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Instruction Manual

Nerve & Muscle Stimulator



NMS-498

Precautionary Instructions

The precautionary instructions found in this section and throughout this manual are indicated by specific symbols. Understand these symbols and their definitions before operating this equipment. The definition of these symbols are as follows;



=CAUTION-

Text with a "CAUTION" indicator will explain possible Safety infractions that could have the potential to cause minor to moderate injury or damage to equipment.



=WARNING-

Text with a "WARNING" indicator will explain possible Safety infractions that will potentially cause serious injury and equipment damage.

NOTE :- Throughout this manual "NOTE" may be found. These Notes are helpful information to aid in the particular area of function being described.

CAUTION

- Read, understand and practice the precautionary an operating instructions. Know the limitations and hazards associated with using any electrical stimulation device. Observe the precautionary and operational decals placed on the unit.
- DO NOT operate the unit in an environment of short-wave diathermy use.
- DO NOT use sharp objects such as a pencil point or ballpoint pen to operate the buttons on the control panel as damage may result.
- This unit should be operated, transported and stored in temperatures between 59°F and 104° (15° C and 40°C), with Relative Humidity ranging from 30%-60%.

WARNING

- This device should be kept out of the reach of children.
- Care must be taken when operating this equipment around other equipment. Potential electromagnetic or other interference could occur to this or to the other equipment. Try to minimize this interference by not using other equipment in conjunction with it.

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1. INSTRUCTIONS FOR USER OF ELECTRO THERAPY

Please read this instruction manual carefully before using **NMS-498** because it is unsafe to start using the device before reading the whole manual.

⚠ CAUTION: USA Federal law restricts these devices to sale by, or on order of a physician or licensed practitioner. This device should be used only under the continued supervision of a physician or licensed practitioner.

1.1 Intended Use

The **NMS-498** is an electrically powered nerve and muscle stimulator. The device should only be used under medical supervision for adjunctive therapy for the treatment of following diseases & conditions:

Electrical Muscle Stimulation (EMS)

- Relaxation of muscle spasm.
- Prevention or retardation of disuse atrophy.
- Increase local body circulation.
- Muscle re-education.
- Immediate post surgical stimulation of calf muscles to prevent various thrombosis
- Maintaining or increasing range of motion.

Transcutaneous Electrical Nerve Stimulation (TENS)

- Symptomatic relief and management of chronic intractable pain.
- An adjunctive treatment in the management of post-traumatic and post surgical acute pain.

1.2 Contraindications

The **NMS-498** should not be used on patient with cardiac demand pacemaker.

1.3 Warnings

- The long-term effects of chronic electrical stimulation are unknown.
- Stimulation should not be applied over the carotid sinus nerves, particular in patient with known sensitivity to the carotid sinus reflex.
- The electrodes should not be applied over the neck or mouth, or anywhere else on the head. If **NMS-498** stimulation is applied over the neck or mouth especially. Severe spasm of the laryngeal and pharyngeal muscle may occur and the

contraction may be strong enough to close the airway or cause difficulty in breathing.

- Stimulation should not be applied transthoracically such that the introduction of electrical current into the heart may cause cardiac arrhythmias.
- Stimulation should not be applied over swollen, inflected, or inflamed areas or skin eruption, e.g. phlebitis, thrombophlebitis, varicose veins, etc.
- Stimulation should not be applied over, or in proximity to, cancerous lesion.

1.4 Precautions

- Safety of the **NMS-498** 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 presence of following:
 - When there is a tendency of hemorrhage following acute trauma or fracture.
 - Following recent surgical procedures when muscle contraction may disrupt the healing process.
 - Over the menstruating or pregnant uterus.
 - Over area 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.
- Stimulation settings should be based on the guidance of the prescribing practitioner, electrode placement should be based on the guidance of the prescribing physician.
- **NMS-498** should be kept out of the reach of children.
- The **NMS-498** should be used only with the lead and electrodes recommended for use by the manufacturer.
- The **NMS-498** should not be used while driving, operating machinery, or during any activity in which involuntary muscle contraction may put the user at undue risk of injury.

