

# INSTRUCTION MANUAL

## Handy Polaris



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## General

The **OxyGuard Handy Polaris** is a hand-held battery powered dissolved oxygen (DO) meter. It measures mg/l (ppm), % saturation, temperature, has salinity compensation and automatic compensation for temperature and barometric pressure. The probe is fully field serviceable. The instrument can withstand wet conditions and being dropped in the water!

The Polaris is very easy to use. The arrow buttons allow you to move round in the actual display, the "OK" button moves to the next level and the "ESC" button moves back. **To turn the Polaris on or off hold the on/off button depressed for 3 seconds**. The instrument will turn off automatically if no button is pressed for the auto shutdown time.

Use the arrow buttons to select which parameter is shown in large figures. If the Polaris shows a setup display and you want to measure, press "Esc" one or more times to make it show the measurement display.

If an error condition occurs then "Error", "Warning" or "Calibrate" will blink in the display. The Polaris will show more information in the status list window. See Status List.

To measure DO, turn the Polaris on and immerse the probe in the water. If there is no flow past it move the probe slowly – 5–10 cm/sec is enough. When you are finished using the Handy rinse the probe in clean water. Wipe the meter dry if it is wet.

To calibrate, or check the calibration, make sure the probe has the same temperature as the air.

Store the Handy in its pouch at a stable temperature overnight and check the reading in the morning.

In water the probe adjusts to change in temperature in a minute or two, but in air it can take an hour.

## Setup

From measurement press "OK" to reach the setup menu (if necessary press "Esc" repeatedly as needed to reach measurement). The setup menu contains the following:

### Calibrate

To calibrate, or check the calibration, make sure the probe has the same temperature as the air.

The meter should show between 100 & 101% sat with the probe in air (the temperature must be steady). Variations from 100.5 can be due to changes in humidity or changes in the actual oxygen concentration of the air. If calibration seems to be needed wipe the membrane carefully and check again. To calibrate select **Calibrate** and press "OK". Progress is shown on the display, which will also tell you if anything is wrong. When "Calibration done" is shown press "OK".

If changing temperature or similar prevent correct calibration you can "force" calibration by holding "OK" depressed when "Calibrate - Please wait" is shown. The result will not necessarily be precise – "Calibrate" will blink in the display when making measurements. Re-calibrate under more stable conditions when possible.

### Set salinity

Use this function to set the salinity of the water you measure in. Set the tens figure first using the arrow buttons. Press "OK" to go to units – set this figure and press "OK" again. "New salinity" and the new setting appears in the display. Press "OK" to confirm and then "Esc" to measure.

NB to go from units to tens press "Esc".

### User interface

This permits the following to be set: **Language, Temperature units, Oxygen units, Auto shutdown time, Light intensity** (backlight)

NB ">" <" indicates the current setting.

## **Language**

Select **Language** and press "OK" to see which languages are found on your instrument.

Select the desired language and press "OK" to change the language, or press "Esc" to exit.

## **Temperature units**

You can choose between Celsius – °C – or Fahrenheit – °F. Use the arrow buttons, "OK" and "Esc" as with the other parameter.

## **Oxygen units**

You can choose between mg/l and PPM

## **Auto shutdown**

The meter shuts down if no buttons are pressed after 2, 5, 10, 15 or 30 minutes as set. The factory default is 5 minutes. A long setting gives shorter expected battery life. If "Off" is chosen the Polaris **MUST** be switched off using the on/off button.

## **Light intensity (display backlight)**

You can choose "Low" (default value), "Medium" or "High". Frequent use of high level backlight will reduce the battery lifetime significantly.

## **Information**

This shows the firmware version and the serial numbers for the probe and instrument.

## **Status list**

This menu only appears if an error condition exists. Selecting this and pressing "OK" will display a list of error conditions. For more information and help select the desired item and press "OK". Press "Esc" several times to return to the measurement display.

## Maintenance

A message in the display will inform you when probe renovation is needed, otherwise just calibrate, and keep the probe clean.

### Battery Exchange

Use the tool to unscrew the rear plate. The battery can then easily be exchanged. Take care not to disturb the ribbon cables. **PLACE THE BATTERY IN THE CUT-OUT IN THE PC BOARD - do NOT put it on top of the print.** Make sure you tighten the rear plate properly!



