

# INTENSITY™ MICRO COMBO

## INSTRUCTION MANUAL



**This manual is valid for the InTENSity™ Micro  
Combo TENS/MIC Stimulator**

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: United States Federal Law restricts this device to sale by or on the order of a physician or licensed practitioner.

**Conformity to safety standards**

Roscoe Medical, Inc. declares that the device complies with the following normative documents:

**IEC60601-1, IEC60601-1-2, IEC60601-2-10, IEC60601-1-4,  
ISO10993-5, ISO10993-10, ISO10993-1**

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## **1. SAFETY INFORMATION**

### **1.1 General**

InTENSity™ Micro Combo is a portable electrotherapy device featuring two therapeutic modes: Transcutaneous Electrical Nerve Stimulation (TENS) and Microcurrent (MIC), which are used for pain relief and electrical muscle stimulation. The stimulator sends gentle electrical current to underlying nerves and muscle groups via electrodes applied on the skin. The parameters of the device are controlled by the buttons on the front panel. The intensity level is adjustable according to the needs of the individual patient.

### **1.2 Medical background**

#### **EXPLANATION OF PAIN**

Pain is a warning system and the body's method of telling us that something is wrong. Pain is important; without it abnormal conditions may go undetected, causing damage or injury to vital parts of our bodies. Even though pain is a necessary warning signal of trauma or malfunction in the body, nature may have gone too far in its design.

Aside from its value in diagnosis, long-lasting persistent pain serves no useful purpose. Pain does not begin until the coded message travels to the brain where it is decoded, analyzed, and then reacted to. The pain message travels from the injured area along the small nerves leading to the spinal cord. Here the message is switched to different nerves that travel up the spinal cord to the brain. The pain message is then interpreted, referred back and the pain is felt.

#### **EXPLANATION OF TENS**

Transcutaneous Electrical Nerve Stimulation (TENS) is a non-invasive, drug free method of controlling pain. TENS uses tiny electrical impulses sent through the skin to nerves to modify your pain perception. TENS does not cure any physiological problem; it only helps control the pain. TENS does not work for everyone; however, in most patients it is effective in reducing or eliminating the pain, allowing for a return to normal activity.

## **HOW TENS WORKS**

There is nothing "magic" about Transcutaneous Electrical Nerve Stimulations (TENS). TENS is intended to be used to relieve pain. The TENS unit sends comfortable impulses through the skin that stimulate the nerve (or nerves) in the treatment area. In many cases, this stimulation will greatly reduce or eliminate the pain sensation the patient feels. Pain relief varies by individual patient, mode selected for therapy, and the type of pain. In many patients, the reduction or elimination of pain lasts longer than the actual period of stimulation (sometimes as much as three to four times longer). In others, pain is only modified while stimulation actually occurs. You may wish to discuss this method of pain management treatment with your physician or therapist.

## **EXPLANATION OF MICROCURRENT**

Microcurrent stimulation is a type of therapy in which very low current is sent into the cells of the body. Microcurrent is a very faint current that is so small it is measured in millionths of an amp (Microamps). Human cells generate a current that is in the micro amp range which is why you can't feel it – the current is so low it doesn't stimulate the sensory nerves.

Microcurrent is a physiological electric modality that increases ATP (energy) production in the cells of your body. This dramatically increases the tissue's healing rate. The immediate response to the correct microcurrent frequency suggests that other mechanisms are involved as well. The exact effects or changes in the tissue are unmistakable; scars will often suddenly soften; trigger points often become less painful within minutes when the "correct" frequency is applied. In many situations the changes seen seem to be long lasting and in many cases permanent.

### **1.3 Indication for use**

InTENSity™ Micro Combo TENS/MIC Stimulator may be used for the following conditions:

1. Symptomatic relief of chronic pain.
2. Post-traumatic pain.
3. Post-surgical pain.

## **IMPORTANT SAFETY INFORMATION!**

Read instruction manual before operating. Be sure to comply with all “Contraindications”, “Warnings”, “Cautions” and “Adverse reactions” outlined in the manual. Failure to follow these instructions may cause harm to the user or the device.

### **1.4 Contraindications**

1. This device should not be used for symptomatic local pain relief unless etiology is established or unless a pain syndrome has been diagnosed.
2. This device should not be used when cancerous lesions are present in the treatment area.
3. Stimulation should not be applied over swollen, infected, inflamed areas or skin eruptions (e.g. phlebitis, thrombophlebitis, varicose veins, etc.).
4. Electrodes must not be applied to sites that might cause current/stimulation to flow through the carotid sinus region (anterior neck) or trans-cerebrally (through the head).
5. Do not use this device if the patient has a demand-type cardiac pacemaker or any implanted defibrillator.
6. This device should not be used over poorly enervated areas.
7. This device should not be used on patients with epilepsy.
8. This device should not be used on patients with serious arterial circulatory problems in the lower limbs.
9. This device should not be used on patients with abdominal or inguinal hernia.
10. Do not use this device if you have heart disease without consulting your physician.

### **1.5 Warnings, Cautions and Adverse Reactions**

#### **WARNINGS:**

1. This device should be used only under the continued supervision of a licensed physician or practitioner.
2. The long-term effects of chronic electrical stimulation are unknown. Electrical stimulation devices do not have any curative value.

