

Microstream® CO₂ Extension

for capnography monitoring

Microstream CO₂ is an innovative, advanced technology for sidestream capnography. The Philips Microstream CO₂ Extension is designed to work with the Philips Multi-Measurement Server and provides a real-time waveform and numeric values for CO₂ on the Philips patient monitor display. Microstream CO₂ technology developed by Oridion Medical Ltd. features an ultra-low-flow capnography method and a wide variety of smartly designed FilterLine® sampling circuits for use on all kinds of patients in different application areas.



Microstream CO₂ uses a sample flow rate of 50 ml/min, making it a viable solution for capnography on all patients, including neonates.

An advance in capnography

Microstream CO₂ offers significant advantages over traditional capnography:

- **Fast response time.** A sample cell volume of just 15 microliters and the small diameter of the sample lines yield a fast response time
- **Very low sample flow rate.** The sample flow rate of 50 ml/min supports the entire patient population, does not compete for neonatal tidal volume, and does not require fresh gas flow compensation for sample flow
- **Crisp waveform.** The 1 mm microbore tubing and the input filter maintain a laminar sample flow resulting in a crisp, undispersed CO₂ waveform
- **Exceptional moisture handling.** An integrated water separation filter in each FilterLine connector prevents fluids from entering the measurement system. The patented multi-port airway adapter design prevents fluid from flowing into the sample port and occluding the sample line
- **No cross-sensitivity.** Molecular Correlation Spectroscopy (MCS)[™] provides a CO₂-specific measurement value with no cross-sensitivity to other gases, such as anesthetic agents
- **Short warm-up time.** Just 45 seconds from ON until waveform and values appear
- **No routine calibration required.** A five-minute calibration is performed once per year

PHILIPS

COMPATIBILITY

The Microstream
CO₂ Extension may
be used with these
Philips patient
monitors:



- IntelliVue
- M3/M4

Please ask your sales
representative for
details on compatibility.

Extended applications for capnography

Microstream CO₂ expands capnography in a variety of clinical situations:

- **Procedural sedation.** Continuous CO₂ monitoring allows clinicians to assess respiratory changes of spontaneously breathing, non-intubated patients that are often the first signs of hypoventilation, apnea, or airway obstruction
- **Critical care.** Allows the assessment of pulmonary perfusion and ventilatory status during mechanical ventilation, weaning, and post-extubation
- **Anesthesia care.** Provides immediate feedback on proper intubation, helps manage ventilation of patients on respiratory-depressant drugs, and warns of ventilator malfunctions
- **EMS/ED.** Valuable in verifying ET tube placement, alerting to extubations, evaluating CPR efforts, and assessing the ventilatory status of patients with respiratory diseases
- **Transport.** The Microstream CO₂ Extension can travel with the patient to continuously assess the patient's respiratory status



For **non-intubated** patients, there are nasal and combined oral-nasal cannulas to accommodate mouth and nose breathers. Combined CO₂/O₂ circuits precisely measure CO₂ while delivering supplemental oxygen. "H" versions are used for ventilation with humidified air.



For **intubated** patients, Philips offers FilterLine Sets that combine a FilterLine sample line with an airway adapter. A neonatal airway adapter provides ultra-low dead space.

References

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Vargo J. Automated graphic assessment of respiratory activity is superior to pulse oximetry and visual assessment for the detection of early respiratory depression during therapeutic endoscopy. Gastrointest Endosc. 2002 Jun; 55(7): 826-31.

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Wide variety of FilterLine sampling circuits

Philips offers a variety of single piece, plug-and-play sampling circuits tailored to different clinical requirements and in different sizes for use with infant to adult patients. Switching from intubated to non-intubated monitoring is as easy as plugging in the appropriate accessory without recalibration.



The Multi-Measurement Server.

The Microstream CO₂ Extension provides one port for capnography measurement using Microstream technology and a second universal port for either invasive pressure or temperature.

M3015A Microstream CO₂ Extension
M3001A Multi-Measurement Server

Philips Commitment to Measurement Technologies

Philips is committed to providing best-in-class standard clinical measurements as well as innovative measurements to support clinicians' decisions at the patient's side.

Philips continues to build on its proven measurement expertise by:

- Maintaining and advancing the performance of existing, widely used standard-of-care measurements
- Investing heavily in research, development, and clinical validation of new, innovative parameters and algorithms
- Working with strategic partners to integrate next-generation measurements and technologies
- Providing interfaces to more than 100 third-party specialty measurement devices through the Philips VueLink module



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