



Simple answers to complex questions

Philips Respironics NM3 respiratory profile monitor specifications

PHILIPS

1. Respironics NM3

The Respironics NM3 continuously monitors a host of mechanical and physiological parameters, such as $V\dot{C}O_2$, alveolar minute ventilation, and both airway and physiologic deadspace.

This comprehensive and objective data may help clinicians determine the efficacy of ventilation, the appropriateness of ventilator settings, the severity of ARDS, and the patient's readiness for weaning. During weaning trials, the NM3 provides objective measurements to evaluate the patient's potential success or failure to wean.

2. Patient types

Adult
Pediatric
Neonatal

3. Sensor technology

2.1 CO_2

General	
Principle of operation	Non-dispersive infrared (NDIR) absorption, dual wavelength radiometric-single beam optics, mainstream sensor
Response time	< 60 ms
Gas composition options	Operator selectable
Accuracy	2 mmHg for 0-40 mmHg ± 5% of reading for 41-70 mmHg ± 8% of reading for 71-100 mmHg ± 12% of reading for 101-150 mmHg
Mainstream CAPNOSTAT 5 sensor	
Weight	<18 g (without cable)
Sensor size	3.3 cm x 4.2 cm x 2.2 cm (1.3 in x 1.67 in x .85 in) 2.44 m (8 ft) cable
Construction	Durable high performance plastic, ultra-flexible cable
Shock resistance	Sensor will withstand a 1.8 m drop to a tile floor
Sidestream $ETCO_2$ LoFlo sensor	
Module weight	0.23 kg
Module size (H x W x D)	83.3 mm x 62.5 mm x 37.1 mm (3.28 in x 2.46 in x 1.46 in) 0.5 m (20 in) cable

2.2 Flow and pressure*

General	
Principle of operation	Differential pressure transducer
Airway pressure	± 120 cmH ₂ O
Gas composition compensation	Operator selectable
Flow (at 101 kPa, room air, 35°C)	
Adult	2 – 180 l/min
Pediatric	0.5 – 100 l/min
Neonatal	0.25 – 25 l/min
Tidal volume	
Adult	200 – 3000 ml
Pediatric	30 – 400 ml
Neonatal	1 – 100 ml

*Combined sensors

2.3 Masimo® SET SpO₂

General	
Averaging mode	2, 4, 8, 10, 12, 14, 16 s
Sensitivity setting	Normal, Maximum, or APOD
Oxygen saturation (%SpO ₂)	0 – 100%
Pulse rate	25 – 240 bpm
Perfusion index	0.02 – 20%
Response time	<1 s
Accuracy	
Saturation	70 - 100%
Motion	± 3 digits
No motion	± 2 digits (adult, pediatric) ± 3 digits (neonatal)
Low perfusion	± 2 digits (adult, pediatric) ± 3 digits (neonatal)

4. Parameters

Parameter	Displayed range
End tidal CO ₂	0 – 150 mmHg 0 – 20 kPa or % at Pb 760 mmHg
Respiratory rate	2 – 150 breaths/min
Dynamic compliance	0 – 500 ml/cmH ₂ O
Ideal body weight	40.6 – 120.2 kg (male) 36.1 – 115.7 kg (female)
I:E ratio	1:9.9 or 4:1
Mean airway pressure	0 – 100 cmH ₂ O
Minute volume	0.40 – 60 l/min (adult) 0.06 – 30 l/min (pediatric) 0.01 – 5 l/min (neonatal)
Alveolar minute volume	0-16 l/min (adult) 0-8 l/min (pediatric) 0-4 l/min (neonatal)
Negative inspiratory pressure	0 – 120 cmH ₂ O
Mixed expired CO ₂	0 – 100 mmHg 0 – 13.2 kPa or %
Positive end expiratory pressure	0 – 99 cmH ₂ O
Peak inspiratory or expiratory flow	2 – 180 l/min (adult) 0.7 – 100 l/min (pediatric) 0.25 – 25 l/min (neonatal)
Peak inspiratory pressure	0 – 120 cmH ₂ O
Plateau pressure	0 – 99 cmH ₂ O
Pulse rate	25 – 240 bpm
Airway resistance	0 – 100 cmH ₂ O/l/sec (adult) 0 – 250 cmH ₂ O/l/sec (pediatric) 0 – 500 cmH ₂ O/l/sec (neonatal)
Respiratory rate	2 - 120 breath/min (adult) 2 - 150 breath/min (pediatric) 5 - 150 breath/min (neonatal)
Rapid shallow breathing index	0 – 1000 breaths/min/l
Carbon dioxide elimination	1 – 3000 ml/min (adult/pediatric) 0 – 300 ml/min (neonatal)
Airway deadspace	0 – 500 ml
Deadspace to tidal volume ratio	0 – 1.00
Alveolar deadspace	0 – 500 ml
Alveolar tidal volume	0 – 2400 ml (adult) 0 – 1200 ml (pediatric) 0 – 160 ml (neonatal)
Tidal volume per ideal body weight	0 – 147.8 ml/IBW (male) 0 – 51.9 ml/IBW (female)
Tidal volume per kilogram	0 – 120 ml/kg (adult) 0 – 999.9 ml/kg (pediatric) 0 – 999.9 ml/kg (neonatal)
Inspired or expired tidal volume	200 – 3000 ml (adult) 30 – 400 ml (pediatric) 1 – 100 ml (neonatal)

