched 6-pin connector to attach the probe to the meter. Insert the DO probe into the 6-pin connector as indicated in the figure below.

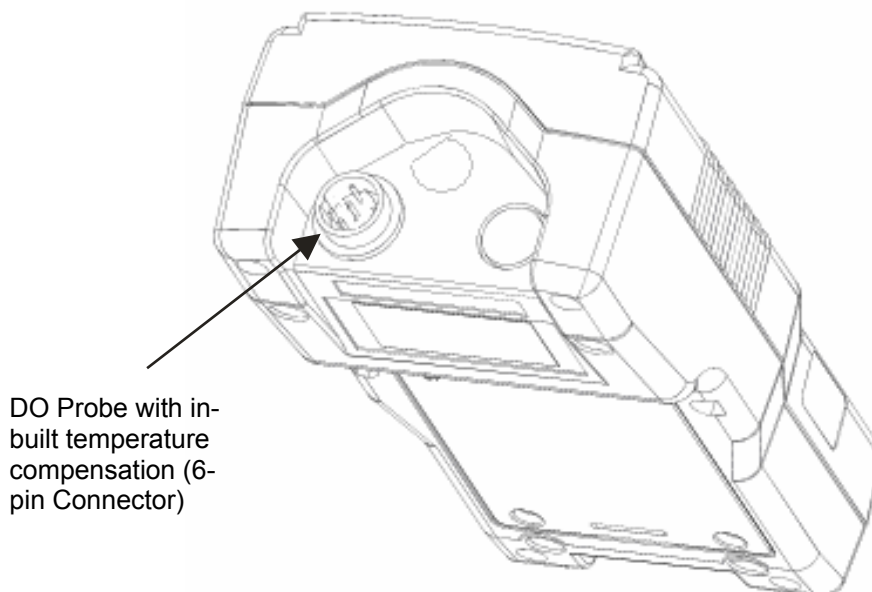


Figure 6 : Connecting Probe

1.5.3 Protective Rubber Boot

The rubber boot protects the meter and gives a good hand grip. It is ideal when you use the meter in the field. For bench top applications, lift up the stand at the back of the rubber boot.

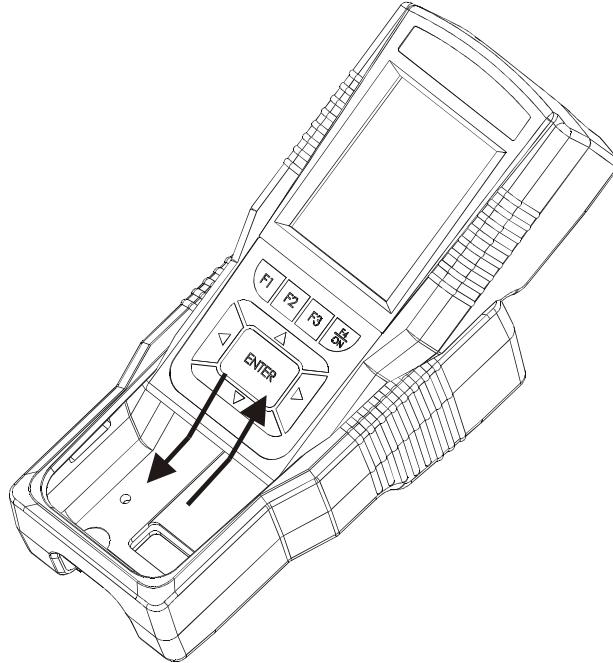


Figure 7 : Inserting/removing the rubber boot

1.6 CyberComm 600 Data Acquisition Software

1.6.1 About CyberComm 600 DAS Application

The DO 600 series meters are shipped with a companion software application called **CyberComm 600 Data Acquisition Software (DAS)**. This is a simple, easy to use, Windows® based PC compatible software application which lets you download your measurement data, calibration reports & stored data from the DO 600 series meters and save them in your PC in text (.txt) files. It automatically recognizes meter's model number once the connection is established.

CyberComm DAS communicates with the meter through wireless IrDA connection. You need to have a PC or Notebook running Windows® 2000 or Windows® XP with an IrDA port or with USB-IrDA dongle (not supplied) installed into the USB port of your PC.

1.6.2 Installing CyberComm 600

Make sure to log in to your computer with administrator user account. Insert the supplied software CD into the CDROM drive of your computer. The installation wizard should automatically start. Follow the screen instructions and complete the installation.

The software installs CyberComm 600 icon on Desktop and Start menu shortcut at 'Start > Programs > PC Communication > CyberComm 600'.



1.6.3 Starting CyberComm 600 for the first time


1. Double-click on the **CyberComm 600** icon available in the Desktop.
2. CyberComm 600 application starts. The screen lists connection procedure.
 - Switch on the meter. Make sure that the following settings have been configured in System Settings of the meter Setup. (Refer Figure 41: System Settings - Page 4' on page 44 for more details.)
 - PRINT MODE : IrDA
 - DATA FORMAT: CyberComm
 - CURRENT DATA SET: TIMED
 - Make sure the IrDA port of the meter is closer and pointing towards (line-of-sight with) the IrDA port (or USB-IrDA dongle) of the computer.
 - From measurement mode, press left ◀ or right ▶ arrow key until you see **PRIN** function in the display.
 - Press **PRIN (F3)** key. IrDA data communication icon  starts animating as the meter sends data to computer through IrDA.
3. The Computer recognizes the DO 600 series meter and you will see 'Found New Hardware' message in the Taskbar. (Figure 8)



Figure 8 : Computer recognizes the meter

4. The 'Found New Hardware Wizard' starts automatically. Select 'Yes, this time only' option for the first screen. (Figure 9) .Click **Next** to continue.



Figure 9 : First screen of 'Found New Hardware Wizard'

5. In the second screen (Figure 10), select 'Install the software automatically (Recommended)' and click **Next** to continue.



Figure 10 : First screen of 'Found New Hardware Wizard'

- Once the wizard completed the installation (Figure 11), click **Finish** to close the wizard.

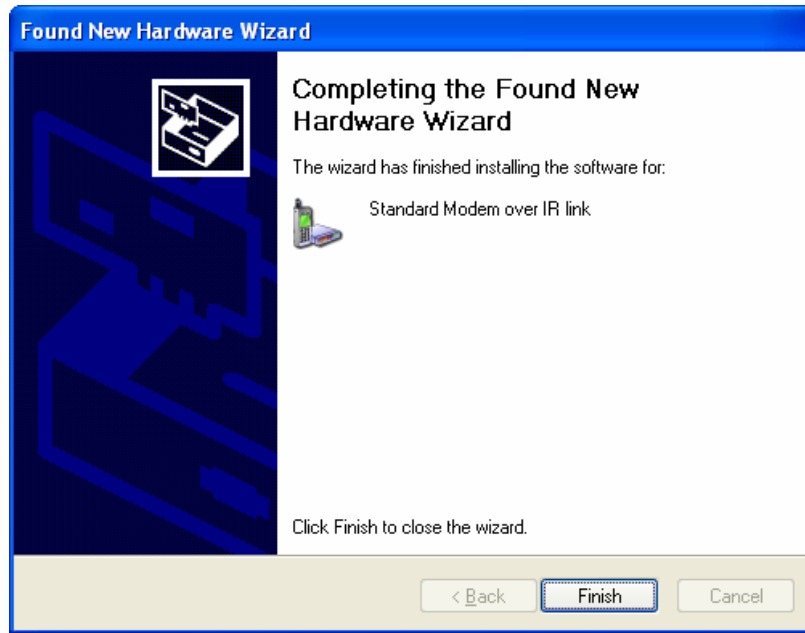


Figure 11 : 'Found New Hardware Wizard' completed

- In CyberComm 600 application screen, click **Find Device** button. The screen shows a message “Finding device”. When CyberComm recognizes the meter it shows “Instrument in Range, click Connect button to establish connection...”


Note: If you do not see the above message, re-position the IrDA port of the meter with IrDA port of computer so that they become close to each other and are in-line.

- Click **Connect** button. Once the connection is established, the measurement data sent by the meter is shown in the CyberComm screen.

1.6.4 Connecting to the meter

Once you successfully established the connection between the meter and CyberComm, for the first time, as described in the above section, the subsequent connections will be established in a few easy steps.

Follow the steps below to connect CyberComm to the meter:

- Start CyberComm by double-clicking on **CyberComm 600** Desktop icon. Make sure the IrDA port of the meter is closer and pointing towards (line-of-sight with) the IrDA port (or USB-IrDA dongle) of the computer.
- In the meter, press **PRIN (F3)** key. IrDA data communication icon  starts animating as the meter sends data to computer through IrDA.

3. In CyberComm, press **Find Device** button.

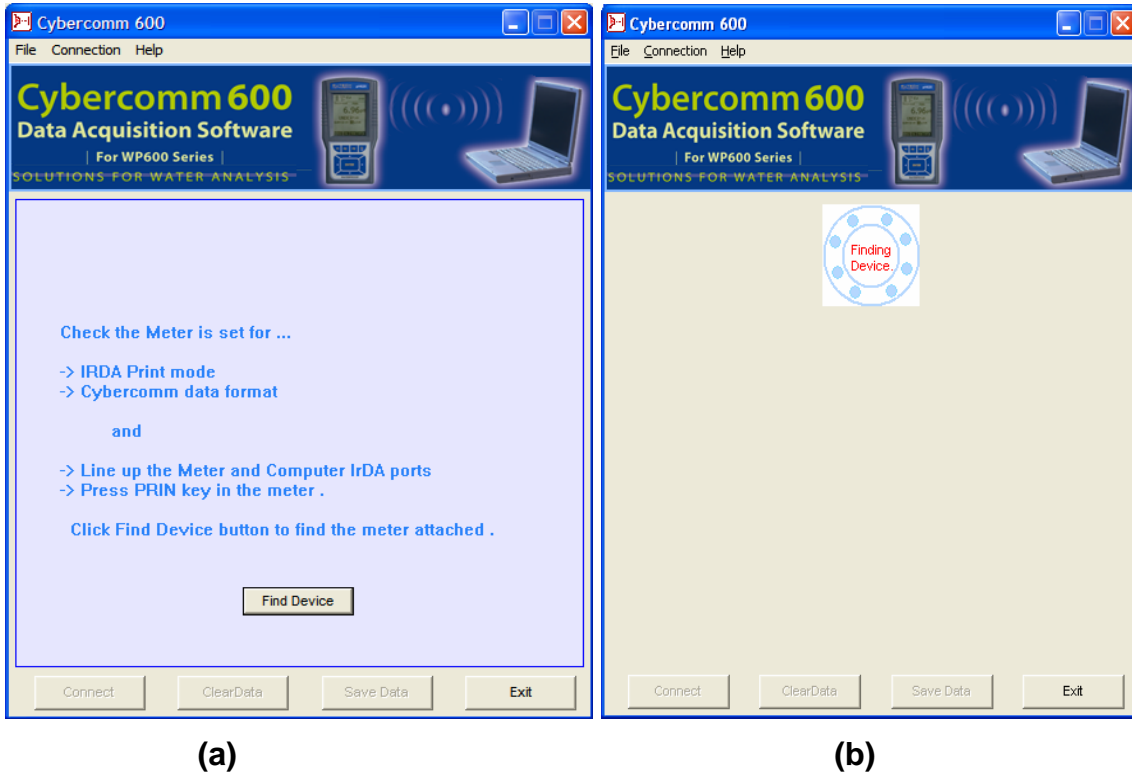


Figure 12 : CyberComm finds the meter

4. When CyberComm recognizes the meter it shows “Instrument in Range, click Connect button to establish connection...” Press **Connect** button.

