ΩΞ OMEGA®

User's Guide

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HOLD

MODE **PWR** MAX/MIN

SET UNIT

BKLT

HHAQ-104
OXYGEN
MONITOR/LOGGER

ΩΞ OMEGA®

O₂
20.9
26.5℃
Hold

HHAQ-104
Oxygen Monitor/Logger

ΩΞ OMEGA®

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USB portable O2, Temp. RH datalogger with remote probe built-in fan HHAQ-104

Thank you for purchasing USB portable O2, Temp. RH datalogger with remote probe built-in fan HHAQ-104. , the meter features remote probe and detachable soft in/out tube for reach air-duct or where not suitable to put probe inside simply , easily operate with one hand hold the meter, the other hand place or hold probe. HHAQ-104 may link to PC via USB interface (Cable) off line, logging the reading with user-friendly free software.

FEATURES:

✓ The most effective and smart, easy and simple to use for indoor air quality meter in the market.

✓ Portable Oxygen, Temp. RH meter and datalogger with remote probe and soft tube to extend the detection area where hard to reach.

✓ Meter may store up to 32,004 points memory.

✓ Simultaneously display Temperature/ Relative humidity and Oxygen.

✓ Triple display, easy to understand and read.

✓ Measure up to 30.0% O2 concentration with high resolution 0.1%.

✓ Built-in electric fan to quick draw gases (O2) from ambient

✓ Supplied with 30cm soft tube (Detachable), may place in certain chamber or extend to air duct or other application.

✓ Built-in LEDs on probe, understand the fan is activating (Green LED is light).

✓ Tripod mountable receptacle is designed for long time datalogging purpose.

✓ Calculate dew point and wet bulb temperature in seconds.

✓ Application: Any oxygen incubators, food storage or refrigeration and testing chambers.

SPECIFICATION

Parameter	O2, Temp., RH%
Memory capacity	32,004 Auto logging memory
Temperature range	-10.0~60.0°C (14.0~140.0°F)
Temperature accuracy	±0.6°C /±0.9°F
Relative humidity range	0.1~99.9%RH
Relative humidity accuracy	+ 3%RH(at 25°C , 10~90% RH), others +5%
O2 measure range	5.0~30.0%
O2 accuracy	+/- 1% FS [full scale]
Mini electric fan	25-35dB,10K-16KRPM
Meter size	162 (H) x 57 (W) x 32 (T) mm
Probe size	145(H) x 33 (W) x 33 (T) mm, PU cable 657mm±20mm
Length: Cable & Tube	Approx. 1Meter coil cable & 30cm soft tube
Power	AAA batteries x 6 pcs or AC/DC adaptor

!! ATTENTION!!

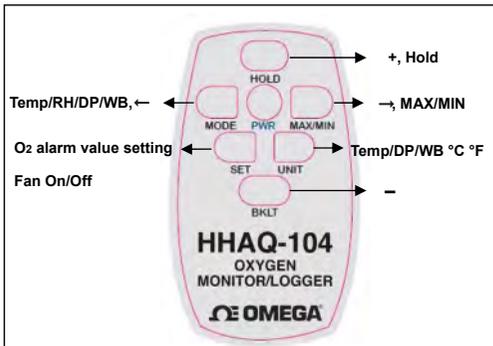**Do not attempt to open the meter or sensor probe, or the warrant is expired.**

In normal measurement mode, turn on the meter, fan activates immediately around every 3 seconds, for first time use, it takes couple minutes to warm up, display shows 00000 means the meter is under warming up status, when warm up finished, display will show current O2 value automatically.

SUPPLIED:

1. Meter with remote sensor probe and cable
2. Batteries AAA x 6 pcs
3. USB cable (Data transmission)
4. Clear tube 30cm length
5. CD with software
6. Plain box
7. Operation manual
8. Black shoulder carrying pouch

BUTTON DESCRIPTION

+, Hold

HOLD

Temp/RH/DP/WB,←   →, MAX/MIN

MODE   PWR   MAX/MIN

O2 alarm value setting   Temp/DP/WB °C °F

SET   UNIT

Fan On/Off

BKLT   –

HHAQ-104
OXYGEN
MONITOR/LOGGER

ΩE OMEGA

Remote sensor probe with cable,
LEDs Built-in O2, Temperature,
Humidity, sensors and electric fan.