3. TENS is a symptomatic treatment and, as such, suppresses the sensation of pain, which would otherwise serve as a protective mechanism.
4. Safety has not been established for the use of therapeutic electrical stimulation during pregnancy. Do not use during pregnancy unless directed by your physician.
5. Electrical stimulation is not effective for pain of central origin, such as a headache.
6. Electrical monitoring equipment (such as ECG monitors and ECG alarms) may not operate properly when electrical stimulation is in use.
7. Stimulation should not be applied over the carotid sinus nerves, particularly in patients with a known sensitivity to the carotid sinus reflex.
8. Stimulation should not be applied over the neck or mouth. Severe spasm of the laryngeal and pharyngeal muscles may occur and the contraction may be strong enough to close the airway or cause difficulty in breathing.
9. Stimulation should not be applied transthoracically. Introduction of electrical current into the heart may cause cardiac arrhythmias.
10. Stimulation should not take place while the user is connected to high-frequency surgical equipment, it may cause burn injuries on the skin under the electrodes, as well as problems with the stimulator.
11. Do not use the stimulator in the vicinity of shortwave or microwave therapy equipment, since this may affect the output power of the stimulator.
12. Never use in environments with high humidity such as in the bathroom or when having a bath or shower.
13. Caution should be used in applying electrical stimulation to patients suspected of having heart disease. Further clinical data is needed to show there are no adverse results.
14. Never use near the heart. Stimulation electrodes should never be placed anywhere on the front of the thorax (marked by ribs and breastbone), take extreme caution not to place near or on the two large pectoral muscles. Here it can increase the risk of ventricular fibrillation and lead to cardiac arrest.
15. Electrodes should not be placed over the eyes, in the mouth, near the genitals or internally.
16. Never use on the areas of the skin which lack normal sensation.
17. Apply the electrodes to clean, dry, and unbroken skin only.

18. Keep electrodes separate during treatment, electrodes in contact with each other could result in improper stimulation or skin burns.
19. Keep the stimulator out of reach of children.
20. Consult your doctor if you have any questions or concerns before using this device.

### **CAUTIONS:**

1. Federal law (USA) restricts this device to sale by or on the order of a physician.
2. This device is for single patient use only.
3. Keep yourself informed of the contraindications.
4. This device is not intended for use on an unattended patient who is noncompliant, emotionally disturbed, has dementia, or a low IQ.
5. Read, understand, and practice the warnings, cautions and operating instructions. Know the limitations and hazards associated with using this device. Observe the cautionary and operational decals placed on the unit. Always follow the operating instructions prescribed by your healthcare practitioner.
6. The instruction of use was listed; any improper use may be dangerous.
7. Do not use this device for undiagnosed pain syndromes until consulting a physician.
8. Patients with an implanted electronic device, such as a cardiac pacemaker, implanted defibrillator, or any other metallic or electronic device should not use this device without first consulting a doctor.
9. Stimulation delivered by this device may be sufficient to cause electrocution. Electrical current of this magnitude must not flow through the thorax or across the chest because it may cause cardiac arrhythmia.
10. Do not place electrodes on the front of the throat as spasm of the Laryngeal and Pharyngeal muscle may occur. Stimulation over the carotid sinus (neck region) may close the airways, make breathing difficult, and may have adverse effects on the heart rhythm or blood pressure.
11. Do not place electrodes on your head or at any sites that may cause the electrical current to flow trans-cerebrally (through the head).
12. Patients with heart disease, epilepsy, cancer or any other health



- condition should not use this device without first consulting a physician.
13. Some patients may experience skin irritation or hypersensitivity due to the electrical stimulation or silicone rubber. If rash develops or pain persists, discontinue use and consult a doctor.
  14. Electrode placement and stimulation settings should be based on the guidance of prescribing practitioner.
  15. Effectiveness is highly dependent upon the patient and the selection of therapy by a person qualified in the management of pain.
  16. Isolated cases of skin irritation have occurred at the site of the electrode placement following long-term application. If this occurs, discontinue use and consult your physician.
  17. The electrodes are only to be placed on healthy skin. Avoid skin irritation by ensuring that good contact is achieved between electrodes and skin.
  18. If the stimulation levels are uncomfortable or become uncomfortable, reduce the stimulation intensity to a comfortable level and contact your physician if problems persist.
  19. This device should not be used while driving, operating machinery, close to water or during any activity in which involuntary muscle contractions may put the user at undue risk for injury.
  20. Never use the device in rooms where aerosols (sprays) are used or pure oxygen is being administered.
  21. Do not use it near any highly flammable substances, gases or explosives.
  22. Do not use this device at the same time as other equipment which sends electrical pulses to your body.
  23. Do not confuse the electrode cables and contacts with your headphones or other devices, and do not connect the electrodes to other devices.
  24. Do not use sharp objects such as pencil point or ballpoint pen to operate the buttons on the control panel.
  25. Inspect applicator cables and associated connectors before each use.
  26. Turn the device off before applying or removing the electrodes.
  27. Electrical stimulators should be used only with the leads and electrodes recommended for use by the manufacturer.
  28. This device has no AP/APG protection. Do not use it in the presence of explosive atmosphere or flammable mixture.

