

# Digitimer

## DS7A & DS7AH CONSTANT CURRENT HIGH VOLTAGE STIMULATORS For Transcutaneous Stimulation of Nerve and Muscle Tissue



The Digitimer High Voltage Stimulator model DS7A provides constant current high voltage pulses of brief duration for transcutaneous stimulation during investigation of the electrical activity of nerve and muscle tissue. The output current is continuously variable over the range 0 to 100 milli-Amps, from a source voltage continuously variable from less than 100 Volts to 400 Volts, to meet the requirements of human pathological cases. Short pulse durations have been made available to minimise any discomfort to the subject. The pulse duration can be varied from 50 micro-seconds to 2 milli-seconds in six steps and a specially designed isolated output stage maintains a square (current) pulse shape while minimising stimulus artefacts.

**To reduce tissue polarization and in response to customer demand, the 2014 models of the DS7A and DS7AH now include a three position (+ve, alternating and -ve) polarity control, allowing the user to reverse stimulus polarity or automatically alternate polarity between successive stimuli.**

The instrument is mounted in a non-conductive, free standing case and is mains powered. For higher voltages, the Digitimer stimulator model D185 is suggested.

The DS7AH option, allowing currents up to 1A with a maximum pulse duration limit of 200 micro-seconds, is also available. This model is offered to overcome the difficulties of stimulating deep peripheral nerves, or large muscles such as the quadriceps, with large area electrodes.

The stimulator requires a TTL trigger pulse input and triggers on the positive edge (negative edge can be factory set). Alternatively a foot switch may be connected to a socket on the rear panel or the front panel push button pressed. A TTL compatible trigger output is provided at a BNC socket on the rear panel.

**Cleared by FDA for marketing within the USA (510(k) No. K051357)**

# SPECIFICATIONS

## OUTPUT

<b>Current</b>	Selected by 10 turn dial and x1 / x10 switch	<b>DS7AH</b>
	Dial reading 0.00 to 9.99	(00.0 to 99.9)
	giving 0 to 9.99mA for x1 setting	(0 to 99.9mA for x1)
	and 0 to 99.9mA for x10 setting	(0 to 999mA for x10)
<b>Pulse Duration</b>	50, 100, 200, 500, 1000, 2000µs	(50, 100, 200µs only)
<b>Pulse Polarity (NEW)</b>	Three position toggle switch - +ve, -ve and alternating polarity options	
<b>Compliance</b>	Continuously variable from 100V to 400V	
<b>On/Off - Reset</b>	On is up Off disables output and open circuit terminals. Fault trip is also reset	
<b>Connections</b>	4mm shrouded, touchproof sockets (red and black) on 3/4" centres	
<b>Protection</b>	The DS7A/DS7AH is internally protected to limit the output energy (Duration x Current x Repetition). A separate sheet is available showing these limits	

## TRIGGER

<b>Input</b>	Electrical via BNC socket on rear panel: Triggers at +3V on positive edge Maximum input = $\pm 15V$ Minimum pulse duration= 5 microsecond Maximum repetition rate= 1000pps (100pps in alternating polarity mode)
	Front panel: Push button
	Rear panel via 1/4" mono jack socket: Foot switch (contact closure)
<b>Output</b>	Rear panel BNC, positive TTL pulse 1 millisecond wide (can be factory set for negative polarity)

## INDICATORS

<b>Trigger</b>	LED - Amber, flashes for each trigger received
<b>Out of Compliance</b>	LED - Amber, lit when selected current not delivered
<b>Fault</b>	LED - Red, illuminated and latched for sensed over current and at power on
<b>Power On</b>	LED - Green, illuminated for power on
<b>Polarity (NEW)</b>	2x LED - Green, each illuminated to indicate the polarity of the next stimulus.
<b>Too Fast (NEW)</b>	LED - Amber, illuminated if trigger frequency exceeds 100pps (Alternating Polarity mode only).

## OTHER

<b>Power</b>	100-120V or 200-240V (externally selected), 47-63 Hz, 12VA
<b>Classification</b>	Class 1 with Type BF applied part
<b>Safety</b>	IEC601-1
<b>Dimensions</b>	225 x 100 x 255mm (w x h x d)
<b>Weight</b>	3kg (approx.)



**Digitimer Ltd**, 37 Hydeway, Welwyn Garden City, Hertfordshire. AL7 3BE. England

**Tel:** +44 (0)1707 328347 **Fax:** +44 (0)1707 373153 **E-mail:** sales@digitimer.com **Website:** www.digitimer.com