



Reduced Oxygen Breathing Device 2 (ROBD2)

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DESCRIPTION

The Environics® Model 6202, Reduced Oxygen Breathing Device 2 (ROBD2), is a portable computerized gas-blending instrument used to produce hypoxia without changes in atmospheric pressure. This simulated altitude exposure can be utilized for both research and training purposes. The U. S. Navy currently uses the ROBD2 to train aircrew to recognize the signs and symptoms of hypoxia and to perform the appropriate emergency procedures and additionally, conducts hypoxia research.

The ROBD2 uses Thermal Mass Flow Controllers (MFC) to mix breathing air and nitrogen to produce the sea level equivalent atmospheric oxygen contents for altitudes up to 34,000 feet. The MFC's are calibrated on a primary flow standard traceable to the National Institute of Standards and Technology (NIST). The ROBD2 introduces pressure changes and gas expansion as a function of altitude. Several safety features are built into the device, including prevention of over pressurization of the subject's mask, prevention of reduced oxygen contents below those being requested for a particular altitude and an emergency dump switch that will supply 100% O₂ to subjects in distress. The software is menu driven. The main operators menu consists of three selections, simplifying the use of the system for the field operator. Built-in self-tests verify all system component functionality before the operation of the system can begin. If any self-test fails the system will not operate. The system is designed to work with both bottled gases and gases produced by a Nitrogen/air generator (available separately).

Environics offers an optional Simulator Accessory Package to simply setup of a fully integrated system.

FEATURES

- 0-34,000 feet elevation
- 21% oxygen to 4.4% oxygen
- Integrated pulse oximeter with finger probe
- Integrated oxygen analyzer
- Emergency Oxygen dump switch for delivery of 100% oxygen



OPTIONS

- Shipping case with wheels
- Dual stage regulators with braided SS hoses
- Positive pressure breathing option (NAVY)
- Additional pulse oximeter probes, sensors
- Nitrogen/air generator
- Simulator Accessory Package

ROBD APPLICATIONS

- Aircrew training and research
- High altitude training and research
- Medical stress testing
- Hypoxia Simulator

SPECIFICATIONS:

Power Input: 110VAC to 220 VAC
EMI / RFI protected

Gas inputs: Standard: 1/4" FNPT

Pressure: Nitrogen and air: 40 psig
Oxygen: 20 psig

Optional: Rear panel keyed and colored quick connect fittings with SS braided hoses and dual stage pressure regulators.

| <u>Regulator fittings</u> | <u>Color codes</u> |
|---------------------------|--------------------|
| N ₂ : CGA 580 | BLACK |
| Air: CGA 346 | YELLOW |
| O ₂ : CGA 540 | GREEN |

Oxygen Dump: 100% oxygen dump switch to be activated by the operator.

Pulse oximeter: Built in pulse oximeter displays both pulse and SpO₂ with user selectable alarm settings. It can be used with a finger tip probe or a Y sensor with ear clips.

SpO₂ (Oxygen Saturation)

Range: 0-100%

Accuracy: +/- 2% SpO₂ (for 80-100%)
Unspecified for 0-79%

Display Resolution: 1%

Pulse Rate

Range: 30-250 beats per minute (bpm)

Accuracy: +/- 1% of full scale

Display Resolution: 1 bpm

O₂ sensor

Range: 1 – 100% oxygen

Accuracy: Less than ±1.0% oxygen at constant temperature and pressure, when calibration in air and 100% oxygen

Resolution: 0.1% oxygen

O₂ Output range: User programmable for altitude / oxygen concentration and duration at each step from 0 ft (21% oxygen) to 34,000 ft (4.4% oxygen)

Incremental adjustment of altitude: 1 foot

Maximum ascent or descent rate: 1,000 feet per second

Minimum ascent or descent rate: 1 foot per minute

Breathing mask connector: MS 22058-1

Capacity: One Subject Under Test (SUT)

Communications: RS232

Dimensions: Height : 12." (30.48 cm)
Width: 17.5" (44.450 cm)
Depth: 23.5" (59.69 cm)

Weight: 55 lbs (20.4 kg)

Electrical Requirements:

110-120/220-240 VAC ±10%
(50/60 Hz) 55 watts

Model number: 6202

Performance Temperatures:
15° C to 35° C

Storage Temperature Range
-10° C to 50° C