COVIDIEN

Microstream® Capnography Guide

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Dual parameter monitor

- Supports current standards of care by providing $EtCO_2$ and SpO_2 measurements

Integrated Pulmonary Index™ (IPI)

- IPI algorithm merges four respiratory measurement parameters into a single number that represents an inclusive profile of adequacy of ventilation
- IPI is captured and analyzed over 72 hours to show upward and downward trends

Intended Benefits

- IPI makes it easier for clinicians to monitor and manage ventilation and oxygenation by providing an integrated snapshot of a patient's respiratory status[1]
- The IPI trend screen provides an early indication of changes in respiratory status that may not be indicated by the current value of $etCO_2$, RR, SpO_2 parameters individually.[2,3]

Alarm Management

- Reduces clinically insignificant alarms* with the Oridion Smart Capnography™ SARA algorithm

HOW DOES SARA HELP?

Improves patient safety

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

Benefits clinicians

- Reduces distractions and time spent responding to clinically insignificant alarms
- $etCO_2$ monitoring helps increase patient safety by alerting clinicians to changes in respiratory status

Event Marking

- Facilitates detection of respiratory changes caused by opiates, especially for patients who are at high risk (e.g., patients with sleep apnea, obese patients)

Internal Printer

- Provides convenient bedside documentation

A complete bedside $EtCO_2$ and SpO_2 monitoring solution

The Capnostream® 20 patient monitor delivers effective, proven airway management by providing an early indication of airway compromise. Microstream measurement technology provides an accurate and reliable assessment of a patient's respiratory status, whether intubated or non-intubated.

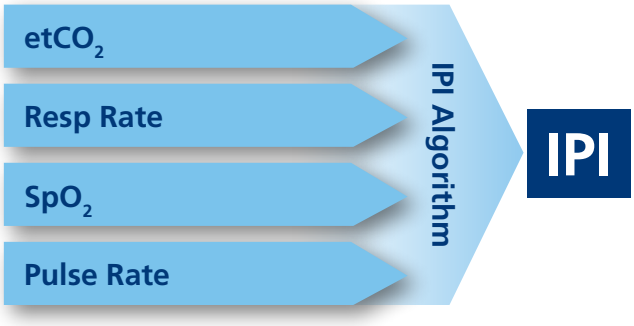
A bedside monitor for use in all hospital areas including sedation procedures and patient controlled analgesia (PCA). Capnostream 20 patient monitor (CS08651), with printer (CS08657)

*A clinically insignificant alarm is defined as a respiratory rate alarm lasting continuously for less than 30 seconds or less than 45 seconds over a period of 60 seconds when compared to the previous respiratory rate algorithm.

The Capnostream® 20 patient monitor provides a smarter way to monitor and manage ventilation and oxygenation

Smart Capnography™: Integrated Pulmonary Index™ (IPI)

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



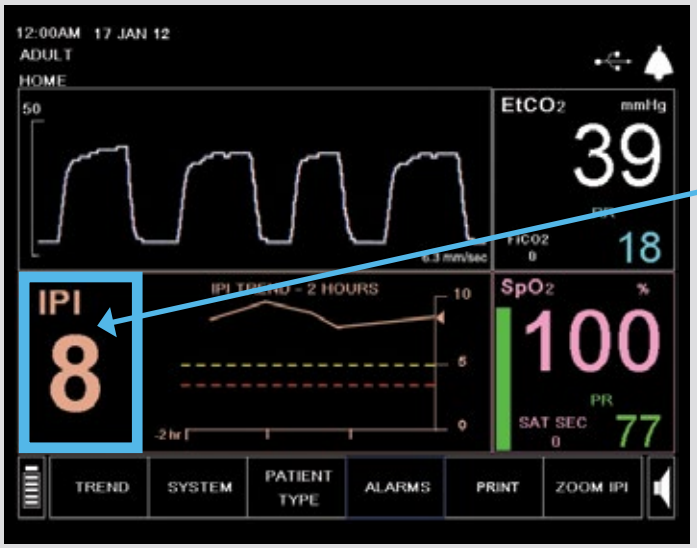
Integrated Pulmonary Index (IPI)

IPI uses $EtCO_2$, respiratory rate, pulse rate and SpO_2 to provide an inclusive assessment of a patient's respiratory status. The IPI trend screen provides an early indication of changes in the patient's respiratory status that may not be indicated by the current value of any of these four parameters individually.[1, 2]

IPI is displayed on a scale from 1 to 10, with 10 indicating a normal respiratory status. The interventions a clinician utilizes are determined by hospital policy.

