

# Compex®

## WIRELESS



MUSCLE STIM + TENS

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*It is strongly recommended to read these instructions and the contraindications and safety measures carefully before using your stimulator.*

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*It is strongly recommended to read these instructions and the contraindications and safety measures carefully before using your stimulator.*

## Glossary of Medical Terminology

**Abdominal or Inguinal Hernia:** Occurs when a portion of the abdomen (usually fat or small intestine) bulge through a weak area of the abdominal wall.

**Acute Trauma:** An injury resulting from a single event.

**Aerobic Metabolism:** When the body is able to use oxygen to generate energy for the body. This is usually seen in long distance events.

**Afflicted Joint:** A joint that has been impaired or has pain.

**Anaerobic Metabolism:** When the body can no longer use oxygen to produce energy it begins to use carbohydrates that are stored in the body. This is generally used for short burst of energy.

**Arterial Circulation:** This is blood circulating from the heart out to the body through the arterials

**Atrophied Muscle:** when muscle wastes away due to disease, injury, or lack of physical activity.

**Blood Flow Deficiency:** The body is not able to properly move blood throughout the body. Can be caused by a number of different conditions.

**Capillary fragility:** Capillaries deliver blood to between the arteriress and veins. Sometimes these can become weak and break down and not transfer blood effectively.

**Capillary damage:** When there is damage to the capillaries it can cause them to break down and can even leak into the body.

**Cardiac Arrhythmia:** An irregular heartbeat. This can mean that the heart is beating too fast, too slow, or not in a normal rhythm.

**Disuse Atrophy:** This is caused when the muscles are no longer active and begin to shrink

**Fracture:** A break in the bone

## Glossary of Medical Terminology

**Ischemia:** a lack of blood supply to an organ or other part of the body. Usually affects the heart muscles

**Lactic Acid:** Waste left in the muscle after working at a high level of exercise for an extended period of time. Lactic Acid has been known to cause fatigue in the muscle and is related to muscle soreness

**Muscle Re-education:** the use of physical exercises to restore muscle tone and strength after an injury or disease

**Muscle Spasm:** an involuntary contraction of a muscle that can cause a great deal of pain.

**Muscle Twitch Response:** this is a contraction of the muscle that can be felt or seen, or a movement of the muscle and skin as the muscle fibers contract and relax.

**Venous Thrombosis:** a blood clot that forms within a vein.

## 1. FOREWORD

This manual has been written for the owners and operators of the Compex® Wireless USA. It contains general instructions for operation, precautionary instructions, and maintenance recommendations. In order to obtain maximum life and efficiency from your Compex Wireless USA, and to assist in the proper operation of the unit, read and understand this manual thoroughly.

The specifications put forth in this manual were in effect at the time of the publication. However, changes to these specifications may be made at any time without obligation on the part of DJO, LLC.

**Before starting any program, you should become acquainted with the [www.compexusa.com](http://www.compexusa.com) website to establish an appropriate training plan.**

**The [www.compexusa.com](http://www.compexusa.com) website helps you take your first steps with the device.**

## ***INDICATIONS FOR USE***

The Compex Wireless USA is an Over-The-Counter device intended to stimulate healthy muscles in order to improve or facilitate muscle performance. It is to be used by adults only.

The Compex Wireless USA is not intended for adjunctive therapy in the treatment of medical diseases and conditions of any kind. None of the Compex Wireless USA stimulation programs are designed for injured or disease afflicted muscles. Its use on such muscles is contraindicated. The work imposed on the muscles by the Compex Wireless USA programs is definitely not suitable for rehabilitation and physiotherapy. The Compex Wireless USA electrical impulses allow the triggering of action potentials on motoneurons of motor nerves (excitations). These excitations of motoneurons are transmitted to the muscle fibers via the motor endplate where they generate mechanical muscle fiber responses that correspond to muscle work. Depending on the parameters of the electrical impulses (pulse frequency, duration of contraction, duration of rest, total session duration), different types of muscle work can be imposed on the stimulated muscles. The Compex Wireless USA may therefore be considered a technique of muscle training.

The Compex Wireless USA TENS device is used for:

- temporary relief of pain associated with sore and aching muscles due to strain from exercise or normal household and work activities.
- the symptomatic relief and management of chronic, intractable pain and relief of pain associated with arthritis.

## ***CONTRAINDICATIONS***

A contraindication indicates a situation in which the device should not be used.

