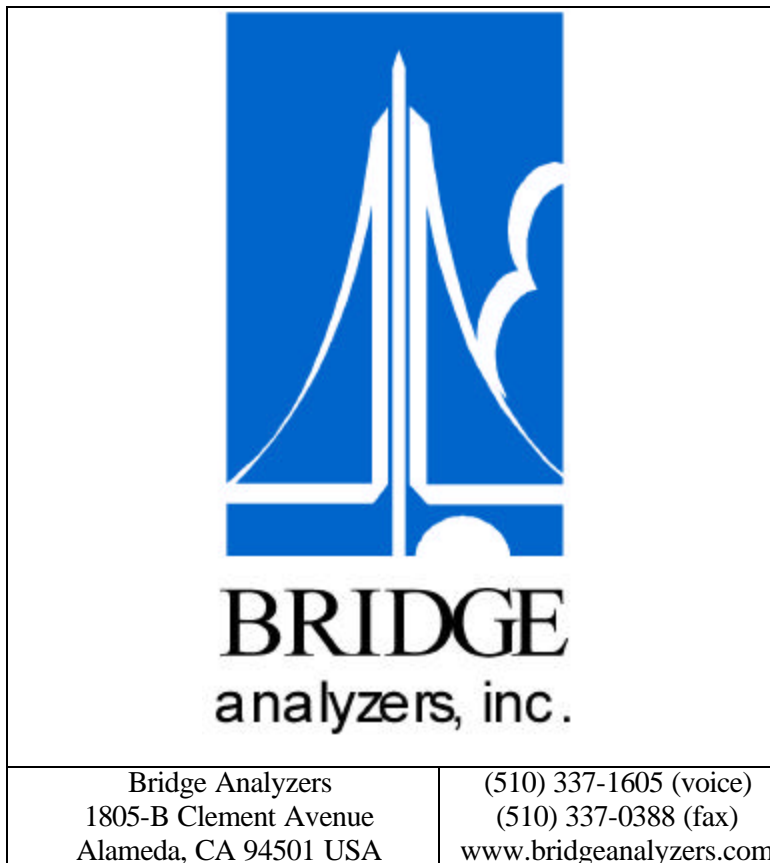


MAP Headspace Oxygen Analyzer

Model 9000

User Manual



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MAP Headspace Oxygen Analyzer

Operating Instructions

1. Initial set-up.

Install the black sample line to the ¼ turn Luer Lock fitting at the right side of the analyzer case.
Install the white 25mm diameter filter to the end of the sample line.
Install the sample needle to the input filter.

2. Power On / Self Test

Switch the Power Switch, located on the right side of the analyzer, to the “on” position by moving the toggle switch arm towards the power connector.

The analyzer will perform a self test, indicated by temporarily lighting all display elements and running the pump. At the end of the self test, the pump will be off and the display will show dashes, indicating successful completion of self-test and awaiting operation.

Operation begins when the operator initiates the first zero.

3. Zeroing the Analyzer

The most important thing to remember is that the accuracy of the analyzer is assured by periodically “zero-calibrating” the analyzer on room air. When the analyzer is zeroed, the oxygen channel is calibrated to ambient O₂ = 20.9%.

This function may be performed at any time by simply pressing the “Zero” button for ½ second with the sample needle exposed to room air. The Zero function takes 30 seconds to complete, and is fully automatic.

3.1 First “Zero” after power-up

Initiate the first zero by pressing the “Zero” button on the display panel. The pump will start, the display will flash dashes, and zero will begin. The O₂ detector calibration is fully automatic and takes approximately 30 seconds to complete.

At the end of the zero sequence, the analyzer will show real-time gas readings and the pump will remain on. The operator may note the O₂ display reading ‘20.9’ as an indication of the readiness of the analyzer.

3.2 Periodic Zero Requests

At 5 minutes from power on and every 30 minutes thereafter, the analyzer will alternate gas readings with dashes. This is the “Zero Request” indication. The operator should zero the analyzer when convenient after the dashes appear.

Note: The Zero Request indication does not mean that the analyzer is not usable. Gas readings may still be taken even though the zero request indication is present. However, it is considered

good practice to zero the gas analyzer every 30 minutes of use to maintain the best accuracy.

3.3 Oxygen Detector Test - 'Lo' indication on O2 Display

As part of the analyzer 'Zero' routine, the analyzer tests the oxygen detector for correct output when calibrating it to 20.9% with room air. If a low output cell is detected, the analyzer will alternately display 'Lo' and the current oxygen reading on the O2 display. The **Lo** O2 warning may be cleared by pushing any button on the front panel.

The analyzer will typically remain functional for 15 to 30 days after the low oxygen detector output is detected, but the operator should make plans to replace the oxygen detector at some time during this period.

New oxygen detectors should last for approximately 1 year in use, and are available from Bridge Analyzers, Inc. (See the 'Spare Parts and Consumables' section of this manual.)

4. Taking Gas Measurements

4.1 Continuous Measurement Mode

After the first zero from power on, the analyzer will be in the continuous measure mode. The pump will be on, and gas sample will be continuously drawn from the sample line, measured, and displayed on the analyzer. The analyzer will remain in this mode until the operator selects "Sample Measurement Mode" below.

