

Medtronic

Integrating capnography has never been easier.

Microstream™ CO₂ NanoPod™

Trusted Microstream™ capnography technology is now available in an external module.

With the Microstream™ CO₂ NanoPod™, you can easily integrate all the trusted features of Microstream™ capnography into existing patient monitoring platforms. This premium off-the-shelf solution enables flexible system configuration, plus fast and simple integrations.

The Microstream™ CO₂ NanoPod™ also offers an excellent option to upgrade from MicroPod™ OEM modules to achieve improvement in power consumption as well as increased durability against drop damage and liquid ingress.

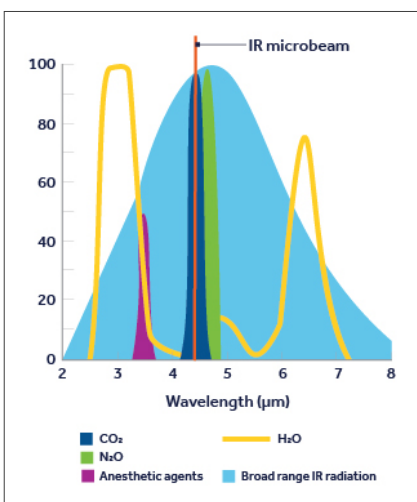
A true external smart cable solution, the Microstream™ CO₂ NanoPod™ attaches with a standard LEMO connector to your host device.

Horizontal or vertical cradle mounting options help you meet host monitor design and care area requirements. The module can be removed from the cradle at any time for enhanced flexibility.

Once the module is integrated with the monitor, clinicians can simply attach a Microstream™ Advance filter line and begin monitoring patients.

Microstream™ capnography

Microstream™ technology uses Molecular Correlation Spectroscopy™ (MCS), a CO₂-specific IR wavelength engineered to deliver clear, crisp waveforms and accurate measurements with no impact from the presence of other gases (e.g., O₂, N₂O, He, or inhaled anesthetics).



With fast power-up and full accuracy at first reading, Microstream™ technology offers:

- Low-flow 50-mL/minute sample rate, effective for almost all patient types and necessary for neonatal sampling
- The option to switch between patients without re-zeroing or recalibrating
- Proprietary Smart Capnography™ algorithms, including **Smart Breath Detection™ (SBD)** – helping to enable quality breath monitoring by mitigating the effect of artifact; and **Smart Alarm for Respiratory Analysis™ (SARA)** – engineered to work in tandem with SBD to recognize breath-to-breath variability and reduce nuisance respiratory alarms.



Cradle for mounting removable Microstream™ CO₂ NanoPod™



Microstream™ Advance filter line connected to Microstream™ CO₂ NanoPod™

May be used in nearly all areas of care:

- Critical care
- Postoperative care
- Procedural sedation suites: GI, IR, IC, EP, etc.

Not final and subject to change. Preliminary version only based on specification goals of an ongoing product development. Documented for internal use only and for technical planning with designers of interfacing medical systems.

Specifications

Measuring parameters: EtCO₂, CO₂ waveform, FiCO₂, respiration rate

Accuracy	
CO₂ partial pressure (at sea level) accuracy	
0-38 mmHg	± 2 mmHg
39-99 mmHg	± (5% of CO ₂ reading + 0.08 × [CO ₂ reading - 39 mmHg])
100-150 mmHg	± 0.43% × ambient pressure + 8% × CO ₂ reading

Respiration rates range 0 to 150 bpm	
Respiration rate accuracy	
0-70 bpm	± 1 bpm
71-120 bpm	± 2 bpm
121-150 bpm	± 3 bpm

Performance	
CO ₂ sampling flow rate	50 mL/min (±5 mL/min) flow measured by volume
Initialization time	Up to 30 seconds to obtain both reading and waveform; at full accuracy when value first appears
Respiration rate	0-150 breaths/min
Mode	Adult, pediatric, neonatal

Physical characteristics	
Dimensions	93.9 mm (h) × 59.9 mm (l) × 58 mm (w)
Weight	294 g

LEMO and mating connector	
LEMO part number	PFG.M0.7GL.AC52GZ
Mating connector part number	PNG.M0.7GL.LG

Power requirements	
Input voltage	4.5-5.5 V
Current [mA] (max peak)	700 Max duration: 200 ms
Power [mW] (typical average)	1,200 RMS power for the average unit
Power [mW] (Max average)	1,350 RMS power for the worst case unit

Environmental	
Temperature	
Operating	0°-40° C (32° to 104° F)
Storage	minus 40°-70° C (minus 40°-158° F)

Operating pressure and altitude	
Pressure	57-108 kPa (430-805 mmHg)
Altitude	minus 487-4,572 m (minus 1,600-15,000 ft)

Storage pressure and altitude	
Pressure	11-108 kPa (88-805 mmHg)
Altitude	minus 487-15,240 m (minus 1,600-50,000 ft)

Relative humidity	
Operating and storage	10%-95% (non-condensing)

Interface requirement	
Communication protocol	RS232, Medtronic proprietary protocol

Compliance standards	
IEC 60601-1:2012	
IEC 60601-1-2:2014	
ISO 80601-2-55:2018	
IEC 60601-1-6:2013	
IEC 62304:2015	

The Microstream™ capnography monitoring system should not be used as the sole basis for diagnosis or therapy and is intended only as an adjunct in patient assessment.

©2022 Medtronic. Medtronic, Medtronic logo, and Engineering the extraordinary are trademarks of Medtronic. All other brands are trademarks of a Medtronic company. 09/2022 - US-PM-2200665 - [WF#4919075]

6135 Gunbarrel Avenue
Boulder, CO 80301
800.635.5267
[medtronic.com/covidien](https://www.medtronic.com/covidien)

Medtronic