

## TSD190 HAPTIC (TACTILE) STIMULATOR

The TSD190 is a haptic (tactile) stimulator. The TSD190 is ergonomically designed to strap onto a variety of body locations and it incorporates an internal electromagnetically actuated plunger which can be used to mechanically stimulate a 1.5 mm diameter area of skin surface. Both plunger force and travel can be infinitely adjusted between zero and a specified maximum value. Applications include somatosensory and other types of tactile sensory tests. It's possible to employ the TSD190 in an averaging-type sensory nerve test to determine the speed of propagation and activation threshold of somatosensory nerves.



The TSD190 connects directly to the STM100C stimulation module. Plunger activation force, width of stimulus pulse, and pulse repetition rate are established via the *AcqKnowledge* Set up Stimulator window. To output a stimulus waveform which has a precisely controlled rate-of-change in both onset and offset, ramp up or down the applied stimulus voltage to the TSD190. The TSD190 will respond to any kind of applied waveform, such as square, triangle, sinusoidal or arbitrary.

Visual or audio cues can be replaced or augmented with haptic feedback. For one example, see *Kahol K., French, J., et al. (2006). Evaluating the Role of Visio-Haptic Feedback in Multimodal Interfaces through EEG Analysis. Augmented Cognition: Past, Present and Future. D. Schmorrow, K. Stanney and L. Reeves. Arlington, VA, Strategic Analysis, Inc.: 289-296.*

## TSD190 SPECIFICATIONS

Stimulus Plunger Diameter:	1.5 mm
Stimulus Pulse Widths:	1 msec (min) to 100 msec (max)
Waveform Stimulus Types:	Digital or Analog Drive
Stroke length:	(0-3 mm) - set screw adjustable
Force:	(0-1.5 Newton) - adjustable via applied stimulus voltage (0-24 V)
Interface:	Connects directly to STM100C Stimulator (External Stim Port)
Input Connector:	6.35 mm male phono plug
Cable length:	2 meters
Velcro Omni® Strap (included):	30 cm long x 25 mm wide
Weight:	39 grams
Length:	62 mm
Diameter:	22 mm