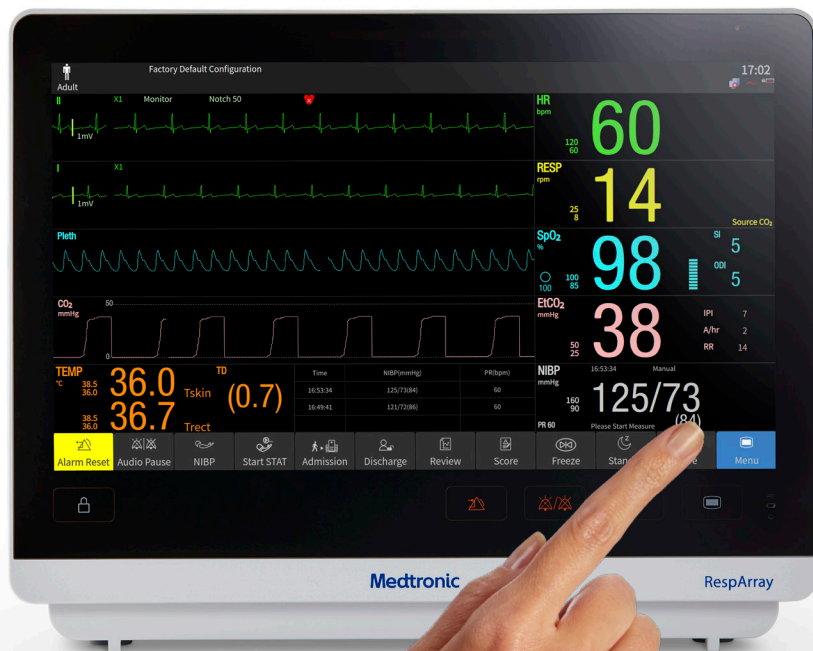# Medtronic

RespArray™ patient monitor

Safety
made simple.

Innovative patient safety, made easy.

Addressing respiratory compromise starts with detecting it – the earlier the better.

With the RespArray™ patient monitor, you can continuously monitor every patient from anywhere in the hospital. It's designed for areas of care where spot checking might not be enough, like in medical-surgical units, or where additional parameters are needed, such as capnography in procedural sedation.

Helping you detect respiratory compromise early and intervene sooner.

90%[1]

of prolonged desaturations (SpO_2 < 90%) go unrecognized by intermittent monitoring
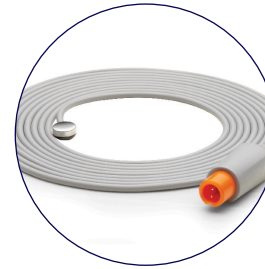
Monitor five parameters:

SpO$_2$
Nellcor™
pulse oximetry
Continuous monitoring

etCO$_2$
Microstream™
capnography
Continuous monitoring

ECG
3 & 5 leads
Continuous monitoring

Temperature
Skin, oral, rectal
Continuous monitoring

NiBP
Manual, auto,
sequential

Manage risk – and alarms.

Experience world-class Nellcor™ pulse oximetry and Microstream™ capnography technologies, designed to detect respiratory compromise early[2,3] – and help reduce alarm fatigue.[4]

- Near real-time monitoring allows you to see trends so you can get to your patients sooner
- Proprietary algorithms are engineered to reduce nuisance alarms and simplify workflow

Smart. Connected. Intuitive.

The RespArray™ patient monitor features simple connectivity and seamlessly integrates into workflow. So you'll have more time to focus on your patients.

- System includes an HL7 interface, is WiFi-enabled, connects to your EMR and Vital Sync™ remote patient monitoring system[†] – giving you more visibility, wherever you are
- Features a large, intuitive touchscreen you can see from multiple angles and from a distance

†Vital Sync™ platform v3.3 connectivity to RespArray has not been cleared by the FDA and is being released per FDA's Enforcement Policy for Non-Invasive Monitoring Devices Used to Support Patient Monitoring During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency (Revised), updated October 2020

The Smart Alarm for Respiratory Analysis™ (SARA) algorithm in Microstream™ technology reduces unnecessary nuisance alarms by

53%[4]

Optimize patient safety.

With its portable design and a variety of customizable features, the RespArray™ patient monitor offers a flexible approach to patient safety.

- Monitor is easily incorporated into your clinical care setting with optional slide-in mount adapter, roll stand, and wall arm mount

- Touchscreen can be configured to suit your needs – view any combination of parameters, or all five at once

Service that goes beyond products.

Get optimal value with next-level support, education, and training that more effectively reduces adverse events, enabling your team to deliver exceptional patient care.[5]

- Your Medtronic team includes industry experts with the background, experience, and knowledge to understand your challenges and optimally implement the monitor within your workflow

- Customizable plans and service options are tailored to fit your individual needs

30%[6]

increase in sentinel events since the pandemic

Product specifications

Warranty

Three-year standard warranty to be free of defects in materials and workmanship.

