

Natus® Embla® SDx Amplifier

Technical Specifications

Amplifier Inputs

AC Channels	20 AC channels, 6 Sensor inputs
Referential Inputs.....	16 referential
Differential Inputs	4 Differential
Sensor Inputs	6 (Chest, Abdomen, Snore, Airflow, Pressure, Position)
DC Channels (patient side).....	2 non-isolated
DC Channels (computer side).....	6 isolated
Photoc.....	No
Digital Trigger Input	N/A
Pulse Oximetry	SpO ₂ , Pulse Rate, PPG, Plethysmogram, Pulse Quality
Event Button	2 (Breakout and Base)

Analog Specifications

Input Impedance	Common Mode: ≥ 1 GΩ Differential Mode: ≥ 40 MΩ // 280 pF +/- 20%
Input Noise	≤ 2 μ Vpp (0.1Hz – 70 Hz)
Common Mode Rejection Ratio	≥ 106 dB min
Bandwidth	DC to 1600 Hz (default HFF is 0.08 Hz)
Input Signal Range (AC).....	20 mVpp, +/-0.3 VDC
Dedicated Sensor Inputs	Chest, Abdomen, Thermistor, Pressure Cannula, Position, Snore
Derived Traces	XSum, XFlow, XVolume, Phase, RMI, RespRate, Flow_DR, Snore_DR, Elevation, Activity, Position

Digital Specifications

Sampling Rates	256, 512 Hz
Sampling resolution	24 bits
Sampling Quantization.....	305nV
Storage Resolution	16 bits

PC Interface

Network	Gigabit Ethernet, DHCP
Direct	USB 2.0 Hi-Speed, Ethernet

Modes of Operation

Base Unit Fuse Type and Rating	Type T, 1.6 A / 250 V
Power	80 VA
Input	100 – 230 V, 50/60 Hz
Impedance Check.....	< 2.5 , < 5 , < 10 , < 25 kΩ
Channel Test Signal	Software Controllable 0.25, 0.5 and 1 Hz; 10 – 2000 μ Vpp

Amplifier Mechanical

Base Unit Size (HxWxD)	29 x 26.5 x 5cm (11.4 x 10.4 x 2 in)
Base Unit Weight	2300 g (5.1 lb)
Breakout Box Size (HxWxD)	19 x 11.4 x 3.2 cm (7.5 x 4.5 x 1.25 in)
Breakout Box Weight	460 g (1 lb)
Base to Breakout Cable Length	5 m (15 ft) included, 10 m (30 ft) max (optional)



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Environmental Conditions for Use

Operating Environmental Limits

Temperature Range.....	10° – 30° C (50° – 86° F)
Relative Humidity Range	30% – 75%
Atmospheric Pressure Range	700 – 1060 kPa

Transport and Storage

Temperature Range.....	-25° – 60° C (-13° – 140° F)
Relative Humidity Range	10% – 95%
Atmospheric Pressure Range	500 – 1060 hPa

Regulatory Compliance

Safety

IEC 60601-1:2012 - General Safety Third Edition
CAN / CSA-C22.2 No. 60601-1: 08(R2013) +C2:2011
IEC 60601-1-6:2010 – Usability Third Edition
IEC 62366:2007, Edition 1.0
IEC 60601-2-26:2012 – Electroencephalographs Third Edition
IEC60601-2-61:2011 - Pulse Oximeters
EN ISO 80601-2-61:2011, Edition 1

EMC

IEC 60601-1-2:2014 – EMC Fourth Edition
IEC 61000-3-2:2014, Fourth Edition
IEC 61000-3-2 Harmonic emissions – Class A
IEC 61000-3-3:2013, Third Edition Voltage Fluctuations/ Flicker emissions
CISPR11, Edition 5.0 A1:2010 RF emissions – Group 1, Class A
IEC 61000-4-2:2008, Second Edition
IEC 61000-4-2 Electrostatic Discharge (ESD) ± 8 kV contact (to the patient lead and expose metal), ± 15 kV air
IEC 61000-4-3 Third Edition with A1:2007+A2:2010
IEC 61000-4-3, 3 Vrms, 80 MHz to 2.7 GHz
IEC 61000-4-4:2012, Third Edition, fast transient/burst ± 2 kV power supply ± 1 kV
IEC 61000-4-5:2014, Third Edition
IEC 61000-4-5 ± 1 kV Surge differential mode ± 2 kV common mode
IEC 61000-4-6 Second Edition with A1:2004 + A2:2006
IEC 61000-4-6, 150 kHz to 80 MHz
IEC 61000-4-8:2009, Second Edition
IEC 61000-4-8, Power frequency (50/60 Hz) magnetic field, 30 A/m