

Microstream® Bedside Capnography Monitoring

A complete bedside CO₂ and SpO₂ monitoring solution

Features and Benefits

Dual parameter monitor

- Supports the current standard of care providing CO₂ and SpO₂ measurements

Integrated Pulmonary Index™ (IPI™)

- Provides an inclusive assessment, with one index, of your patient's ventilatory status

Alarm management

- Reduces clinically insignificant alarms with the Oridion Smart Capnography SARA™ and the Masimo SET alarm management algorithms

Simple user interface with color screen

- Access routine functions with 2 clicks

72 hour trends

- Review patient history

Event marking

- Compare events and medication administration to changes in patient status

Connectivity to nurse call systems plus Bernoulli and other central monitoring and paging systems

- Keeps you in touch with your patients' status

Internal printer

- Provides convenient bedside documentation

The Capnostream™ 20 is the latest Microstream® capnograph to enable effective, proven airway management by providing the earliest indication of airway compromise. The superior Microstream measurement technology provides an accurate and reliable assessment of your patient's breathing quality, whether intubated or non-intubated.



A bedside monitor, ideal for use in all hospital areas, especially for all sedation procedures and patient controlled analgesia (PCA).
Capnostream 20 (CS08654), with printer (CS08660).



Oridion®

Smart Solutions One Breath at a Time™

www.oridion.com

The Capnostream™ 20 provides a smarter way to m

Smart Capnography™

How does SARA help?

Increases patient safety

- Provides a more accurate indication of patient ventilatory status changes
- Accurately responds to clinically significant events

Improves patient comfort and family satisfaction

- Patient's sleep is interrupted less because of fewer alarms generated during unstable respiratory patterns such as snoring and periods of pain
- Fewer alarms reduce unnecessary interruptions during family visits

Benefits clinicians

- Reduces distractions and time spent responding to clinically insignificant alarms
- EtCO₂ reduces clinical risk

Smart Capnography™ is a family of superior algorithms developed by Oridion that reduce alarms, improve workflow and provide clinical utility for improved patient safety. Today, Smart Capnography includes Smart Alarm Respiratory Analysis (SARA) and the Integrated Pulmonary Index™ (IPI™). Smart Capnography can be found only in Microstream capnography equipped patient monitors, including the Oridion Capnostream 20.

SARA

Preserving caregiver vigilance to alarms is essential for patient safety. Virtually every patient-connected device uses audible alarms to notify caregivers of a change in patient condition or in device status. However, numerous alarms that do not signal clinical significance are a distraction to busy caregivers. Reducing distractions from clinically insignificant alarms helps preserve caregiver alarm vigilance, leading to improved patient safety.

SARA is an embedded Smart Capnography alarm management technology that recognizes and reduces clinically insignificant respiratory rate alarms while accurately reflecting the patient's condition and preserving clinically significant alarm vigilance.

To learn more about SARA, visit www.oridion.com

How does IPI help?

Increases patient safety

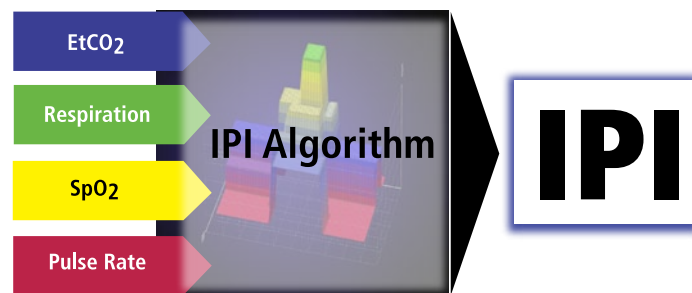
- Recognizes changes in ventilatory status enabling timely decisions and interventions

Improves patient care and outcomes

- Provides an indication of change in the patient's condition during interventions and therapy

Benefits clinicians

- Improves clinical utility with a simple, clear and comprehensive indication of a patient's ventilatory status and trends
- Facilitates easier communication of a patient's ventilatory status between collaborating clinicians



Integrated Pulmonary Index (IPI)

Monitoring and managing your patient's ventilation is now easier with IPI. IPI utilizes end-tidal CO₂, respiration rate, pulse rate and SpO₂ to provide an uncomplicated, inclusive assessment of a patient's ventilatory status. Following the trend of the index, the medical practitioner is able to capture the ventilatory state of the patient and instantaneously assess the patient's ventilatory parameters and their inter-relations. IPI provides an early indication of changes in the patient's ventilatory status that may not be indicated by the current value of any of these four parameters individually.