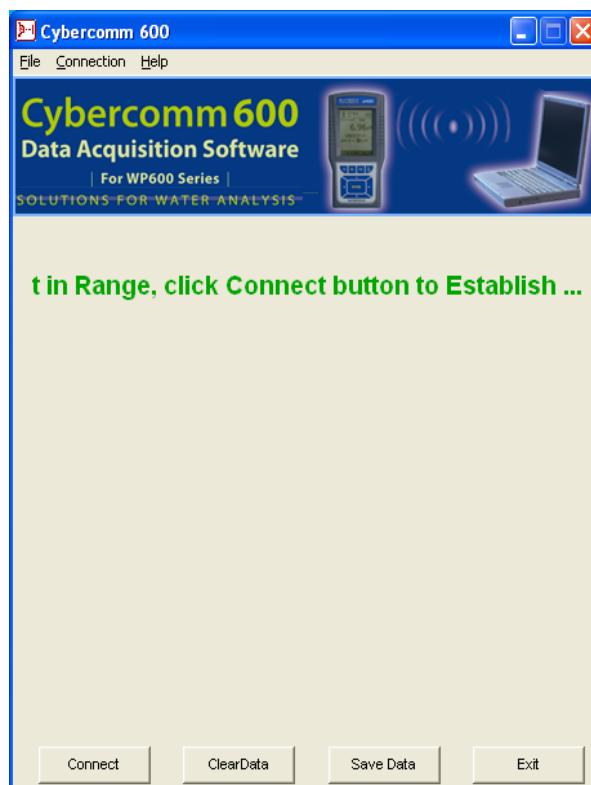


Figure 13 : CyberComm establishing connection with the meter

5. The connection is established and data is transferred.

Notes:

The communication between CyberComm and the meter is uni-directional. The connection is initiated by the meter when you press **PRIN** key. Once CyberComm finds the meter, press **Connect** button. Once the connection is established the data is transferred to CyberComm and then the IrDA link is disconnected automatically. IrDA link is disconnected after sending single set of data only if 'SINGLE' is selected from System Setup (page 44).

- To re-establish the connection, you need press **PRIN** key of the meter followed by **Connect** button from CyberComm.
- For continuous transfer of measurement readings, set CURRENT DATA SET parameter to 'TIMED' in System Setup (page 44)
- For single transfer of measurement reading, set CURRENT DATA SET parameter to 'SINGLE' in System Setup (page 44)

2. Measurement Mode

2.1 About Measurement Mode



There are two measurement modes available in DO 600 meter:

- O₂ % - DO percentage saturation measurement mode
- O₂ mg/L(ppm) - DO concentration mode

When powered-on, the meter goes to any of the above measurement modes, depending on the last selected measurement mode, before the meter was powered-off. For instance, the meter starts with saturation measurement mode, if the meter was in saturation measurement mode, when you last switched off the meter.

Press **MODE (F3)** key to switch between above measurement modes.

2.1.1 Accessing functions

There are many functions available in the measurement mode. You can use the 4-function key to access them. These functions are grouped into 4 to share the available 4-function keys. The first group appears when you enter the measurement mode. Press left  or right  arrow key to navigate to 2nd and 3rd function groups. .

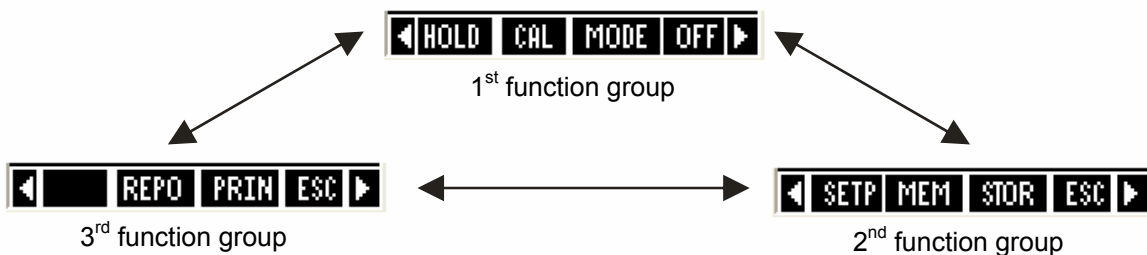






Figure 14 : Use Left  or Right  arrow keys to navigate between function groups

Function Keys available in measurement screen (1st Group):

HOLD (F1)	Holds the current reading in the display. The 'HOLD' indicator starts blinking. Press HOLD key again to release the reading
CAL (F2)	Goes to corresponding calibration mode (based on the selected measurement mode)
MODE (F3)	Switches between measurement modes O ₂ % -> O ₂ mg/L(ppm)
OFF (F4)	Power off the meter (press and hold this key for 3 seconds)
 	Switches between functions groups available in measurement mode
ENTER	(Not functional)
 	(Not functional)

Function Keys available in measurement screen (2nd Group):

SETP (F1)	Goes to setup mode
MEM (F2)	Shows stored data in the memory
STOR (F3)	Stores the currently displayed reading in the memory
ESC (F4)	Shows 1 st Group of functions

Function Keys available in measurement screen (3rd Group):

REPO(F2)	Shows corresponding calibration report (based on selected measurement mode)
PRIN (F3)	Sends the currently displayed reading to the computer through IrDA. (This key has to be pressed to establish communication with CyberComm PC application through IrDA)
ESC (F4)	Shows 1 st Group of functions

Note: If you press a function key that is not relevant to measurement mode (for example ENTER, ▲, ▼) the meter shows 'Invalid key!' message in the footer area of the screen as shown in diagram.



Figure 15: Invalid key

2.2 Taking Measurement

2.2.1 Prepare the meter for measurement

Before you start measuring,

- Make sure you have connected a DO probe to the meter.
- Make sure the probe is in good working condition & clean. If required, clean probe with de-ionized water to remove impurities.
- Make sure batteries have been installed or the DC adapter is connected to the meter.
- Perform calibration if you change to a new probe.

2.2.2 Taking a reading

1. Press **ON (F4)** key to switch on the meter. The **ON (F4)** key has to be kept pressed until the display comes up.
2. Make sure you are in the required measurement mode. Press **MODE (F3)** to switch between modes.
3. Dip the DO probe in the sample solution.

Note: When dipping the probe into sample, the probe must be completely immersed into the sample. Stir the probe gently in the sample to create a homogeneous sample. Allow time for the reading to stabilize.

4. The LCD shows '**Stable**' indicator if this feature is enabled in setup. (See page 41)
5. Note the reading.

2.2.3 Stable reading indicator

You can configure the meter so that LCD displays a '**Stable**' indicator when the reading does not vary for 2 consecutive seconds. The amount of variations allowed can be set as 'Slow', 'Medium' or 'Fast'. (See page 41)

2.2.4 Holding a reading

In some situations, you may want to freeze (hold) the measured reading in the LCD for a delayed observation. You can hold a reading in two different ways.

Manual Hold – Allows you to hold the reading by pressing **HOLD (F1)** key at any time you want. When you hold a reading, the '**HOLD**' indicator starts flashing. The readings (including temperature reading) will be held until you press any other key again.

Auto-Hold –The meter automatically holds the reading if the reading is '**Stable**' for 5 consecutive seconds. This feature needs to be enabled in the setup (See page 41). Press **HOLD (F1)** key to release the reading.

2.2.5 Automatic Temperature Compensation (ATC)

The DO 600 is capable of taking measurements with automatic or manual temperature compensation. Connect an appropriate DO probe to the meter and select 'ATC mode' in the temperature setup (See page 51) for the reading to be automatically compensated for temperature variations in concentration mode.

If you select 'ATC' without connecting a probe to the meter, the LCD shows 'UNDER' for temperature reading.

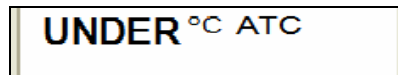


Figure 16: Under range

NOTE: The factory default value for normalization temperature is 25 °C.

2.2.6 Manual Temperature Compensation (MTC)

You can choose to manually compensate for temperature. This is suitable when the temperature of your sample is sufficiently stable. Select 'MTC mode' in the temperature setup (see page 51). Press **CAL (F2)** and then press **TEMP (F1)** to go to temperature calibration. Enter the temperature value of your sample. See page 30 for more details on temperature calibration.

2.2.7 DO Alarm

This option allows you to select alarm limits for DO measuring mode. If the DO value of the measurement goes higher or lower than predefined set points, a visual alarm symbol will be displayed. The symbol will let you know that your sample measurement was outside of the set limits. See page 48 to set alarm points.

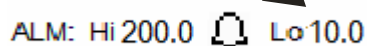


Figure 17 : Hi alarm

2.2.8 Calibration Due (CAL-DUE) Indicator

You can set a reminder to be displayed in the LCD when the next calibration is due. Set the number of days in DO Setup (see page 47) and the meter will remind you when the days elapse from your last calibration date.

2.2.9 Set Salinity

This option allows you to set the salinity (in ppt) for your solution, as the dissolved salts alter the relationship between the partial pressure of oxygen and the oxygen concentration in water. By setting the salinity, the meter will compensate for the impact of salinity on the partial pressure/oxygen concentration relationship of your sample.

The salinity can be set from 0 to 50 ppt.

2.2.10 % Saturation Offset Adjustment

This option lets you offset meter's value when cross referenced with another DO meter. The DO 600 meter allows to adjust % saturation offset calibration within +/- 10.0% offset.

Note: When a user calibration is done, the offset will be reset to zero.

2.2.11 Set barometer pressure range and barometric pressure units

The DO 600 meter is capable of measuring barometric pressure with its built-in pressure sensor. In the event, the pressure reading is inaccurate, you can calibrate the value from the setup menu. For setting barometric pressure range, please refer page 47.

2.2.12 Pressure compensation

If pressure comp. is set to '**ENABLE**', the meter will compensate for the barometric pressure at the location depending on the altitude.

For example, if the barometric pressure is 700 mmHg the full scale calibration would be done at 92.1%. This is relative to the pressure at sea level.

If the pressure comp. is set to '**DISABLE**', then there would be no compensation for the pressure. The calibration would be done at 100% irrespective of the altitude.

Note: This is applicable only for the % Saturation mode. For mg/L or ppm mode, pressure compensation would always be applicable.

2.3 Concentration (mg/L) (ppm) Measurement Mode

In concentration measurement mode, the meter displays concentration and temperature readings. The LCD shows related information for the concentration measurement such as temperature compensation mode, stable indicator, salinity value, probe condition, response time of the DO probe and alarm conditions. You can customize or enable/disable some of these indicators in the Setup mode.

