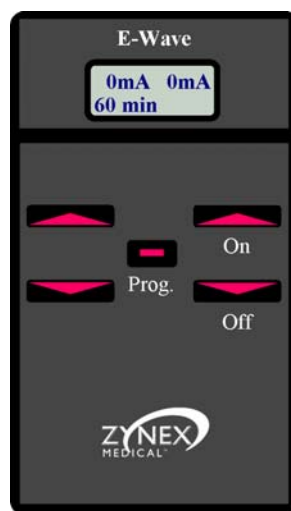


# E-Wave

Muscle Stimulation



# Users Manual

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*Caution:*

*Federal Law restricts this device to sale by or on the order of a practitioner licensed by the law of the State in which he/she practices to use or order the use of the device.*

## **Zynex Medical Contact Information**

### **CUSTOMER SERVICE**

**(866) 940-7030**

**Supplies:**

To order more electrodes or other accessories

**Technical Support:**

Questions or problems with using your device

**Device Return:**

Order a postage paid return envelope to return your device at no charge

### **MAIN OFFICE**

**(800) 495-6670**

**Billing Questions:**

Questions regarding insurance benefits and covered benefits for durable medical equipment or questions about an Explanation of Benefits form you received in the mail

### **FAX NUMBER**

**(800) 495-6695**

### **MAILING ADDRESS**

Zynex Medical  
9990 Park Meadows Drive  
Lone Tree, CO 80124

### **EMAIL**

**info@zynexmed.com**

### **WEBSITE**

**zynexmed.com**

### **Get Started with the E-Wave**

Make sure the electrodes are placed properly on the skin (see “Electrodes and Skin Care” for details) and that the lead wires are properly connected.

Turn on the unit by pressing ON for more than 1 second. A green light indicates that the unit functions properly.

Keep pressing ↑ on either channel until a comfortable level is reached, as indicated by your physician or therapist.

To stop treatment, keep pressing ↓ on the channel used until display and light goes out after 1 additional second (mA will go to zero first). Thereafter remove the electrodes and place them on the plastic pad.

Stimulation will run continuously until the treatment timer is changed or the unit is turned off.

During treatment the display will show Remaining Time left on upper line and Stimulation Level on lower line.

### **Controls and features.**

**Turn unit ON and OFF:** Press ON for 1 second to turn the unit on. The display will light up and the right LED will be constant green. Keep pressing OFF to turn the unit off. It takes one additional second after reaching 0 mA to turn it off. If no controls have been touched for 60 seconds with level at 0 mA or 60 seconds after timeout, the E-Wave will automatically turn off.

**Setting Stimulation Level:** Use the ↑ and ↓ controls to increase or decrease the intensity. Do not use the PRG button. After 20 seconds the stimulation level is electronically locked as a safety feature to prevent the patient from unintentional increase in stimulation. To increase, just press ↓ to reduce it by at least 1 mA, which will unlock the safety feature. Thereafter you have 20 seconds to increase to desired level, before the lock is activated again. Any change in level or mode will unlock this safety feature.

**Setting Frequency:** Press PRG once and use ↑ or ↓ to increase or decrease the frequency.

**Setting Pulse Width:** Press PRG twice and use ↑ or ↓ to increase or decrease the pulse width.

**Setting the Treatment Time:** Press PRG three times and use ↑ or ↓ to select the desired Treatment Time. Keep pressing ↓ to set a Continuous Treatment Time.

**Setting the ON-Time:** Press PRG four and use ↑ or ↓ to increase or decrease the ON-Time.

**Setting the OFF-Time:** Press PRG five and use ↑ or ↓ to increase or decrease the OFF-Time.

**Setting the Ramp-Up:** Press PRG six and use ↑ or ↓ to increase or decrease the Ramp-Up.

**Setting the Ramp-Down:** Press PRG seven and use ↑ or ↓ to increase or decrease the Ramp Down.

**Setting Mode:** Press PRG eight times and use ↑ or ↓ to toggle between Simultaneous stimulation or Alternating stimulation between the two channels.

**Setting Waveform:** Press PRG nine times and use ↑ or ↓ to toggle between Biphasic or monophasic waveforms (AC or DC).

**Compliance data:** Press PRG ten times and use ↓ to display the usage time in minutes and number of times used, when prompted by text in display. Only stimulation levels above 5 mA are recorded as usage time. The compliance meter can be reset by pressing ↑ to show prompt in display and thereafter press ↓ twice to reset both parameters to zero.

**Return to factory settings:** Press PRG eleven times and the display will prompt the choice to reset all parameters to factory settings. This is particularly useful if the user is unsure if the settings are correct and is a good starting point for variations.

**Factory settings are:**

Frequency:	30Hz
Pulse width:	200 $\mu$ sec.
On-Time:	6 seconds
Off-Time:	6 second
Ramp Up:	1 second
Ramp Down:	1 second
Timer:	Continuous

**Using the External Trigger Input:** A standard external trigger, such as a heel-switch, can be connected through the connector on the left side of the unit. The Off-time is now disabled and a stimulation cycle will only begin, when the switch is activated. The set parameters for On-time, Ramp Up and Down will be in effect for a stimulation cycle. This functionality is enabled as soon as the connector is inserted into the E-Wave.