To learn more about IPI, visit www.covidien.com/rms

IPI parameter and trend graph on the home screen



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

Nellcor™ N-85 Hand-Held Capnograph/Pulse Oximeter with OxiMax™ Technology

FOR PATIENT CARE ANYWHERE

The Nellcor N-85 hand-held monitor is convenient for spot checks and continuous monitoring in a variety of settings, including EMS/ED, transport, critical care, operating room, sleep lab and for procedural sedation.

Accurate measurement technology

- Accuracy 0-38 mmHg ±2 mmHg, 39-99 mmHg ±5% of reading
- IR-based technology that is CO_2 specific
- Unaffected by the presence of other inhaled gases
- Clear, crisp, waveforms and accurate respiratory rates
- Fast on power-up; fully accurate at first reading
- Low sampling flow rate of 50 ml/min, required for neonates

Versatile design for fast, simple set up and use

- A single, integrated sensor is engineered for use with all patient populations in all clinical environments
- Offers the option to switch between patient types without re-zeroing or re-calibration
- Rugged and cost effective—no expensive external sensor or cable to damage

MICROSTREAM®* CAPNOGRAPHY TEAMS UP WITH NELLCOR™ PULSE OXIMETRY WITH OXIMAX TECHNOLOGY

The Nellcor N-85 hand-held capnograph/pulse oximeter with OxiMax technology combines two highly advanced technologies in a convenient, portable device. Microstream®* capnography helps ensure accurate end-tidal CO_2 measurements and crisp waveforms, giving you a clear picture of your patient's respiratory status.[10] The extensive selection of Microstream breath-sampling accessories allows you to monitor intubated and nonintubated patients—including those receiving supplemental oxygen.

- **Nellcor Oximetry Advantage.** The Nellcor N-85 monitor delivers exceptional pulse oximetry performance even during low perfusion and signal interference.[11] Nellcor™ specialty sensors—including the forehead SpO_2 sensor and nonadhesive SpO_2 sensors—expand your patient care options.

NON-INTUBATED PATIENT INTERFACES
ORAL-NASAL PATIENT SAMPLING LINES[12]

Smart CapnoLine™ Plus

Key Applications

Procedural Sedation, Lower GI procedures, OR, MAC, EMS, ED, Rapid Response Team

Adult/Intermediate	25 units	009818
Adult/Intermediate	100 units	010209
Adult/Intermediate Long	25 units	010340
Adult/Intermediate Long	100 units	010339
Adult/Intermediate O_2	25 units	009822
Adult/Intermediate O_2	100 units	010210
Adult/Intermediate O_2 Long	25 units	009826
Adult/Intermediate O_2 Long	100 units	010341

Smart CapnoLine™

Key Applications

Procedural Sedation, EMS, ED, Rapid Response Team

Pediatric	25 units	007266
Pediatric O_2	25 units	007269
Pediatric O_2 Long	25 units	007743

Smart CapnoLine™ H Plus[13]

Key Applications

Medical surgical floor, Critical Care, Sleep Lab

Adult/Intermediate O_2	25 units	010433
Adult/Intermediate O_2	100 units	010625
Adult/Intermediate O_2 Long	25 units	012463

Smart CapnoLine™ H[13]

Key Applications

Medical surgical floor, Critical Care

Pediatric O_2	25 units	010582
Pediatric O_2 Long	25 units	012464

Smart CapnoLine Guardian™

For endoscopic equipment up to 60F

Key Applications

EGD, ERCP, Bronchoscopy, Transesophageal Echocardiogram

Smart CapnoLine Guardian	25 units	012528
Smart CapnoLine Guardian	100 units	012537
Smart CapnoLine Guardian O_2	25 units	012529
Smart CapnoLine Guardian O_2	100 units	012538
Smart CapnoLine Guardian O_2 Long	25 units	012530
Smart CapnoLine Guardian O_2 Long	100 units	012539
Hook and Loop Strap	1 unit	012542

NOTES:

NON-INTUBATED PATIENT INTERFACES
NASAL PATIENT SAMPLING LINES[12]

O_2/CO_2 Nasal FilterLine™

Key Applications

When nasal sampling is preferred

Adult O_2	25 units	006912
Adult O_2	100 units	010304
Adult O_2 Long	25 units	007739
Adult O_2 Long	100 units	010344
Pediatric O_2	25 units	006913

Nasal NIV Line™

Key Applications

EMS, ED

Infant/Neonates	25 units	XS04476
Adult	25 units	008174
Pediatric	25 units	008175

CapnoLine™ H[13]

Key Applications

When nasal sampling is preferred,
Critical Care, Sleep Lab

Adult	25 units	008177
Infant/Neonates	25 units	008179
Infant/Neonates Long	25 units	012465
Adult O_2	25 units	008180
Pediatric O_2	25 units	008181
Infant/Neonates O_2	25 units	012111

