



# CAP201

## Sidestream Capnography Module

**Capnography is a widely used technology in emergency transport and clinical areas. One of its main applications is to monitor and verify the correct position of an endotracheal tube, as an undetected misplacement of the tube may be lethal for the patient. Studies have also shown that the monitoring of etCO<sub>2</sub> in non-intubated patients provides an indication of hypoventilation and the need for intubation.**

The CAP201 from Corscience is an OEM sidestream capnography module based on non-dispersive infrared technology (NDIR). It is well-suited for critical situations like emergency medical services as well as clinical monitoring. Sidestream measuring has the advantage that the weight of the breathing hose assembly is not increased. Non-intubated patients can be reliably monitored. The absence of mechanically moving parts and the mounting considerations taken in the CAP201 design, assure the robustness of the measurement even in high vibration environments. The pump can be mounted separately from the board, which makes the module one of the most compact and flexible ones on the market.

By using a two-channel IR sensor, aging and temperature effects of the system can be compensated for. Correct measurements over the product life cycle can be ensured. In addition to that, this technology provides a warm-up time under five seconds. The measurements are also compensated for ambient pressure and temperature variations gathered by built-in sensors. These facts ensure a measuring accuracy well better than that required by standard EN ISO 80601-2-55. Longterm stability is high enough so that service calibration is not required.

Finally, the CAP201 offers built-in algorithms that analyze the CO<sub>2</sub> curve, delivering clinical parameters as etCO<sub>2</sub>, fiCO<sub>2</sub> and breathing rate. The system sends an alarm when no respiration curve is detected. Furthermore it detects occlusions in the sidestream tubing system.

The combination of measuring accuracy, reliability, compact design and robustness makes the CAP201 an unrivalled capnography module. A development kit including PC software including various accessories is also available. For further information, please ask our sales team.



### Features

- Capnogram output: continuous CO<sub>2</sub> curve
- No service calibration required due to long-term stability compensated for aging, temperature and pressure
- Integrated CO<sub>2</sub> graph analysis: etCO<sub>2</sub>, fiCO<sub>2</sub> and breathing rate calculation
- Occlusion detection
- Robustness due to absence of mechanically moving parts
- Data transmission via UART interface
- Different versions available
- Development kit available

### Technical Information

- CO<sub>2</sub> measurement range: 0 Vol.% – 16 Vol.%
- CO<sub>2</sub> units: partial pressure in kPa and mmHg, concentration in Vol.%
- Data rate CO<sub>2</sub>: 8 Hz, 40 Hz
- Accuracy in range of 0 Vol.% to 8 Vol.%:  
+/- 0.26 Vol.% +/- 5 % of measured value  
(better than required by ISO 80601-2-55)
- Breathing rate range: 3 – 150 breaths/min
- Resolution: 0.1 Vol.%
- Rise time T<sub>10-90</sub>: < 100 ms @ 80 ml/min flow
- Warm-up time: < 5 seconds
- Ambient pressure range: 540 hPa – 1200 hPa
- Ambient temperature range: -10 °C – 65 °C
- Relative humidity range: 5 % – 95 %, non-condensing
- Interface: UART 5 V or 3.3 V signal level
- Supply voltage: 3.3 V – 7.2 V
- Average power consumption: 1.0 W (+ 0.3 W with pump)
- Size of board: 70 mm x 40 mm x 26 mm (LxWxH)
- Weight: 69 g (incl. pump)
- Optional: MRT compatibility (up to 3 Tesla)

### Applied Standards

- IEC 60601-1
- IEC 60601-1-2
- ISO 80601-2-55
- IEC 60601-1-12
- EN 1789
- RoHS / REACH compliant

### On request

- Customized communication protocol
- Better accuracy
- Wider pressure range