### **ADVERSE REACTIONS:**

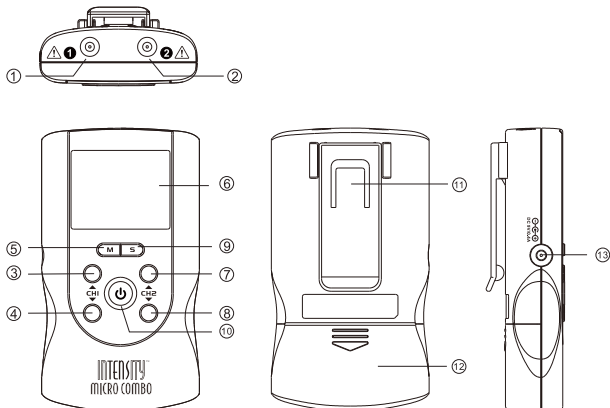
1. Skin irritation from the electrode gel and electrode burns are potential adverse reactions. If skin irritation occurs, discontinue use and consult your physician.

**Note: Always use electrodes that are legally marketed and sold in the United States under 510K guidelines.**

2. If the stimulation levels are uncomfortable, reduce the stimulation intensity to a comfortable level and contact your physician if any problems persist.



## 2. PRESENTATION

### 2.1 Front and Rear Panel

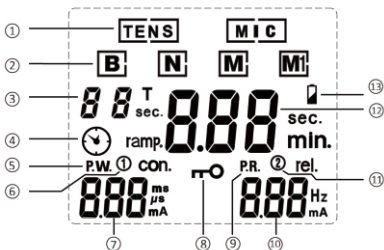


1. Output socket: electric signal output after connection of the cable with adhesive electrodes on Channel 1.
2. Output socket: electrical signal output after connection of the cable with adhesive electrodes on channel 2.
3. Increases [▲] the output intensity of channel 1. It is also used to set the application program and the parameter of the waveform in the setting state.
4. Decreases [▼] the output intensity of channel 1. It is also used to set the application program and the parameter of the waveform in the setting state, and to unlock the current treatment program.
5. Therapeutic mode [M] selection button; it also stops treatment and exits you out of the setting mode to return to the user interface.
6. LCD display: Shows the operating state of the device.
7. Increases [▲] the output intensity of channel 2. It is also used to

set the application program and the parameter of the waveform in the setting state.

8. Decreases [▼] the output intensity of channel 2. It is also used to set the application program and the parameter of the waveform in the setting state and unlocks the current treatment program.
9. Parameter Selection [**S**] button: press the button to enter setting state; you can select the different parameters in conjunction with the up [▲] and down [▼] buttons.
10. Press  to turn ON the device. Press  and hold for approximately 3 seconds to turn off the device.
11. Belt Clip.
12. Battery compartment cover.
13. AC Adapter connection point.

## 2.2 LCD Display



1. Displays therapeutic mode (TENS/MIC).
2. Displays therapeutic program for TENS/MIC (Burst (B), Normal (N), Modulation (M), and Modulation 1 (M1)).
3. Displays the cycle time for TENS and MIC therapeutic mode in setting state.
4. Timer symbol
5. Displays waveform pulse width.
6. Displays channel 1.
7. Displays the output intensity for channel 1 (CH1); Displays waveform pulse rate.
8. The device is locked indicator.
9. Displays waveform pulse rate.
10. Displays the output intensity for channel 2 (CH2); Displays waveform pulse rate.
11. Displays channel 2.
12. Displays the treatment time.
13. Low-battery indicator

### 3. SPECIFICATION

#### 3.1 Accessories

NO.	DESCRIPTION	QUANTITY
1	Electrical Stimulator Device	1 pieces
2	Electrode Leads	2 pieces
3	1.5" x 1.5" Adhesive Electrodes	4 pieces
4	9V Alkaline Battery, type 6LR61	1 piece
5	Instruction Manual	1 piece
6	Carrying Case	1 piece
7	AC Adapter (optional)	1 piece

#### 3.2 Technical Information

Channel	Dual, isolated between channels.
Power Supply	9.0 V Alkaline DC -1 x 6LR61 battery. Adapter output: 9.0VDC, 400mA (optional).
Operating Conditions	5°C to 40°C (41°F to 104°F) with a relative humidity of 30%-75%, atmospheric pressure from 700 to 1060 hPa
Storage Conditions	-10°C to 50°C (14°F to 122°F) with a relative humidity of 10%-90%, atmospheric pressure from 700 to 1060 hPa
Dimensions	4.5 (L) x 2.55 (W) x 0.9(H) inches.
Weight	0.28 lbs. (with battery)
Tolerance	There may be a $\pm 5\%$ tolerance of all settings and $\pm 10\%$ tolerance of output intensity.
Timer	Adjustable from 1 to 60 minutes or continuous. Adjusts in 1 minute steps. Treatment time countdown is automatic.
Electrode Detection Function	The amplitude level will be reset to 0mA when the amplitude level is 12mA or greater and an open circuit at either channel is detected.