### **Electrodes and Skin Care**

Proper skin care will help make the use of this device more comfortable and trouble-free. Prior to treatment, wash the areas where the electrodes will be placed with mild soap and water, rinse and dry the skin thoroughly. If necessary, remove excess body hair.

The E-Wave is intended to be used with re-usable, self-adhesive electrodes. Extended number of uses can be obtained by adding water to the adhesive surface immediately after each use and placing them on the plastic pad. They will regain their conductivity and adhesiveness as compared to leaving them dry.

Sterile electrodes may be required for some post-op applications.

### **Batteries**

One 9 volt Alkaline battery is used. The battery compartment on the back of the device opens by sliding the cover downwards. Please ensure to dispose the used batteries properly.

Rechargeable batteries are not recommended as they only have a short usage time and are not charged while in the device.

**Indications, contraindications, precautions, safety and warnings.**

**Safety References**

Zynex Medical (Zynex) is only responsible for the safety, reliability and function of the device when repairs, adjustments and changes have been carried out by persons authorized by Zynex for such work and the device is used according to the user manual. Repairs and technical safety tests shall only be carried out by trained personnel.

**Indications**

This Zynex device has been designed for muscle re-education, prevention of retardation of disuse atrophy, increase local blood circulation, maintain or increase range of motion, relaxation of muscle spasms, and edema reduction.

Relaxation of muscle spasms.

Prevention or retardation of disuse atrophy.

Increasing local blood circulation.

Muscle re-education.

Immediate post-surgical stimulation of calf muscles to prevent venous thrombosis.

Maintaining or increasing range of motion

This stimulator should only be used under supervision for adjunctive therapy for the treatment of medical diseases and conditions.

**Contraindications**

- The device must not be used on patients with cardiac pacemaker.
- The device must not be used with stimulation over carotid sinus nerves.
- The stimulation must not be applied transcerebrally.
- The device must not be applied with undiagnosed pain syndromes until etiology is established.
- This stimulator should not be used on patients with cardiac demand pacemakers.

Electrodes should not be placed so that current will be applied to the carotid sinus (neck) region or transcerebrally (through the head).



**Warnings**

- The long-term effects of chronic electrical stimulation are unknown.
- Stimulation should not be applied over the carotid sinus nerves, particularly in patients with known sensitivity to the carotid sinus reflex.
- Stimulation should not be applied over the neck or mouth. Severe spasm of the laryngeal and pharyngeal muscles may occur and the contractions may be strong enough to close the airway or cause difficulty in breathing.
- Stimulation should not be applied transthoracically in that the introduction of electrical current into the heart may cause cardiac arrhythmias.
- Stimulation should not be applied transcerebrally.
- Stimulation should not be applied over swollen, infected, or inflamed areas or skin eruptions, e.g., phlebitis, thrombophlebitis, varicose veins, etc.

Stimulation should not be applied over, or in proximity to, cancerous lesions.

**Precautions**

- Safety of powered muscle stimulators for use during pregnancy has not been established.
- Caution should be used for patients with suspected or diagnosed heart problems.
- Caution should be used for patients with suspected or diagnosed epilepsy.
- Caution should be used in the presence of the following:
  1. When there is a tendency to hemorrhage following acute trauma or fracture;
  2. Following recent surgical procedures when muscle contraction may disrupt the healing process;
  3. Over the menstruating or pregnant uterus; and
  4. Over the areas of the skin which lack normal sensation.
- Some patients may experience skin irritation or hypersensitivity due to the electrical stimulation or electrical conductive medium. The irritation can usually be reduced by using an alternate conductive medium, or alternate electrode placement.
- Electrode placement and stimulation settings should be based on the guidance of the prescribing practitioner.
- This device should be kept out of reach of children.
- This device should be used only with the leads and electrodes recommended for use by the manufacturer.
- This device should not be used while driving, operating machinery, or during any activity in which voluntary muscle contractions may put the user at undue risk of injury.

**Adverse Reactions:**

Skin irritation and burns beneath the electrodes are potential adverse reactions.

**Technical Specifications**

Amplitude:	0-100 mA
Frequency:	4-100 Hz Factory setting is 30 Hz.
Pulse width:	50-300 $\mu$ sec. Factory setting is 200 $\mu$ sec.
On-Time:	0.5 to 30 seconds Factory setting is 6 seconds.
Off-Time:	0.1 to 60 seconds Factory setting is 6 seconds.
Ramp Up:	0.1 to 6 seconds Factory setting is 1 second.
Ramp Down:	0.1 to 6 seconds Factory setting is 1 second.
Waveforms:	Symmetrical biphasic or monophasic selectable.
Treatment timer:	Continuous, 10-100 minutes, in 10 minutes steps. Factory setting is continuous.
Compliance meter:	Records total usage time in minutes and number of times used. Can be reset.
Dimensions:	2.5 x 5.5 x 1.0 in.
Weight:	8 oz. incl. Battery.
Warranty:	3 Years manufacturers warranty on materials and workmanship. Accessories excluded.



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