Medoc
advanced medical systems

TSA II | NeuroSensory Analyzer

TECHNICAL SPECIFICATIONS

The Table below describes the technical specifications and capabilities of the TSA-II system. When stated, the term 'Optional' indicates that this specific feature requires an additional license and/or hardware component

Medoc reserves the right to change specifications without prior notice, in line with the company policy of constant product improvement

1. TSA Specifications

Parameter	Description
TSA Thermode (probe) active area	30 mm × 30 mm or 16 mm × 16 mm
Temperature range	0 – 50.5°C (Optional 0 °C to 53 °C)
Baseline temperature	10 – 45°C, programmable
Rate of temperature change - Linear mode	0.1 – 8 °C/sec (Range may be lower depending on protocol used). Note: Rate may vary within ±10%
Stimuli protocols	Limits Levels TSL Ramp & Hold Chain
Stimulus duration at destination temperature	0 – 600 Sec (limited by safety cut-off. See below)
Inter-sequence time interval (Time interval between sequences)	0 – 600 Sec., in 0.1 Sec. resolution
Intra-sequence time interval (Time interval between stimuli, in one sequence)	0 – 600 Sec., counted onset-to-onset or end-to-onset, in 0.1 Sec. resolution. Optionally, this interval can be randomized within a predetermined range.
Randomize Option	Option to randomize between sequences
Number of stimuli in a program	Each sequence can include up to 100 trials (stimuli). The number of sequences in a program can be more than 100.
Stimuli trigger options	Automatic Manual using keyboard shortcuts External, via a TTL input (TTL option is required)

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Parameter	Description
Synchronization options TTL Input (Optional)	Externally trigger the onset of stimulus Voltage: ± 5V Current: 10 – 15 mA Minimum Duration: 10 msec.
Synchronization options TTL Output (Optional)	Can indicate various events during stimuli (depending on protocol used) Voltage: ± 5V Current:2 mA Duration: 50 – 1000 msec
Sound option (Computer speakers are required – not supplied)	Can indicate various events during stimuli (depending on protocol used)
CoVAS (Optional)	Computerized Visual Analog Scale (CoVAS) enables real-time recording of the subject's pain level, according to the standard VAS procedure. CoVAS package includes the following stimuli methods: Ramp and Hold Pulses Search
Temperature set-point resolution	0.1°C
Temperature display resolution	0.1°C
Temperature repeatability	± 0.1°C
Absolute accuracy	± 0.3°C
Ambient temperature	18 - 24°C
Communication with computer	USB (via adaptor) or Serial RS232
Communication with printer	Via the computer
Computer Requirements	See separate specifications
Software Operating System	Microsoft® Windows XP 32-bit SP-3 or Windows 7,8
Database	SQL Server Compact Edition
Software Language	English
Database capacity	Unrestricted (limited by computer hardware capabilities)
Safety	Complies with UL-2601-1:94 and EN-60601-1-1

Parameter	Description
Safety limitations on Temperature & Duration	(1) 56 °C during 0 sec. (2) 55 °C during 0.05 sec. (3) 52 °C during 0.4 sec. (4) 51 °C during 1 sec. (5) 50 °C during 5 sec. (6) 49 °C during 10 sec. (7) 47 °C during 60 sec. (8) 6 °C during 5 min. (9) 0 °C during 5 min.
Dimensions (Mobile cart configuration)	45 × 40 × 12 cm
Weight (Not including computer)	20 – 30 Kg (depending on Thermode type)
Operation Voltage (configured on purchase)	100 – 120VAC, 60Hz, 4A. 220 – 240VAC, 50Hz, 2A
System Overload Protection	2 X 250V, 2A fast fuse (for 230V system). 2 X 120V, 4A fast fuse (for 110V system).
Product life time	10 Years

2. VSA Specifications

Parameter	Description
Vibrator Pin Size	0.5 inch
Stimulation Area	1.22 cm^2
Vibration Frequency	100 Hz
Vibration Range	0 – 130 microns
Vibration set point resolution	0.1 microns