Анализатор кислорода O2 EII

Руководство по эксплуатации

По вопросам продаж и поддержки обращайтесь:

Алматы (727)345-47-04
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эл.почта: axq@nt-rt.ru || сайт: https://analox.nt-rt.ru/

CONTENTS

1.0 Packaging and Contents Check

On opening your Analox **O₂** EII®, please check you have the following items.

a) **O₂** EII®
b) EII Adaptor
c) User manual
d) Any accessories ordered for your **O₂** EII®, from:
   - Storage Case
   - Sensor Saver

Analox O₂ EII®

2.0 About the O2 EII®

The **O2 EII®** Oxygen Analyser is designed to measure Oxygen levels in the range 0.1-100% O_2 for tank oxygen level verification.

The **O2 EII®** is ergonomically designed, and equipped with several features to ensure ease of use, and reliability. The instrument has been designed to be held in the left hand to enable ease of use when checking your tank. It is fitted with a large digital display and operates from an internal temperature compensated electrochemical oxygen sensor. Power is provided by a 9V battery which will last for approximately 1 year before replacement is necessary. The **O2 EII®** will automatically switch off after 10 minutes to ensure battery life is not compromised if the instrument is accidentally turned on.

The **O2 EII®** is water and drop resistant. Designed specifically for the diving industry – whether you may be a Sport (NITROX), Commercial or Military diver- where hostile environmental conditions are the norm not the exception.

Your **O2 EII®** is supplied ready to use, all you need to do is push in the **EII** adapter.

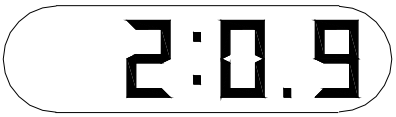
3.0 Operation

3.1 Controls

The analyser is fitted with an 'On' button located on the side of the unit, when held in your left hand the button should sit comfortably under your thumb. To turn the unit on press the button once, the unit will automatically turn off 10 minutes after the button has been pressed, as a result if the **O_2 EII®** is accidentally turned on your battery will not be drained of power. When it is switched on the analyser's display will show an oxygen reading **do not use the O_2 EII® before calibration** (see Section 3.2).

Switch on

The 'On' button also acts as a hold button, to freeze the reading on the display press the 'on' button once. A '**:**' symbol will appear to show the instrument is holding the reading. To cancel the hold press the 'on' button once, the '**:**' symbol will disappear and the instrument will monitor ambient O_2.



Reading held

Reading released
monitoring ambient O_2

The low battery warning is a shown by 'L' on the display. When present, change the battery before using the instrument (see Section 5.0, After Sales Service).

'L' low battery symbol

A waterproof calibration knob is located on the front. Turn it fully from left to right and then fully left, the reading should increase and then decrease. (If the reading does not change see Section 4.0, Quick Check).

WARNING
Do NOT use when
the LOW BATTERY symbol is on!

3.2 Air Calibration

WARNING

The analyser is sensitive to oxygen partial pressure. Calibration must always be carried out at the same atmospheric pressure as oxygen measurement.

Air calibration is essential before every use and is performed as follows.

1. Ensure that the sensor saver is not in place and that the EII adapter is fitted. The adapter simply pushes into the sensor aperture.

2. Expose the analyser to clean air for two minutes and adjust the calibration knob until the display reads the correct value using the oxygen compensation chart (you can find this chart on the inside of the back cover). If this is not possible refer to the note below or to Sections 4.0, Quick Check and 5.0, After Sales Service.

Calibration
in clean air

The analyser is now ready for oxygen measurement.

Note: at very high altitude, it is possible that normal calibration is not achievable. For users who intend to use the analyser at altitude, please refer to our web site for additional technical information.

3.3 Checking your Tank

The Analox **O2 EII®** comes complete with a unique sampling dome which allows you to directly apply the analyser to the outlet on your nitrox tank.

