

CORRESPONDENCE

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Effects of the Auditory Volume Control Knob on the Stimulus Amplitude Display of the Dualstim/Deluxe Model NS-2CA/DX Peripheral Nerve Stimulator

To the Editor:—Peripheral nerve stimulators are commonly used for nerve localization during peripheral neuronal blockade. Because the intensity of the stimulating current at which a motor or sensory response is observed gives an indirect indication of the distance of the needle from the nerve, the ability of a nerve stimulator to deliver a constant and precise current is important.

We recently took delivery of a DualStim/Deluxe[™], model NS-2CA/DX nerve stimulators (Life-Tech, Inc., Houston, TX). It is equipped with a knob regulating the volume of the emitted "beep" signal that accompanies each delivered stimulus. We noticed that when this volume control knob was set at its highest values (in the LOW output mode (0–6 mA) for nerve localization), the three-digit LCD (Liquid Crystal Display) indicated that a 0.2- to 0.35-mA stimulus was being delivered. This occurred even when the electrodes were not connected to the patient or when the stimulus amplitude control dial was set to zero. We also tested two of these units in our laboratory using a calibrated Tectronics 465B oscilloscope (Tectronics/Sony, Tokyo, Japan) and a dummy load of 2 kOhm. In both units, the LCD indicated that a stimulus of 0.25–0.35 mA was delivered when the volume knob for the "beep" was set at 8 or 9 (the highest volume values), even when the stimulus intensity control knob was set at zero. At this setting, however, no measurable stimulus was delivered, regardless of whether the electric circuit was closed or open. Additionally, when the beep volume control knob was set at a value of 8 or 9, the LCD consistently displayed a stimulus intensity of 0.25–0.35 mA higher than actually delivered over the full range of current outputs. When the "beep" volume was decreased to 7 or below, however, the LCD correctly indicated the intensity of the delivered stimulus.

Because these characteristics of the unit may result in difficulties during nerve localization, we recommend that when using the DualStim/Deluxe[™], model NS-2CA/DX nerve stimulators, the auditory volume control knob never be set at above 7. When set at any level below 7, the LCD will consistently indicate the accurate intensity of the delivered stimulus.

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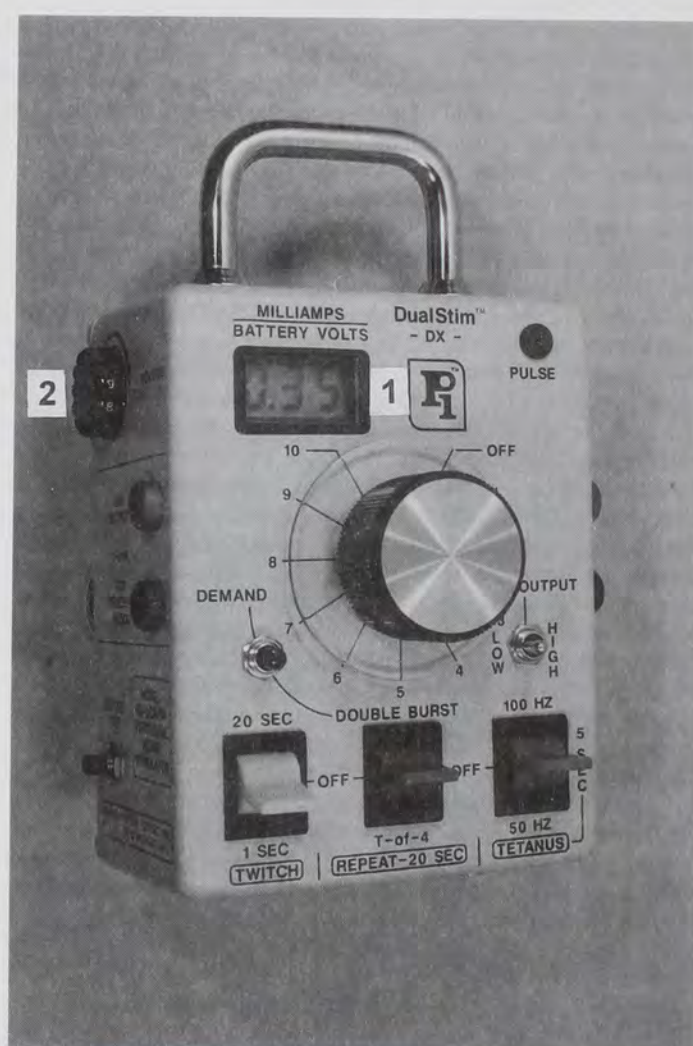


Fig. 1. The LCD on the DualStim/Deluxe nerve stimulator displays a "phantom current" of 0.35 mA (1) when the beep volume control knob (2) is set at value of 9.

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