2.3.1 Indicators in concentration measurement screen

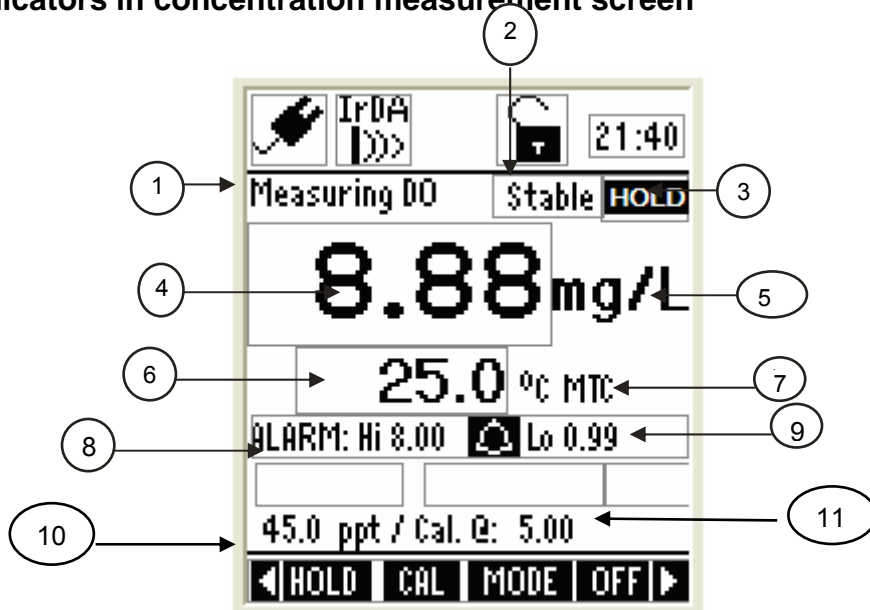


Figure 18 : Concentration measurement screen

Refer item numbers indicated in Figure 18.

Item	Description	More Details On
1	Measurement mode indicator	-
2	Appears when the reading is stable	Page 16, 41
3	Appears when the reading is on hold	Page 16, 41
4	Concentration reading	-
5	Units of measurement	Page 49
6	Temperature reading & units	Page 17
7	Temperature compensation mode	Page 17, 51
8	HI & LO Alarm limits	Page 17, 50
9	Alarm indicator	Page 17, 50
10	ppt indicator for input of salinity value	Page 17, 49
11	DO calibration point	-

2.4 Percentage Saturation (%) Measurement Mode

In percentage saturation measurement mode, the meter displays % saturation and temperature reading. The LCD shows related information for the saturation measurement such as temperature compensation mode, stable indicator, barometric pressure, calibration points, probe condition, response time of the DO probe and alarm conditions. You can customize or enable/disable some of these indicators in the Setup mode.

2.4.1 Indicators in percentage saturation measurement mode

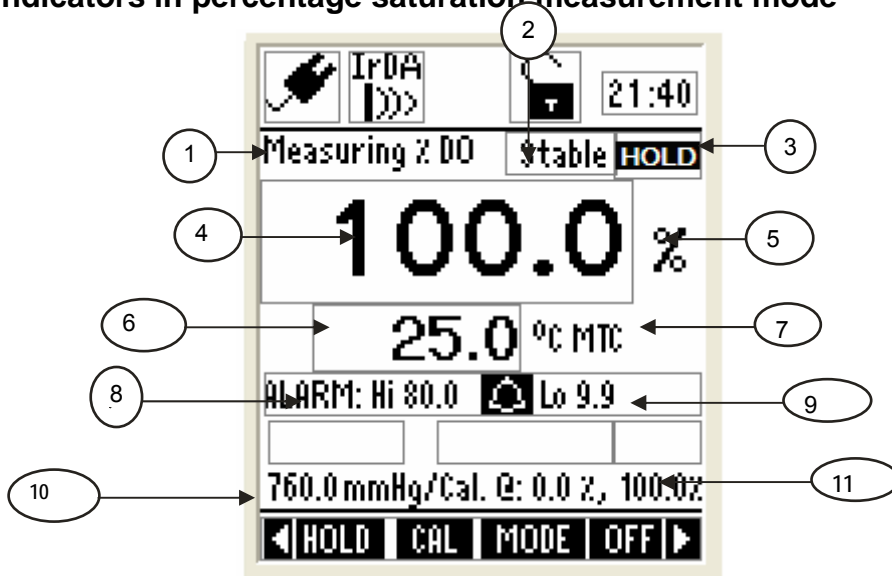


Figure 19 : Percentage saturation measurement screen

Refer item numbers indicated in Figure 19.

Item	Description	More Details On
1	Measurement mode indicator	-
2	Appears when the reading is stable	Page 16, 41
3	Appears when the reading is on hold	Page 16, 41
4	Saturation reading	-
5	Units of measurement	-
6	Temperature reading & units	Page 51
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8	Saturation HI & LO Alarm limits	Page 48
9	Alarm indicator	Page 17, 48
10	Barometric pressure	Page 18, 47
11	Calibration points	Page 31

2.5 Transfer Measured Data to Computer (CyberComm)

2.5.1 Sending a single reading

1. Make sure that the CURRENT DATA SET parameter is set to 'SINGLE' in the System Setup (Refer 'System Settings – Page 4' on page 44).
2. Make sure the **CyberComm 600** application is up and running (page 11).
3. Make sure the IrDA port of the meter is closer and in-line with IrDA port of the computer.
4. From measurement mode, press **PRIN (F3)** to send data to CyberComm.
5. In CyberComm screen, press **Find Device** button. CyberComm starts finding the meter.
6. When CyberComm finds the meter, press **Connect** button. The IrDA link is established. The currently displayed measurement reading is transferred to CyberComm.
7. Once the data transfer is completed, the IrDA link is disconnected automatically.
8. To send another reading, repeat step 3, 4, 5 & 6.
9. To clear the transferred readings from the screen, click **Disconnect** button and the click **Clear Data** button.

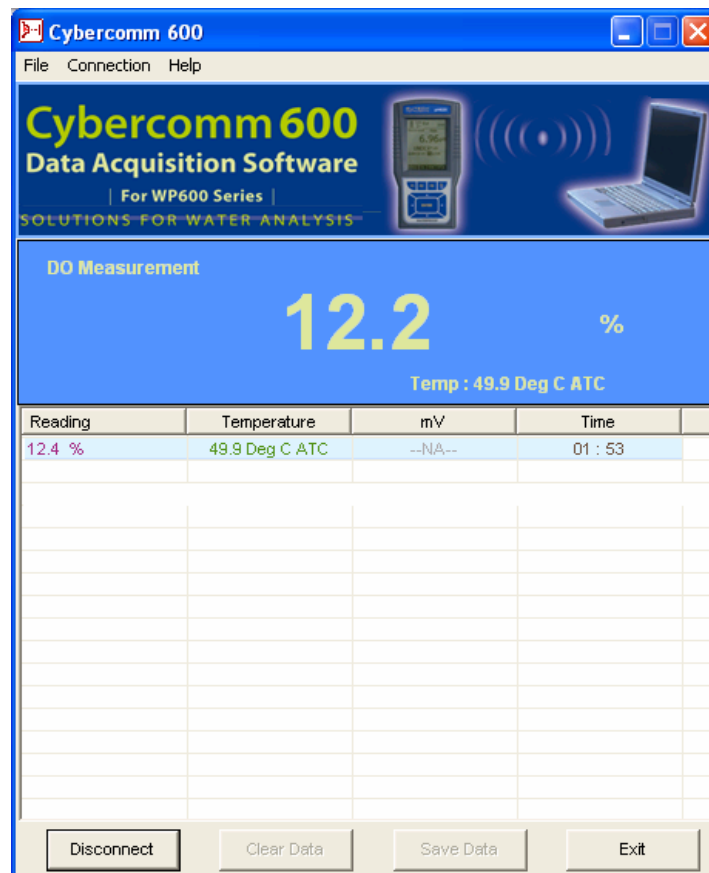


Figure 20 : Transferring a single measurement data

2.5.2 Sending readings continuously

1. Make sure that the CURRENT DATA SET parameter is set to 'TIMED' in the System Setup. Set the time interval at which you wish to send the data to CyberComm (Refer 'System Settings – Page 4' on page 44).
2. Make sure the **CyberComm 600** application is up and running (page 11).
3. Make sure the IrDA port of the meter is closer and in-line with IrDA port of the computer.
4. From measurement mode, press **PRIN (F3)** to send data to CyberComm.
5. In CyberComm screen, press **Find Device** button.
6. When CyberComm finds the meter, press **Connect** button. The IrDA link is established. The measurement readings are sent to CyberComm continuously at the specified time interval as long as IrDA link is not disconnected. The transferred readings are displayed in the CyberComm screen.
7. To stop data transfer, click **Disconnect** button.
8. To clear the transferred readings from the screen, click **Clear Data** button.

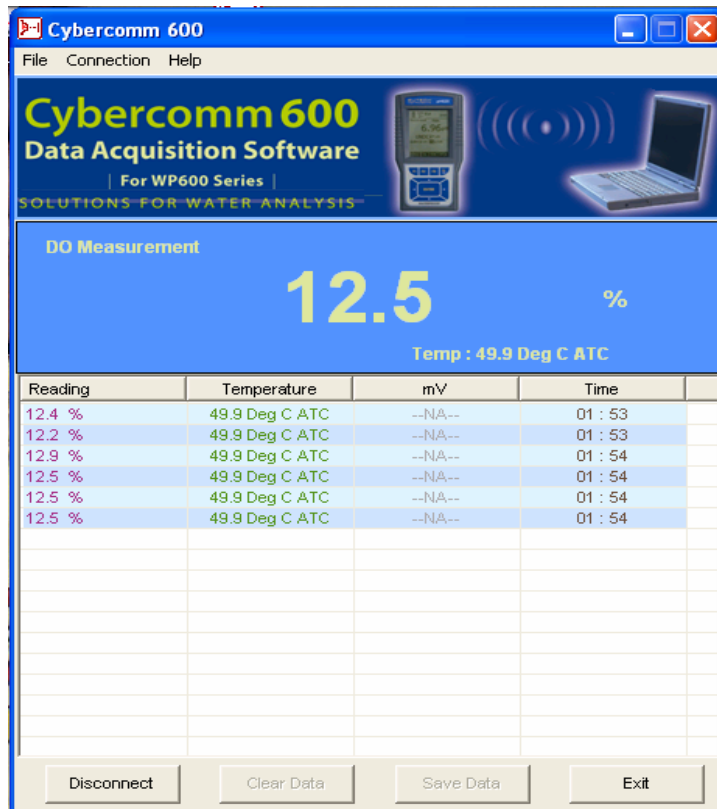


Figure 21 : Transferring measurement data continuously

Note: IrDA link may be disconnected if you move/disorient the IrDA ports during data transfer. Re-align the IrDA ports and press **Connect** button, to re-establish the connection.

2.5.3 Saving data

You can save transferred measurement readings as a text file in your computer. Optionally, these text files can further be analyzed by exporting to spreadsheet application such as Microsoft® Excel.

