Rad-57™ Pulse CO-Oximeter™

Helps detect methemoglobinemia and carbon monoxide poisoning on-site in seconds
Two Deadly Conditions
One Simple Solution

Exposure to carbon monoxide (CO) and other chemicals can create a serious occupational health risk. Elevated levels of CO in the bloodstream (carboxyhemoglobin) and chemically induced methemoglobinemia reduce the ability of blood to transport oxygen to the body's vital organs.

THE FACTS ABOUT CO POISONING

CO poisoning can occur in a variety of occupational settings
- Settings where employees may be exposed to CO include, but are not limited to, foundries, petroleum refineries, paper mills, steel and iron mills, sintering plants, garages, and enclosed cargo holds.¹
- Common sources of CO poisoning include faulty heating systems and the use of gasoline- or propane-powered engines, particularly in enclosed spaces.¹²

CO poisoning can be difficult to detect
- CO poisoning can present with flu-like symptoms, but it is also possible to be poisoned without having any symptoms at all.³

CO poisoning significantly increases short- and long-term health risks
- CO poisoning robs the heart and brain of oxygen, and consistent exposure to CO, even at low levels, may cause long term heart and brain damage.⁴,⁵
- Just one severe CO poisoning almost doubles the risk of premature death.⁶
- CO poisoning is the most common cause of fatal occupational inhalation in the United States.²

THE FACTS ABOUT METHEMOGLOBIN

Methemoglobin can be acquired through exposure to a variety of industrial chemicals
- Methemoglobinemia can be associated with exposure to aromatic amines and nitro compounds, such as aniline, TNT, nitroglycerine, toluidine, and nitrobenzene, and working in the explosive, dye, and rubber industries.⁷

Methemoglobinemia is linked to increased morbidity and mortality, and is often unrecognized and untreated.⁸

- Morbidity and mortality associated with high methemoglobin levels can be minimized by prompt diagnosis and treatment.⁹
Rad-57
Quick > Noninvasive

Using a noninvasive sensor with multiple wavelengths of light, the Rad-57 provides measurements that previously required invasive blood sampling and time-consuming laboratory analysis. Monitor employees for elevated CO and methemoglobin in seconds with the Masimo Rad-57.

Features:

> Quick and easy-to-use — requires no user calibration
> Delivers more than 10 hours of continuous battery life
> Rugged and lightweight — ideal for use in the field
> Easy-to-read displays

The Rad-57 is capable of measuring noninvasive carboxyhemoglobin (SpCO®), methemoglobin (SpMet®), arterial oxygen saturation (SpO2), pulse rate, and perfusion index.*

SpCO and SpMET at the Push of a Button

PLACE SENSOR ON FINGER
PRESS DISPLAY BUTTON
OBTAIN RESULTS

* Total hemoglobin (SpHb®), oxygen content (SpO2™) and pleth variability index (PVI™) are available via a software upgrade.

**PERFORMANCE**

**MEASUREMENT RANGE**
- Oxygen Saturation (SpO₂) .................................................. 0% - 100%
- Methemoglobin (SpMet) ...................................................... 0% - 99.9%
- Carboxyhemoglobin (SpCO) ................................................ 0% - 99%
- Total Hemoglobin (SpHb) ................................................... 0 - 25 g/dL
- Oxygen Content (SpOc) ....................................................... 0% - 99%
- Perfusion Index (PI) .......................................................... 0.02% - 20%
- Pleth Variability Index (PVI) ............................................... 0 - 100%

**ARTERIAL OXYGEN SATURATION ACCURACY**
- Saturation* ................................................................. 60% to 80%
- No Motion
  - Adults, Infants, Pediatrics ............................................ ±3%
  - Saturation ............................................................... 70% to 100%
  - No Motion
  - Adults, Infants, Pediatrics ............................................ ±2%
  - Neonate .................................................................... ±3%
  - Motion
  - Adults, Infants, Pediatrics, Neonates .................... ±3%
  - Low Perfusion
  - Adults, Infants, Pediatrics, Neonates .................... ±2%

**CARBOXYHEMOGLOBIN SATURATION ACCURACY (%SpCO)**
- SpCO ................................................................. 1% - 40% ±3%

**METHEMOGLOBIN SATURATION ACCURACY (%SpMet)**
- SpMet ................................................................. 1% - 15% ±1%

**TOTAL HEMOGLOBIN ACCURACY (SpHb g/dL)**
- Adults/Infants/Pediatrics ........................................ 8 - 17 g/dL ±1 g/dL

**PULSE RATE ACCURACY**
- Pulse Rate ................................................................. 25 - 240 bpm
  - No Motion
  - Adults, Infants, Pediatrics, Neonate .................. ±3 bpm
  - Motion
  - Adults, Infants, Pediatrics, Neonate .................. ±5 bpm
  - Low Perfusion
  - Adults, Infants, Pediatrics, Neonate .................. ±3 bpm

