

BrainAmp MR series | Brain Products GmbH > Solutions

BrainAmp	Technical specifications		
Amplifier	BrainAmp MR	BrainAmp MR plus	BrainAmp ExG MR
Number of channels (per unit)	32	32	8 or 16
Channel type / reference	Referential channels/ acquisition of a reference using a single electrode (unipolar)	Referential channels/ acquisition of a reference using a single electrode (unipolar)	8 channels: 8 bipolar 16 channels: 16 bipolar or 8 bipolar + 8 AUX by means of ExG AUX Box
Input impedance	10 M Ω (for DC)	Switchable: 10 M Ω / 10 G Ω (for DC)	Switchable: 10 M Ω / 10 G Ω (for DC)
Input noise	≤ 1 μ Vpp	≤ 1 μ Vpp	≤ 2 μ Vpp
Common-mode rejection (CMR)	≥ 90 dB	≥ 110 dB	≥ 100 dB
Lower cutoff frequency (high pass)	0.016 Hz/10 s	0 Hz in DC mode or 0.016 Hz/10 s in AC mode; switchable between AC and DC modes	0 Hz in DC mode or 0.016 Hz/10 s in AC mode; switchable between AC and DC modes
Filter type	First-order filter with 6 dB/octave	First-order filter with 6 dB/octave	First-order filter with 6 dB/octave
High-cutoff frequency (low-pass)/time constant	250 Hz	1000 Hz / 250 Hz (switchable for the resolutions 0.1 μ V / 0.5 μ V per bit)	1000 Hz / 250 Hz (switchable for the resolutions 0.1 μ V / 0.5 μ V per bit)
Filter type	Fifth-order Butterworth filter with 30 dB/octave	Fifth-order Butterworth filter with 30 dB/octave	Fifth-order Butterworth filter with 30 dB/octave
Measuring range	± 16.384 mV	± 3.28 mV / ± 16.384 mV (switchable)	± 3.28 mV / ± 16.384 mV (switchable)
Resolution	0.5 μ V per bit	0.1 μ V / 0.5 μ V per bit (switchable)	0.1 μ V / 0.5 μ V per bit (switchable)
Power Supply	PowerPack (external rechargeable battery)	PowerPack (external rechargeable battery)	PowerPack (external rechargeable battery)
Current consumption	Max. 110 mA	Max. 130 mA	Max. 110 mA (8 channels) / 120 mA (16 channels)
Power consumption (in standby)	Typically 7 mA	Typically 7 mA	Typically 7 mA
Amplitude accuracy	$\pm 2\%$	$\pm 2\%$	$\pm 2\%$
Bit width of the A/D converter (EEG and AUX)	16 bit	16 bit	16 bit
Sampling rate	5 kHz per channel	5 kHz per channel	5 kHz per channel
DC offset tolerance	± 300 mV	± 300 mV	± 300 mV
Signal transmission	Optically coupled using duplex fiber optic cables	Optically coupled using duplex fiber optic cables	Optically coupled using duplex fiber optic cables

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Operating time between charges	Typically 30 hours with one amplifier, 15 hours with two amplifiers	Typically 30 hours with one amplifier, 15 hours with two amplifiers	Typically 30 hours with one amplifier, 15 hours with two amplifiers
Dimensions (H x W x D)	Approx. 68 mm x 160 mm x 187 mm	Approx. 68 mm x 160 mm x 187 mm	Approx. 68 mm x 160 mm x 187 mm
Weight	Approx. 1.1 kg	Approx. 1.1 kg	Approx. 1.1 kg
Integrated impedance measurement	Present; measurement includes ground electrode and reference electrode	Present; measurement includes ground electrode and reference electrode	Present; no measurement of ground electrode and reference electrode
Deblocking function	Present	Present	Present
Blocking of unused channels	Present	Present	Present
Suitable for use in MR scanner room	Yes	Yes	Yes