## Technical specifications for Transcutaneous Electrical Nerve Stimulator (TENS) Mode

Waveform	Mono-phase square pulse wave
Pulse Amplitude	Adjustable, 0~105mA peak at 1000 ohm load each channel, 1mA/step
Pulse Width	Adjustable from 50 to 300 $\mu$ s, 10 $\mu$ s/step
Pulse Rate	Adjustable, from 1 to 150 Hz, 1 Hz/step
Burst (B)	Burst rate: Adjustable, 0.5 ~ 5Hz Pulse width adjustable, 50~300 $\mu$ S Frequency fixed = 100 Hz
Normal (N)	The pulse rate and pulse width are adjustable. It generates continuous stimulation based on the setting value.
Pulse Width Modulation (M)	The pulse width is automatically varied in a cycle time. The pulse width is decreased from its original setting to 60% in setting cycle time, and then increased from 60% to its original setting in the next setting cycle time. In this program, pulse rate (1 to 150Hz), pulse width (50 to 300 $\mu$ S) and cycle time (5 to 30 sec) are fully adjustable.
Pulse Rate Modulation (M1)	The pulse rate is automatically varied in a cycle time. The pulse rate is decrease from its original setting to 60% in setting cycle time, and then increased from 60% to its original setting in the nest setting cycle time. In this program, pulse rate (1 to 150Hz), pulse width (50 to 300 $\mu$ S) and cycle time (5 to 30 sec) are fully adjustable.

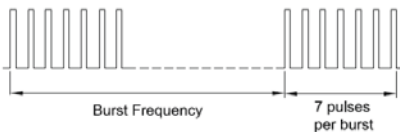
## Technical Specifications for Microcurrent (MIC) Mode

Waveform	Mono-phase square pulse wave
Pulse Amplitude	Adjustable 0~0.7mA; peak at 1000 ohm load each channel, 0.01mA/step
Pulse Rate (P.R.)	Adjustable from 0.1Hz to 150Hz; there into, 0.1Hz/step in the range of 0.1Hz~2Hz, 1Hz/step in the range of 2Hz ~150Hz. $P.R. \leq \frac{1}{2 \times P.W.}$
Pulse Width (P.W.)	Adjustable (in correlation to the Pulse Rate), from 2 to 200ms, 1ms/step $P.W. \leq \frac{1}{2 \times P.R.}$
Constant (N)	Constant stimulation based on setting value. Only pulse width, pulse rate and timer are adjustable in this program. "Constant" is equal to the "Normal" mode of a TENS therapeutic mode.
Pulse Width Modulation (M)	The pulse width is automatically varied in a cycle time. The pulse width is decreased from its original setting to 60% in the setting cycle time, and then increased from 60% to its original setting in the next setting cycle time. In this program, pulse rate (0.1 to 150Hz), pulse width (2 to 200ms) and cycle time (5 to 30 sec) are fully adjustable.
Pulse Rate Modulation (M1)	The pulse rate is automatically varied in a cycle time. The pulse rate is decreased from its original setting to 60% in setting cycle time, and then increased from 60% to its original setting in the next setting cycle time. In this program, pulse rate (0.1 to 150 Hz), pulse width (2 to 200ms) and cycle time (5 to 30 sec) are fully adjustable.



### 3.3 The Waveforms of the Stimulation Programs

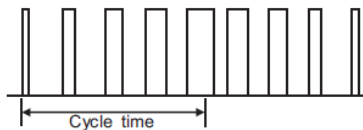
#### TENS - Burst (B)



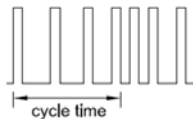
#### TENS - Normal (N)



#### TENS - Pulse Width Modulation (M)



#### TENS - Pulse Rate Modulation (M1)



#### Microcurrent – Constant



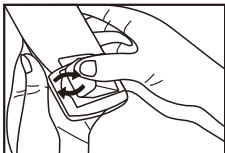
## 4. INSTRUCTIONS FOR USE

### 4.1 Battery

#### 4.1.1 Check/Replace the battery

Over time, in order to ensure the functional safety of the device, changing the battery is necessary.

1. Slide the battery compartment cover to open.
2. Insert the 9V battery into the battery compartment.
3. Make sure you are installing the battery properly. Be sure to match the positive and negative ends of the battery to the marking in the battery compartment of the device.
4. Press and push down the battery following the direction of the arrow indicated on the photo.
5. Replace the battery compartment cover and press to close.
6. If battery requires replacement, slide the battery compartment cover to open. Pull up the battery following the directions of the arrow indicated on the photo and insert a new 9V battery according to the above steps 2 to 5.



#### 4.1.2 Disposal of battery

Dispose of used batteries according to the current federal, state and local regulations. As a consumer, you are obligated by law to discard spent batteries appropriately.



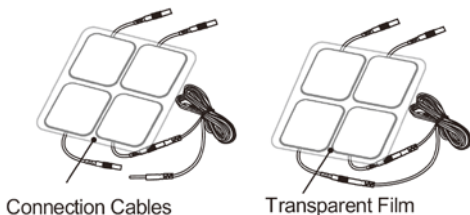
### **CAUTION:**

1. Swallowing a battery may be fatal. Keep the battery and the device out of the reach of children. If a battery is swallowed, consult a physician immediately.

2. If a battery has leaked, avoid contact with skin, eyes and mucus membranes. Rinse the affected areas with clear water immediately and contact a physician immediately.
3. Battery should not be charged, dismantled, thrown into fire or short-circuited.
4. Protect battery from excess heat.
5. Remove batteries from the unit if they are spent or if you are not using the unit for prolonged periods of time. This prevents damage caused by leaking battery.
6. Always replace with the same type battery.

