Natus® Embla® NDx Amplifier

Technical Specifications

Amplifier Inputs

AC Channels ..... 64 AC channels, 6 Sensor inputs
Referential Inputs..... 40 referential + 24 programmable (from differential to ref)
Differential Inputs ..... Programmable up to 12
Sensor Inputs ..... 6 (Chest, Abdomen, Snore, Airflow, Pressure, Position)
DC Channels (patient side)..... 4 non-isolated
DC Channels (computer side)..... 12 isolated
Photic..... Yes
Digital Trigger Input ..... 8-bit TTL
Pulse Oximetry..... SpO_2, Pulse Rate, PPG, Plethysmogram, Pulse Quality
Event Button ..... 2 (Breakout and Base)
Headcap Input..... 25 Pin Connector

Digital Specifications

Input Impedance..... Common Mode: ≥1 GΩ
Differential Mode: ≥40 MΩ // 280 pF +/- 20%
Input Noise ..... ≤2 µVpp (0.1Hz – 70 Hz)
Common Mode Rejection Ratio ..... ≥106 dB min
Sampling Rates ..... 256, 512, 1024, 2048, 4096 Hz
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

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 µVpp

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)

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

natus neuro

Natus Neuro
3150 Pleasant View Road
Middleton, WI 53562 USA
Tel: 1-800-356-0007
1-608-829-8500
Fax: 1-608-829-8709
www.natus.com

Natus Medical Incorporated
DBA Excel-Tech Ltd. (XLTEK)
2568 Bristol Circle
Oakville, Ontario, L6H 5S1 Canada
Tel: 1-800-387-7516
1-905-829-5300

P/N 024532 Rev01