To save data:

1. Once you transferred data to CyberComm, click **Disconnect** button. (if CyberComm is still connected to the meter)
2. Click **Save Data** button. **User Details** dialog appears to capture user information, file name and additional notes (if any).(Figure 22)

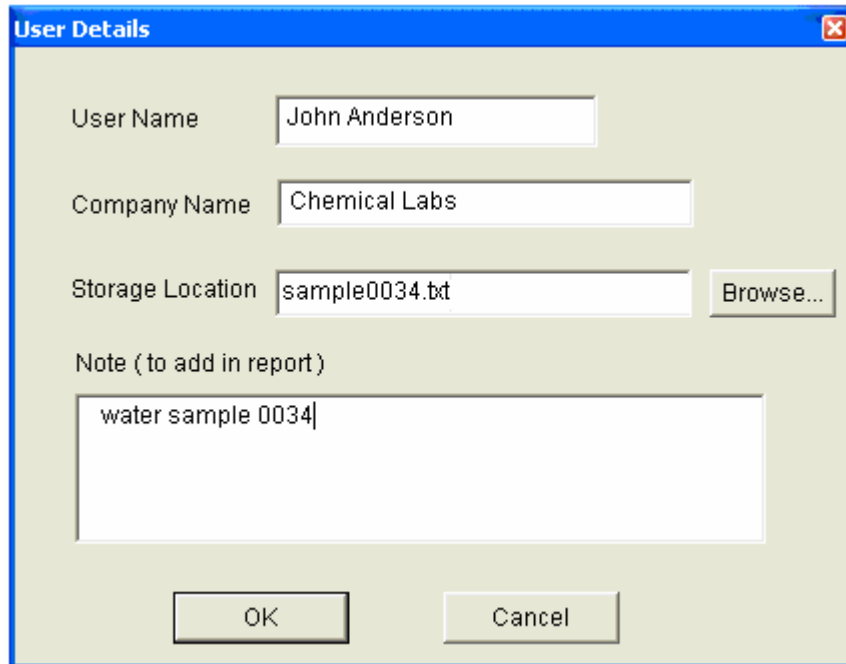


Figure 22 : User details dialog

3. Enter your name & company name.
4. In **Storage Location**, specify a folder & file name with **.txt** extension.
 - Click **Browse** button. **Save As** dialog appears. Select a folder and specify a name for the file in **File name** field. Make sure you type **.txt** at the end of the file name.
 - If you simply type a file name (example: 'DO readings.txt') in the **Storage Location**, the file is saved in the installation folder of CyberComm.

Optionally, you may enter any notes or additional information in the **Notes** field.

5. Click **OK** button to save the data in the specified location/file.

Note: You can open and view the saved file using Windows® Notepad. You need to exit CyberComm before you can open the saved file.

2.6 Working with Memory functions

You can save up to 500 sets of measurement data in the memory. At any time, you can view stored data. Optionally, you can also transfer this data to a computer using wireless Infrared connection.

2.6.1 Logging data automatically in meter's memory

1. Make sure that the Print mode is set to data logging mode in the System Setup and you can also specify the time interval in between each transfer. (Refer: 'System Settings – Page 4' on page 44)
2. From measurement mode, press **PRIN (F3)** to start saving data automatically in meter's memory. The memory location of the transferred reading is shown in the bottom-left of the screen. (Figure 23)

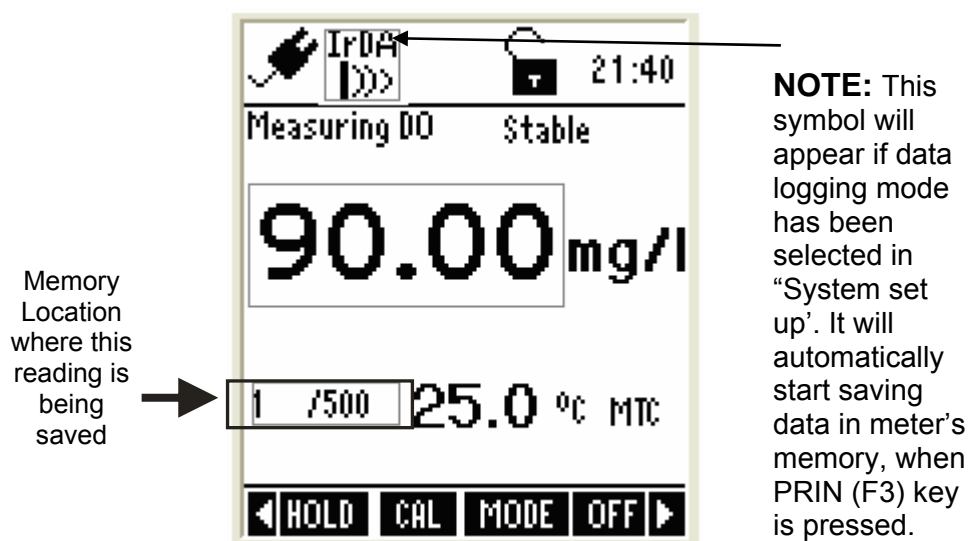


Figure 23: Saving a reading

2.6.2 Storing currently displayed reading in the memory (In IrDA and LED print mode)

1. Make sure you are in measurement mode.
2. Press left **◀** or right **▶** arrow key to navigate to other available functions until you see **STOR** function in the LCD.
3. Press **STOR (F3)** key to store the currently displayed reading. The display briefly shows the memory location where this reading is being saved. (Figure 23)

2.6.3 Viewing stored data

1. Make sure you are in measurement mode
2. Press left **◀** or right **▶** arrow key to navigate to other available functions until you see **MEM** function in the LCD.
3. Press **MEM (F2)** key to view stored data. The last stored data entry is shown in the display (Figure 24). The memory location of the currently showing data entry is shown in the top-right corner of the screen.

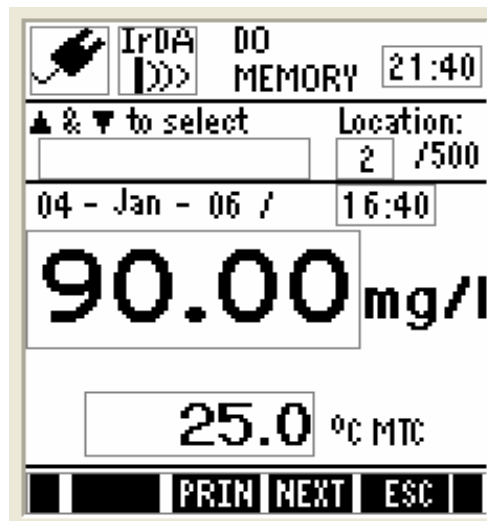


Figure 24 : Viewing stored data

4. To navigate to a particular memory location, press up ▲ or down ▼ arrow key to select memory location you intend to navigate to and then press **ENTER** key. The meter shows the stored data in the memory location you selected.
5. Press **NEXT (F3)** key to return to measurement mode from where you entered to view memory.
6. Press **ESC (F4)** key to return to main screen of the measurement mode.

2.6.4 Transferring stored data to Computer (CyberComm) through IrDA

1. Make sure the **CyberComm 600** application is up and running (page 11).
2. Make sure the IrDA port of the meter is closer and in-line with IrDA port of the computer. Go to 'stored data viewing' screen as described in above section (Figure 22).
3. Press **PRIN (F2)**. The screen appears for you to select printing options (Figure 25). This allows you to choose either all memory locations or the current memory location for transfer.
4. Press up ▲ or down ▼ arrow key to select your choice and then press **ENTER** key.
5. If you have selected 'All locations', then you can specify the time interval in between each transfer. Press up ▲ or down ▼ arrow key to select time interval (1 to 50 seconds) and press **ENTER** key.
6. In CyberComm screen, press **Find Device** button.
7. Once CyberComm finds the meter, click **Connect** button to establish connection.
8. The CyberComm establishes connection with meter through IrDA and sends the data. The connection stops automatically once the data is transferred.
9. You can save the transferred data to a text file. See 'Saving data' section in page 23.

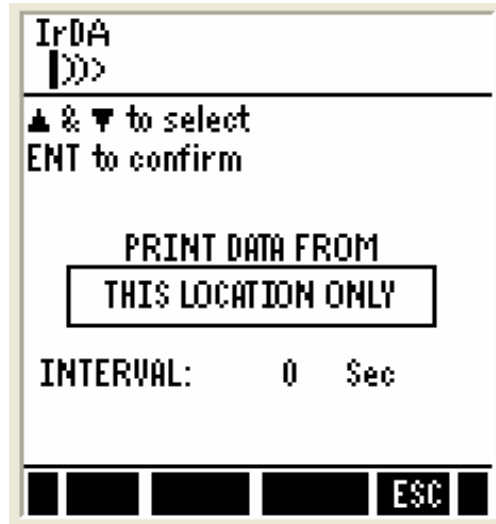


Figure 25 : Selecting options for printing memory locations

3. Calibration Mode

3.1 Important Information on Meter Calibration

Your meter has two measurement modes namely the DO % saturation measurement mode, and the DO mg/L (ppm) concentration mode.

The amount of oxygen dissolved in water will depend on its temperature, atmospheric pressure and its salinity. It is therefore very important that the temperature is calibrated if necessary prior to the DO calibration.

The calibration of % Saturation of DO will linearly affect the measurement for DO in mg/L. Hence calibration in % Saturation of DO should be carried out first. This is described in the following section.

Before calibrating, press **MODE** key to select the correct measurement mode. There are 2 measurement modes for DO: mg/L or ppm, and % Saturation.

NOTE: All new calibrations will automatically over-ride existing calibration values.

3.1.1 Prepare the Meter for Calibration

Before starting calibration, make sure you are in the correct measurement mode and in the correct calibration sequence. **The temperature and the % Saturation calibration must be done first before attempting to do the mg/L (ppm) Concentration calibration.**

Rinse the probe well in the de-ionized (DI) water or rinse solution and wipe the probe carefully taking care of the membrane.

Calibrate the meter in all the modes to ensure the highest accuracy throughout the DO measurement range. In % Saturation, the meter is able to perform either a one point calibration or a 2 point calibration. For one point calibration, it is recommended that you perform a 100% Saturation calibration in saturated air. If you opt for 2 point calibration, you can calibrate for 100% Saturation in saturated air and 0% Saturation using a zero oxygen solution.

All new calibration values will automatically override the existing data. It is recommended to calibrate the meter periodically and or if it is suspected to be inaccurate.

Always rinse the probe with either DI water or rinse solution before and after each calibration/sample measurement. When calibrating in air, make sure that any water droplets from the probe's membrane are removed.

3.1.2 Accessing Calibration mode

From measurement mode, press **CAL (F2)** key. The meter goes to corresponding calibration mode, based on the selected measurement mode. If the meter is password protected, you will be prompted to enter password.

3.1.3 Accessing Calibration mode when password protection enabled

Follow the steps below to access the calibration mode, when password protection is enabled (Refer page 45).

1. Make sure you are in measurement mode. If required, press **MODE (F3)** to switch to the measurement mode for which you wish to perform calibration.
2. Press **CAL (F2)** to go to calibration mode. Login Password screen appears (Figure 26). The meter expects the 5-digit password specified in system setup. (Refer page 45)



Figure 26 : Login password screen

Note: You can enter '00000' (read-only password) if you wish to view the calibration report of the last calibration. You are not allowed to perform calibration when you enter 'read-only password'.

3. Press up ▲ & down ▼ arrow keys to enter the first digit of the password and then press **NEXT (F3)** key to move to the next digit.
4. The next digit is selected. Press up ▲ & down ▼ arrow keys to enter the second digit of the password.
5. Similarly enter all 5-digits.
6. Press **ENTER** key to confirm the password.
7. When the correct password is entered, the 'Calibration – Rinse Electrode' screen appears.