#### 4.2 Connect Electrode to Lead Wires

Insert the lead wire connector into electrode connector (standard 0.08 inch female connection). Make sure the connectors are completely pushed together showing no exposed metal of the pins.



#### **CAUTION:**

Always use the electrodes with CE mark, or which are legally marketed in the U.S. under 510(K) procedure.

### 4.3 Connect Lead Wires to Device

1. Before proceeding to this step, be sure the device is completely turned OFF.
2. Insert the wires provided with the system into the jack sockets located on top of the device.
3. Holding the insulated portion of the connector, push the plug end of the wire into one of the jacks (see drawing); one or two sets of wires may be used.
4. This device has two output receptacles controlled by Channel 1 and Channel 2 at the top of the unit. You may choose to use one channel with one pair of lead wires or both channels with two pairs of lead wires. Using both channels gives the user the advantage of stimulating two different areas at the same time.



### **CAUTION:**

**Do not insert the plug of the patient lead wire into any AC power supply socket.**

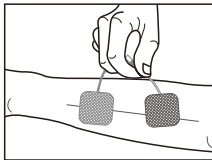
### 4.4 Electrode

#### 4.4.1 Electrode Options

The electrodes are disposable and should be routinely replaced before they start to lose their adhesive nature. Replacement electrodes should be re-ordered through or on the advice of your physician to ensure proper quality. Follow application procedures outlined in electrode package to maintain optimal stimulation and to prevent skin irritation.

#### 4.4.2 Place Electrodes on Skin

Apply electrodes to the exact site indicated by your physician or therapist. Before applying electrodes, be sure the skin surface over which electrodes are placed is thoroughly cleaned and dry.



Make sure the electrodes are pressed firmly to the skin and make good contact between the skin and the electrodes. Place the electrodes over the skin; attach them properly, firmly and evenly.

#### **CAUTION:**

- 1. Before applying the self-adhesive electrodes, it is recommended that you wash, degrease and dry the skin first.**
- 2. Do not turn on the device when the self-adhesive electrodes are not positioned on the body.**
- 3. Never remove the self-adhesive electrodes from the skin while the device is turned on. You will feel an uncomfortable electrical shock.**
- 4. It is recommended that, at a minimum, 1.5" x 1.5" self-adhering, square electrodes are used at the treatment area.**

#### 4.4.3 Electrode Placement


The placement of electrodes can be one of the most important parameters in achieving success with this therapy. Of utmost importance is the willingness of the physician to try the various styles of electrode placement to find which method best fits the needs of the individual patient.

Every patient responds to electrical stimulation differently and their needs may vary from the conventional settings suggested here. If the initial results are not positive, speak to your physician about

alternative stimulation settings and/or electrode placements. Once an acceptable location has been achieved, mark down the electrode sites and the device settings, so the patient can easily continue treatment on their own.

#### **4.5 Turning On the Device**

Before using the device for the first time, you are strongly advised to take careful note of the contraindications and safety measures detailed at the beginning of this manual (Safety information), as this powerful equipment is neither a toy nor a gadget!

To turn on the device, PRESS and RELEASE the ON/OFF  button. The operation page will appear on the LCD screen.

#### **4.6 Select the Therapeutic Mode**

There are two therapeutic modes available – TENS and MIC. The therapeutic mode can be selected by pressing the **[M]** button control.

#### **CAUTION:**

**Consult your physician for your suitable therapeutic mode.**

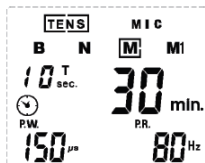
#### **4.7 Steps to Set a New Program**

##### **4.7.1 TENS Setting**

Press the **[S]** button to cycle and enter the setting state. The settings can be adjusted according to the following steps:

### Step 1: Set the Therapeutic Program

There are 4 programs available in TENS therapeutic mode – Burst (B), Normal (N), Pulse Width Modulation (M), and Pulse Rate Modulation (M1). The therapeutic program can be selected by pressing the up [▲] and down [▼] button. For example, when you choose the “M” program, “M” will be outlined by a flashing box.



### Step 2: Set Cycle Time (optional)

Cycle time is adjustable from 5 to 30 seconds. Only the modulation program has this parameter setting. Press the [S] button to cycle and to enter this menu, and then press the up [▲] and down [▼] buttons to adjust the cycle setting.

### Step 3: Set Timer

Press [S] button to cycle and to enter this setting. The treatment time is adjustable from 1 to 60 minutes or Continuous. Press the up [▼] or down [▲] button controls to adjust the setting. You can set the timer to “Continuous” mode by pressing the up [▲] control when it shows 60 minutes. The output will shut off when time is up. When in Continuous mode, you will need to manually turn off the device.

### Step 4: Set Pulse Width

Pulse Width is adjustable from 50 μS to 300 μS. Press the [S] button to enter this menu, then press the up [▲] or down [▼] button to adjust the setting.

### Step 5: Set Pulse Rate

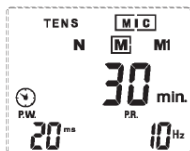
Pulse Rate is adjustable from 1 Hz to 150 Hz (0.5 Hz to 5 Hz for Burst). Press the [S] button to cycle and to enter this menu, and then press the up [▲] or down [▼] button to adjust the setting.