**RESOLUTION**
- Oxygen Saturation (%SpO₂) ............................................. 0.1%
- Pulse Rate (bpm) ........................................................ 1 bpm
- Carboxyhemoglobin Saturation (%SpCO) ............. 0.1%
- Numeric Display ............................................................ 1%
- Methemoglobin Saturation (%SpMet) ................. 0.1%

* When used with rainbow® sensors  ** Requires rainbow SpHb sensor

**SPECIFICATIONS**

**BATTERIES**
- Type ................................................................. 4 AA Alkaline
- Capacity .............................................................. up to 10 hours

**ENVIRONMENTAL**
- Operating Temperature .............................................. 0°F to 129°F (-18°C to 54°C)
- Storage Temperature .................................................. -40°F to 158°F (-40°C to +70°C)
- Operating Humidity .................................................... 5% to 95%, non-condensing
- Operating Altitude ..................................................... 500 mbar to 1060 mbar pressure,
  - 1,000 ft to 18,000 ft (304m to 5,486m)

  Effective battery life will be reduced when operating the instrument below 50 degrees Fahrenheit due to alkaline battery technology.

**DIMENSIONS**
- Handheld .......................................................... 6.2” x 3.0” x 1.4” (15.8 cm x 7.6 cm x 3.6 cm)

**WEIGHT**
- Handheld .......................................................... 13 oz (37 kg)

**TRENDING**
- Provides 72 hours of trending at 2 second resolution of SpO₂, SpCO, SpMet, Pulse Rate, Perfusion Index, and PVI. Output to PC running Masimo TrendCom™ Utility.

**SpO₂ MODES**
- Averaging mode ......................................................... 2, 4, 8, 10, 12, 14 or 16 seconds
- Sensitivity ............................................................... Normal and Max FastSat®

**ALARMS**
- Audible and visual alarms for high and low saturation and pulse rate
  - SpO₂ 1% to 99%, SpCO 1% - 98%, SpMet 1% to 99.5%, PI 0.03% - 19%
  - PVI 1% - 99%, and pulse rate 30 - 235 bpm

**DISPLAY/INDICATORS**
- Data Display ........................................................ %SpO₂, %SpCO, %SpMet,
  - SIQ™ bar, PI bar, Pulse Rate, Perfusion Index, Patient Volume Index,
  - low Signal I.Q.®, alarm status, alarm silenced status, and battery status.

**COMPLIANCE**
- EN60601-1-2, Class B
- Equipment Classification .............................................. Class II
- Degree of Protection ................................................ Type BF-Applied part

**ACCESSORIES**

**SENSORS**
- PN 2201 Adult rainbow DCl-dc3
- PN 2696 Adult rainbow DCl
- PN 2405 1 Foot rainbow Patient Cable
- PN 2815, pack of 10

**LIGHT SHIELDS**
- P/N 2357

**CARRY CASE**
- PN 2207 (Black)
- PN 2208 (Red)
- PN 33650

**QUICK REFERENCE GUIDE**
- PN 2815, pack of 10

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Protective boots – available in multiple colors
EMMA™ Mainstream Capnometer
Immediate capnometry at your fingertips

> **Small, portable capnometer,** EMMA requires virtually no warm-up time, with full accuracy in 15 seconds to measure end-tidal carbon dioxide (EtCO₂) and respiration rate

> **Compact, lightweight design fits in the palm of your hand** for unmatched mobility and convenience

> **Used for short-term EtCO₂ monitoring for adult, pediatric, and infant patients**

> **Flexible use at multiple points of care,** including pre-hospital, emergency medicine, operating room, intensive care unit, and long-term acute care

> **Helps clinicians assess the effectiveness of CPR and guide ventilation,** allowing them to make adjustments in the course of treatment, breath by breath

> **Rugged, water-resistant design** for reliable operation in challenging environments

> **Easy to maintain — no routine calibration required**
**FEATURES**

> Simple, easy-to-use interface  
for quick setup and one-touch programming  

> Audible and visual alarm system  
for No Breath Detected, No Adapter, Check Adapter, and adjustable high and low EtCO₂ alarm  

> Long battery life—up to 12 hours of normal use with two standard AAA lithium batteries

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**PERFORMANCE**

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<th>ACCURACY (STANDARD CONDITIONS)</th>
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<td>Operating humidity</td>
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<td>Storage temperature</td>
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<td>Dead space infant</td>
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**KIT**

> **EMMA Kit**

EMMA (mmHg) PN 9632  
EMMA (kPa) PN 9633

**ACCESSORIES**

> **EMMA Airway Adapter**

Adult/Pediatric  
Box of 25  
PN 17448

> **EMMA Airway Adapter**

Infant  
Box of 10  
PN 17449

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*In order for the EMMA Kit to provide readings, either of the listed airway adapters is required. Kit includes EMMA, pouch, and lanyard.

Caution: Federal law restricts this device to sale by or on the order of a physician.