DEMCON | MACAWI RESPIRATORY SYSTEMS

Macawi SERA specifications.

MACAWI SERA

The Macawi SERA (Surface Electromyography Respiratory Assist) is an innovative non-invasive cardiorespiratory sensor for measuring the diaphragmatic muscle activity to monitor and characterize the patient's breathing effort. In addition to monitoring respiratory signals, the sensor is also able to capture the heart's electrical activity thanks to placement of surface electrodes on the patient's chest. Integrating this dual-function sensor technology with mechanical ventilation opens up new and exciting applications with respect to personalized ventilation such as apnea detection and classification, solving patient ventilator asynchrony, guiding spontaneous breathing trials and weaning process, triggering and closed-loop ventilation.

SERA PARTS AND CONFIGURATIONS

SERA sensor	
Stand Alone Module	
Build-in PCBA	
ECG Cable (Trunk + Patient Lead Wires)	
Reusable patient leads (snap connector)	
Disposable patient leads, specifically for neonates (With Reusable Trunk Cable Adapter)	

CORE TECHNICAL SPECIFICATIONS

Sample rate and bandwidth	500 Hz | 160 Hz Monitor Mode
	4000 Hz | 1300 Hz Research Mode
Input range	10 mVpp
Resolution	16,6 nV/LSB
Noise level	1 µV RMS
Input impedance	> 1 GΩ
Input capacitance	< 5 pF
Leakage current	< 100 pA
Common Mode Rejection Ratio (CMRR)	> 110 dB
Defibrillator proof	YES
Lead off detection	YES

ECG AND EMG SPECIFICATIONS	
ECG input	3-lead, 5-lead, 12-lead ECG cable
ECG LEAD Options	I, II, III, aVR, aVL, aVF, V1-V5 (depending on electrode input)
Heart Rate Range	30 – 250 bpm
Heart Rate Accuracy	±10% or ±5 bpm (whichever is greater)

EMG input	3-lead, 5-lead, 12-lead ECG cable
EMG target options	1, 2, 3, 4 muscle groups (depending on electrode input)
Respiration Rate Range	5 – 80 bpm
Respiration Rate Accuracy	±5% or ±2 bpm (whichever is greater)

POWER AND COMMUNICATION	
Input voltage	5 V
Input current	< 100 mA
Power consumption	< 0.5 W
Communication type	Serial
Communication speed	1 Mbaud
Signal level	RS232 (±6 V)
Connector	6-pin ODU Medi-Snap
	• 2x power
	• 2x TX
	• 2x RX

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