HOLD: Freeze current readings (**Hold** shows at button of LCD); increase value (Adjust calibration value, O2 alarm threshold value).

MODE: Toggle shows **DP** (Dew point)→**WB** (Wet Bulb) temperature; move to left digit (O2 alarm setting mode). Long press button for 6 seconds to entering calibration mode.

PWR: Power on (Press in one second) or power off (Press more than 2 seconds). When meter is off, press **HOLD+PWR** to disable **Auto Power Off** function, LCD will show "n" icon.
Short press **PWR** button to turn on/off alarm with ◀ icon.

MAX/MIN: Cycle viewing Maximum .Minimum of O2 readings; move to right digit (O2 alarm setting mode).
Long press to clear Max/Min readings from powered on.

SET: Long press button more than 2 seconds to enter O2 alarm threshold setting, long press again to save. (**SAVE** shows button of LCD a few seconds).
Short press button, the display will show **"fnOF"** to turn off electric fan; Short press again, the display show **"fnOn"** to turn on electric fan.

UNIT: Change units °C or °F of temperature, DP and WB.

BKLT: Adjust / decrease alarm setting value of O2 threshold under alarm setting.

Warning: Remove batteries when not use to prevent battery leakage (Out of warranty) and power consumption.

OPERATION:
1. **For each operation, make sure you are using fresh batteries, same brand, same power of batteries is required, and otherwise meter shows erratic readings or leakage. Warranty is void if not follow the notices. (Note：remove batteries when not use！)**
2. You may use an optional AC/DC adaptor to operate supply power to operate the meter.
3. **Make sure sensor probe and meter are well connected,** meter shows "00000" (O_2 sensor is warming up) on each display.
4. **Don't attempt to detach sensor probe from meter while in operation or during datalogging.** Meter shows erratic readings and might damage sensor or working fan.

PROBE LED INDICATION:

Color	Description
🟢	Cable connected to meter and meter is powered on.
🔴	Fan is in working conditon. When the fan is inactivated, red light is always on. When the fan is activated, red light is flashing.

POWER:
**NOTE:** Make sure you have connected the probe to the meter before power on.
Momentarily press **PWR** button to turn on the meter, press and hold **PWR** button to turn off meter.
There are two ways to provide power: (a) AAA batteries x 6pcs, or (b) AC/DC adaptor 9V.
(a) Battery icon shows up when power is weak, replace with new batteries immediately as the readings now on LCD are incorrect due to weak power.
(b) For short time measurement, you may power on by batteries. For datalogging or long time using, you must connect with an AC/DC adaptor.

AUTO POWER OFF:
Meter will turn off automatically in 15 minutes when no use, to disable **Auto Power Off** function by press **HOLD** and **PWR** button when meter is OFF, LCD shows "**n**", then turns to normal measurement mode. When the power is weak, **battery icon** displays on screen and O_2 reading might not correct, strongly recommend replacing with new batteries, **DO NOT** try to use used batteries to operate.
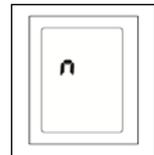
MEASUREMENT:
Press **PWR** button, meter shows full screen (icons) in one second, and after warming up for few minutes, meter goes to normal measurement mode, green LED turns on and electric fan in probe is working, now you get current O_2, Temperature and RH% readings.

The electric fan is always on to make sure meter is in measurement status until you turn off the meter. If you think ambient is stable enough or you don't operation in few minutes, you may turn off the fan by short pressing **SET** button.

MAX/MIN: Press the button to review maximum or minimum readings since powered on. To clear maximum and minimum readings, long press **MAX/MIN** button, "**Clr**" shows at the button of LCD. Once temperature, humidity or concentration of gas exceeds current min or max values, readings will be updated.

UNIT: Press button to switch units °C or °F of Temp., DP and WB.

