

Rad-57™

signal extraction pulse CO-Oximeter™

A medical first – noninvasive measurement of carbon monoxide and methemoglobin in the blood

- Masimo SET® pulse oximetry: proven accurate during motion and low perfusion in more than 100 independent clinical studies*
- Masimo Rainbow SET® technology analyzes 7+ wavelengths of light to accurately measure carboxyhemoglobin (SpCO®) and methemoglobin (SpMet™) percent levels in the blood noninvasively and continuously
- Eliminates the risk of misdiagnosing unsuspected CO poisoning as flu or fatigue
- Detects potentially life-threatening acquired methemoglobinemia
- Quick and easy to use - requires no user calibration and does not require patient cooperation or consciousness
- Complete replacement for existing pulse oximeters with continuous monitoring of SpCO®, SpMet™, SpO₂, Pulse Rate, Perfusion Index, and SIQ®
- Rugged and lightweight - ideal for any field or hospital setting

*References available upon request



The Low PI Indicator illuminates when Perfusion Index is below 0.25.

Pressing the display button enables %SpCO and %SpMet display.

%SpCO bar provides continuous indication of Carboxyhemoglobin levels.



The Alarm Status Indicator flashes when an alarm condition is present.

%SpMet bar provides continuous indication of Methemoglobin levels.

Rad-57 Features

- Revolutionary hardware and software analyzes 7+ wavelengths of light simultaneously to accurately measure Carboxyhemoglobin (SpCO) and Methemoglobin (SpMet) percent levels in the blood within seconds, noninvasively
- Designed for continuous or spot check applications
- User configurable power up default settings
- Four AA alkaline batteries deliver over 8 hours of continuous monitoring of SpCO, SpMet, SpO₂, Pulse Rate and Perfusion Index
- Perfusion Index (PI) indicates arterial pulse signal strength and may be used as a diagnostic tool during low perfusion**
- Low Signal IQ® (SIQ) indicator highlights conditions of low signal quality
- FastSat® tracks rapid changes in arterial O₂ with unmatched fidelity
- SmartTone™ beeps in sync with pulse, even under patient motion conditions
- Up to 72 hours of trending memory of SpCO, SpMet, SpO₂, Pulse Rate and Perfusion Index
- Sensitivity options: APOD, Normal, and MAX
- Protective boot covers and carrying cases available in multiple colors

performance

measurement range

| | |
|--------------------|----------------|
| SpO ₂ : | 0% - 100% |
| SpCO: | 0% - 99% |
| SpMet: | 0% - 99.9% |
| Pulse Rate: | 25 - 240 (bpm) |
| Perfusion Index: | 0.02% - 20% |

SpO₂ saturation accuracy

| | |
|-------------|-------------|
| Saturation: | 70% to 100% |
|-------------|-------------|

No Motion

| | |
|---------------------|-----------|
| Adults, Pediatrics: | ±2 digits |
| Neonate: | ±3 digits |

Motion †

| | |
|---------------------|-----------|
| Adults, Pediatrics: | ±3 digits |
| Neonate: | ±3 digits |

Low Perfusion ‡

| | |
|---------------------|-----------|
| Adults, Pediatrics: | ±2 digits |
| Neonate: | ±3 digits |

SpCO accuracy

| | |
|-------|---------------------------------|
| SpCO: | 1% - 40% ±3 digits ³ |
|-------|---------------------------------|

SpMet accuracy

| | |
|--------|---------------------------------|
| SpMet: | 1% - 15% ±1 digits ³ |
|--------|---------------------------------|

pulse rate accuracy

| | |
|-------------|--------------|
| Pulse Rate: | 25 - 240 bpm |
|-------------|--------------|

No Motion

| | |
|------------------------------|-----------|
| Adults, Pediatrics, Neonate: | ±3 digits |
|------------------------------|-----------|

Motion

| | |
|------------------------------|-----------|
| Adults, Pediatrics, Neonate: | ±5 digits |
|------------------------------|-----------|