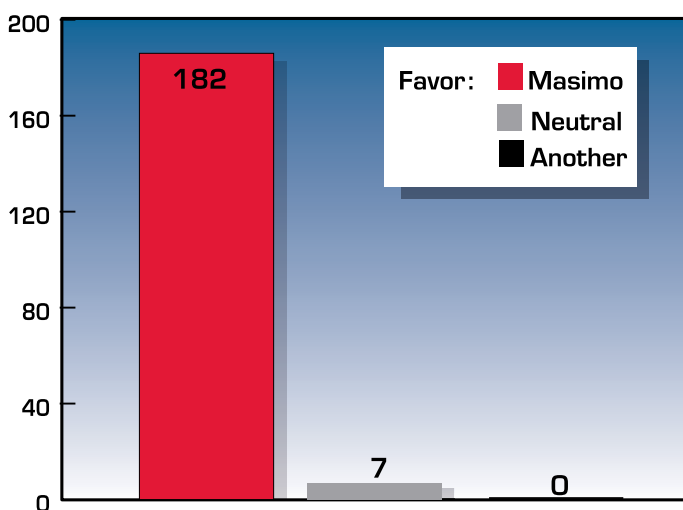
Monitor and manage ventilation and oxygenation.

Masimo SET® SpO₂ alarm management

The accuracy and reliability of Masimo SET—the gold standard in pulse oximetry—makes trustworthy clinician notification possible.

It is the best pulse oximetry choice for patient safety, clinical efficiency, and cost effectiveness. The Masimo SET virtually eliminates clinically insignificant alarms without missing true events so clinicians can respond with confidence to Masimo pulse oximetry alarms.

Summary of independent and objective studies involving Masimo pulse oximetry.¹



1. 2007 Masimo Annual Report, page 12. Obtained from Masimo Corporation, 40 Parker, Irvine CA 92618 .

How does Masimo SET help?

Dramatically reduced false alarms by over 90%

False alarm rates are less than 5% now

True alarm detection improved to over 97%

Precise, continuous SpO₂ measurements under demanding conditions

Proven superior in over 100 independent and objective studies¹

IPI	Patient Status
10	Normal
8-9	Within normal range
7	Close to normal range; requires attention
5-6	Requires attention and may require intervention
3-4	Requires intervention
1-2	Requires immediate intervention

The clinical utilization of Integrated Pulmonary Index is simple. The highest index number “ten” indicates normal ventilatory status while lower index numbers (7 and below) indicate the patient requires attention or intervention. The interventions a clinician utilizes will not change and are determined by hospital policy.

To learn more about IPI, visit www.oridion.com



IPI parameter and trend graph on the Home Screen

Microstream® capnography

Units	mmHg, kPa or Vol%	
Measurement range	EtCO ₂ , FiCO ₂	0-150 mmHg Respiration Rate 0 bpm-150 bpm
Resolution	1mmHg	
Accuracy (±SD)	EtCO ₂ , FiCO ₂	0-38 mmHg ± 2 mmHg 0-150 mmHg ± (5% of reading + 0.08% for every 1 mmHg above 38 mmHg)
	Respiration Rate	0-70 bpm ± 1 bpm 71-120 bpm ± 2 bpm 121-150 bpm ± 3 bpm
Flow rate	50 ml/ min, flow measured by volume	
Waveform sampling	50 msec intervals	
Response time	2.95 sec (typical)	
Initialization time	40 sec (typical)	
Calibration interval	Initial calibration after 1200 operating hours, then once a year or after 4,000 operating hours, whichever comes first	

Masimo SET pulse oximetry

Measurement range	1-100%	
Accuracy	Adult mode	SpO ₂ range 70%-100% ± 2 digits SpO ₂ range 0-69% Unspecified
	Neonate mode	SpO ₂ range 70%-100% ± 3 digits SpO ₂ range 0-69% Unspecified
Pulse rate	Range: 20-240 BPM Accuracy: ± 3 BPM	
Perfusion Index Range	0.02%-20%	