INTUBATED PATIENT INTERFACES
INTUBATED PATIENT SAMPLING LINES[12]

FilterLine™ Set[14]

Key Applications

OR, EMS, ED, Rapid Response Team, Transport

Adult/Pediatric	25 units	XS04620
Adult/Pediatric	100 units	010579
Adult/Pediatric Long	25 units	007768

FilterLine™ H Set (Adult/Pediatric)[13,14]

Key Applications

Critical Care, Humidified environments

Adult/Pediatric	25 units	XS04624
Adult/Pediatric	100 units	010580
Adult/Pediatric Long	25 units	007737

FilterLine™ H Set (Infant/Neonates)[13,15]

Key Applications

Critical Care, Humidified environments

Infant/Neonates	25 units	006324
Infant/Neonates Long	25 units	007738

VitaLine™ H Set (Adult/Pediatric)[13,14]

Key Applications

Critical Care, High ambient humidity

Adult/Pediatric	25 units	010787

VitaLine™ H Set (Infant/Neonates)[13,15]

Key Applications

Critical care, Humidity-controlled incubators

Infant/Neonates	25 units	010807

NOTES:

OMNISTREAM™ $etCO_2$ SAMPLING LINES[2]

Omnistream™ sampling lines are compatible with most sidestream CO_2 monitors, including:

- General Electric
- Datex-Ohmeda
- Welch Allyn
- Spacelabs


Smart OmniLine Plus


Smart OmniLine Pediatric


OmniLine


Smart OmniLine Guardian™


OmniLine VentLine™ Set

OmniLine™ for non-intubated patients

DESCRIPTION	QTY/BOX	PART NO.	SPECIFICATIONS				
			PATIENT	ORAL/NASAL	NASAL ONLY	O_2 TUBING	O_2 CONNECTOR
Smart OmniLine Plus	25 Units	010172	Adult	•			•
Smart OmniLine Plus	100 Units	010212	Adult	•			•
Smart OmniLine Plus O_2	25 Units	010177	Adult	•		•	
Smart OmniLine Plus O_2	100 Units	010213	Adult	•		•	
OmniLine O_2	25 Units	007609	Adult		•	•	
OmniLine O_2	25 Units	007610	Pediatric		•	•	
Smart OmniLine O_2	25 Units	007606	Pediatric	•		•	
Smart OmniLine Guardian	25 Units	012531	Adult	•		•	
Smart OmniLine Guardian Long (4M)	25 Units	012532	Adult	•		•	