#### 4.7.2 Microcurrent Setting

Press the [S] button cycle to enter the setting state. The settings can be adjusted according to the follow steps:

##### Step 1: Set the Therapeutic Program

There are 3 available programs in MIC therapeutic program: Constant (N), Pulse Width Modulation (M), and Pulse Rate Modulation (M1). The therapeutic program can be selected by pressing the up [▲] and down [▼] button. The mode you selected will show up on the top of LCD display.



##### Step 2: Set Timer

Press the [S] button to cycle and to enter this setting. The treatment time is adjustable from 1 to 60 minutes or Continuous. Press the up [▲] or down [▼] button to adjust the setting. You can set the time to “Continuous” mode by pressing the up [▲] button when it shows 60 minutes. The output will shut off when time is up. When in Continuous mode, you will need to manually turn off the device.

##### Step 3: Set Pulse Width

Pulse Width is adjustable from 2ms to 200ms. Press the [S] button to cycle and to enter this menu, then press the up [▲] or down [▼] button to adjust the setting.

##### Step 4: Set Pulse Rate

Pulse rate is adjustable from 1Hz to 150Hz. Press the [S] button again to enter this menu, and then press the up [▲] or down [▼] button to adjust the setting.

##### Step 5: Set Cycle Time (Optional – For Modulation Mode only)

Cycle time is adjustable from 5 to 30 seconds. Only modulation mode has this parameter setting. Press the [S] button to cycle and to enter this menu, and then press the up [▲] and down [▼] button to adjusting the setting.



## 4.8 Adjust Channel Intensity

Press the intensity control buttons up [▲] and down [▼] to control the intensity output. Slowly press the intensity button control until you reach the setting recommended by your physician or therapist. Repeat for the other channel, if both channels are to be used.

### **CAUTION:**

- 1. If the stimulation levels are uncomfortable or become uncomfortable, reduce the stimulation intensity to a comfortable level and contact your medical practitioner if problems persist.**
- 2. When using TENS therapeutic mode, if the electrodes are not placed firmly on the skin or the device is not connected to the electrodes and the stimulator's output intensity surpasses 12mA, the intensity will automatically reset to 0mA.**

## 4.9 Safety Lock Feature

The Safety Lock Feature automatically activates by locking out your ability to operate the buttons when you have stopped setting the program or adjusting the intensity for 30 seconds. This is a safety feature to prevent accidental changes to your settings and to prevent accidental increases to the intensity levels. You can press either one of the two down [▼] buttons to unlock the device.


## 4.10 Stop the Treatment

When you have activated the treatment timer, you can press the [M] button or either of the two down [▼] buttons to control or stop the treatment.


**CAUTION:**

Default state, if the button is locked, you can press only one of the down [▼] buttons to unlock, and then press the [M] button or the down [▼] button to control stop the treatment.

**4.11 Turn Off**

Press and HOLD the  button and for approximately 3 seconds to turn OFF the device.

**CAUTION:**

1. If there is no operation in the panel for 2 minutes in the waiting state, the device will turn off automatically.
2. In shutdown state, keep pressing the channel 2 down [▼] button first, and then press the  button at the same time to restore factory parameter settings.

**4.12 Low Battery Indicator**

A battery symbol is shown flashing on the display when the battery is almost empty. The battery should be replaced with a new battery as soon as possible. However, the unit may continue to operate for an extended period of time depending on the setting and intensity level.

## 5. PROGRAM

Mode	Program	Modulation Method	Frequency	Pulse Width	Treatment Time
TENS	B	Burst	0.5-5Hz	50-300 $\mu$ s	1-60 min; continuous
	N	Continuous	1-150Hz	50-300 $\mu$ s	1-60 min; continuous
	M	Pulse Width Modulation	1-150Hz	50-300 $\mu$ s	1-60 min; continuous
	M1	Frequency Modulation	1-150Hz	50-300 $\mu$ s	1-60 min; continuous
MIC	N	Continuous	0.1-150Hz	2-200ms	1-60 min; continuous
	M	Pulse Width Modulation	0.1-150Hz	2-200ms	1-60 min; continuous
	M1	Frequency Modulation	0.1-150Hz	2-200ms	1-60 min; continuous

## **6. CLEANING AND CARE**

### **6.1 Tips for Skin Care**

Follow these suggestions to avoid skin irritation, especially if you have sensitive skin:

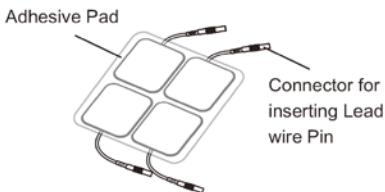
1. Wash the area of skin you will be placing the electrodes on with soap. Rinse thoroughly and dry the area completely before and after placing electrodes.
2. Excess hair may be clipped with scissors; do not shave stimulation area.
3. Wipe the area with the skin preparation your clinician has recommended. Let this dry. Apply electrodes as directed.
4. Many skin problems arise from the “pulling stress” from adhesive patches that are excessively stretched across the skin during application. To prevent this, apply electrodes from center outward; avoid stretching over the skin.
5. To minimize “pulling stress”, tape extra lengths of lead wires to the skin in a loop to prevent tugging on electrodes.
6. When removing electrodes, always remove by pulling in the direction of hair growth.
7. It may be helpful to rub skin lotion on electrode placement area during treatment down time when you are not wearing electrodes.
8. Never apply electrodes over irritated or broken skin.