Low Perfusion

| | |
|------------------------------|-----------|
| Adults, Pediatrics, Neonate: | ±3 digits |
|------------------------------|-----------|

resolution

| | |
|----------------------------------|-------|
| Saturation (%SpO ₂): | 1% |
| Pulse Rate (bpm): | 1 bpm |

Carboxyhemoglobin (%SpCO)

| | |
|------------------|----------|
| Numeric Display: | 1% |
| Bar Display: | variable |

Methemoglobin (%SpMet)

| | |
|------------------|----------|
| Numeric Display: | 0.1% |
| Bar Display: | variable |

electrical

batteries

| | |
|-----------|---------------------------|
| Type: | 4 AA Alkaline |
| Capacity: | over 8 hours ⁴ |

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: | -1,000 ft to 18,000 ft (-304m to 5,486m) |

Effective battery life will be reduced when operating the instrument below 5 degrees Fahrenheit due to alkaline battery technology.

physical characteristics

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, and perfusion index. Output to PC running Masimo TrendCom™ Utility.

SpO₂ modes

| | |
|-------------------------------|-----------------------------------|
| Averaging mode ¹ : | 2, 4, 8, 10, 12, 14 or 16 seconds |
| Sensitivity: | APOD, Normal and Max |
| FastSat ⁴ : | On / Off |

alarms

| |
|---|
| Audible and visual alarms for high and low saturation (SpO ₂ 1% to 100%, SpCO 5% - 50%, SpMet 1%-70%, and pulse rate 25 - 240 bpm) |
| Sensor condition, system failure and low battery alarms |

display/Indicators

| | |
|---------------|---|
| Data Display: | %SpO ₂ , %SpCO, %SpMet, SpCO bar, SpMet bar, pulse rate, perfusion index, low Signal IQ alarm status, alarm silence and battery life |
| Type: | LED |

compliance

| | |
|---------------------------|----------------------|
| EMC Compliance: | EN60601-1-2, Class B |
| Equipment Classification: | IEC 60601-1-1 |
| Degree of Protection: | Type BF-Applied part |

Specifications

The Rad-57 line includes the Rad-57c which displays SpCO, Rad-57m which displays SpMet and the Rad-57cm which displays both parameters. All models display SpO₂ and Pulse Rate, as well as the Perfusion Index value or an indication of low Perfusion Index.

| | Rad-57c | Rad-57m | Rad-57cm |
|------------------|---------|---------|----------|
| SpMet | | ● | ● |
| SpCO | ● | | ● |
| SpO ₂ | ● | ● | ● |
| PR | ● | ● | ● |
| PI | ● | ● | ● |

References:

** De Felice et al. The pulse oximeter perfusion index as a predictor for high illness severity in neonate. *Eur J Pediatr* 2002 ; 161:561-562.

¹ Continuous rubbing and tapping motions at 2 to 4 Hz at an amplitude of 1 to 2 cm and continuous random frequency motion between 1 to 5 Hz at an amplitude of 2 to 3 cm

² Perfusion Index >0.02% and % Transmission > 5%

³ Accuracy has been validated on healthy adult volunteers against a laboratory co-oximeter

⁴ When using new, fully charged batteries

⁵ With FastSat the averaging time is dependent upon the input signal

⁶ Automatically enabled in 2 and 4 second averaging modes

Masimo America
tel +877 4 Masimo
info-america@masimo.com

Masimo Japan
tel +81 3 3237 3057
info-japan@masimo.com

Masimo Europe
tel +33 (0) 4 72 17 93 70
info-europe@masimo.com

Masimo Asia Pacific
tel +65 9889 9389
info-asia@masimo.com

© 2007 Masimo Corporation. Masimo, SET, Accurate monitoring when you need it most, Rad-57, Rad-57c, Rad-57m, Rad-57cm, APOD, Signal IQ, SIQ, FastSat, TrendCom and SmartTone are trademarks or registered trademarks of Masimo Corporation. SpCO and Rainbow are registered trademarks of Masimo Laboratories. SpMet, and signal extraction pulse CO-Oximeter are trademarks of Masimo Laboratories. All rights reserved. CAUTION: US federal law restricts this device to sale by or on the order of a physician.