



GraeL PSG

grael[®] psg

Industry-leading amplifier
optimized for Gold Standard
HD PSG studies.

Over 25 years of experience in designing PSG and EEG amplifiers, including the highly successful E-Series, has culminated in GraeL PSG. Based on the flagship GraeL amplifier, the GraeL PSG has a channel subset dedicated for Sleep studies. A true-HD PSG amplifier with channels as specified for the Gold standard AASM Type 1 studies.

HD PSG

Technical specifications



DIMENSIONS

Grael System Component	Size L x W x H	Weight
Amplifier	240mm x 144mm x 50mm 9.45in x 5.66in x 1.97in	800 grams 28.2 ounces

NETWORK

POE (power over Ethernet)

NETWORK CONNECTION

Drop in cradle for quick disconnect

ANALOGUE TO DIGITAL CONVERTER

24 bit resolution

DATA SAVE RATE

Up to 2048sps

PATIENT CONNECTIONS

CF as per IEC60601-1

SAFETY

IEC60601-1

EMC

IEC60601-1-2

COMMUNICATION INTERFACE

Network Type 802.3/802.3u twisted pair
Ethernet with auto MDIX
Supports IPV4 with DHCP, TCP, UDP,
ICMP and ARP protocols

13 REFERENTIAL CHANNELS

Range $\pm 300\text{mV}$ (resolution $< 50\text{nV}$)
Frequency response DC to 580 Hz (user adjustable)
Input impedance $> 100\text{M}$
CMRR $> 100\text{dB}$
Noise (0.1 to 70Hz) $2\mu\text{Vpp}$ typical

6 DIFFERENTIAL CHANNELS

Range $\pm 300\text{mV}$ (resolution $< 50\text{nV}$)
Frequency response DC to 580 Hz (user adjustable)
Input impedance $> 20\text{M}$
CMRR $> 100\text{dB}$
Noise (0.1 to 70Hz) $3\mu\text{Vpp}$ typical

2 RESPIRATORY INDUCTIVE PLETHYSMOGRAPHY CHANNELS

Sensor Inductive band
Frequency response DC to 6 Hz

PRESSURE

Range $\pm 100\text{cmH}_2\text{O}$
Frequency response DC to 580 Hz (user adjustable)
Accuracy $\pm 1\text{cmH}_2\text{O}$ at 25°C

AIRFLOW

Differential input 2 male luer
Range $\pm 12\text{cmH}_2\text{O}$
Frequency response DC to 580 Hz (user adjustable)
Accuracy $\pm 0.6\text{cmH}_2\text{O}$ at 25°C

POSITION

Sensor Tri-axial accelerometer
Positions Supine, prone, left, right, upright

MICROPHONE

Sensor Electret
Frequency response 5 to 580 Hz (user adjustable)

LIGHT

Sensor Integrated

OXIMETER

SPO₂ range 25 to 100%
Heart rate range 18 to 300 pulses per minute
SPO₂ accuracy 70 – 100% ± 2.5 digits within
1 standard deviation
Heart rate accuracy $\pm 1\% \pm 1$ digit

Sample rate (SPO₂, 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

ENVIRONMENTAL REQUIREMENTS

Temperature Ambient operating temperature range:
 $0^\circ\text{C} - 40^\circ\text{C}$ ($32^\circ\text{F} - 104^\circ\text{F}$)
Storage temperature range:
 $-10^\circ\text{C} - 50^\circ\text{C}$ ($-4^\circ\text{F} - 122^\circ\text{F}$)
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 < 8 watts

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SLEEP DIAGNOSTICS
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Since 1987