### **6.2 Cleaning the Device**

1. Remove the battery from the device before you clean the device.
2. Clean the device after use with a soft, slightly moistened cloth. For hard to clean situations, you can also moisten the cloth with mild soapy water.
3. Do not use any chemical cleaners or abrasive agents for cleaning.

## 6.3 Electrodes

1. Use this device only with the leads and electrodes provided by the manufacturer. Use only the electrode placements and stimulation settings prescribed by your physician or therapist.
2. It is recommended, at minimum, 1.5" x 1.5" self-adhering electrodes be used at the treatment area.
3. Inspect your electrodes before every use. Replace electrodes as needed. Reusable electrodes can cause slight skin irritation, lose adhesion properties and deliver less stimulation if overused.



Reusable, Self-Adhering Electrodes

### **TO USE THESE ELECTRODES:**

1. Attach the electrode to the lead wire.
2. Remove the protective backing from the electrode surface. Do not throw away the protective backing because it can be reused after the treatment session has been completed.
3. Place the tacky surface to the prescribed skin area by pressing the electrode firmly against the skin.

### **TO REMOVE YOUR ELECTRODES:**

1. Lift the corner of the electrode and gently remove it from the skin.
2. It may be helpful to improve repeated electrode application by spreading a few drops of cold water over the adhesive side and turn the surface up to air dry. Over saturation with water will reduce the adhesive properties.
3. Between uses, place the electrodes back onto the protective

sleeve and insert them into the re-sealable bag and store in a cool dry place.

### **CAUTION:**

- 1. Do not pull on the electrode wire. Doing so may damage the wire and electrode.**
- 2. Do not apply to broken skin.**
- 3. The electrodes should be discarded when they are no longer adhering to the skin.**
- 4. The electrodes are intended for single patient use only.**
- 5. If irritation occurs, discontinue use and consult your clinician.**
- 6. Read the instructions for use of self-adhesive electrodes before application.**
- 7. Always use the electrodes with the requirements of the IEC/EN60601-1, ISO10993-1/-5/-10 and IEC/EN60601-1-2, such as with CE mark, or are legally marketed in the U.S. under 510(K) procedures.**

### **6.4 Cleaning the Electrode's Cords**

Clean the electrode cords by wiping them with a damp cloth. Coating then lightly with talcum powder will reduce tangles and prolong their life.

### **6.5 Maintenance**

- 1. Maintenance and all repairs should only be carried out by an authorized agency. The manufacturer will not be held responsible for the results of maintenance or repairs by unauthorized persons.**
- 2. The user must not attempt any repairs to the device or accessories. Please contact the retailer for repair.**
- 3. Opening of the equipment by unauthorized agencies is not allowed and will terminate any claim to warranty.**
- 4. Check the unit before each use for signs of wear and/or damage. Replace worn items as required.**

## 7. TROUBLESHOOTING

If your device does not seem to be operating correctly, refer to the chart below to determine what may be wrong. Should none of these measures correct the problem, the device should be serviced.

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
Displays fail to light up	Battery contact failure	1. Try fresh batteries.
		2. Ensure batteries are inserted correctly. Check the following contacts: <ul style="list-style-type: none"> <li>• All contacts are in place.</li> <li>• All contacts are not broken.</li> </ul>
Stimulation weak or cannot feel any stimulation	Electrodes 1. Dried out or contaminated 2. Placement	Replace and reconnect.
	Lead wires old/worn/damaged	Replace.
Stimulation is uncomfortable	Intensity is too high	Decrease intensity.
	Electrodes are too close together	Reposition the electrodes.
	Damaged or worn electrodes or lead wires	Replace.
	Electrode active area size is too small.	Replace electrodes with ones that have an active area no less than 16.0cm <sup>2</sup> (4cm*4cm).
	May not operate the device according to the manual.	Please check the manual before use.
Intermittent output	Lead wires	1. Verify connection is secure and firmly seated.
		2. Turn down the intensity. Rotate lead wires in socket 90°. If still intermittent, replace the lead wire.

		3. If still intermittent after replacing the lead wire, a component may have failed. Call the repair department.
	Program option in use.	Some programs will seem intermittent. This is expected. Refer to the Program.
		Option Controls in the Operation section for a description of the program option.
Stimulation is ineffective	Improper electrode and applicator placement unknown.	Reposition electrode and applicator. Contact clinician.
The skin becomes red and/or you feel a stabbing pain	Using the electrodes on the same site every time.	Reposition the electrodes. If at any time you feel pain or discomfort stop use immediately.
	The electrodes are not sticking onto the skin properly.	Ensure the electrode is stuck securely on the skin.
	The electrodes are dirty.	Clean the electrode pads with a damp, lint free cloth or replace new electrode pads. Clean the electrode belt according to the instructions in the user manual.
	The surface of the electrode was scratched.	Replace with new electrodes.
Output current stops during therapy	The electrode pads come off the skin.	Turn off the device and stick the electrode pad firmly to the skin.
	The cable is disconnected.	Turn off the device and connect the cable
	The power of the batteries has been exhausted.	Replace them with new batteries.



