alphaRS System Specifications

Features	Specifications and Options
Filtering	4 Selectable software digital filtering per channel (0.02Hz to 10KHz)
Referencing	Digital selected channel referencing
Spike sorting	Up to 4 spike templates per channel using 8-point template matching, an SSQ algorithm, and optional window discriminators
Compatibility	MATLAB, C++, NeuroExplorer® online link
Audio	2 stereo outputs
General purpose digital outputs	8 outputs single-bit digital outputs, Synchronization TTL output
General purpose analog outputs	4 outputs ± 5.0 V, 16-bit analog outputs
General purpose digital Inputs	4 digital input channels (TTLs) , 16-bit digital input port
General purpose analog Input	4 differential analog input channels with 16 bit-resolution and dynamic range of ±5V
PC interface	1 Gbit Ethernet
Power supply	4-pin DC power connector (100-240 VAC, 50-60 Hz)
HeadStage connectivity	Up to 8 HeadStages with micro HDMI connector
LED Indicators	Indicating general system's state
System size	27 x 21 x 5 cm
Stimulation Specifications	
Amplitude	1uA – 2.50mA
Pulse width	0.03ms - DC
Voltage compliance	± 9V
Stimulation Control	User interface / DSP Scripting / SDK – MATLAB/C++
Stimulation frequency	DC – 1Khz

alphaRS Headstage Specifications

Features	Specifications and Options
Dynamic Range	± 5.0 mV
A/D input conversion	16-bit resolution
Sampling Rate	30kHz per neural channel
Amplifier Inputs	Single ended with one reference or differential per channel
Noise	2.4µV RMS
Hardware Filters	HPF: 20mHz – 1KHz, LPF: 10Hz – 20KHz
HeadStage Configurations	16, 32, 64 or 128
HeadStage integrated Sensors	3 axis accelerometers
Impedance check	Up to 5MΩ @ 1KHz, ±1nA
Size & Weight	16 CH 23 mm x 13 mm x 2.6mm and 0.79gram 32 CH 24 mm x 15 mm x 2.6mm and 0.94gram 64 CH 21mm x 14mmx 4.7mm and 1.3gram
HeadStage integrated Stimulation	Flexible stimulation configuration to all channels // Up to ±2.55mA current Up to ±9 voltage compliance
Cable length	0.3-8 m (2-8 m range is dependent on environmental noise)