Microstream
MicroPod

740SELECT™ Capnography: Covidien Microstream® MicroPod™

The 740SELECT Series of patient monitors offers the option to continuously monitor End-Tidal Carbon Dioxide (etCO$_2$) using the Covidien Microstream MicroPod external etCO$_2$ module. The MicroPod provides a "Plug-and-Play" solution allowing the module to be shared between multiple 740SELECT monitors enabled for CO$_2$ monitoring.

- The 740SELECT supports standard-of-care requirements, offering dual parameter (etCO$_2$ and SpO$_2$) and multi-parameter configurations for use in a wide variety of clinical settings.

- Parameters available with CO$_2$ include: SpO$_2$, NIBP, Predictive or Temporal Artery Temperature, and 3-Lead ECG.

740SELECT CO$_2$ Monitoring Features

Alarms/Alerts/Indications:
- High and low alarm limits
- Audio and visual alerts
- No Breath Time alarm (6, 10, 15, 20, 25, or 30 seconds)
- MicroPod LED Status indicator

Alarm History Log:
Review of the most recent alarms and setting changes (400 entries)

Measurements:
etCO$_2$ (mmHg or kPa), FiCO$_2$ (mmHg or kPa), RRc IPI (optional)

Patient Type:
Adult, Pediatric, Neonatal

Tabular Trends Review:
- Automatic 1 minute average of all CO$_2$ measured values
- Trend review (intervals 1, 5, 15 minutes; 1, 4 hours)
- Saves Snapshot review
- Date and time stamp
- Stored trends: 72 hours of 1 minute average

Waveforms:
- Capnogram, CO$_2$ trend
- Continuous and freeze
- Size adjustment: 0-20, 40, 60 or 80 mmHg (0-2.5, 5, 8 or 11 kPa)

7" Color Touch Screen Display:
- For controlling and configuring the monitor
- One touch access to alarms settings and setup menu

Optional:
- Printer (external): prints CO$_2$ waveform and measured values, Print on Alarm, Print on Save, Print Tabular Trend
- MicroPod module mounting solutions
    - Crade/Clip
    - Crade/VESA

With a legacy of proven performance. The Covidien Microstream MicroPod features Microstream technology used worldwide to help clinicians monitor patients' end-tidal CO_2 and alert them to early indications of evolving respiratory compromise. Microstream capnography delivers an accurate and continuous view of ventilation adequacy on intubated and non-intubated patients, from neonate to adult.

Features and Benefits
Covidien Microstream MicroPod CO_2

Advanced monitoring and alarm management:
- Integrated Pulmonary Index™ (IPI) combining four real-time respiratory measurements – Capnography, respiratory rate, pulse rate and pulse oximetry – to provide clinicians with an integrated snapshot of a patient's respiratory status. IPI simplifies assessment of respiratory status.
- Smart Alarm Respiratory Analysis™ (SARA) alarm management technology that reduces insignificant respiratory alarms, thereby preserving clinician vigilance, which is essential to patient safety.
- Smart Breath Detection™ (SBD) mitigates the effects of artifact, enabling quality monitoring for non-intubated patients.

Compact size and lightweight:
size: 70.0 mm x 93.9 mm, weight: < 240 g

Flexible mounting solutions:
mounting clip or VESA mounting adapter with holster

Low sampling flow rate:
50 ml/min, supports neonatal pediatric and adult populations

Performance, reliability and measurement accuracy:
- Automatic pressure compensation
- Clinical application: intubated or non-intubated patients
- Automatic standby: after 30 minutes without FilterLine® inserted
- Low noise emission: less than 45 dBA (measured 1 meter)
- Initialization time: typically 30 seconds
- Calibration: after the first 1,200 operating hours of use or 12 months, whichever comes first. Then every 12 months or after 4,000 operating hours, whichever comes first.
- Gas exhaust port for scavenging systems
- Green LED status indicator: Initialization (blinks), normal (constant on), hardware failure (turned off)

Software
740 SELECT CO_2

The 740SELECT Open Technology Platform (OTP) allows CO_2 Monitoring Software to be installed at any time on any SELECT monitor as a CO_2 parameter upgrade.