General characteristics	
Unit dimensions	13.1 in (W) x 10.4 in (H) x 6.4 in (D)
Unit weight	< 11 lbs
Screen size	13.3-inch color TFT LCD touchscreen
Screen resolution	1920 × 1080 pixels
Operating environment	
Operating temperature	32 °F to 104 °F (0 °C to 40 °C)
Transport/storage temperature	-4 °F to 140 °F (-20 °C to 60 °C)
Operating humidity	15% RH–95% RH, Non-condensing
Storage humidity	10% RH–95% RH, Non-condensing
Operating barometric pressure	70.7 kPa to 105 kPa (-1000 ft–9625 ft)
External power supply	
AC voltage	100–240 VAC
Input current	1.6 A–0.8 A
Frequency	50/60 Hz
Battery specifications	
Battery type	Rechargeable lithium-ion battery
Battery voltage	14.4 volts
Battery capacity	6800 mAh

Battery specifications, continued

Battery life	≥ 5 hours When fully charged, continuous SpO_2 measurement and NIBP automatic measurement mode at interval of 15 minutes, SpO_2 pitch tone volume set to the minimum, ECG+TEMP&CO_2 modules connected, screen brightness set to "1"
Battery charging time	≤ 5 hours to 90% charged with monitor off ≤ 6 hours to 90% charged with monitor on

Data storage

Trends	Trend data 4,800 hours @ 1 sec
NIBP measurements	1,200 sets
Events	1,000 sets, including physiological alarms and arrhythmia events

Algorithms and alarm management

Integrated Pulmonary Index™ algorithm
Nellcor™ SatSeconds technology
Apnea-Sat Alert™ algorithm
Smart Alarm for Respiratory Analysis algorithm

Microstream™ capnography

CO_2 units	mm Hg or kPa or Vol%
CO_2, etCO_2 range	0–150 mm Hg
CO_2 waveform resolution	0.1 mm Hg
etCO_2 resolution	1 mm Hg
CO_2 accuracy	0–38 mm Hg: ±2 mm Hg 39–150 mm Hg: ± (5% of reading + 0.08 for every 1 mm Hg above 38 mm Hg)
Respiration rate range	0–150 bpm
Respiration rate accuracy	0–70 bpm: ±1 bpm 71–120 bpm: ±2 bpm 121–150 bpm: ±3 bpm

| Microstream™ capnography, continued	
CO₂ alarms	No breath, etCO$_2$ High, etCO$_2$ Low, RR High, RR Low, Integrated Pulmonary Index™ algorithm (IPI). IPI also requires pulse oximetry information
Waveform sampling	20 samples/second
Response time	2.95 seconds (typical); with use with sampling lines with long tubing, ~5.0 seconds
Initialization time	40 seconds (typical)
Calibration interval	Initially calibrate after 1,200 operating hours, then once a year or after 4,000 operating hours, whichever comes first
Nellcor™ pulse oximetry SpO₂	
Measurement range	1–100%
Resolution	1%
Accuracy: Adult and pediatric mode	±2 digits over the range of 70–100% ±3 digits with motion ±3 digits with low saturation (60–80%)
Accuracy: Infant/neonatal mode	±2% over the range of 70–100% ±3% with motion ±3% with low saturation (60–80%)
Pulse rate range	20–250 bpm Pulse rate values of < 20 bpm shall be displayed as 0 bpm Pulse rate values of > 250 bpm shall be displayed as 250 bpm
Pulse rate accuracy	±3 digits over the range of 20–250 bpm inclusive, including under low perfusion; with motion, 48 – 127 bpm ±5 digits
Alarms	SpO$_2$ High, SpO$_2$ Low, PR High, PR Low
Nellcor™ SatSeconds alarm management range	10–100

Electrocardiogram (ECG)

Lead mode	3 electrodes: I, II, III 5 electrodes: 1, II, III, aVR, aVL, aVF, V
Electrode standard	AHA, IEC
Display sensitivity (gain selection)	1.25 mm/mV (×0.125), 2.5 mm/mV (×0.25), 5 mm/mV (×0.5), 10 mm/mV (×1), 20 mm/mV (×2), 40 mm/mV (×4), Auto gain
Sweep speed	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s
Heart rate range	ADU: 15 bpm–300 bpm PED/NEO: 15 bpm–350 bpm
Accuracy	±1 % or 1 bpm, whichever is greater

Noninvasive blood pressure (NIBP)