5. Alarms

Audible	
Volume	45-85 dB (adjustable)
Silence	120 s silence or OFF
Visual	
Alert bar, left side	Illuminates when audio alarms are silenced
Alert bar, right side	Illuminates in accordance with the current alarm priority
Alarm selection options	
ETCO ₂	
SpO ₂	
RR	
Pulse rate	
VCO ₂	
CO (if cardiac output option is enabled)	

6. Graphics

Screen	Primary application
CO ₂ /SpO ₂ screen	Sidestream, non-intubated patient monitoring
Flow/pressure screen	Ventilator has no mechanics or graphics
Respiratory numerics screen	View from distance, single-screen summary
Flow/volume and pressure/volume loops	Ventilator in use has no mechanics or graphics
Volumetric CO ₂ screen	Weaning, assessment of ARDS involvement
VCO ₂ and MV alv trend	Weaning
VT alv and Vd Aw trend	Weaning
Trend	Ventilator parameter titration

Options

Cardiac output

Measurement frequency	Every 3 min for 35 s
Cardiac output	0.5 – 19.9 l/min
Cardiac index	0-9.9 l/min/m ²
Pulmonary capillary blood flow	0.5-19.9 l/min

10. Regulatory

Philips VueLink open interface
Spacelabs Flexport open interface
Capsule technology compatible
V200 interface
Respi-Link
Printer capability (PCL3 and PCL5)
RS232
USB
Analog output (4 channels)

Classification (IEC60601-1)	Class I / internal power source, type BF, continuous operating mode, enclosure protection rating IPX0.
Electromagnetic emissions	Conforms to the EMC requirements of the Medical Device Directive 93/42/EEC, CISPR Class A. Tested to EN55011 (2005) and CISPR11 (2004).
Electromagnetic immunity	Conforms to the EMC requirements of the Medical Device Directive 93/42/EEC. Tested to IEC60601-1-2:2004, IEC61000-4-2:2001 ESD, IEC61000-4-3:2002 RF, IEC61000-4-4:2004 EFT, IEC61000-4-5:2001 Surge, IEC61000-4-6:2001 Conducted RF, IEC61000-4-8:2004 Magnetic Fields, IEC61000-4-11:2001 Voltage Dips, Interruptions and Variations, IEC61000-3-2:2006 Harmonic Distortion, IEC61000-3-3:2005 Voltage Fluctuations and Flicker.

8. Environmental

Temperature	
Operation	10 – 40° C (50-104° F)
Storage	-30 – 60° C (14 – 140° F)
Relative humidity (non-condensing)	
Operation	10-90%
Storage	10-90%

9. Power supply

9.1 Electrical Supply

Input voltage	100-230 V~, 50/60 Hz, 70 VA
Battery	Internal, sealed lead acid gel cell 45 min life on full charge 4-8 h charge time for depleted battery
Fuse Rating	F 2X: 1A 250V~T

9.2 Power indicators

Indicator	Visual	Audible
Battery low	•	•
Battery in use	•	
On-screen life indicator	•	

11. Physical Dimensions

Size (H x W x D)	21 cm x 29.2 cm x 23.5 cm (8.25 in x 11.5 in x 9.25 in)
Weight	4.38 kg (9.63 lb)
Display	640 x 480 pixels color TFT LCD 15.3 cm x 11.4 cm (6 in x 4.5 in)



Please visit www.philips.com/NM3



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