



# MultiPulse Stimulator - model D185 - Mk.IIa

## SPECIFICATIONS

### Stimulus Output

Voltage range	: 0 - 1000 volts with 1k load impedance, adjustable with 10-turn control.
Pulse duration	: 50 microseconds square wave.
Output impedance	: 120 ohms.
Maximum current	: 1.5 amps peak.
Current rise time	: 0.1 amps per microsecond maximum.
Polarity	: Normal (Red socket positive) / Reverse (Black socket positive).

### Stimulus Pulse Rates

Permitted Repetition	: 1 per second max.; 'Special' mode - 1000pps max (SPECIAL illuminated)
Train selections	: Number of Pulses - 1 to 9; InterStimulus Interval - 1.0 to 9.9ms in 0.1ms increments.

### Output Indication

Stimulus pulse	: Amber LED when triggered (i.e. TRIGGER illuminated).
Stimulus value	: Set voltage - continuous 3½ digit display, 1999 volts FS Peak pulse current achieved - stored reading 3½ digit display, 1999 mA FS.
Stimulus waveform	: Pulse current (isolated from patient) signal for external monitor.

### Trigger Facilities

Input options	: Manual front panel mounted push button. Foot switch via rear panel 3.5mm mono socket (D185-FS1, available as option). Logic signal (+3 to 15V) +ve edge, TTL compatible (-ve edge by external change).
Output	: Positive TTL compatible signal 1ms wide for recorder synchronisation. (100µs and/or active low by external change).

### Protection System

Operation	: An automatic circuit inhibits output pulses when voltage/rate integral is too high.
Indication	: An amber 'Error' LED (i.e. ERROR illuminated) and (switchable) audible signal indicates that output is inhibited.
Reset	: Automatic after 2 seconds.
Error Examples	: Pulse bursts at 1 burst/sec.: >2 pulses at 900V; >5 pulses at 650V. : 'Special' mode: >2pps at 900V; >10pps at 500V; >20pps at 300V.

### Other

Mechanical	: 225 x 100 x 253mm, tilt feet and controls	Weight : 3kg (approx.)
Power	: 100 - 120V or 200 - 240V @ 47-63Hz	Rating : <30VA

### REFERENCES

Calancie, B., Harris, W., Brindle, G.F., Green, B.A., Landy, H.J. (2001) Threshold-level repetitive transcranial electrical stimulation for intraoperative monitoring of central motor conduction. *J. Neurosurg.* **95**: 161-168.

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Jones, S.J., Harrison, R., Koh, K.F., Mendoza, N., Crockard, H.A. (1996) Motor evoked potential monitoring during spinal surgery: Responses of distal limb muscles to transcranial electrical stimulation with pulse trains. *Electroenceph. Clin. Neurophysiol.* **100** (5).

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