## 8. STORAGE

1. For prolonged pauses in treatment, store the device in a cool dry room and protect it against heat, sunshine and moisture and remove the battery to avoid battery leaking.
2. Store the device in a cool, well-ventilated place.
3. Never place any heavy objects on the device.

## 9. DISPOSAL

Used fully discharged batteries must be disposed of in a specially labeled collection container, at a toxic waste collection point or through an electrical retailer. Please dispose of the device in accordance with the laws in your area.



## 10. ELECTROMAGNETIC COMPATIBILITY (EMC) TABLES

<b><i>Guidance and manufacturer's declaration - electromagnetic emissions</i></b>		
<b><i>The device is intended for use in the electromagnetic environment specified below. The customer or the user assures that it is used in such an environment.</i></b>		
<b>Emissions test</b>	<b>Compliance</b>	<b>Electromagnetic environment - guidance</b>
RF emissions CISPR 11	Group 1	The device uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR11	Class B	The device is suitable for use in all establishments including domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations /flicker emissions IEC 61000-3-3	Not applicable	

**Guidance and manufacturer's declaration —  
electromagnetic immunity**

***The device is intended for use in the electromagnetic environment specified below. The customer or the user should assure that it is used in such an environment.***


Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact  ±8 kV air	±6 kV contact  ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2kV for power supply lines ±1kV for input/output lines	Not applicable	Main power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1kV differential mode ±2kV common mode	Not applicable	Main power quality should be that of a typical commercial or hospital environment.

<p>Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11</p>	<p>&lt;5% UT (&gt;95% dip in UT) for 0.5 cycle</p> <p>40% UT (60% dip in UT) for 5 Cycles</p> <p>70% UT (30% dip in UT) for 25 Cycles</p> <p>&lt;5% UT (&gt;95% dip in UT) for 5 sec</p>	<p>Not applicable</p>	<p>Main power quality should be that of a typical commercial or hospital environment.</p>
<p>Power frequency (50/60Hz) magnetic field IEC 61000-4-8</p>	<p>3 A/m</p>	<p>3 A/m</p>	<p>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</p>
<p>NOTE UT is the a.c. mains voltage prior to application of the test level.</p>			

**Guidance and- manufacturer's declaration.  
Electromagnetic immunity**

***The device is intended for use in. the electromagnetic environment specified below. The customer or the user should assure that it is used in such an environment.***

Immunity test	IEC 60501 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF Communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	$d = \left[ \frac{3.5}{\sqrt{1}} \right] \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = \left[ \frac{3.5}{E1} \right] \sqrt{P}$ , 80MHz to 800MHz $d = \left[ \frac{7}{E1} \right] \sqrt{P}$ , 800MHz to 2,5MHz

			<p>Where P is the maximum output power rating of the transmitter in watts (W) according to the Transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range</p> <p>b.</p> 
<p>NOTE 1. At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.</p> <p>NOTE 2. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			
<p>a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, it should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the device.</p> <p>b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than <math>[V_i] \text{ V/m}</math></p>			

**Recommended separation distances between portable and mobile RF communications equipment and the device**

**The device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) as recommended below, according to the maximum output power of the communications equipment.**








Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = \left[ \frac{3.5}{\sqrt{1}} \right] \sqrt{P}$	80 MHz to 800 MHz $d = \left[ \frac{3.5}{\sqrt{1}} \right] \sqrt{P}$	800 MHz to 2,5 GHz $d = \left[ \frac{3.5}{\sqrt{1}} \right] \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance  $d$  in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where  $P$  is the maximum output power rating of the transmitter in watts (W) accordable to the transmitter manufacturer.

NOTE 1. At 80 MHz and 800 MHz. the separation distance for the higher frequency range applies.

NOTE 2. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

## 11. GLOSSARY OF SYMBOLS

	Batch code
	Serial number
	Attention: Read the operating instruction before use! Equipment capable of delivering output values in excess of 10mA r.m.s. or 10V r.m.s. averaged over any period of 5s.
	Electrical devices are recyclable material and should not be disposed of with household waste after their useful life! Help us to protect the environment and save resources and take this device to the appropriate collection points. Please contact the organization which is responsible for waste disposal in your area if you have any questions.
	Type BF Applied Part
	Type of protection against electric shock: Class II Equipment
	Refer to Instruction Manual



## 12. WARRANTY

**Please contact your dealer in case of a claim under the warranty. If you have to send the unit back to your provider, enclose a copy of your receipt and state what the defect is.**

**The following warranty terms apply:**

1. The warranty period for device is one year from date of purchase. In case of a warranty claim, the date of purchase has to be proven by means of the sales receipt or invoice.
2. Repairs under warranty do not extend the warranty period either for the device or for the replacement parts.
3. The following is excluded under the warranty:
  - All damage which has arisen due to improper treatment, e.g. non-observance of the user instruction.
  - All damage which is due to repairs or tampering by the customer or unauthorized third parties.
  - Damage which has arisen during transport from the manufacturer to the consumer or during transport to the retailer.
  - Accessories which are subject to normal wear and tear.
4. Liability for direct or indirect consequential losses caused by the unit is excluded even if the damage to the unit is accepted as a warranty claim.



Manufactured for:  
Roscoe Medical  
21973 Commerce Parkway  
Strongsville, Ohio 44149  
Ph: (800)871-7858  
[www.roscoemedical.com](http://www.roscoemedical.com)