Alarms

Flashing LED and numeric, audible, and text

Three alarm grades	Urgent (red): audible and visual Caution (yellow): audible and visual Advisory: displayed message	
Alarm volume control	5 levels	
Temporary alarm silence	All audible alarms silenced for 2 minutes	
Alarm Limits	EtCO ₂ (high, low) mmHg	5-99, 0-94
	FiCO ₂ (high) mmHg	2-98
	RR (high, low) bpm	5-150, 0-145
	No breath detected (sec)	10-60
	SpO ₂ (high, low) % sat.	25-100, 20-95
	Pulse rate (high, low) BPM	25-250, 20-245

General characteristics

Unit dimensions	167 mm (h) x 220 mm (w) x 192 mm (d), (6.6 in (h) x 8.7 in (w) x 7.6 in (d))	
Unit weight	3.5 kg (7.72 lb)	
Packaged dimensions	315 mm (h) x 340 mm (w) x 285 mm (d), (12.4 in (h) x 13.4 in (w) x 11.2 in (d))	
Packaged weight	5.5 kg	

Power supply

Input Voltage	100-240 V, 50/60 Hz, ± 10%
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Battery

Battery Type	14.8V, 4Ah Lithium-Ion
Battery Operation	2.5 hr (without thermal printer)
Battery Charging Time	100% in 12 hr

Display and storage

Screen	162 mm (6.4 in) Color TFT Display	
Sweep Speed	3.0, 6.3, 12.5, and 25 mm/sec	
Trend Display	Graphical Display	2 hr, 4 hr, 12 hr views
	Tabular displays:	60 min, 15 min, 3 min, 1.5 min, at 5 sec, 10 sec, or 30 sec resolution according to setting

CO ₂ waveform scale (mmHg)	50, 100, autoscale
Trend storage	12 hours at 5 sec resolution, 24 hours at 10 sec resolution, 72 hours at 30 sec resolution

Events

Up to 10 event labels for each category

Medication	(example: Fentanyl, Versed, Midazolam, other)
Patient	(example: eating, drinking, coughing, other)
Intervention	(example: oxygen, suction, adj airway, other)

Stores up to 3 events per line of trend data written into memory

Data transfer and acquisition

USB via flash memory drive (also software updates), RS232, Analog output, PROFOX PC Software compatible

Recorder (optional)

Printed reports	Tabular and Graphical Trends and Case reports; Real-time continuous waveforms and Real-time tabular trends
Printing Method	Thermal Recording
Dot Density	203 dpi
Paper Width	58mm (2.25 in)
Speed	25mm/s

Operating and storage

Operating temperature	0°C to 40°C (32°F to 104°F)
Operating pressure and altitude	Pressure: 430 mmHg to 795 mmHg Altitude: -381m to 4572m (-1,250 ft to 15,000 ft)
Operating humidity	10% to 95% non-condensing
Storage temperature	-35°C to 70°C (-31°F to 158°F)
Storage pressure and altitude	Pressure: 430 mmHg to 795 mmHg Altitude: -381m to 4572m (-1,250 ft to 15,000 ft)
Storage humidity	10% -95% non-condensing

Accessories supported

CO₂ Oridion: Smart CapnoLine® Plus, Smart CapnoBloc™, NIV Line™, CapnoLine®H, Smart CapnoLine® H Plus, Filter-Line® Sampling Sets (*FilterLine Starter Kit included*)

SpO₂ Masimo: Supplied with LNCS Patient Cable and LNCS Adtx/Pdtx Sample Pack.

	Order Number
Recorder paper (6 rolls)	010516
Battery Pack	010520
Nurse Call Cable	011149
Digital/Analog Cable	010492
Fuse (2 each) 3.15 amp. 250 Volts	010543

Standards and regulatory status

IEC/EN60601-1, UL 60601-1, CSA C22.2 No 601.1-M90, IEC/EN60601-1-2 Class A Radiated and Conducted Emission, IEC 60601-1-8 (Audible and Visual Alarms), ISO 21647 (Capnography), ISO 9919 (Pulse Oximetry), IEC 60601-2-49 Particular requirements for the safety of multifunction patient monitoring equipment.

Warranty

24 months

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Microstream and FilterLine are registered trademarks and Capnostream, Integrated Pulmonary Index, IPI, Smart Capnography, and SARA are trademarks of Oridion Medical 1987 Ltd. Oridion products are covered by one or more of the following US patents: 6,422,240; 5,857,461; 6,437,316; 7,488,229; 6,926,005; 5,657,750; 7,383,839 and their foreign equivalents. Additional patent applications pending.



Oridion®

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