1. Ensure the sensor saver is removed. Push the sampling dome into the sensor aperture.

2. Ensure the Analox **O2 EII®** has been calibrated as per the instructions in Section 3.2.

3. Very slowly open the pillar valve with your right hand until gas can just be heard quietly hissing out.

Open the tank until the Nitrox is heard gently hissing out

4. Once the pillar valve has been opened and the nitrox is heard gently hissing, hold the **O2 EII®** in your left hand and press the sampling dome firmly against the tank outlet.

Take a direct reading from your tank

WARNING
Open tank valve EXTREMELY CAREFULLY
Before the O2 EII® is applied

5. Close the pillar valve after fifteen seconds when a stable reading is observed on the **O2 EII®**.

6. If in doubt repeat the procedure taking care to ensure a very low gas flow.

7. For ease of use when sampling several tanks, the **O_2 EII®** is fitted with a hold feature. Once a stable reading has been observed, press the on button to hold this reading. The **O_2 EII®** can then be moved away from the tank to enable you to record the O_2 reading. To cancel the reading press the on button once.

Reading held

8. It is important to note that after a few seconds of the gas flow being stopped the reading will begin to change towards the level in the surrounding air of 20.9% O_2 you should therefore take the reading or press the hold button while flow is ON.

WARNING
Very high flows may pressurise the sensor and inaccurate readings or sensor damage will result.

3.4 Accessories

The **O₂ EII®** can be supplied with any of the following accessories;

Item	Description	Part Number
	Storage Case; compact water proof case ideal for protecting your **O₂ EII®**.	SA2EIIMINICASE
	Sensor Saver; push in cap to reduce the sensors exposure to oxygen and extend its life.	8000-6016A

4.0 Quick Check

SYMPTOM	CONDITION	ACTION
'L' symbol	Low battery	Change battery
No display	Switched off Bad connection	Switch on Check battery connection Return to supplier
Zero reading	Sensor disconnected Sensor expired No oxygen	Check connection Change sensor Check in air and ensure sensor saver is removed
Reading erratic	Pressure on sensor Radio transmission Sensor old or faulty Condensation on sensor	Check flow Move unit away Change sensor Dry sensor face
Reading does not change when calibration knob is turned	Reading held Sensor failure Faulty connections	Press on button to unfreeze Change sensor Return to supplier
Display segments missing	Display faulty	Return to supplier
Will not calibrate	Sensor faulty Sensor not in air High altitude	Change sensor Check EII adapter is fitted correctly Please refer to web site
Reading drifts	Rapid temperature change	Do not move analyser from one temperature to another immediately before use

5.0 After Sales Service

5.1 Battery Replacement

a) Loosen the 4 screws located on the front cover. The gasket seal is designed to prevent water leaking into the **O₂ EII®** as a result the seal may be tight. Loosen the seal by moving the lid from side to side, and then carefully lift the cover.

b) Slide the battery out of its holder and disconnect the lead.

c) Connect the lead to the new battery and slide the battery into its holder, under the battery clip

d) Replace the cover carefully taking care that the sensor locates properly, and that you do not trap any wires. Screw down until you feel the gasket tighten; do not over tighten the screws.

5.2 Sensor Replacement

a) Replacement part number for your sensor is: 9100-9220-9B

b) Loosen the 4 screws located on the front cover. The gasket seal is designed to prevent water leaking into the **O₂ EII®** as a result the seal may be tight. Loosen the seal by moving the lid from side to side, and then and carefully lift the cover.

c) Disconnect the connector from the back of the sensor.

d) Unscrew the sensor from the front cover.

e) Dispose of the old sensor according to local regulations for lead and potassium hydroxide solution.

f) Remove the new sensor from its pack and check it for leaks, check the sensor has a rubber o-ring fitted at the base of the thread on the front of the sensor. Screw the sensor into the front cover tightly and connect to the **EII** connector. An arrow on the back of the sensor shows where the connector should be fitted. Make sure the metal prongs on the connector are facing the sensor and push in firmly.

g) Replace the cover carefully taking care that the sensor locates properly and that you do not trap any wires. Screw down until you feel the gasket tighten; do not over tighten the screws.

h) Push on the **EII** adapter.