- Ensure the intensity is adjusted slowly and smoothly and not increased beyond the patient's tolerance.
- While treatment Do not lift electrodes off the skin without the intensity being turned down to zero first.
- Also be aware of the skin's resistance as this may suddenly drop causing the intensity to increase.

1.5 Adverse Reactions

Skin irritation and burns beneath the electrodes have been reported with use of electro stimulation devices.

2. DESCRIPTION

NMS-498, is FDA cleared device for nerve and muscle stimulation. It is state of the art, hi-tech unit designed for rehabilitation, needs of sportsmen and for professional use by physiotherapists. This microcomputer controlled unit delivers electronic mild pulse through four channels working on four-muscle group simultaneously of same or different persons.

NMS-498 offers a versatile treatment selection with 7 modes, Continuous, Fast Burst, Slow Burst, Ramp Burst, Wide Low Freq, Narrow Low Freq and Auto All delivering different type of stimulation as per the need of the muscle group to be treated. This ABS constructed instrument is strong, sturdy and user friendly with a digital display, countdown timer and clear grouping of controls for each channel. It is light weight so can be carried along easily for use at home or anywhere.

3. ACCESSORIES

The unit **NMS-498** is provided with the following accessories:

Standard Accessories:

S. No.	Name of Accessories	Qty.
1.	Electrode Cables 5 Pin 2 Core	04
2.	Self Adhesive Electrodes 1.8" x 1.8"	08
	OR	
	Carbon Electrodes 2"	08
	Elastic Belts 36"	02
	Elastic Belts 18"	04
	Conductive Gel	01
3.	AC Cord	01
4.	Instruction Manual	01
5.	Pen Electrode (Optional)	01

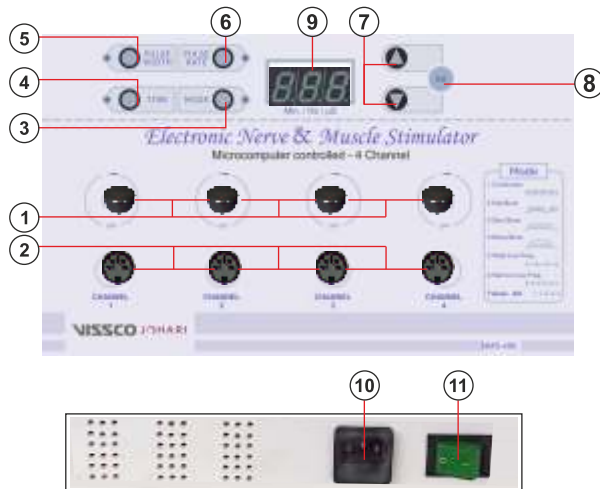
*For ordering of the accessories, Please refer to page#13

4. TECHNICAL SPECIFICATIONS

Channels	:	Four
Power Source	:	90-220 VAC, 50/60 Hz
Waveform	:	Symmetrical Biphasic Square Wave
Output Voltage	:	75Vpp @ 1KΩ Resistive load
Modes	:	Selectable from 1 to 7
Pulse Rate	:	Selectable from 1 to 200Hz
Pulse Width	:	Selectable from 50 to 350µS
Treatment Time	:	Selectable from 1 to 60 Minutes.

Note: All the parameters have ±10% tolerance.

5. CONTROLS AND FUNCTIONS



1. **Intensity Control Knobs:** To increase or decrease the intensity of stimulation for the respective channel. Rotated clockwise to increase the intensity and anticlockwise to decrease it.

2. **Output Sockets:** To connect the electrode cables for the respective outputs to the device.

3. **Mode Key:** To select the desired mode

1. Continuous
2. Fast Burst
3. Slow Burst
4. Ramp Burst
5. Wide Low Frequency
6. Narrow Low Frequency
7. Auto All

4. **Time Key:** To select the Treatment Time. The glowing LED along this button indicates that Treatment Time is being selected.
5. **Pulse Width Key:** To select Pulse Width. The glowing LED along this button indicates that Pulse Width is being selected.
6. **Pulse Rate Key:** To select Pulse Rate. The glowing LED along this button indicates that Pulse Rate is being selected.
7. **Increment & Decrement Keys:** To increase or decrease the values of the selected parameters
8. **Set Key:** To conform the various treatment parameters selected. The treatment commences only after the Set key is pressed.
9. **Digital Display:** The Digital Display of **NMS-498** shows:
 - Treatment Time (1 to 60 minutes)
 - Mode (001 to 007)
 - Pulse Width (50 μ S to 350 μ S)
 - Pulse Rate (1Hz to 200Hz).
10. **AC Receptacle:** Insert AC Cord into this AC receptacle.
11. **Rocker Switch:** Press this switch to switch ON the device.