Note: If you enter an incorrect password, the screen shows 'Try again'. If an incorrect password is entered for 3 consecutive times, the meter goes to measurement mode.

3.2 About Temperature Calibration

DO in mg/L is dependent on temperature, so it is first necessary to calibrate or verify the temperature reading. The built-in temperature sensor of the DO 600 probe is factory calibrated.

3.2.1 Temperature Calibration for ATC mode

Make sure you have selected 'ATC' and required unit of measurement (°C or °F) in Temperature settings. Refer 'Temperature Setup' section in page 49 for more details.

1. Switch on the meter. Make sure the meter is in measurement mode.
2. Press **CAL (F2)** to go to calibration mode.

Note: If the meter is password protected, you will be prompted to enter a password. Refer 'Accessing Calibration mode when password protection enabled' in page 28.

3. The meter shows 'Calibration-Rinse Electrode' screen Figure 28-(a)] for few seconds and then shows the calibration screen. Press **TEMP (F1)** to go to temperature calibration. The temperature calibration screen appears.



Figure 27: Temperature calibration screen

4. The screen shows two readings. The upper display shows the temperature reading of the solution with respect to previous calibration (if any) & lower displays shows the temperature reading of the solution without any calibration (default reading). Use ▲ & ▼ keys to adjust the upper display to the temperature reading of the thermometer.

Note: The meter allows you to adjust the upper display reading up to ± 5 °C or ± 9 °F. (Calibration window)



5. Press **ENTER** key to confirm temperature value. The meter automatically returns to the measurement mode.

3.2.2 Temperature Calibration for MTC mode

Make sure you have selected 'MTC' and required unit of measurement (°C or °F) in Temperature settings. Refer page 49 for more details.





1. Switch on the meter. Make sure the meter is in measurement mode.
2. Press **CAL (F2)** to go to calibration mode.

Note: If the meter is password protected, you will be prompted to enter a password. Refer 'Accessing Calibration mode when password protection enabled' in page 28.

3. Press **TEMP (F1)** to go to temperature calibration.
4. The screen shows two readings. The upper display shows the temperature reading of the solution with respect to previous calibration (if any) & lower displays shows the temperature reading of the solution without any calibration (default reading). Use  &  keys to adjust the upper display to the temperature reading of the thermometer.

Note: The meter allows you to adjust the upper display reading to any value within the measuring range -10.0 °C to 110.0 °C (14.0 °F to 230.0 °F).

5. Press **ENTER** key to confirm temperature value. The meter automatically returns to the measurement mode.

Function Keys available in temperature calibration screen:	
NEXT (F3)	Goes to measurement mode from where you entered calibration
ESC (F4)	Goes to measurement mode from where you entered calibration
ENTER	Confirms calibration
 	Increase/decrease temperature reading
 	(Not functional)

3.3 DO Calibration in % Saturation Mode (with ATC)

The DO 600 can be calibrated quickly and easily in air. In % Saturation, the meter is able to perform either a one point calibration or a 2 point calibration. For one point calibration, it is recommended that you perform a 100% Saturation calibration in saturated air. If you opt for 2 point calibration, you can calibrate for 100% Saturation in saturated air and 0% Saturation using a zero oxygen solution.

The DO 600 meter is capable of measuring barometric pressure with its built-in pressure sensor. In the event, the pressure reading is inaccurate, you can calibrate the value from the setup menu. For setting barometric pressure range, please refer page 47.

3.3.1 To calibrate 100% saturation

1. Switch on the meter and make sure the meter is in % saturation mode.
2. Hold the probe in the air gently with the sensor facing down and press **CAL (F2)** to start calibration.

Note: If the meter is password protected, you will be prompted to enter a password. Refer 'Accessing Calibration mode when password protection enabled' in page 27.

3. The meter shows 'Dissolved O₂ Calibration-Rinse Electrode' screen [Figure 28(a)] for few seconds to prompt user to rinse electrode with de-ionized water before calibration (Refer 'Prepare the Meter for Calibration' section in page 27).

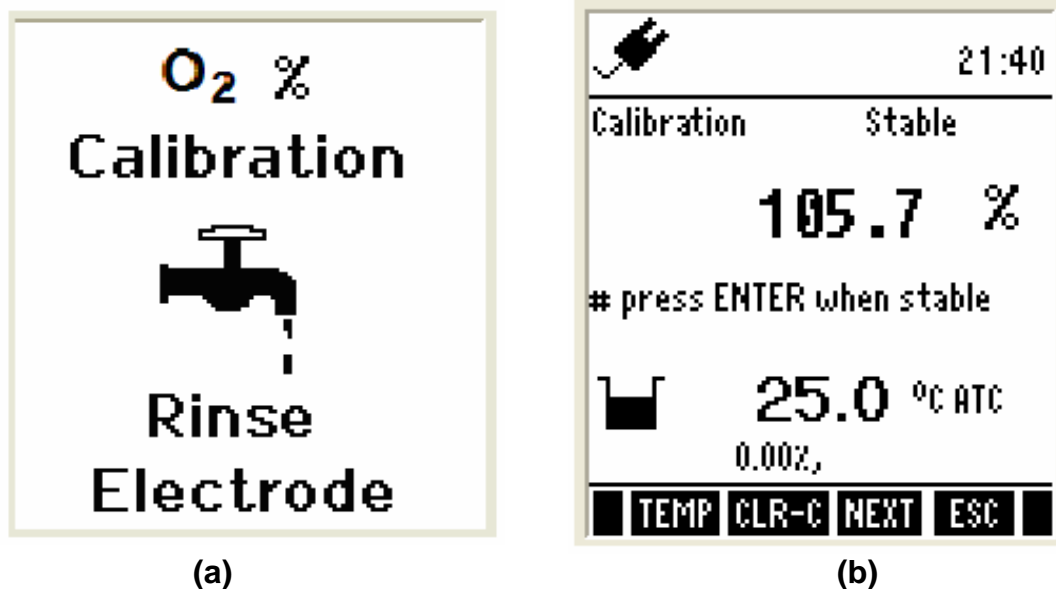


Figure 28: Saturation Calibration Screens

4. Rinse the probe well with de-ionized water. For best result, blot the end of the probe dry. Do not touch the membrane.
5. The meter then shows saturation calibration screen [Figure 28-(b)]. The primary display will show the current value of measurement. Wait for the reading to stabilize.
6. Press **ENTER** key to confirm the calibration. The meter automatically calibrates to 100% air saturation and returns to the measurement mode.

Note: If you wish to completely re-calibrate the meter, you need to clear previous calibration data. Press **CLR-C (F2)** key to clear previous calibration. The meter shows you confirmation screen. Press **ENTER** key to confirm deleting previous calibration.

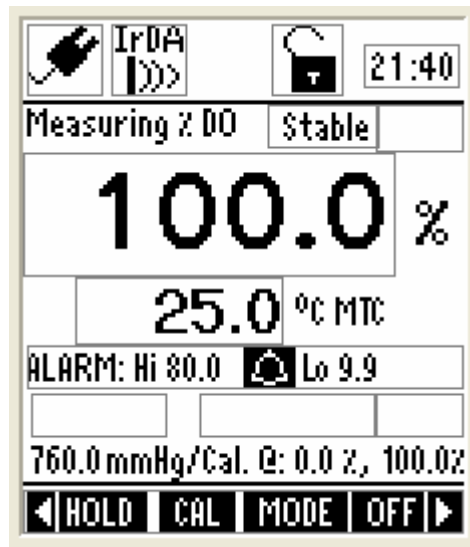


Figure 29 : Saturation measurement Screen

Function Keys available in saturation calibration mode:

TEMP (F1)	Goes to temperature calibration
CLR-C (F2)	Clears previous calibration (if any) after ENTER key is pressed in confirmation screen
NEXT (F3)	Shows calibration report
ESC (F4)	Exits from calibration and goes back to saturation measurement mode
ENTER	Confirms the calibration
▲ ▼ ◀ ▶	(Not functional)

3.3.2 To calibrate 0% saturation

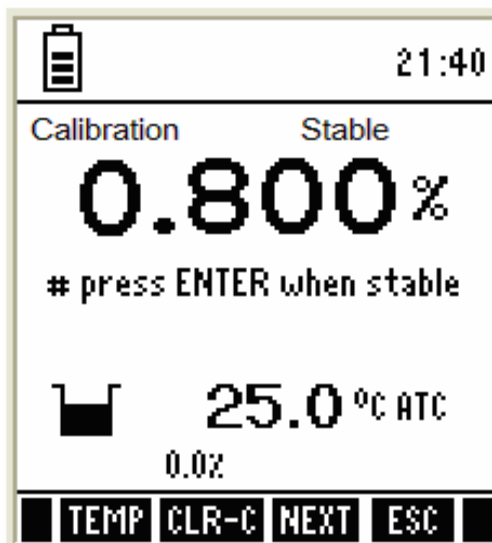


Figure 30 : 0% saturation calibration Screen

1. Press **MODE** key to select % Saturation mode.
2. Immerse the DO probe in 0% solution. Stir gently to create a homogenous solution.
3. Press **CAL** key to calibrate the meter. The meter shows 'Dissolved O₂ Calibration-Rinse Electrode' screen [Figure 28(a)] for few seconds to prompt user to rinse electrode with de-ionized water before calibration.
4. The meter then shows saturation calibration screen [Figure 30].
5. Wait for the reading to stabilize.
6. The primary display will show the current value of measurement.
7. Press **ENTER** key to confirm the calibration. The meter automatically calibrates to 0% saturation and returns to the measurement mode [Figure 29].



Note: If you wish to completely re-calibrate the meter, you need to clear previous calibration data. Press **CLR-C (F2)** key to clear previous calibration. The meter shows you confirmation screen. Press **ENTER** key to confirm deleting previous calibration. It will **clear all the calibration data including mg/L data.**

Note: The keys that appear in 0% saturation calibration mode functions similar to the one as described in 100% saturation mode. (Refer page 32)

3.3.3 % DO Calibration Report

Calibration report gives you detailed information for the % saturation. It includes date & time, 0% and 100% saturation mV value, % saturation offset calibration and barometric pressure at which the solution was measured.

To View calibration Report:

1. From % saturation measurement mode, press left  or right  arrow key to navigate to other available functions until you see **REPO** function in the LCD.
2. Press **REPO (F2)** key. The calibration report is shown in the display.
3. Press **PRIN (F2)** to transfer the calibration report to computer through IrDA. (Refer page 25 to print data).