TEMPERATURE & HUMIDITY: Press **MODE** button momentarily to toggle Temperature, Humidity, Dew Point (DP), Wet Bulb (WB) temperature.

O2 ALARM SETTING (Low alarm):

Long press **SET** button more than 2 seconds to enter O_2 alarm setting mode. The default of O_2 is 15.0%, the setting range of O_2 is from 5.0% to 30.0%. Press **SET** again to save the changes.

HOLD: increase value ↑

BKLT: decrease value ↓

MODE: move to left digit ←

MAX/MIN: move to right digit →

►When meter enter setting mode, the **electric fan** will **turn off** automatically, when you leave setting mode, the electric fan will turn on automatically again.

SELF-CALIBRATION O2:

Power on the meter, long press **MODE** buttons for 6 seconds to enter calibration mode, the first layer of LCD shows "21.0", which means O_2 should be calibrated to 21.0%; the second layer of LCD shows "17.0", which means current input (**Do not adjust current value, or it will be inaccurate**); **"CAL"** is flashing and shows at the bottom of the screen around 30 seconds, when calibration finished, it will show **"End"** to let user know the calibration has done.

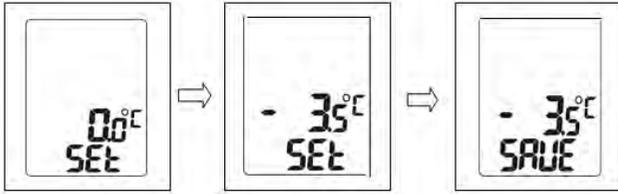**NOTE: Oxygen makes up 21.0% of the air; user can do calibration under normal environment.**

Temperature, Humidity Offset:

The meter is designed with precision and free maintenance capacitor humidity sensor and thermistor temperature sensor. For long time usage, or special accurate purpose, user may do the offset function to adjust Temperature and Humidity per standard value.
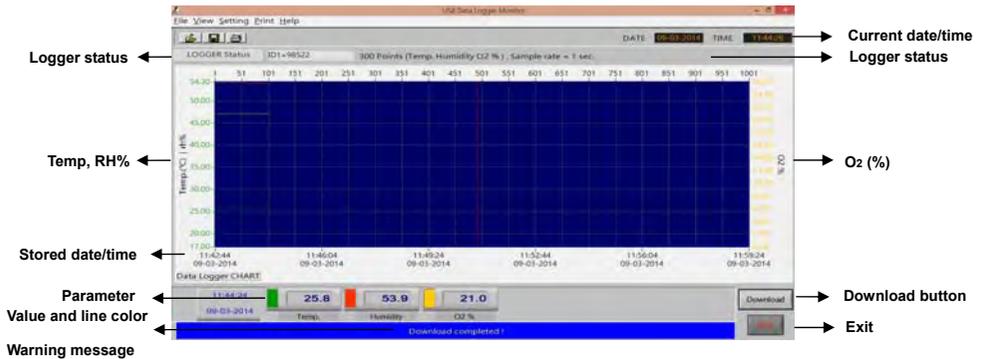
►**WARNING: DO NOT USE THIS FUNCTION WITHOUT STANDARD INSTRUMENT.**

NOTE: Under power off condition. press and hold **MODE+BKLT** buttons by left fingers, press and hold **MAX+PWR** button by right fingers, LCD shows 0.0C and SET, now release all fingers, to add the value by pressing **HOLD** button, to reduce value by pressing **BKLT** button. If you want to escape temperature adjustment to RH%, short press **SET** button, and follow the same steps. Long press **SET** button to save the adjustment value, LCD shows SAVE in 2 seconds, then power off the meter, the offset function is completed and values are adjusted.

NOTE: Only ±9.9C, ±9.9F, ±9.9% are available to be adjusted. Long press **HOLD** or **BKLT** button may quick to increase or decrease values.