6. HOW TO USE BLD-498

6.1 Installation

- Connect the AC Cord to the AC receptacle at the back of the device.
- Plug the AC Cord into a grounded wall outlet with a power supply of 90-220 VAC, 50/60 Hz. Do not connect **NMS-498** to a power supply rated differently than described above.
- The **NMS-498** may be susceptible to interference originating from short-wave diathermy units operating in closed proximity to it. Avoid operating the **NMS-498** adjacent to and simultaneously with operating short-wave devices.
- Do not use sharp objects to operate the panel switches. If the tough outer layer of the panel switches is broken, moisture may leak into the switches resulting in switch failure.

IMPORTANT Make sure that all Intensity Knobs are in OFF position before switching ON the unit. In case they are not "OFF," the buzzer will beep continuously and the display will show "—".

6.2 Switching ON the Device

1. Switch ON the rocker switch provided at the back of the unit.

Note: When the unit is switched "ON" the L.E.D. at Pulse Width will flash and the Display will flash 350 indicating the preset Pulse Width 350 μ S and Mode 1.
2. Connect the electrode cables to the output socket.
3. To begin the treatment with the preset parameters press Set key once.

6.3 Programming Instructions

Step 1: Press MODE key.

Note: The LED adjacent to Mode key will blink and the display will show 001, which indicates default mode. The list of modes from 1 to 7 is provided on the right side of the unit panel.

Step 2: Select the desired Mode by using \blacktriangle or \blacktriangledown keys.

Note: The display will flash the selected mode.

Step 3: Press PULSE WIDTH key.

Note: The LED adjacent to Pulse Width key will blink and display will show the default pulse width for the selected mode.

Step 4: Select desired Pulse Width by using \blacktriangle or \blacktriangledown keys.

Note: The display will flash the selected pulse width.

Step 5: Press PULSE RATE key.

Note: The LED adjacent to Pulse Rate key will blink and the display will show the default pulse rate for the selected mode.

Step 6: Select desired Pulse Rate by using \blacktriangle or \blacktriangledown keys.

Note: The display will flash the selected pulse rate.

Step 7: Press TIME key.

Note: The LED adjacent to Time key will blink and the display will show 030, which indicates default treatment time (in minutes).

Step 8: Select the desired Treatment Time by using \blacktriangle or \blacktriangledown keys.

Note: The display will flash the selected time.

Step 9: To start the treatment press Set key.

Note: The display will show the selected treatment time.

Step 11: Rotate the Intensity Control knobs in clockwise direction up to maximum comfortable stimulation felt.

Note: During the treatment display will show the balance treatment time. During Relaxation Period Display would show "OFF". The intensity can be changed during the treatment. However, don't change the intensity in Relaxation Period. The treatment will expire with the buzzer sound and initial settings will display.

Note:

- (a) In AUTOALL Mode, Pulse Width & Pulse Rate keys will not work. If these keys are pressed Display shows "--".

- (b) During Relaxation Period Display would show "OFF". Do not increase the intensity at this time.
- (c) Balance treatment time will be displayed continuously during the treatment.

⚠ CAUTION:

During treatment never turn knobs to switch ON or to increase the intensity when display shows "OFF", as it denotes relaxation period.

6.5 Winding Up After Treatment

The end of treatment time is indicated by the beep sound of the buzzer. The Display shows the initial setting.

1. Turn OFF the Intensity Control Knobs.
2. Take out the electrode cable pin from output socket of each channel & unplug the electrodes.
3. Place the electrodes on the backing sheet and store them in a re-sealable pouch.
4. Switch OFF the rocker switch at the back of the device.