Catalog No.   Description
(Refer to 21-05-0258 for Covidien Microstream MicroPod CO_2 accessories guide)

Catalog No.	Description
01-02-0855	Covidien Microstream etCO₂ software field enable license
01-02-0857	Covidien Microstream IPI software field enable license
01-02-0853	Covidien Microstream etCO₂ software factory enable license
01-02-0856	Covidien Microstream IPI software factory enable license
01-02-0841	Covidien Microstream MicroPod External CO₂ Module
01-02-0880	740SELECT Interface Cable (MicroPod)
01-02-0882	Covidien Microstream MicroPod Cradle and Clip (RS09283)
01-02-0861	MicroPod CO₂ Start-Up Kit
01-02-0883	Covidien Microstream MicroPod Cradle and VESA Mount (RS09279)

Specifications
Covidien Microstream MicroPod CO_2

OEM Board: Covidien Microstream microMediCO₂
Method: Sidestream (Non-dispersive IR)
Units: mmHg
Parameters: etCO₂, FiCO₂, RRc, IPI
CO₂ measurement range:
- etCO₂ & FiCO₂: 0 to 38 mmHg: ± 2 mmHg
- >38 to 150 mmHg: ± (5% of reading + 0.08% for every 1 mmHg above 38 mmHg)
- Accuracy applies for breath rates of up to 80 bpm. For breath rates above 80 bpm, accuracy is 4 mmHg or ± 12% of readings whichever is greater, for etCO₂ values exceeding 18 mmHg. This is tested according to and is compliant with ISO 21647. To achieve the specified accuracies for breath rates above 60 bpm, the Microstream FilterLine H Set for Infant/Neonatal must be used. Above 55 °C module temperature, ±1 mmHg or ±2.5% (whichever is greater) has to be added to the tolerance of the accuracy specs.

CO₂ resolution: etCO₂ and FiCO₂: 1 mmHg
RRc (Resp. Rate) measurement range: 0 to 150 bpm
RRc measurement accuracy:
- 0 to 70 bpm: ±1 bpm
- 71 to 120 bpm: ±2 bpm
- 121 to 150 bpm: ±3 bpm
- etCO₂, FiCO₂, and respiration accuracy tested according to ISO 21647 using a mixture of gases (5% CO₂, 21% O₂, N₂ balance) supplied via function generator and breath simulator application. Respiration rates from 10-60 bpm for adults/pediatrics as measured in 10 bpm discrete steps were tested for 1 minute before moving forward to the next value and at the end of this one minute period module readings were taken.

RRc resolution: 1 bpm
IPI range: 0 to 10
Barometric pressure range: 430 to 795 mmHg
Barometric pressure compensation: automatic
Report interval: 1 second
Flow rate: 50 ml/min(-7.5 to 15 ml/min), flow measured by volume
Warm-up time required to meet accuracy specifications:
- Typical: 30 seconds
- Max: 180 seconds (no readings until warm-up completed)

Total system response time:
4.3 sec (typical) using standard Microstream FilterLine

Drift of measurement accuracy:
meets accuracy specifications when the calibration schedule is followed in accordance with manufacture's recommendations

Measurement accuracy for gas mixture:
meets ISO 21647 Clause 51.101.1 (tables 101 and 103): ± (volume fraction of 0.43% + 8% of gas level)

Measurement accuracy in the presence of interfering gases:
meets ISO 21647 Clause 101.1 (tables 101 and 105): ± (volume fraction of 0.43% + 8% of gas level)

Standards conformance:
ISO 80601-2-55:2011 (CO₂ respiratory gas monitoring)

Contact Zoe Medical customer support for ordering information at customersupport@zoemedical.com.

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