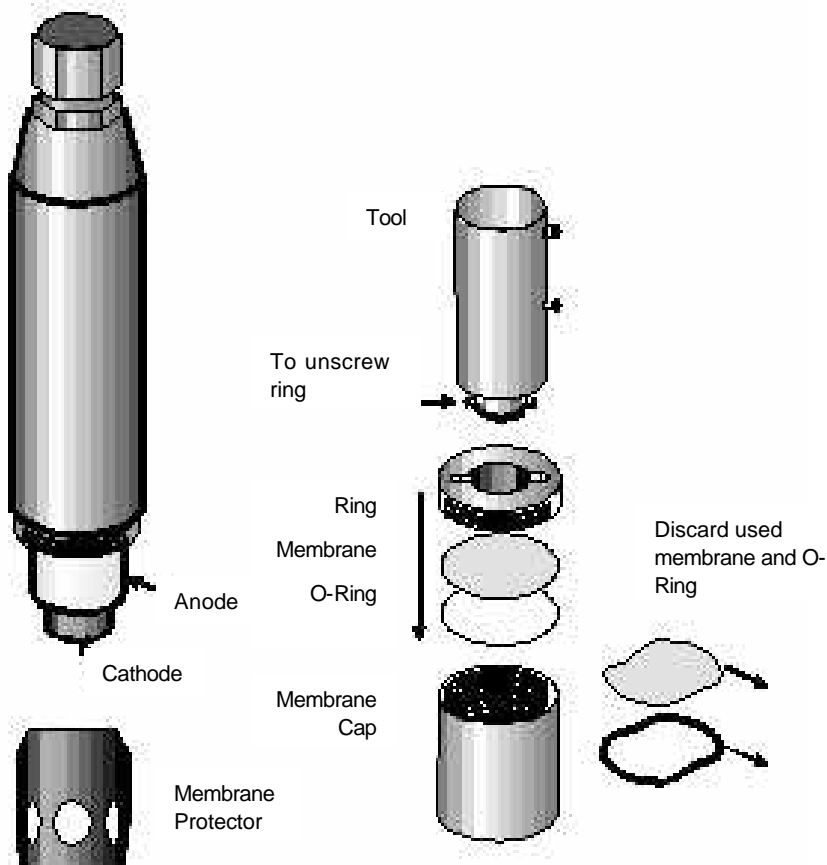
### Probe Renovation

Do NOT do this unless a message in the display tells you so. See the drawings. NB. treat the electrolyte as concentrated salt water.

Clean the probe. Pull off the membrane protector and unscrew the cap. Rinse the probe. Clean off any loose white deposits from the anode with the brown plastic scouring pad provided. Clean the cathode with the pad if needed. The cathode **MUST NOT BE POLISHED.**

Unscrew the ring from the cap and discard the used membrane and O-ring. Clean the cap and ring and dry thoroughly. Place a new O-ring in the cap, then a membrane over the O-ring. Screw the ring in place. Tighten fairly tightly, but the membrane must not wrinkle. If this happens try again with a new membrane and O-ring. An O-ring can only be used once.

Fill the cap with type 1 electrolyte and screw it slowly onto the probe. Excess electrolyte will dribble from the thread. Calibrate the probe. Re-calibrate after a few hours, since the probe will take a little time to settle down after renovation.





## **Technical Specification**

Operating Conditions:	Probe: -5 to +45°C, meter -20 to +60°C. Waterproof to max. 5m depth short-term.
Measuring Range:	0-60.0 ppm (mg/l) and 0-600% sat.
Range, temperature:	-5 to +45°C.
Salinity Compensation:	0-59 ppt salinity (manually set).
Accuracy:	Typically better than +/- 1% of measured value +/- 1 digit.
Repeatability:	Typically better than +/- 0.5% of value.
Response Time:	to 90% in less than 20 sec in water.
Accuracy, Temperature:	+/- 0.2°C.
Self-check of:	Probe, meter, cable, battery.
Useful battery life:	Approx. 2 years with 1 hour's use per day 5 months with 8 hours use per day.
Battery:	9V E-BLOCK, 6LR61, 6F22, MN1604

## **Technical Support**

Technical Support is available by phone, fax, or email, the details of which are shown below. Our website also features a technical support page that includes a support FAQ (Frequently Asked Questions).

Phone: +44 (0) 1726 879800  
Fax: +44 (0) 1726 879801  
Email: info@partech.co.uk  
Website: www.partech.co.uk

To enable us to provide quick and accurate technical support please have the following information ready when you contact our Customer Support Team:

- Monitor type, serial number, and software version number
- Sensor type, and serial number
- Application details and description of fault

## **Returning Instruments for Repair**

If equipment needs to be returned to Partech for repair or service the following address should be used:

**SERVICE DEPT.  
PARTECH (ELECTRONICS) LTD  
CHARLESTOWN  
ST AUSTELL  
CORNWALL  
PL25 3NN  
UNITED KINGDOM**

Please include the following information with the returned equipment. Also ensure that sensors are adequately protected for transportation (Advice on packing can be provided by our service department).

- Contact name and phone number
- Return address for equipment
- Description of fault or service required
- Any special safety precautions because of nature of application.