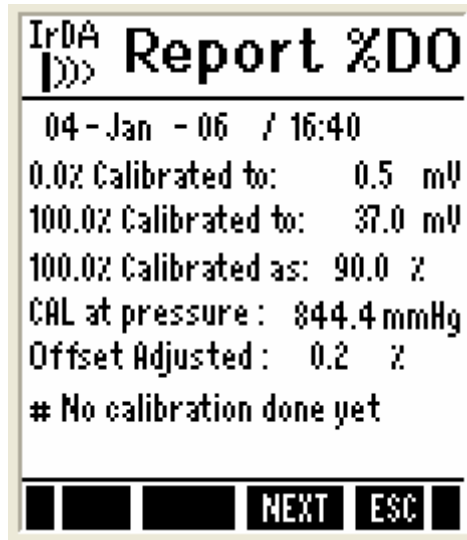






Figure 31: DO Report in % saturation mode

Function Keys available in saturation report screen:	
PRIN (F2)	Transfers calibration report to Computer through IrDA
NEXT (F3)	Goes to saturation measurement mode
ESC (F4)	Goes to saturation measurement mode
ENTER	(Not functional)
   	(Not functional)

3.4 DO Calibration in mg/L or ppm Concentration Mode

The amount of oxygen dissolved in a liquid will depend on its temperature, pressure and salinity. It is therefore very important to set temperature and salinity correctly before attempting to do a calibration. The DO 600 is capable of measuring barometer pressure with its built-in pressure sensor. In the event, the pressure reading is inaccurate, you can calibrate the value from the Setup menu.

1. Switch on the meter. Make sure the meter is in concentration measurement mode.
2. Rinse the probe well with de-ionized rinse water. For best accuracy, blot the end of the probe dry. Dip the probe into a solution whose DO values is known. Do not touch the membrane.
3. Press **CAL (F2)** to go to calibration mode.

Note: If the meter is password protected, you will be prompted to enter a password. Refer 'Accessing Calibration mode when password protection enabled' in page 28.

4. The meter shows 'Dissolved O₂ Calibration-Rinse Electrode' screen [Figure 28 (a)] for few seconds to prompt user to rinse electrode with de-ionized water before calibration (Refer 'Prepare the Meter for Calibration' section in page 27).

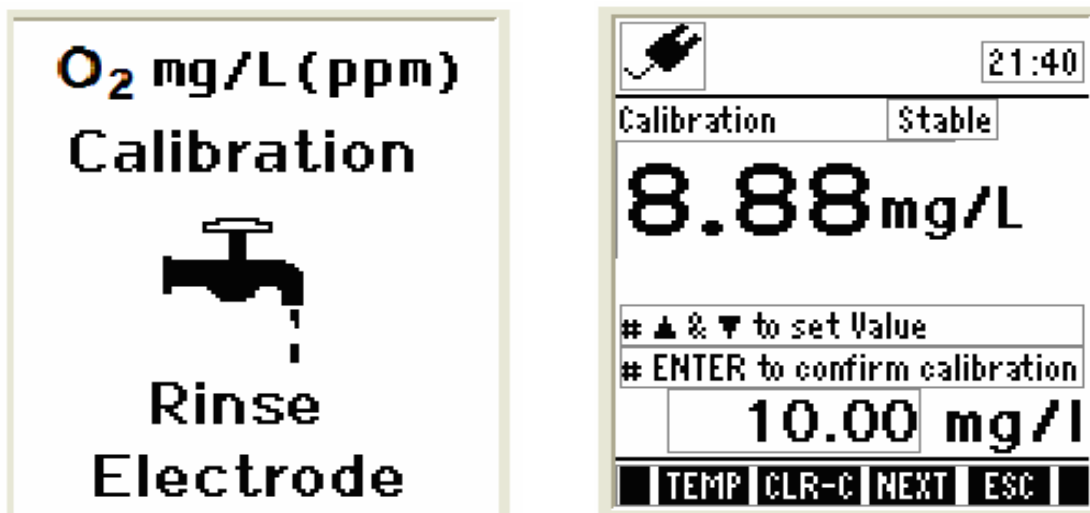


Figure 32 : Concentration calibration screens

5. The meter then shows the concentration calibration screen [Figure 32].
6. The upper display of the calibration screen [Figure 32] will show the current value of the measurement and the secondary display will show the value to which the meter is going to be calibrated. Press **▲** & **▼** keys to adjust the reading to the known oxygen concentration of the sample.
7. Press **ENTER** key to confirm the entered value.
8. Press **ESC (F4)** to go to measurement mode. The meter shows the concentration reading of the solution in measurement mode (Figure 33).

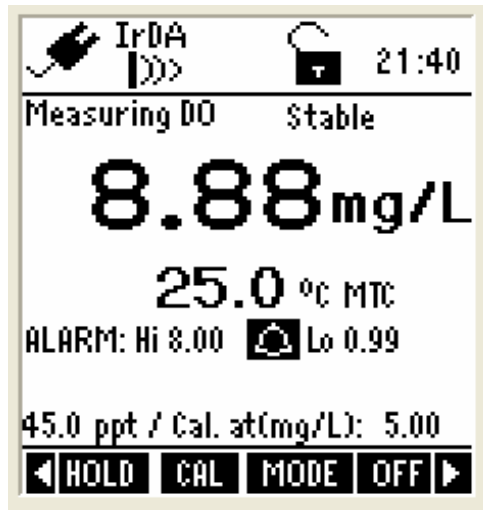


Figure 33 : Concentration calibration

Note: The function of the keys available on the concentration calibration/report screen is same as previously described in saturation calibration.

3.4.1 Concentration Calibration Report

Calibration report gives you information on calibrated temperature and calibration at pressure and salinity. It includes date & time on which the last calibration was done and the offset.

To View Concentration Report:

1. From concentration measurement mode, press left ◀ or right ▶ arrow key to navigate to other available functions until you see **REPO** function in the LCD.
2. Press **REPO (F2)** key. The calibration report is shown in the display [Figure 34].
3. Press **PRIN (F2)** to transfer the calibration report to the computer. (Refer page 25 to print data)

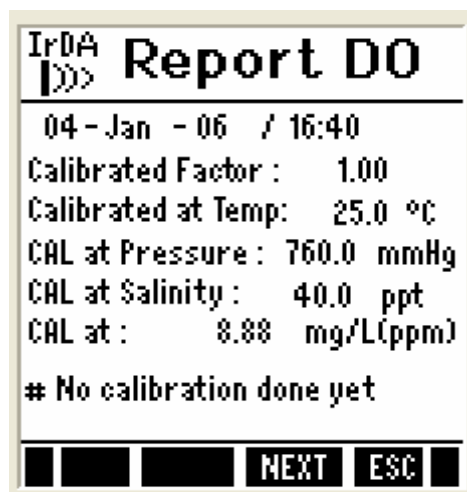


Figure 34 : DO report screen in mg/L mode

4. Setup Mode



4.1 About Setup Mode

The setup mode lets you configure various parameters & settings of the meter. You can choose to password-protect your settings, so that other users who may use the meter will not be able to change the settings.

Setup mode consists of the following sub-groups:

- **System** – General settings of the meter
- **O₂ mg/L (ppm)**: This setup screen presents many options to control the operating parameters of concentration mode.
- **O₂ (%)**: This setup screen presents many options to control the operating parameters of saturation mode.
- **Temperature** - Temperature measurement & calibration related settings.

4.1.1 Accessing Setup mode (no password protection enabled)

1. Switch on the meter. The meter goes to measurement mode.
2. Press left  or right  arrow key on the keypad to navigate to other available functions until you see **SETUP** function in the LCD.
3. Press **SETP (F1)** and Setup Key Function screen appears. This page describes the keys functions for configuring various parameters and settings of the meter.

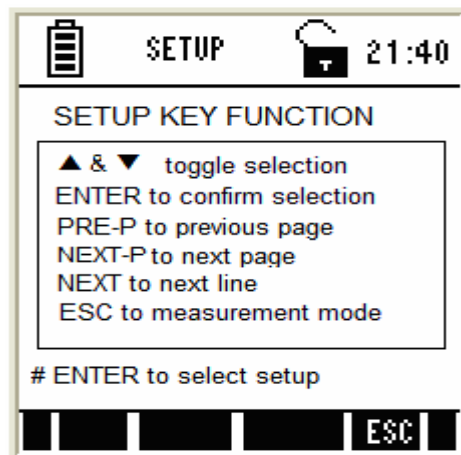


Figure 35: Setup Key Function screen

Note: If the meter is password protected, you will be prompted to enter a password before accessing Setup Key Function screen. Refer 'Accessing Setup mode when password protection enabled' in page 39 for details.

Function Keys available in setup key function screen:	
▲ ▼	To select individual setup
ENTER	To select or confirm the selection.
NEXT-P	To navigate to next page.
NEXT	To go to next parameter without saving the changed parameter.
ESC	To go back to measurement mode.

4. Press **ENTER** key to select Setup Selection screen.
5. Press up ▲ or down ▼ arrow key to go to required setup sub-group.
6. Press **ENTER** key to select the currently shown sub-group.

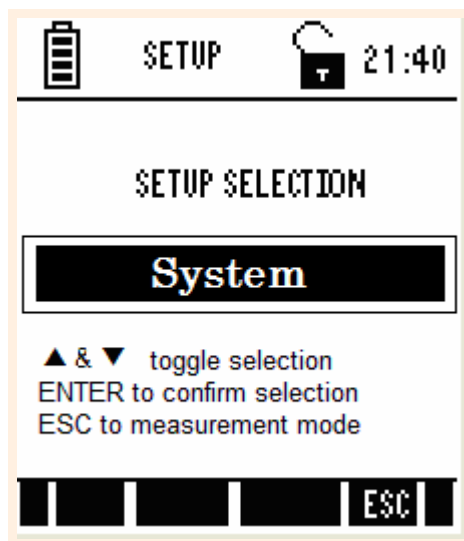



Figure 36: Setup Selection screen

Function Keys available in setup selection screen:	
(F1)	(Not functional)
(F2)	(Not functional)
(F3)	(Not functional)
▲ ▼	Goes to required setup sub-groups
ENTER	Selects the current sub-group
ESC (F4)	Goes to measurement mode from where you entered setup
◀ ▶	(Not functional)

4.1.2 Accessing Setup mode when password protection enabled

Follow the steps below to access the setup mode, when password protection is enabled.

1. Switch on the meter. The meter goes to measurement mode.
2. Press right arrow key  to navigate to other functions on the right-side of LCD.
3. Press **SETP (F1)** to go to Setup mode. Login password screen appears (Figure 37). The meter expects the 5-digit password specified in system setup. (Refer page 45)

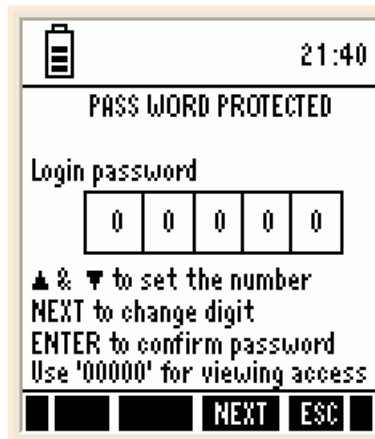








Figure 37 : Login password screen

Note: You can enter '00000' (read-only password) if you wish to view the setup parameters. You are not allowed to modify any parameter when you enter 'read-only password'.



4. Press up  & down  arrow keys to enter the first digit of the password and then press **NEXT (F3)** key to move to the next digit.
5. The next digit is selected. Press up  & down  arrow keys to enter the second digit of the password. Enter all 5-digits.
6. Press **ENTER** key to confirm the password.

Note: If you enter an incorrect password, the screen shows 'Try again'. If an incorrect password is entered for 3 consecutive times, the meter goes to measurement mode. If you forget the password there is no way to access the system setting and calibration.





7. When the correct password is entered, the Setup Key Function Screen appears. (Figure 35)
8. Press **Enter** key to launch Setup Selection Screen.
9. Press up  or down  arrow key to go to required setup sub-group.
10. Press **ENTER** key to select the sub-group.

