Sidestream CO_2 Sensor

OEM solution

Easy integration

Intended Use

Sidestream CO_2 Sensor is intended for continuous noninvasive monitoring of fraction of inspired CO_2 ($FiCO_2$) and end tidal CO_2 ($EtCO_2$), respiration rate (RR) and apnea. Specially designed for implementation into medical devices for anesthesiology, intensive care, as well as patient monitors.

Scope	Anesthesiology and intensive care departments of professional medical facilities, transportation within professional medical facilities.

CO_2 monitoring is recommended by various international associations as a routine procedure for patients during anesthesia and in intensive care departments.

Benefits

Easy integration.

Maintenance-free.

Standard accessories.

No routine calibration.

Clinical Application

Assessing of the spontaneous breathing adequacy. Using the capnography the level of spontaneous breathing during recovery after anesthesia can be assessed.

Weaning from mechanical ventilation.

Controlling of breathing system hermetic seal. A gas leakage is always possible during anesthesia. The leakage can be detected by $EtCO_2$ monitoring, which value is gradually increasing due to hypoventilation.

Examination of circulatory arrest and resuscitation procedures effectiveness.

Capnometry is optimal method for monitoring of cardiopulmonary resuscitation (CPR) effectiveness.

Control during the trachea intubation.

Examination of ventilation-perfusion ratio mismatch.

Any cause that reduces the lungs perfusion and/or increases the respiratory dead space can lead to $PEtCO_2$ decreasing and $\Delta P(a\text{-}Et)CO_2$ increasing.

Monitoring of hypermetabolic conditions (malignant hyperthermia, thyroid crisis, sepsis, etc.).

References

1. ASA Standards for Basic Anesthetic Monitoring, Standards and Practice.

2. European Resuscitation Council Guidelines for Resuscitation.

3. American Heart Association (AHA) Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.

4. Association of Anaesthetists of Great Britain and Ireland. Recommendations for standards of monitoring during anaesthesia and recovery.

Appearance

OEM Delivery Kit

Sidestream CO_2 Sensor	TESN.943129.008-01	1 pcs.
Connector	15M-22M/15 REF2713 or 15M-22M/15 010-638 Flexicare	*
Monitoring line	TESN.943129.008-01	1 pcs.
Water trap	60-1300-00 DRYLINE	1 pcs.
Interface cable	TESM.704021-03	1 pcs.

* The items and quantity of the accessories and documents are specified at the order.

Technical Specification

Operation principle	Non-dispersive infrared spectrophotometry (NDIR)
Initialization time	10 s
Time of setting the operating mode	120 s (at ambient temperature 25°C)
Gas sampling rate accuracy	50–250 ml/min ±10 ml/min in absolute terms or ±10% in relative one (the biggest from the values)
CO_2 concentration measurement range	0–20 vol.% (resolution 0.1) 0–150 mmHg (resolution 0.1)
CO_2 measurement accuracy	±(0.2 vol.% + 0.02 · K_{meas}) or ±(1.5 mmHg + 0.02 · K_{meas})
Measurements drift	±(0.2 vol.% + 0.02 · K_{meas}) or ±(1.5 mmHg + 0.02 · K_{meas})
Response time	~3 s
Rise time	0.2 s
Influence of gas impurities and vapors	±(0.43 vol.% + 0.08 · K_{meas})
Respiratory rate measurement range Respiratory rate measurement accuracy	3–160 breath per minute (BPM) ±2 breath per minute (BPM)
Power	Voltage: 5.0 V±5% Capacity: 1.5 W, maximum 4 W during warming
Weight	0.5 kg
Dimensions (without cable), width x height x depth	58x92x146 mm
Connector	Lemo Redel / ODU
Interface	RS-232

Operation Conditions

Ambient temperature	10–35°C
Relative humidity	10–90% (at the temperature 25°C)
Ambient pressure	600...800 mmHg

Transportation Conditions

Ambient temperature	(–50)°C–50°C
Relative humidity	<80% (at the temperature 25°C)

Storage Conditions

Ambient temperature	5–40°C
Relative humidity	<80% (at the temperature 25°C)

Standards

The device meets the safety requirements of EN 60601-1, EN ISO 80601-2-55.

The device is developed to meet the requirements of EN 60601-1-2 concerning electromagnetic compatibility (EMC).

We continuously improve the technological principles and implement new profitable solutions based on market demands

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Quality management system certified as meeting the requirements of EN ISO 13485

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