## DATALOGGER PC SOFTWARE SCREEN

Labels around the software screen:
- Current date/time
- Logger status (right)
- Logger status (left)
- Temp, RH%
- O₂ (%) — O_2 (%)
- Stored date/time
- Parameter
- Value and line color
- Warning message
- Download button
- Exit

LOGGER INTRODUCTION:

DATALOGGER FEATURES:

✓ The meter features stand alone (off-line) datalogger function, may store up to 32,004 points data in meter, then download to PC for further analysis.

✓ There are 5 starts to record modes: (Unique) a.Immediately (Once **OK** button is pressed, meter starts to record). b.Real-time (Meter may connect with PC for on line datalogging to see current air quality real time). c. Key start (Long press **BKLT** button to start recording). d.Rollover (Data stored the latest 32,004 points data). e.Schedule (Set time and date to start).

✓ While doing datalogging function, if meter is off (Out of power or fan is stopped), the stored data is still exist.

✓ While doing datalogging, the "Recording bar" on meter LCD is flashing, see below: (If stored data is not cleared from meter, the recording bar shows at the left corner in screen.)

Recording   More bars, more data   Complete total memory
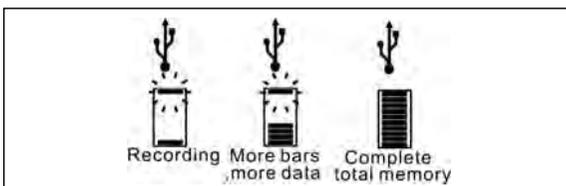
- ✓ There are up to 32,004 points memory capacity, you may select from 1,000 points up to 32,004 points from pc software, the total 10 recording status bars are divided by total memory points, you may see the recording status from bars on LCD.
- ✓ Great feature: If you select Rollover or Key start mode to record data, you don't have to reset up each parameter or setting from PC after downloading, i.e. After download stored data to PC, meter may long press **BKLT** button to repeat recording immediately.

KEYSTART (Logging purposes):

Long press **BKLT** button to activate datalogging (Make sure you set KEY START as record mode in software).

SOFTWARE INTRODUCTION:

INTRODUCTION DATALOGGER SOFTWARE:

USB driver installation

A.   Install logger driver before install software on Window system

The **PL2303_Prolific_DriverInstaller_v110.exe** driver is for Windows operation system, follow the installation steps hereunder:

- a) Step 1. Put the CD into CD driver, click "PL2303_Prolific_DriverInstaller_v110.exe'' for driver installation.
- b) The set up status.
- c) Click **"NEXT"** to continue.
- d) After complete the installation, press **"Finished".**

B.   Install the logger software for Windows XP or above (For 1st time installation the software), reinstall the software, please remove the old version first.

Follow below steps to install software:

- a) After install USB driver, find "**Setup.exe"** to start installation.
- b) Select the destination folder you want to save by click **"Browse"** button.
- c) Once you finish the selection, press **"Next".**
- d) Select **"I accept the License Agreement(s)"**, press **NEXT** button.
- e) Click **"Next"** button.
- f) Press **Finish** button to complete the installation.
    Restart the Windows XP system.
- **C.**   Run the software from Windows XP or above
- a) Plug the USB cable into USB port, since you have already installed the USB driver, computer will automatically detect logger.
- b) Find **"Datalogger"** in START→ PROGRAMS
- c) Select logger software folder

Reminder:

Software is installed completed. "Get DataLog's Identifier" shows as below, then press **SETTING** button to enter Logger setting from the tool bar.


If logger is not plugged in USB port, the warning message "Reminder: Data Logger is not plugged in USB port!" shows as below. Replug the USB to PC, and restart the software, if the warning message shows again, follow NOTE1 below to find the correct COM port.

NOTE 1:

If software message box show as above, follow the steps below:

a) Click "My computer" "Content" in hardware content, click "Device manager" to find the listed (COMx) under ports (COM % LPT as below. If you may find "Prolific USB- to-Seriral Comm port, it means the logger is connected to computer properly.
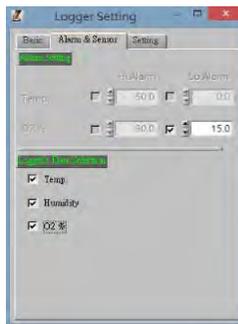

連接埠 (COM 和 LPT)
Prolific USB-to-Serial Comm Port (COM6)
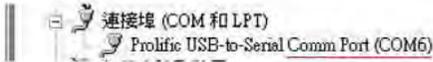
b) Remember the Comm port number and go back to software
c) Click "Setting" "Comm port" select the port number as you see from step1, then press OK button.