5.3 General Care

Although designed to be water resistant the **O₂ EII®** should not be intentionally immersed in liquid or left outside unprotected.

The **O₂ EII®** is built to resist the effects of day to day shocks and drops but remember it is a precision oxygen analyser and should be looked after carefully to give long trouble free service.

To clean the **O₂ EII®** use a damp soft cloth.

Protect the **O₂ EII®** from long periods of direct sunlight and do not subject it to high or low temperature extremes.

The sensor in the **O₂ EII®** is an electrochemical device and contains a caustic electrolyte. Always check to make sure that it is not leaking and do not allow it onto any part of your body or clothing. In the event that you do come into contact with the electrolyte wash the contaminated part with copious amounts of water -see Section 6.0, Safety Information.

Analox 9100-9220-9B type Oxygen Sensor

WARNING
If after handling the sensor your fingers or other parts of your body feel slippery or stings wash with a lot of water.

If stinging persists get medical attention!
Refer Section 6.0, Safety Information

5.4 Sensor Handling Information

O₂ EII® oxygen sensors are normally supplied in sealed packs. Before the pack is opened check that the sensor has not leaked. The sensors are themselves sealed and do not under normal circumstances present a health hazard however if leakage of the potassium hydroxide electrolyte has occurred use rubber gloves and wear chemical splash goggles to handle and clean up. Rinse contaminated surfaces with water. If anybody comes into contact with the electrolyte, please refer to Section 6.0, Safety Information.

6.0 Safety Information

When the life of the battery has expired it should be disposed of safely in accordance with local regulations.

When the life of the sensor has expired or it is leaking or otherwise damaged it must be disposed of safely in accordance with local regulations.

The sensor contains KOH potassium hydroxide solution which is hazardous. In the event of an accident, use the following first aid procedures

Body Part	Effect	First Aid Procedures
Skin	Contact could result in a chemical burn. Persons with pre-existing skin disorders may be more susceptible to the effects of the substance.	Immediately flush the skin thoroughly with water for at least 15 minutes. Remove contaminated clothing and wash before re-use. Obtain medical advice if continued irritation.
Ingestion	Corrosive. May cause sore throat, abdominal pain, nausea, and severe burns of the mouth, throat, and stomach, and may be fatal.	If swallowed DO NOT INDUCE VOMITING. Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical advice immediately
Eye	Persons with pre-existing eye problems may be more susceptible to the effects of the substance. Corrosive. May cause redness, pain, blurred vision, and eye burns. Contact can result in the permanent loss of sight.	Irrigate thoroughly with water for at least 15 minutes. Obtain medical advice immediately.
Inhalation	Persons with pre-existing impaired respiratory function may be more susceptible to the effects of the substance. Inhalation is not an expected hazard unless heated to high temperatures. Mist or vapour inhalation can cause irritation to the nose, throat, and upper respiratory tract.	Remove to fresh air. Rest and keep warm. Obtain medical advice if applicable.

7.0 Warranty Information

We provide the following warranties for the Analox **O_2 EII®**:

A 3 year electronics warranty.
A 3 year graded sensor warranty.

1 year	Free replacement
12 to 18 months	75% credit towards a replacement sensor
18 to 24 months	50% credit towards a replacement sensor
24 to 36 months	25% credit towards a replacement sensor

In both cases the warranty period runs from the date of our Invoice.

We warrant that the equipment will be free from defects in workmanship and materials.

The warranty does not extend to and we will not be liable for defects caused by the effects of normal wear and tear, erosion, corrosion, fire, explosion, misuse, use in any context or application for which the equipment is not designed or recommended, or unauthorised modification.