4.1.3 Modifying Setup parameters

Follow the steps below to modify setup parameters, when you enter a setup sub-group.

1. Press **NEXT (F3)** key to select individual setup parameters sequentially.
2. Press  (Up) or  (Down) arrow key to change the value of a selected parameter.
3. Once you changed a value:
 - Press **ENTER** key to save the change, or
 - Press **NEXT (F3)** key to go to the next parameter without saving the changed parameter
4. Press **NEXT-P (F2)** or **PRE-P (F1)** to navigate to next or previous page.
5. Press **ESC (F4)** to exit from setup mode.

Function Keys available in setup sub-group screens:

PRE-P (F1)	Goes to the previous page of the same sub-group
NEXT-P (F2)	Goes to the next page of the same sub-group
NEXT (F3)	Goes to the next parameter of the same sub-group
ESC (F4)	Goes to measurement mode
 	Modify the selected parameter value
ENTER	Confirms/saves the changes made to the currently selected parameter and then goes to the next parameter of the same sub-group
 	(Not functional)

4.2 System Setup

System setup sub-group allows you to configure general settings of the meter. The settings are displayed in 6 pages. Press **NEXT-P (F2)** and **PREV-P (F1)** to navigate through these pages.

4.2.1 System Settings – Page 1

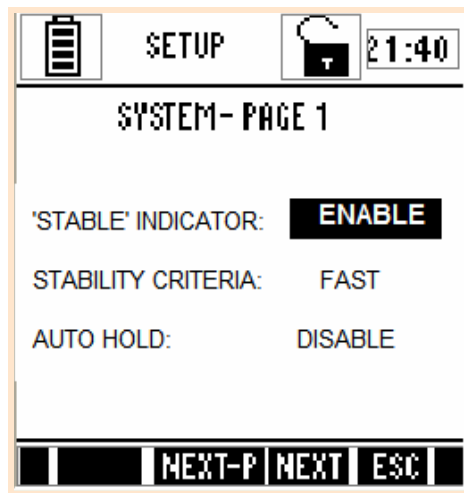


Figure 38: System Settings - Page 1

Parameter	Function	Factory Default
STABLE INDICATOR	ENABLE - The meter displays 'Stable' indicator in the measurement screen as per the 'STABLE CRITERIA' defined below. DISABLE – 'Stable' indicator does not appear.	ENABLE
STABLE CRITERIA	SLOW – The reading is stabilized slowly and exhibits good repeatability MEDIUM – Reading stability is averaged between slow & fast stability FAST – Reading is stabilized quickly at the cost of repeatability. (This parameter has no effect if 'STABLE' parameter is disabled)	FAST
AUTO HOLD	ENABLE - The meter holds the reading in the measurement screen, if the reading is 'Stable' for consecutive 5 seconds. If this is enabled, 'Response time' appears in the measurement screen, indicating the average response time of the DO probe. DISABLE – The reading is not held. (This parameter has no effect if 'STABLE' parameter is disabled. The response time may not work if the system time has not been set as described in page 42)	DISABLE

4.2.2 System Settings – Page 2



Figure 39 : System Settings - Page 2

This page allows you to set the date & time of the meter.

Parameter	Function	Factory Default
YEAR	Sets the current year	2006
MONTH	Sets the current month	Jan
DATE	Sets the current date	01
HOUR	Sets the hour (24 Hours) for the current time	00
MINUTE	Sets the minute for the current time	00
SECOND	Sets the second for the current time	00

Note: The battery or DC adapter must always be connected to the meter for the system clock to run. The system time might be reset during the battery change. To prevent that happening, always connect the DC adapter during battery change. Alternatively, if the DC adapter is not available, switch off the meter and change the batteries within **30** seconds to avoid resetting the clock.

4.2.3 System Settings – Page 3

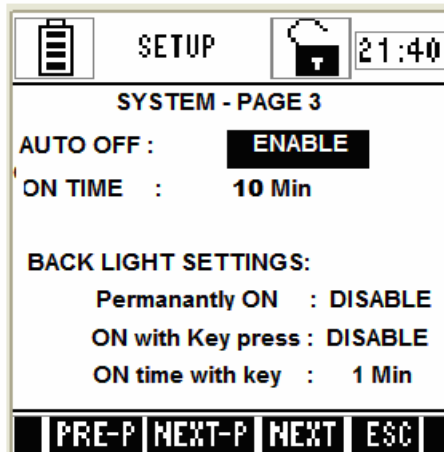


Figure 40 : System Settings - Page 3

This page allows you to set auto-off and back light related parameters.

Parameter	Function	Factory Default
AUTO OFF	ENABLE – Turns off the meter automatically if no key is pressed for the time period specified in ‘ON TIME’ below. DISABLE – Does not turns off the meter automatically	ENABLE
ON TIME	After the last key is pressed, no. of minutes the meter should wait before automatically shuts down the meter. Maximum range: 30 min (This parameter has not editable if ‘AUTO OFF’ parameter is disabled)	10 min
BACK LIGHT (permanently ON)	ENABLE – Sets the back light always on. DISABLE – Sets the backlight always off.	DISABLE
BACK LIGHT ON with (Key press)	ENABLE – The back light of the LCD is automatically on when any key is pressed. DISABLE – Does not turn on the back light automatically.	DISABLE
ON TIME with (Key press)	Sets the meter to wait for specified number of minutes before automatically turning off the back light after the last key is pressed. (This parameter is not editable when ‘BACK LIGHT (Key press)’ is disabled) (This parameter has no effect if ‘BACK LIGHT (Always)’ parameter is set to ON)	1 min

Note: The above settings may not work if the system time has not been set as described in page 42.

4.2.4 System Settings – Page 4

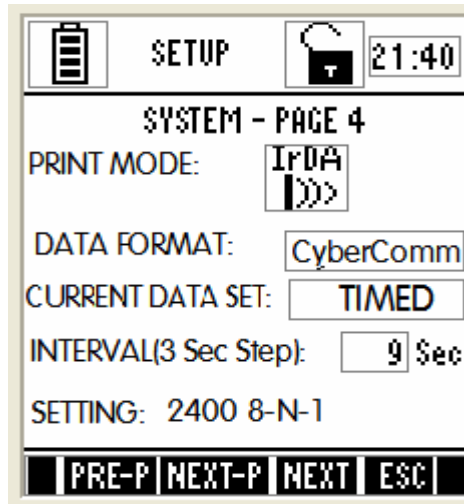



Figure 41: System Settings - Page 4

This page allows you to set wireless serial data communication related parameters.

Parameter	Function	Factory Default
PRINT MODE	IrDA – Sets serial data communication protocol to IrDA LED – Sets serial data communication protocol to RS232C  - Logs data to meter’s memory.	IrDA
DATA FORMAT	CyberComm – Select this format if you use CyberComm Data Acquisition Software (DAS) TEXT – Select this format if you use any other method (such as Windows® Hyperterminal) This parameter is used when downloading data from the meter through IrDA	CyberComm
CURRENT DATA SET	TIMED – Prints measurement data continuously at the interval specified in ‘INTERVAL’ parameter below. SINGLE – Prints only the currently measured reading This parameter applies when PRIN key is pressed from measurement mode to send the currently measured readings to the computer.	TIMED
INTERVAL (3 Sec Step)	Time interval at which the meter should send currently measured data to the printer/CyberComm/PC Acceptable range : 3 sec to 600 sec (in 3 sec steps) (This parameter is applicable when ‘CURRENT DATA SET’ is set to ‘TIMED’ and this is not editable when ‘CURRENT DATA SET’ is set to ‘SINGLE’)	9 Sec
SETTING	Indicates serial communication settings in the format of ‘Baud rate, Data bits-Parity bits-Stop bits’. This parameter is not editable.	2400 8-N-1

4.2.5 System Settings – Page 5

This page allows you to enable password protection for the setup mode & calibration mode.

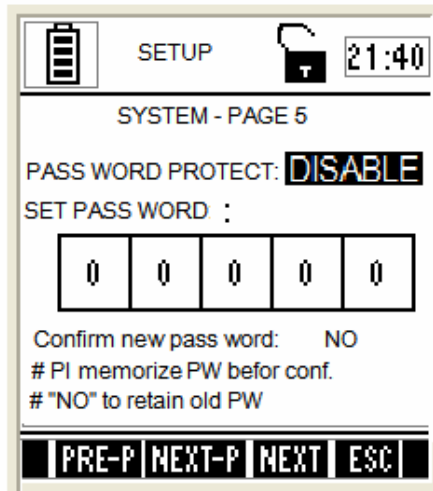


Figure 42 : System Settings - Page 5

When you enable password protection, the meter prompts to enter the password whenever you try to access the Setup or Calibration mode. (See Figure 26 : Login password screen). The meter does not allow you to edit setup parameters or perform a new calibration unless you enter the correct password. If an incorrect password is entered for 3 consecutive times, the meter goes to measurement mode.

Parameter	Function	Factory Default
PASSWORD PROTECT	ENABLE – Sets password protection for the setup & calibration mode. If this is enable you need to specify a 5-digit password in the ‘SET PASSWORD’ parameter below	DISABLE
SET PASSWORD	<p>DISABLE – Disable password protection of the meter</p> <p>Specify your 5-digit password here. Use ▲ (Up) & ▼ (Down) key to select a number and then press ENTER key to confirm and move to the next digit.</p> <p>Do not set your password to ‘00000’ as this is reserved for ‘read-only’ password.</p> <p>(This parameter is not editable when ‘PASSWORD PROTECT’ is disabled)</p>	88888
CONFIRM PASSWORD	<p>YES – Select this if you have made changes to the password and you wish to confirm the changes</p> <p>NO – Select this if you wish to ignore the changes made to the password and to store the default password.</p>	NO

Important:

1. Please memorize the password that you have entered after enabling the password protection because without entering password, neither you can disable the password protection or reset the meter to factory defaults. However, **if the user forgets his password, he can contact the nearest distributor or Eutech Instruments/Oakton Instruments to request for meter password.** This would be unique to each instrument and would be tied to the serial number of the unit.
2. Default password '88888' is valid only if it is not changed with new password.
3. You can enter '00000' (read-only password) if you wish to view the setup parameters. You are not allowed to modify any parameter when you enter 'read-only password'.

4.2.6 System Settings – Page 6



Figure 43 : System Settings - Page 6

This page allows you to clear the memory and reset the meter to factory defaults.

Parameter	Function	Factory Default
CLEAR MEMORY	YES – Select this to clear all the stored data from the meter’s memory NO – Select this if you do not wish to clear the stored data from the meter’s memory	NO
FACTORY RESET	YES – Select this if you wish to reset the meter to its factory default settings. This includes: <ul style="list-style-type: none"> ▪ Deleting your calibration data ▪ Resetting setup parameters to factory defaults (except date & time) ▪ Deleting your stored data in the memory NO – Select this if you do not wish to reset the meter	NO

When 'YES' is selected and confirmed by pressing ENTER key, the meter is reset to factory defaults and then the meter goes to measurement mode.

4.3 O₂ % - DO Saturation Setup

DO saturation (%) setup screen present many options to control the operating parameters, which can be controlled and set from the DO setup screen. The settings are displayed in 2 pages. Press **NEXT-P (F2)** and **PREV-P (F1)** to navigate through these pages.

