



# Technical specifications

<b>INPUTS</b>	32, DC-coupled, fully isolated, referential (monopolar); 8 user-defined, DC-coupled, fully isolated, bipolar inputs
<b>INPUT IMPEDANCE</b>	>100 M $\Omega$ 1-32; >20 M $\Omega$ 33-40
<b>BIAS CURRENT</b>	typically 1nA
<b>INPUT NOISE</b>	< 2 $\mu$ Vpp typical (referential ch)
<b>INPUT RANGE</b>	300mVpp, 600mVpp, 1200mVpp, 3000mVpp user selectable
<b>CMRR</b>	> 100dB
<b>CROSSTALK</b>	<- 60dB to adjacent channels FSR
<b>HIGH PASS FILTER</b>	DC coupled on all channels
<b>LOW PASS FILTER</b>	(3dB): 71 Hz at 256 s/s 143 Hz at 512 s/s 284 Hz at 1024 s/s 580 Hz at 2048 s/s 1150 Hz at 4096 s/s
<b>NOTCH FILTER</b>	Software based display filtering of 50Hz, 60Hz, or off

## ISOLATION SPECIFICATIONS

Complies with IEC 60601-1 CF patient Inputs

## ANALOGUE TO DIGITAL CONVERTER

24 bit resolution

## SAMPLE AND DATA RATES CHANNELS 1 TO 40

Data sampled at 16384 samples per second and decimated to data rates shown below. Actual data rate sent is determined by controlling PC software application.

**Output data rate** 4096, 2048, 1024, 512 or 256 samples per second

## COMMUNICATION INTERFACE

**Network Type** 802.3/802.3u twisted pair Ethernet with auto MDIX; RJ45 connector.

## OXIMETER

**SPO<sub>2</sub> range** 25 to 100%

**Heart rate range** 35 to 300 pulses per minute

**SPO<sub>2</sub> accuracy** 70 – 100%  $\pm$ 2.5 digits within 1 standard deviation

**Heart rate accuracy**  $\pm$ 1%  $\pm$ 1 digit

**Sample rate (SPO<sub>2</sub>, HR, status)** 1 sample per second, up sampled to match the other channels

**Sample rate (plethysmograph)** 256 samples per second, up sampled to match the other channels

## EVENT BUTTON CHANNEL x 1

## DIMENSIONS

Grael EEG System Component	Size L x W x H	Weight
Amplifier	240mm x 144mm x 50mm 9.45in x 5.66in x 1.97in	700 grams 24.7 ounces
Jackbox	200mm x 83.1mm x 49mm 7.87in x 3.27in x 1.92in	250 grams 8.81 ounces

## ENVIRONMENTAL REQUIREMENTS

**Temperature** Ambient operating temperature range:  
0°C - 40°C (32°F - 104°F)

Storage temperature range:  
-10°C - 50°C (-4°F - 122°F)

**Humidity** 20% - 90%-relative humidity (non-condensing)

**Altitude** Less than 3,000m

## ELECTRICAL SPECIFICATIONS

**Power Supply** All power provided by the network connection using Power Over Ethernet (either mid-span injector or POE Switch, per IEEE 802.3af standard)

**Operating voltage** 48 volts

**Power consumption** <10 watts



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