7. MAINTENANCE

7.1 Cleaning

- The soiled unit should be cleaned with a damp cloth.
- Follow the care of electrodes as indicated.
- For routine cleaning of the electrode cables use soap and water. Thoroughly dry after cleaning.

7.2 Warning

- Do not pull out electrode cables.
- Electrode cables should be kept loosely winded or breakage may occur.

7.3 Storage

- Keep the unit properly covered, when not in use. This will help to keep out of dust.
- Make special space to keep the unit, after the treatment is over.

Caution: Do not store the unit in a damp environment. Dampness may affect device and cause rust.

8. TROUBLESHOOTING

Observation	Possible Causes	Remedy
None of the displays are lighting up afterswitching on the rocker switch	Internal Error	Turn OFF the rocker switch and inform the supplier
Weak stimulation or no stimulation even at maximum intensity setting	Poor electrode contact	Check the electrodes
	Electrode conduction is low or lead wire is worn out	Change electrodes Change electrode wires
Strong stimulation	Improper electrode placement	Check electrode placement
Uncomfortable stimulation or too strong stimulation	Intensity too high	Reduce the intensity
Skin irritation at electrode placement site	Improper contact/Gel dried up	Wet or change the electrode
Sudden high intensity while increasing intensity	Increasing intensity too fast	Increase intensity slowly giving time to patient to his comfort

9. WARRANTY

This product's warranty extends to the original consumer /purchaser of the product.

Warranty Duration

This product is warranted to the original consumer for a period of one (1) year from the original purchase date.

Warranty Coverage

This product is warranted against defective materials or workmanship. This warranty ceases if the product has been damaged by accident, in shipment, unreasonable use, misuse, neglect, improper service, commercial use, and repair by unauthorized personnel. This warranty does not extend to any units which are used in violation furnished by manufacturer, or to units which have been altered or modified, or to damage to products or parts there of which have the serial number removed, altered or defaced or rendered illegible. The warranty doesn't cover normal wear & tear or replacement of electrode cables, electrodes, & other accessories.

Warranty Disclaimers

This warranty is in lieu of all warranties expressed or implied and no representative or person is authorized to assume for manufacturer/ any other liable in connection with the sale of our products. There shall be no claims for defects or failure of performance or product failure/ any theory of tort, contract or commercial law including, but not limited in negligence, gross negligence, and strict liability, breach of warranty and breach of contract. Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations may not apply to you.

Manufacturer is not responsible or liable for indirect special or consequential damages arising out of or in connection with the use performance of the product or other damage with respect to loss of property or loss revenues or profit.

Legal Remedies

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

Warranty Performance

During the above one-year warranty period, a product with a defect will be repaired or replaced with a reconditioned comparable unit at distributor's option when the product is returned to the distributor. The repaired or replacement product will be in warranty for the balance of the one-year warranty period and an additional one-month period. No charge will be made for such repair or replacement.

Consumer Service

For in warranty service for a product covered under the warranty period, no charge is made for service and return postage. Please return the product insured, packed with sufficient protection, postage insurance, prepaid to the address. Customs duty/brokerage fee, if any, must be paid by the consumer.

Out Of Warranty Service

There will be charges rendered for repairs made to the product after the expiration of the aforesaid one (1) year warranty period, after purchaser is advised appropriately.

The distributor cannot assume responsibility for loss or damage during shipment. For your protection, carefully pack the product for shipment and insure it with the carrier. Ensure that you return the unit and accessories related to your problem and also that you indicate full return address. Also send a copy of sales receipt or other proof of purchase to determine warranty status. C.O.D. shipments cannot be accepted.

List of Accessories: (In case of replacement or ordering)

ACCESSORIES	Part No.
Lead Wire Size: 5 Pin 2Core NMS-498 BOM	20MF05011
Elastic Belt AP4390 with velcro & tag logo Size:18X3"	40CPG00097
Elastic Belt AP4390 with velcro & tag logo Size:3X36"	40CPG00096
Jelly - BOM	30BME00016
AC Cord Round 3Pin 5A	40SEE00033
Electrode 2" Gray	50AFG00004

IMPORTANT

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