Following a valid Warranty claim in accordance with the above, the equipment, upon return to us, would be repaired or replaced without cost or charge but in our discretion we may elect instead to provide to you which ever is the lesser of the cost of replacement or a refund of net purchase price paid as per our Invoice on initial purchase from us. We shall have no liability for losses, damages, costs or delays whatsoever. We shall have no liability for any incidental or consequential losses or damages. All express or implied warranties as to satisfactory or merchantable quality, fitness for a particular or general purpose or otherwise are excluded and no such Warranties are made or provided, save as set out in this Clause 7.

In order to effectively notify a Warranty claim, the claim with all relevant information and documentation should be sent in writing to:

Analox Sensor Technology Limited
15 Ellerbeck Court
Stokesley Business Park
Stokesley
North Yorkshire
TS9 5PT

Or by e-mail to : info@analox.net
Or by fax to : +44 1642 713900

We reserve the right to require from you proof of dispatch to us of the notification of warranty claim by any of the above alternative means.

The equipment should not be sent to us without our prior written authority. All shipping and Insurance costs of returned equipment are to be born by you and at your risk. All returned items must be properly and sufficiently packed.

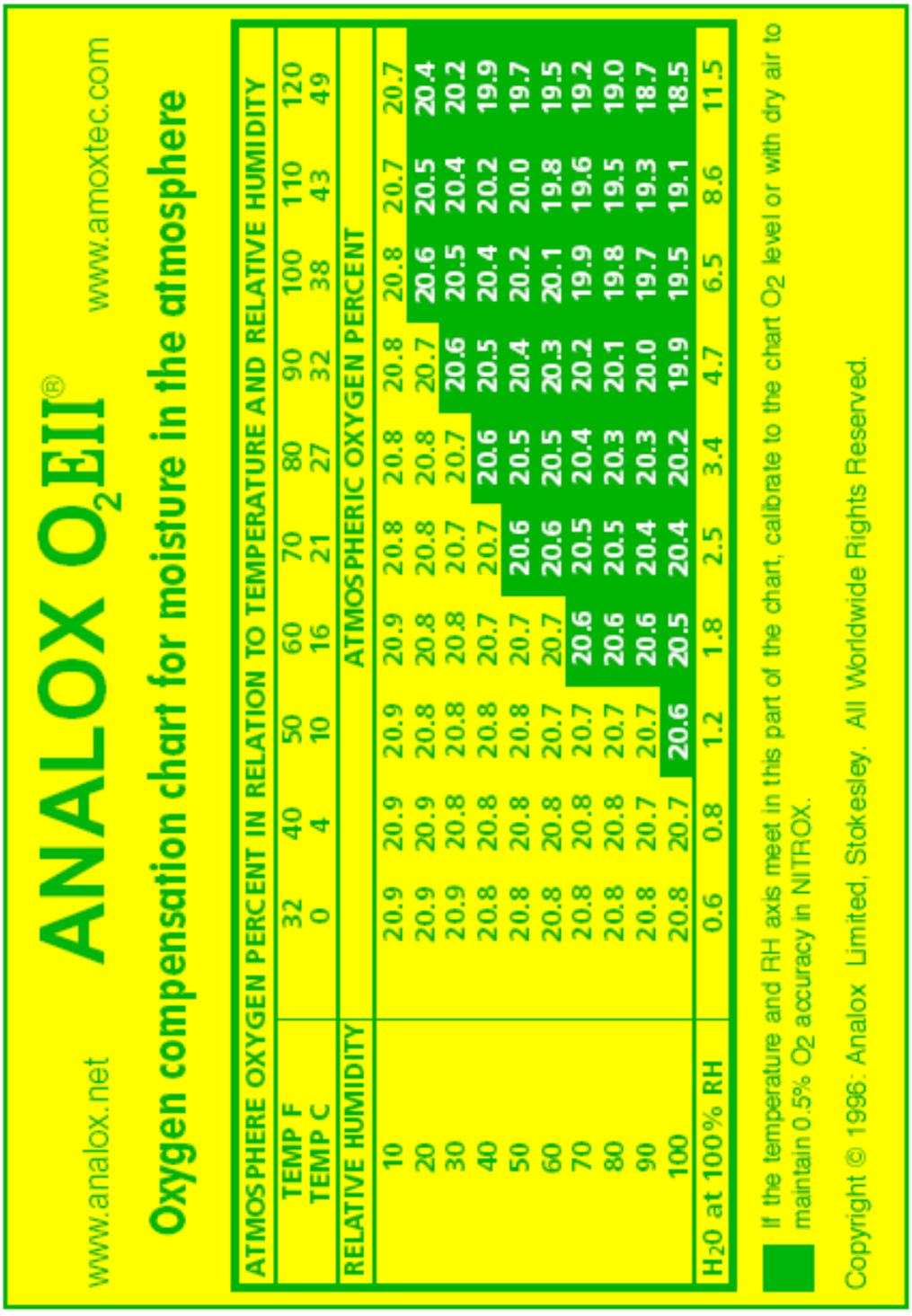
8.0 Specification

Range	0.1 to 100% O_2
Accuracy	+/-1% of reading, ± 0.2% of O_2
Resolution	0.1% Oxygen
Warm Up Time	< 5 seconds
Response Time	90% in less than 15 seconds
Sensor Type	Analox 9100-9220-9B type electro-chemical sensor
Sensor Life	4 to 5 years in air 36 month graded warranty
