

# Natus® EMU40EX Amplifier

## Technical Specifications

Part Number..... PK1072-NTB  
Use Case..... LTM (Wireless)

### Analog Specifications - AC Channels

Referential Channels..... 40  
Differential Input Impedance..... >100 MΩ  
Common Mode Input Impedance..... >50 MΩ  
Common Mode Rejection Ratio..... 116 dB @ 60 Hz  
Input Noise (peak to peak)..... 3.9 μV @ 0.1 – 70 Hz bandwidth  
Input Noise (RMS)..... 0.65 μV @ 0.1 – 70 Hz bandwidth  
EEG Channel Hardware Gain..... 250  
Maximum Differential AC Input Before Clipping (Referential)..... ±10 mVpp  
Maximum Operational DC Input Voltage Electrode Offset..... ±1000 mV  
Input Bias Current..... <20 pA  
Channel Crosstalk..... -87 dB  
Bandwidth..... 0.1 – 400 Hz

### Analog Specifications – DC Channels

DC Channels..... 4 non-isolated  
DC Input Range..... ±5 V

### User Interface

Push Buttons..... 4 (Impedance Check and Threshold, Up and Down)  
Event Switch Connection..... 1 on Base unit and 1 on Breakout  
LED Indication..... 3 on Base unit and 4 on Breakout  
Additional Connections..... Photic Stimulator, Masimo SET® Pulse Oximeter  
Display..... Color LCD on Base unit

### Digital Specifications

Sampling Frequency..... 256, 512, 1024 Hz  
Sampling Resolution EEG Channels..... 16 bits  
Sampling Quantization EEG Channels..... 300 nV  
Sampling Resolution DC Channels..... 16 bits  
Sampling Quantization DC Channels..... 150 μV

### Modes of Operation

Breakout Box Storage Capacity..... 4 GB Internal Compact Flash Card  
Breakout Box Power Consumption..... 1 W @ 12 V  
Breakout Box Battery..... Rechargeable 2 x AAA Ni-Mh battery  
Breakout Box Battery Life..... 4 to 4.5 hrs with external battery pack  
Impedance Check..... <2.5, <5, <10, <25 kΩ  
Channel Test Signal..... Software Controllable  
Sine..... 5 – 20 Hz, 50 – 200 μVpp  
Square..... 0.25 – 1 Hz, 50 – 200 μVpp



### Wireless Specifications

Operating Frequency..... 2.400 – 2.4835 GHz  
RF Output Power..... 6 mW (+8dBm), 64 mW (+18 dBm)  
Maximal distance range between transmitter / receiver  
(according to EMC environmental conditions)..... Up to 30 meters

### PC Interface

Network..... TCP/IP, UDP, DHCP  
Direct..... USB 2.0 Hi-Speed

### Amplifier Mechanical

Base Unit to Breakout Box Cable Maximum Length..... 10 m (30 ft)  
Approximate Size  
Base Unit..... 29 x 26.5 x 5 cm (11.4 x 10.4 x 2 in)  
Breakout..... 10.0 x 15.8 x 2.3 cm (3.94 x 6.22 x 0.91 in)  
Base Unit Weight..... 2300 g (5.1 lb)  
Breakout Weight..... 333 g (0.73 lb)

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

### Regulatory Compliance

CAN/CSA C22.2 No 601.1-M90, UL 60601-1, IEC 60601-1, IEC 60601-2-26,  
EN 60601-1-2, EN 55011, FCC 47 CRF Part 15

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