4.3.1 DO (%) – Page 1



Figure 44 : DO (%) – Page 1

Parameter	Function	Factory Default
Offset Cal	Allows to adjust % saturation offset calibration	0.0 %
Calibration due	Specify number of days for the DO calibration alarm. The meter shows CAL DUE indicator after calibration date.	5 days
	Available range : 0 to 30	
Select Pressure Unit	Sets the unit for barometric pressure Available units: mmHg and kPa	mmHg
Measured Pressure	Barometric pressure as measured by the instrument.	
Adjusted Pressure	User adjusted value.	-
Pressure Compensation	ENABLE – The meter will compensate for the barometric pressure at the location depending on the altitude. DISABLE – No compensation for the pressure.	ENABLE
	(This is applicable only for the % saturation mode. For mg/L or ppm mode pressure comp. would always be applicable)	

NOTE: During measurement, the DO 600 will automatically measure and compensate for barometric pressure. However, if the user feels that barometric pressure is inaccurate and needs to be calibrated, it can be adjusted in the DO setup screen.

4.3.2 DO (%) – Page 2



Figure 45: DO (%) - Page 2



This page allows you to set alarm limits for the DO saturation measurement mode. A visual alarm symbol will appear on the screen, if the DO value of the measurement is outside of the boundaries set by the minimum and maximum limits.

Parameter	Function	Factory Default
DO ALARM	Set alarm limits for the DO measurement modes: ENABLE – The measurement screen shows HI or LO alarm indicators when the meter reading is above ‘HI alarm value’ or below ‘LO alarm value’ specified in HI & LO % parameters (below) DISABLE – HI and LO alarms are not shown in the LCD	DISABLE
Hi DO %	Specify Hi alarm value here. The Hi alarm occurs when the DO reading goes above this value (This parameter is not editable when ‘ALARM SET POINT’ is disabled)	200.0 %
Lo DO%	Specify Lo alarm value here. The Lo alarm occurs when the DO reading goes below this value (This parameter is not editable when ‘ALARM SET POINT’ is disabled)	10.0 %

4.4 O₂ mg/L (ppm) – DO Concentration Setup

DO Concentration (mg/L) setup screen present many options to control the operating parameters, which can be controlled and set from the DO setup screen. The settings are displayed in 2 pages. Press **NEXT-P (F2)** and **PREV-P (F1)** to navigate through these pages.

4.4.1 DO (mg/L) – Page 1



Figure 46 : DO (mg/L) – Page 1

This page allows you to set operating parameters for the DO Concentration measurement mode:

Parameter	Function	Factory Default
Select DO Unit	Sets the unit of measurement for DO Available units: mg/L and ppm	mg/L
Auto Salinity Comp	DISABLE – No automatic compensate This option is disabled in DO 600 meter.	DISABLE
Set Salinity	Allows to set the salinity (in ppt) for your solution Available range: 0 to 50 ppt	0.0 ppt

4.4.2 DO (mg/L) – Page 2



Figure 47: DO (mg/L) – Page 2



This page allows you to set alarm limits for the DO concentration mode. A visual alarm symbol will appear on the screen, if the DO value of the measurement is outside of the boundaries set by the minimum and maximum limits.

Parameter	Function	Factory Default
DO ALARM	Set alarm limits for the DO measurement modes: ENABLE – The measurement screen shows HI or LO alarm indicators when the meter reading is above ‘HI alarm value’ or below ‘LO alarm value’ specified in HI & LO % parameters (below) DISABLE – HI and LO alarms are not shown in the LCD	DISABLE
Hi DO mg/L	Specify Hi alarm value here. The Hi alarm occurs when the DO reading goes above this value (This parameter is not editable when ‘ALARM SET POINT’ is disabled)	20.0 mg/L
Lo DO mg/L	Specify Lo alarm value here. The Lo alarm occurs when the DO reading goes below this value (This parameter is not editable when ‘ALARM SET POINT’ is disabled)	1.0 mg/L

4.5 Temperature Setup

Temperature setup sub-group allows you to configure temperature measurement & calibration related settings of the meter.

4.5.1 Temperature Setting Page

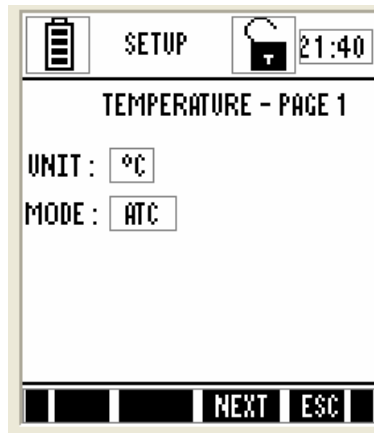


Figure 48 : Temperature Settings Page

This page allows you to set measurement unit and compensation mode for temperature.

Parameter	Function	Factory Default
UNIT	Sets the unit of measurement for temperature. Available units: °C and °F	°C
MODE	Sets the temperature compensation mode. ATC – Automatic Temperature Compensation MTC – Manual Temperature Compensation	ATC

☞ Press **▲** (Up) or **▼** (Down) arrow key to change unit of measurement and temperature compensation mode.

5. Technical Specifications

Model	DO 600 meter
DISSOLVED OXYGEN	
DO Range	0 to 600 %/ 90 mg/l
Resolution	0.1%, 0.01 mg/L
Accuracy	± 2%, ± 0.2 mg/L
Dissolved Oxygen Probe	Galvanic
Mode	% Sat, mg/L, ppm
Temperature Comp.	Linear
Barometric Pressure Compensation	Automatic
Barometric Pressure Range	450 to 825 mmHg
Barometric Pressure Resolution	1 mmHg
Barometric Pressure Accuracy	± 1%
Salinity Correction	0 to 50 ppt
Cal Due Alarm	Yes (max -30 days)
Set Point Alarm	Yes
Input DO	6 Pin Round
Temperature	
Range	-10.0 °C to 110.0 °C (14.0 °F to 230.0 °F)
Resolution	0.1 °C/ 0.1 °F
Relative Accuracy	± 0.5 °C / ± 0.9 °F
Display	
Display type	Dot matrix LCD with backlighting
Screen resolution	110 x 128
Viewing area	68 x 74 mm
Backlit	Yes
Other	
Data logging	500 data sets
Data communication	IrDA / RS232C-Infrared
Data logging	Yes
GLP (Good Lab Practice)	Yes
Ingress protection	IP 67
Dimensions	95mm (W) x 185mm (L) x 58.5mm (H) - Without Rubber Boot 101mm (W) x 191mm (L) x 61mm (H) - With Rubber Boot
Weight	380g (Without Rubber Boot)
Power Input	
Battery	4 x Alkaline AA size, 1.5 V
Batter Life	200 Hrs (without backlight & serial data transfer)
Power adapter	Input: 100-240V AC Output: DC 9-12V, 6W Max

6. Accessories

6.1 Replacement Accessories

Eutech Instruments

Product Description	Eutech Instruments Order Code
Galvanic Dissolved Oxygen probe with ATC (3m cable length)	ECDOHANDYNEW
Membrane & O-ring (pack of 5)	01X241603
Assembled Membrane Cap Housing	15X241402
Membrane removal tool	15X241502
Electrode Guard Removal Tool	15X241504
DO Refilling electrolyte , 60 mL	01X211226

Oakton Instruments

Product Description	Oakton Instruments Order Code
Galvanic Dissolved Oxygen probe with ATC with 10-ft cable	35640-50
Galvanic Dissolved Oxygen probe with ATC 25-ft cable	35640-52
Galvanic Dissolved Oxygen probe with ATC 50-ft cable	35640-54
Galvanic Dissolved Oxygen probe with ATC 100-ft cable	35640-56
Replacement batteries, AA. Pack of 4	09376-01
Replacement DO membranes, Pack of 5.	35640-74
Replacement DO membranes, Pack of 25.	35640-75
Replacement membrane kit; two membrane caps and one bottle of electrolyte solution	35640-80
Assembled Membrane Cap Housing	35640-72
Membrane removal tool	35640-79
Zero oxygen solution, 500 mL	00653-00
DO Refilling electrolyte , 500 mL	35640-71
Electrolyte DO powder (58.5 g)	35640-70

6.2 Optional Accessories

Eutech Instruments

Product Description	Eutech Instruments Order Code
Waterproof CyberScan DO 600 Dissolved Oxygen Meter with 3m cable galvanic probe, DAS software, power adapter & carrying kit set	ECDOWP60041K
Waterproof CyberScan DO 600 Dissolved Oxygen Meter with 7.5m cable galvanic probe, DAS software, power adapter & carrying kit set	ECDOWP60042K

Rubber Boot for 600 series meters	ECRUBBERBT600
100-220 VAC Power Adapter	01X030132

Oakton Instruments

Product Description	Oakton Instruments Order Code
Waterproof DO 600 Dissolved Oxygen Meter with 10-ft cable galvanic probe, DAS software, power adapter & carrying kit set	35441-00
Waterproof DO 600 Dissolved Oxygen Meter (Unit only) with DAS software	35441-02
Waterproof DO 600 Dissolved Oxygen Meter with 25-ft cable galvanic probe, DAS software, power adapter & carrying kit set	35441-02 + 35640-52
Rubber Boot for 600 series meters	35418-86
100-220VAC Power Adapter	35418-83
Carrying Case with 4 sets of empty 60 ml bottle	35632-99

7. General Information

7.1 Warranty

Eutech Instruments/ Oakton Instruments warrant this product to be free from significant deviations in material and workmanship for a period of three years from the date of purchase. If repair is necessary and not the result of abuse or misuse within the warranty period, please return by freight pre-paid and amendment will be made without any charge. Eutech Instruments/ Oakton Instruments Customer Service Dept. will determine if the product problem is due to deviations or customer abuse. Out-of-warranty products will be repaired on an exchange basis at cost.

Exclusions

The warranty on your instrument 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

7.2 Return of Goods

Before returning goods for any reason whatsoever, the Customer Service Dept. has to be informed in advance. Items must be carefully packed to prevent damage during shipment, and insured against possible damage or loss. Eutech Instruments/ Oakton Instruments will not be responsible for any damage resulting from careless or insufficient packing.

Warning: Shipping damage as a result of inadequate packaging is the user's/distributor's responsibility. Please follow the guidelines below before shipment.

7.3 Guidelines for Returning Unit for Repair

Use the original packaging material if possible when shipping the unit for repair. Otherwise wrap it with bubble pack and use a corrugated box for additional protection. Include a brief description of any faults suspected for the convenience of Customer Service Dept., if possible.

For more information on Eutech Instruments'/ Oakton Instruments' products, contact your nearest distributor or visit our website listed below:

Oakton Instruments P.O Box 5136, Vernon Hills, IL 60061, USA Tel: (1) 888-462-5866 Fax: (1) 847-247-2984 E-mail: info@4oakton.com Web-site: www.4oakton.com	Eutech Instruments Pte Ltd. Blk 55, Ayer Rajah Crescent, #04-16/24 Singapore 139949 Tel: (65) 6778 6876 Fax: (65) 6773 0836 E-mail: marketing@eutechinst.com Web-site: www.eutechinst.com	Distributed by:
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