This mode may be used for continuous or manual testing under direct operator control. For automatic sample testing, the analyzer should be set into the Sample Measurement Mode.

4.2 Sample Measurement Mode

Sample measurement mode is intended to be the normal analyzer test mode. In this mode, the analyzer draws approximately 50cc of gas for measurement over 10 seconds, then turns the pump off and freezes the display. The displayed values are held until the next sample is taken.

The Sample Measurement Mode is entered by pressing the yellow 'UP Arrow' button on the front panel after the first zero is complete. When the button is pressed for the first time, the analyzer will turn the pump off after 10 seconds and freeze the display as described above – indicating that it is in the Sample Measurement Mode.

Consecutive samples may be tested by pushing the 'UP Arrow' button.

4.3 Changing the sample time from 10 seconds.

The sample time used in the sample measurement mode may be adjusted by the operator from the factory default value of 10 seconds.

This is done by first putting the analyzer in 'continuous measurement mode' by pushing the DOWN button instead of the UP button when the display is frozen.

Then pushing the UP and DOWN button together will cause the analyzer to display 'SEC' in the O2 display, and the sample time in seconds in the CO2 display. The sample time may be increased or decreased at this time in one second increments by using the UP and DOWN arrows. Once the desired sample time is displayed, press the CAL button, and the new value will be stored and used. The new value is saved in power-safe memory, so it will be used subsequently even if the analyzer is powered down.

5. Periodic Maintenance

5.1 Daily: Recharge the Battery

The battery provided with the analyzer provides 12 hours of operation under fully charged conditions. Battery life is maximized if it is kept fully charged.

To charge the battery, simply plug the wall-mounted 12V supply / charger into the analyzer case. Plug the wall supply into any 110 VAC power source.

The 12V supply provides two functions – operating the analyzer from a 110V power source, and charging the battery.

When the power switch is in the on position, the analyzer will draw power from the 12V supply. When in the off position, the 12V supply will charge the battery.

The battery is 80% charged in approximately 5 hours, with a full charge requiring 8 hours

You may leave the battery charger plugged in and continue to charge the battery while using the analyzer. The analyzer will run from the battery charger until it is turned off, at which time it will continue to charge the battery.

5.2 Daily: Inspect the sample filter

Your portable Oxygen Gas Analyzer comes with a 25 mm diameter sample filter which should last approximately 2 months in normal use. The sample filter should be visually inspected before the analyzer is used. Excessive discoloration or indication of restricted flow through the filter is an indication that the sample filter should be replaced.

Daily: Inspect the sample needle

Your portable Oxygen Gas Analyzer comes with a special 'pencil point cross-drilled' needle. Inspect this needle periodically for any signs of blockage of the gas entry ports at the needle tip.

NOTE: The use of other than Bridge approved sample filters and needles may seriously degrade the analyzer performance and cause the warranty to be voided. Only use authorized Bridge sample supplies.

Spare Parts and Consumables

The following spare parts and consumables can be purchased from Bridge Analyzers.

<u>P/N</u>	<u>Part Name</u>	<u>Expected Life</u>
000202	Sample Filter – Single	2 months
102026	Sample Filter – 6-pack	12 months
000120	Oxygen Detector	1 year
000617	Pencil Point Needle	1 year
000424	12V Battery	2 years

BRIDGE ANALYZER Model 9000 - X Specifications

Gases Measured:	Oxygen (O ₂),
Reporting Range: 9000-2	O ₂ : 0-25.0%
Reporting Range: 9000-3	O ₂ : 0-100%,
Resolution:	O ₂ : 0.1%
Accuracy:	All channels 5% relative.
Repeatability:	All channels 3% full scale.
Warm-up:	1 minute.
Operating Temperature:	-10 to +40 degrees C.
Power:	Self contained rechargeable battery 12 hours operation
Battery Charger:	110 VAC/60 Hz
Weight:	Less than 5 lbs.
PC Interface:	DB9 RS-232 Connector, 9600 baud.

Technical Support, Warranty and Service

Technical Support:

Unlimited no-charge technical support is available from Bridge Analyzers, Inc. at the telephone numbers and email address below. Please feel free to make use of this service in case you have any questions.

Warranty Service Policy:

Your **BRIDGE GAS ANALYZER** is covered by a one-year parts / labor warranty.

In order to return the analyzer for service, please contact Bridge Analyzers for an RMA (Returned Material Authorization) at:

Bridge Analyzers, Inc.
805-B Clement Ave., Bldg 28
Alameda, CA 94501
USA

(510) 337-1605 (voice)
(510) 337-0388 (FAX)
email: sales@bridgeanalyzers.com

For product returned under warranty, the customer pays freight charges for product return. Bridge will repair or replace the analyzer within 1 working day of receipt, and return the analyzer freight prepaid to the customer by the same shipping method used to return the analyzer to Bridge. There will be no charge for parts, labor, or outbound freight for products under warranty.

Non-Warranty Service Policy:

For product not under warranty, the customer pays freight charges for product return. Bridge will repair or replace the analyzer within 5 working days of receipt, and will return the analyzer to the customer by the same shipping method used to return the analyzer to Bridge. The customer will be charged for parts, labor, and outbound freight for products not under warranty.