Logger Setting:
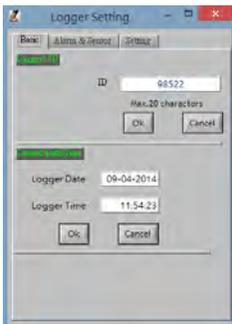
| Pic1 | Pic 2 | Pic 3 |

BASIC(Pic 1):

1: ID setting

Maximum 20 characters, name your logger press OK button to confirm

▶ Please type in capital. Space is unacceptable.

2: Current Date/Time

Clock setting, the system automatically shows current date and time of your pc. Press OK to confirm.

(Note: Schedule date & time refer to current PC date and time)

▶ Please click OK to sync the meter's date and time every time.

ALARM & SENSOR (Pic 2):

1. Please set O_2 low alarm manually.(check it to sync to meter)

2. The parameter sensors are default.

SETTING (Pic 3) :

1. Set sample point (K=1,000 multiple basis within total memory points).

2. Set sample rate, start mode to record:
    Select "hour (1~6), "minute (0~59)", "second (0~59)" time interval.
    Select 5 start modes from:

● Immediately
● Schedule
● Real-time (PC is always connected with the logger)
● Key start/off (Start/stop recording by long pressing **BKLT** button)
● Roll-over (when memory are full, logger covers the earliest memory automatically)

3. Select Unit : Select Temperature unit °C/°F for recording, press OK to confirm

LOGGER STATUS

Before download data, press LOGGER status to show ID, Records, Sample rate, Unit.

**NOTE:** Once Download button is pressed, meter won't keep recording.
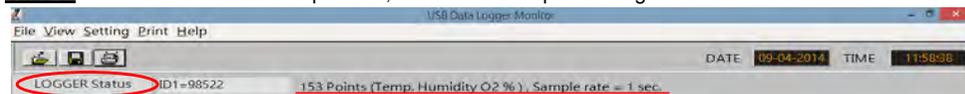
● **Schedule start mode:**
    Select the date and time meter will start recording. The recording start time is software's current time not meters'. Please set up the current time correctly. (Follow the format in software: D-M-Y, H: M: S)

● **Real-time start mode:**
    After set start mode at real-time, datalogger starts login records. While recording, the green fan at left corner is flashing. (Meter should be connected with pc all the time, under this mode.) In real-time mode, it shows "**STOP**" button instead of "**DOWNLOAD**" at the right corner. Press **STOP** to stop real-time recording.
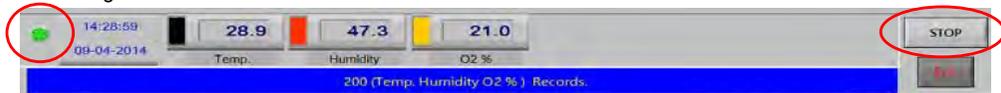
▶ Before exit software, data has to be downloaded, otherwise, data will be cleaned.

● **Key-start/off mode:**

Select the mode to record once long press **BKLT** button, long press **BKLT** button again to stop recording. Data has to be downloaded before next key-start.

NOTE: After key off the recording, the data has to download before next recording start.

● **Roll-over mode:**

After Roll-over mode is selected. Press OK, the meter will start to record. When the data is full, it will cover

the earliest memory.

NOTE: Under Key start and Roll-over mode, after downloaded previous data, long press BKLT meter starts recording with same setting.

LOGGER FUNCTION

DOWLOAD DATA:
Press DOWNLOAD button, data download in few seconds, Graph shows automatically, message area shows the downloading points.

NOTE: Please do not press **DOWNLOAD** button if you won't stop record. You can press **LOGGER STATUS** button to see record points.