Battery	9V Alkaline (PP3)
Battery Life	Approximately 1 year
Operating Temp	-5 to 50°C / 23 to 122°F
Storage Temp	-20 to 50°C / -4 to 122°F
Pressure	Sensitive to the partial pressure of Oxygen.
Temperature Effect	0.1% O_2/ °C 0.055% O_2/ °F
Weight	225g 8oz
Dimensions	130 (l) x 70 (w) x 55 (d) mm 5 ¼ (l) x 2 ¾ (w) x 2 ¼ (d) inches
Ingress Protection	IP65/ NEMA 4

If you have any comments or queries about the **O_2 EII®** please contact us;

Tel: +44 1642 711400
Fax: +44 1642 713900
Email: info@analox.net
Website www.analox.net

9.0 Oxygen Compensation Chart for Moisture in the Atmosphere



ANALOX O_2EII®

www.analox.net www.amoxtec.com

Oxygen compensation chart for moisture in the atmosphere

ATMOSPHERE OXYGEN PERCENT IN RELATION TO TEMPERATURE AND RELATIVE HUMIDITY												
TEMP F	32	40	50	60	70	80	90	100	110	120		
TEMP C	0	4	10	16	21	27	32	38	43	49		
RELATIVE HUMIDITY	ATMOSPHERIC OXYGEN PERCENT											
10	20.9	20.9	20.9	20.9	20.8	20.8	20.8	20.8	20.7	20.7		
20	20.9	20.9	20.8	20.8	20.8	20.8	20.7	20.6	20.5	20.4		
30	20.9	20.8	20.8	20.8	20.7	20.7	20.6	20.5	20.4	20.2		
40	20.8	20.8	20.8	20.7	20.7	20.6	20.5	20.4	20.2	19.9		
50	20.8	20.8	20.8	20.7	20.6	20.5	20.4	20.2	20.0	19.7		
60	20.8	20.8	20.7	20.7	20.6	20.5	20.3	20.1	19.8	19.5		
70	20.8	20.8	20.7	20.6	20.5	20.4	20.2	19.9	19.6	19.2		
80	20.8	20.8	20.7	20.6	20.5	20.3	20.1	19.8	19.5	19.0		
90	20.8	20.7	20.7	20.6	20.4	20.3	20.0	19.7	19.3	18.7		
100	20.8	20.7	20.6	20.5	20.4	20.2	19.9	19.5	19.1	18.5		
H_2O at 100% RH	0.6	0.8	1.2	1.8	2.5	3.4	4.7	6.5	8.6	11.5		

If the temperature and RH axis meet in this part of the chart, calibrate to the chart O_2 level or with dry air to maintain 0.5% O_2 accuracy in NITROX.

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