Products for intubated patients

DESCRIPTION	PART NO.	QTY/BOX
OmniLine VentLine Set	012495	25 Units

Accessories

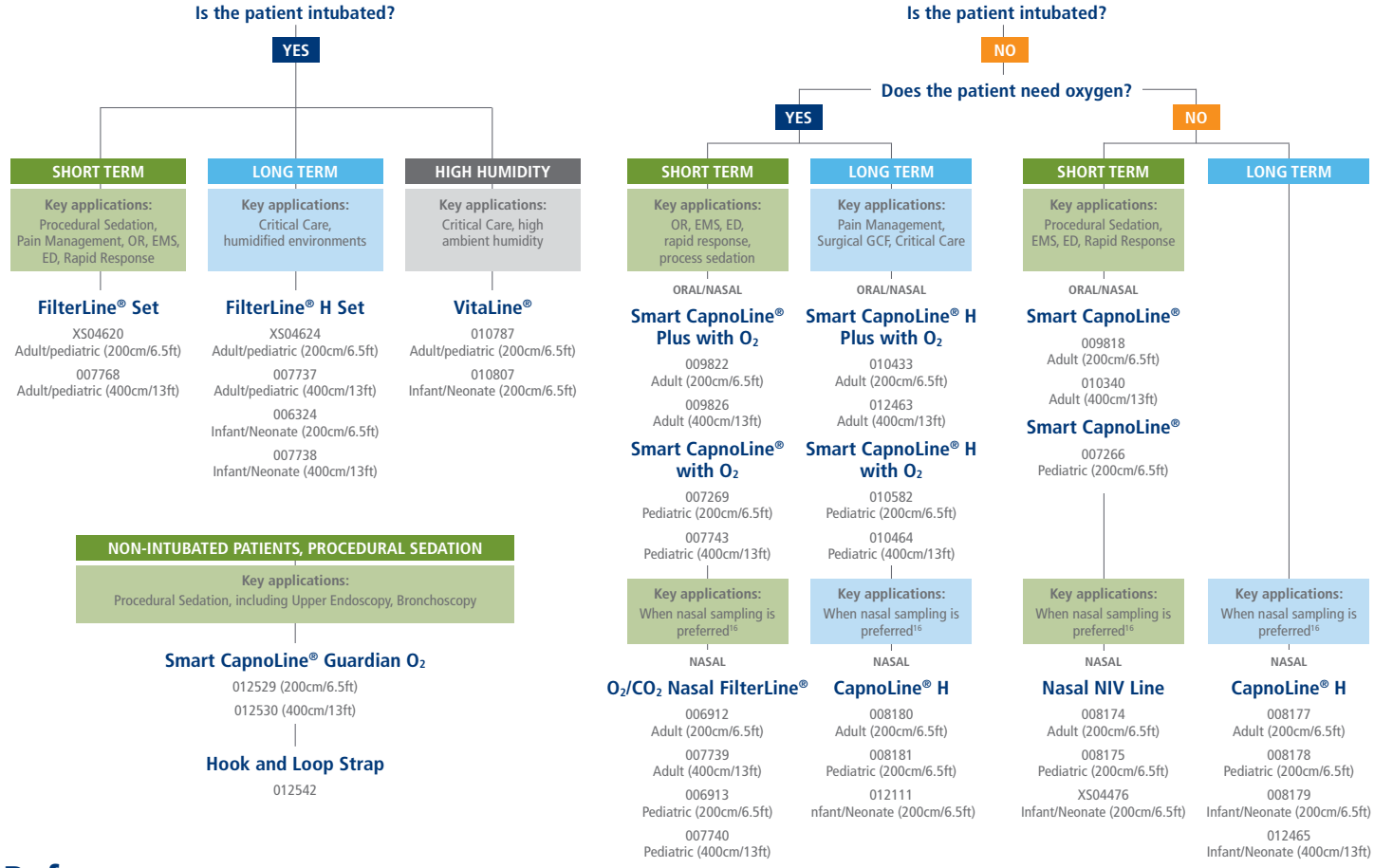
DESCRIPTION	PART NO.	QTY/BOX
Airway Adapter (adult/pediatric)[4]	010989	25 Units
CO_2 sampling line	010991	25 Units
Watertrap*	010994	25 Units
Hook and Loop Strap For use with Smart OmniLine Guardian	012542	25 Units

Omnistream can be used with Welch Allyn sidestream monitoring systems (Atlas™ and Propaq™*). A Watertrap is required for using Omnistream Sample Lines CO_2 sampling with these monitors and can be ordered using the part numbers above.

All Omnistream breath sampling products are for single patient use only. Unless otherwise noted, standard OmniLine Length: 2 m (6.5 ft). Specifications are subject to change without notice. All Omnistream products are latex free.

Microstream® Capnography Guide

Microstream® FilterLine® Selection Guide Summary



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2. Gozal D, Gozal Y. The Integrated Pulmonary Index: Validity and Application in the Pediatric Population. Society for Technology in Anesthesia (STA), January 2009. Page 2; American Society of Anesthesiologists, October, 2009.
3. Taft A, Ronen M, Epps C, Waugh J, Wales R. A novel integrated pulmonary index (IPI) quantifies heart rate, etCO2, respiratory rate, and SpO2%. American Society of Anesthesiologists (ASA). October 2008. Abstract.
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6. Colman J, Cohen J, Lain D. Smart Alarm Respiratory Analysis (SARA) used in capnography to reduce alarms during spontaneous breathing. Supplement to ANESTH ANALG, April 2008, Volume 106, No. 4S, Abstract S-10.
7. Overdyke FJ. Continuous oximetry/capnometry monitoring reveals frequent desaturation and bradypnea during patient-controlled analgesia. *Anesthesia & Analgesia.* 2007;105(2).
8. Bazin JE. Detection of respiratory depression prior to evidence of hypoxemia in procedural sedation. *Respiratory Care.* 2007;52(11).
9. McCarter TG. End-tidal carbon dioxide monitoring in patient controlled analgesia. *Respiratory Care.* 2007;52(11).
10. Maddox RR, Williams CK, Oglesby H, Butler B, Colclasure B. 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.
11. FDA 510(k)
12. All FilterLine™ breath sampling products are for single patient use only and do not contain natural rubber latex. Standard FilterLine length is 200 cm. Long FilterLine length is 400 cm.
13. Adult/Pediatric products are intended for use with ETT tube size > 4.5 mm.
14. Infant/neonate products are intended for use with ETT tube size ≤ 4.5 mm.
15. Use of a CO_2 sampling line with H in its name (indicating that it is for use in humidified environments) during MRI scanning may cause interference. The use of non-H sampling lines is advised.
16. Nasal sampling may be preferred for use under a mask, when anatomical (facial) issues impede use of oral scoop, or when a patient is intolerant of oral scoop.

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