



- Easy integration into your product
- Fast operational readiness
- Reliable and accurate even under changing ambient conditions
- RoHS-conform
- Calibration with ambient air
- Low cost over life time

● AREA OF USE

The ACE-Xmed® is a sensor system with a response time of a few milliseconds, used to measure the oxygen concentration in the sidestream. This system is ideal for the use in terminal de-

- for cardiopulmonary stress tests in cardiology, occupational medicine and sports medicine,
- for diagnostic of lung function and
- to monitor breathing and respiration of adults and neonates.

● STATUS QUO

Many commercially available oxygen sensors exhibit a variety of disadvantages, as a result of their construction. To compensate for these, extensive peripheral units and sophisticated software routines are needed. Typical disadvantages of conventional sensors include:

- Sensitivity to temperature or humidity
- Short life-span
- Susceptibility to condensation
- Need for calibration with specific calibration gases
- Slow response times

This results in:

- Lack of precision especially at high breathing rates and/or low tidal volume
- Additional costs for drying respiratory gases or for calibration with special calibration gases
- High operating costs resulting from regular exchange of used sensors
- Unsatisfied customers and high service costs due to frequent failure of sensors (depending on the technology)

● OUR SOLUTION

ACEOS® technology employs an amperometric platform, with a solid electrolyte sensor. Because of the technical design and the manufacturing procedure, the unit can be highly miniaturised. High quality ceramic and noble metal are used which results in an almost unlimited life time.



ACE-Xmed® (without electronics)

The response time of the ACE-Xmed® is much less than 100 ms. This extremely rapid response permits a precise and reliable resolution of each breath. This is an essential precondition for achieving precise measurements especially of persons being stress tested with high respiratory volume and high breathing rate. Due to its fast response time ACE-Xmed® delivers accurate measuring values even at very low tidal volume and at the same time high breathing rates (typical for neonatal).

ACE-Xmed® contains standard interfaces and a synchronized measurement, so that it can be easily integrated into existing systems. At any time the system might be calibrated with ambient air. For quality surveillance central sensor parameters can be retrieved. Optional ACE-Xmed® is available with pressure compensation.

● ADVANTAGES

- High accuracy
- High selectivity
- Simple integration in devices
- Rapidly ready to use
- Ultra-rapid response time
- Lifetime > 5 years
- Reliable even when environmental conditions fluctuate
- Calibration with ambient air
- Small and light-weight
- Pressure compensated
- RoHS-conform
- Synchronized measurement

● BENEFIT

As a result of all these advantages, ACE-Xmed® is the sensor which is preordained for use in a new generation of instruments for measurement and diagnosis in sports and medicine. Benefit from the advantages of the ACEOS® sensor technology:

... in construction:

- Fewer parts (no calibration gases)
- Easy integration
- Simple synchronisation by master board
- Smaller terminal devices
- Less maintenance work

... in performance:

- High precision even at extreme conditions
- Excellent signal quality
- Insensitive to changes in humidity and temperature

... and in comparison with competitors:

- Reduced manufacturing and guarantee costs
- Increase in customer satisfaction due to the lack of regular exchange of electrochemical cells and due to the reduction of operating costs

● CHARACTERISTICS

Model: ACE-Xmed® 1		
	Measuring	O ₂ sidestream
Properties	Measurement principle	amperometric
	Range of measurement	10-21 Vol%
	Precision, absolute	<0.1Vol%
	Resolution	<0.01%
	Linearity	<0.05 Vol%
	Stability	<0.2 Vol% / 8h
	Temperature range	0°C-50°C
	Responsive time T ₁₀₋₉₀	<100ms
	Pressure range	800-1.200 hPa
Operation	Humidity range	0-100% (also condensing)
	Flow resistance	2mbar / 300ml/min 4mbar / 500ml/min
	Effective dead space	0.4ml
	Expected volume flow	200-500ml/min
	Lifetime	non-consumptive
Interference	Time till ready-to-use	approx. 3min
	Environmental temperature	no
	Pressure in suction section	yes, linear; option: compensated
	Humidity	none
Peripherals	Gases	flammable gases
	Sensor dimensions (DxWxH)	20x20x29 mm
	Sensor weight approx.	30g
	Sensor housing temperature	max. 50° C
	Controller (DxWxH)	70x70x20 mm
	Controller weight approx.	80g
	Baseplate (DxWxH)	105x70x1 mm
	Baseplate weight approx.	42g
	Interface patient	pumped gas sample
	Interface tubing	Value Plastics BDMR210-40
	RS232	38.4 kBaud, 8 bit, no par., binary, 100Hz
	TTL	38.4 kBaud, 8 bit, binary, 100Hz
	Analog	0V - 1V
	Power consumption	<4W
	Voltage supply	12V

(only for gas mixtures O₂/N₂/CO₂; not to be used with flammable gases / anaesthetic gases)

● ORDERING ACE-Xmed®

Contact information	ACE-Xmed1 (100ms at 300ml/min) Evaluation-Kit	20001 20005
	Information Detail Phone Fax Mail Internet	specification / manual +49(0)911-477527-0 +49(0)911-477527-99 info@ACEOS.com www.ACEOS.com