Technique	Oscillometry
Modes	Manual, auto, sequence, and continuous

Measuring range

Adult mode	SYS: 25 mm Hg–290 mm Hg DIA: 10 mm Hg–250 mm Hg MAP: 15 mm Hg–260 mm Hg
Pediatric mode	SYS: 25 mm Hg–240 mm Hg DIA: 10 mm Hg– 200 mm Hg MAP: 15 mm Hg–215 mm Hg
Neonatal mode	SYS: 25 mm Hg–140 mm Hg DIA: 10 mm Hg–115 mm Hg MAP: 15 mm Hg–125 mm Hg
Cuff pressure measuring range	0 mm Hg–300 mm Hg
Blood pressure accuracy	1 mm Hg Maximum Mean Error ±5 mm Hg Minimum Standard Deviation 8 mm Hg
Maximum measuring period	Adult/Pediatric 120 s Neonate 90 s
Overpressure safety cutoff	Adult (297±3) mm Hg Pediatric (245±3) mm Hg Neonatal (147±3) mm Hg

Temperature	
Technique	Thermal resistance; continuous
Position	Skin, oral/rectal
Measure parameter	T1, T2, TD
Measuring range	32 °F–122 °F (0 °C–50 °C)
Resolution	0.1 °F (0.1 °C)
Accuracy	±0.5 °F (± 0.2 °F exclude sensor error)

Data output and connectivity	
Wireless communication	IEEE 802.11a/b/g/n; 2.4 GHz ISM band & 5 GHz ISM band
Encryption method	WPA/WPA2, WPA Enterprise/WPA2 Enterprise
Connectivity options	Vital Sync™ virtual patient monitoring platform connectivity option* HL7 interface for EMR connectivity
Data output	Wi-Fi streaming data 4 USB A-type ports; USB2.0 protocol (enables flash disk, barcode scanner, mouse, and keyboard)
Video output	HDMI A-type port
Nurse call	Power supply: ≤ 12.6 VDC, 200 mA max. Interface signal: 12 V power supply and PWM waveform Interface type: PS2 connector

Mounting options
Roll stand kit (includes slide-in mounting adaptor plate and accessory bin) Mounting arm assembly kit (includes mounting plate and accessory bin) Additional mounting options available from GCX including slide-in mounting adaptor, roll stands, and wall arm mounts

Continuous monitoring.
Continuous support.

With advantages like solution delivery, clinical education, and implementation support, our partnership can help you focus on your top priority – keeping patients safe.

Learn more at Medtronic.com/RespArray.
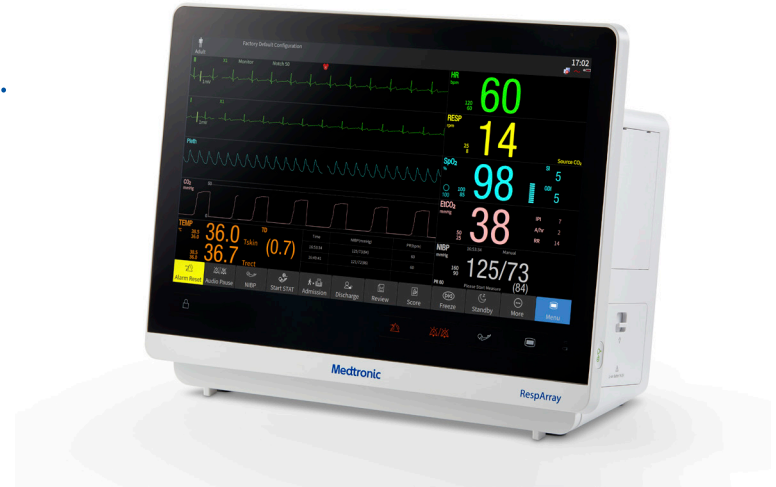
Continuous monitoring technologies should not be used as the sole basis for diagnosis or therapy and are intended only as adjuncts to patient assessment.

1. Sun Z, Sessler DI, Dalton JE, et al. Postoperative Hypoxemia Is Common and Persistent: A Prospective Blinded Observational Study. *Anesth Analg*. 2015;121(3):709-715. doi:10.1213/ANE.0000000000000836

2. Maddox R, Williams CK, Oglesby H, et al. Clinical experience with patient-controlled analgesia using continuous respiratory monitoring and a smart infusion system. *Am J Health Syst Pharm*. 2006;63(2):157-164.

3. Chung F, Wong J, Mestek ML, Niebel KH, Lichtenthal P. Characterization of respiratory compromise and the potential clinical utility of capnography in the post-anesthesia care unit: a blinded observational trial. *J Clin Monit Comput*. June 2019.

4. Hockman, S, Glembot T, Niebel K. Comparison of capnography derived respiratory rate alarm frequency using the SARA algorithm versus an established non-adaptive respiratory rate alarm management algorithm in bariatric surgical patients. *Resp Care*. Open Forum Abstract; December 2009.

5. Williams, Jill S. Opioid Safety & Patient Monitoring Conference Compendium. The National Coalition to Promote Continuous Monitoring of Patients on Opioids. *JSW Communications*. November 2014.

6. The Joint Commission. General Information and 2021 Update. Sentinel Event Data. 2021.

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