RETRIEVE FILE:
Press RETRIEVE FILE button to select file and show the graph on screen.

SAVE FILE:
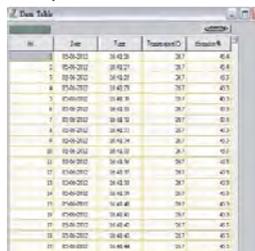Press SAVE button to save data as **csv.**file format.

VIEW DATA TABLE:
Press the button to get data table with detail (See right photo).

PRINT GRAPH:
Press PRINT button and print graph. Follow the print setting below to print full screen graph.
Press OK to print **PDF file.** (Pic 4).

Press table data, the screen shows the record range, enter the start number to the end number (For example: 1~500 or 200~1,000…or leave it blank for printing all data).
Save each pdf file with different name (Pic 5).

Pic 4

Pic 5

CLEAR DATA:
The data is stored in the memory till next setting start; meter will clean previous data automatically. So if you start next data logging, there is no way you can find the data you haven't stored.

ZOOM IN/OUT & MOVE

Hold [Ctrl] + Click [Mouse] = Screen graph zoom in

Hold [Ctrl] + Click [Mouse] = Screen graph zoom out

Hold [Ctrl] + [Shift] Click [Mouse] = Move screen graph

Press [◄] or [►] = Read each measurement .

NOTE:
If the graph size is over zoon in / out, click the color selection area below the graphic, screen may go back to default size.

LINE COLOR SELECTION
1. Choose the color beside the readings (Ex. O2, RH humidity), color box shows below the readings.
2. Move mouse to select color
3. Click to save, then chose color appears on line and bar.
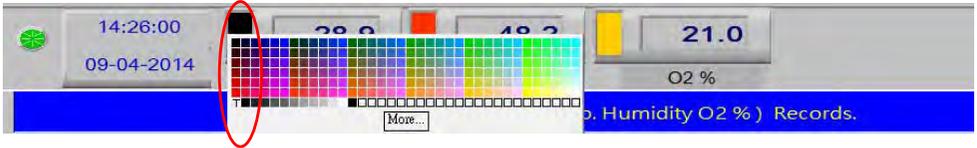
ERROR MESSAGE:

Q1: Erratic readings?

A1: Replace with new batteries (AAA x 6 pcs) or AC/DC adaptor and check again. Or sensor is damaged (Normally LED on probe turns red)

Q2: Readings are freeze?

A2: Make sure you are using **HOLD** function, otherwise, make sure the cable is well connected with probe.(In this condition, if you turn off the meter and turn on again, the readings are still there, recommend to remove batteries and reinstall batteries again)

Q3: E-02, E-1 shows on screen?

A3: Sensor probe is not plugged onto meter, the O2 will show E-02, and the layer of Temp. & RH% will show E-1 icon. Please check if probe have been connected to meter when display show error codes.

ERROR CODE:
Er1: Sensor damage or failed.
Er2: Measurement out of range.

WARRANTY
This instrument is warranted for two years from the date of purchase (One year limited warranty applies to cables). A Return Authorization letter must be issued before returning for any reason. This warranty does not apply to defects resulting from action of the user such as misuse, abuse, alteration neglect, improper wiring, improper maintenance or repair, or unauthorized modification, damage resulting from leaking batteries, operation outside of specification.

During the warranty period the manufacturer reserved the right to decide either to repair or replace the product. The meters are to be returned along with good packing to prevent any damage in shipment and insured against possible damage or loss.

The two years' warranty doesn't apply to:
- Accessories and batteries (not covered by warranty).
- Claims are not acceptable for improper use (including adaptation to particular applications not foreseen in the instructions manual) or improper combination with incompatible accessories or equipment or by previous attempts for repair carried out by none skilled or unauthorized personnel.
- Sensor damaged by user improper use (Watering, Burning, Condensation....)

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/ DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence. The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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- Flexible Heaters
- Laboratory Heaters

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- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- Industrial Water & Wastewater Treatment
- pH, Conductivity & Dissolved Oxygen Instruments