Never use the Compex Wireless USA on *atrophied muscles, muscles with spasms, or muscles associated with a limb with a painful or afflicted joint.*

Do not use the Compex Wireless USA *for muscle reeducation, to prevent or retard disuse atrophy, to prevent venous thrombosis, to maintain or increase range of motion, or for blood flow deficiencies*

Do not use the Compex Wireless USA if you have one or more of the following medical conditions:

- *Do not use this device if you have ~~with~~ a cardiac pacemaker or implanted defibrillator. Such use could cause electric shock, burns, electrical interference, or death.*
- Do not use the Wireless USA if you have been diagnosed with epilepsy before consulting your physician
- Do not use the Wireless USA following acute trauma or fracture, or following recent surgical procedures.
- Do not use the Wireless USA if you have critical ischemia of lower limbs, or other serious arterial circulation problems in lower limbs
- Do not use the Wireless USA over Abdominal or inguinal hernia
- Do not use the Wireless USA over Cancerous lesions
- Do not use the Wireless USA over the abdominal region during pregnancy
- *Do not use the Compex Wireless if you have sensitivity problems or unable to express yourself*

#### **OSTEOSYNTHESIS EQUIPMENT**

Stimulation over metallic implants: Do not apply stimulation directly over implanted metallic devices, because this may cause shock or burns.

#### **ADVERSE REACTIONS**

- You may experience skin irritation and burns beneath the stimulation electrodes applied to your skin
- You may experience headache and other painful sensations during or following the application of electrical stimulation applied to your head, face, and near your eyes.
- You should stop using the device and should consult with your physician if you experience adverse reactions from the device.

## 2. ABOUT COMPEX WIRELESS USA

### 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 definitions of these symbols are as follows:

	<p><b>CAUTION</b></p> <p>Text with a “PRECAUTION” indicates a situation which, if not avoided, may result in minor or moderate injury to the user or patient or damage to the equipment of other property.</p>
	<p><b>WARNING</b></p> <p>Text with a “WARNING” indicates a situation which, if not avoided, could result in death or serious injury.</p>
	<p><b>EXPLOSION HAZARD</b></p> <p>Text with an “Explosion Hazard” indicator will explain possible safety infractions if this equipment is used in the presence of flammable anesthetics.</p>
	<p><b>DANGEROUS VOLTAGE</b></p> <p>Text with a “Dangerous Voltage” indicator serves to inform the user of possible hazards resulting in the electrical charge delivered in certain program configurations of waveforms.</p>
	<p><b>BIOHAZARDOUS MATERIALS</b></p> <p>Text with a “Biohazard” indicator serves to inform the user of possible hazards resulting in improper handling of components and accessories that have come in contact with bodily fluids.</p>
	<p><b>NON-IONIZING ELECTROMAGNETIC RADIATION</b></p> <p>Text with a “Non-Ionizing Electromagnetic Radiation” indicator informs the user of possible hazards resulting from elevated, potentially dangerous levels of non-ionizing radiation.</p>
<p><b>Note:</b></p>	<p>Throughout this manual, “Note” may be found. These Notes are helpful information to aid in the particular area or function being described.</p>

## **WARNING**

- **Physician Care:** If you are in the care of a physician, consult with your physician before using the Wireless USA.
- **Physician Care:** If you have had medical or physical treatment for your pain, consult with your physician before using the Wireless USA.
- **Physician Care:** If your pain does not improve, becomes more than mild, or continues for more than five days, stop using the Wireless USA and consult your physician.
- **Physician Care:** Consult with your physician before using the Wireless USA, because the device may cause lethal rhythm disturbances to the heart in susceptible individuals.
- **Accessories:** Use only accessories that are specially designed for the Compex Wireless USA. Do not use accessories manufactured by other companies on the Wireless USA. DJO, LLC is not responsible for any consequence resulting from using products manufactured by other companies. The use of other accessories or cables may result in increased emissions or decreased immunity of the Wireless USA.
- **Long Term:** Long term effects of chronic electrical stimulation are unknown.
- **First Use:** Never carry out an initial stimulation. Do not use the Wireless USA for the first session on a person who is standing. The first five minutes of stimulation must always be performed on a person who is sitting or lying down. In rare instances, people who are nervous experience a vasovagal reaction. This is of psychological origin and is connected with a fear of the muscle stimulation as well as surprise at seeing one of their muscles contract without having intentionally contracted it themselves. A vasovagal reaction causes heart to slow down and blood pressure to drop, which can make you feel weak and faint. If this does occur, all that is required is to stop the stimulation and lie down with the legs raised until the feeling of weakness disappears (5 to 10 minutes).
- **Head:** Since the effects of stimulation of the brain are unknown, stimulation from the Wireless USA should not be applied across your head and electrodes should not be placed on the opposite sides of the head.
- **Neck:** Do not apply stimulation from the Wireless USA over your neck because this could cause severe muscle spasms resulting in closure of your airway, difficulty in breathing, or adverse effects on heart rhythm or blood pressure.
- **Chest:** Do not apply stimulation from the Wireless USA across your chest because the introduction of electrical current into the chest may cause rhythm disturbances to your heart, which could be lethal.

- **Wounds:** Do not apply stimulation from the Wireless USA over open wounds or rashes or over swollen, red, infected, and inflamed areas or skin eruptions, (e.g., phlebitis, thrombophlebitis, varicose veins)
- **Healthy Skin:** Apply stimulation from the Wireless USA only to normal, intact, healthy skin.
- **Altitude:** Do not use the stimulator at altitudes over 9,842 feet (3,000 meters).
- **Bleeding:** Use caution if you have a tendency to bleed internally, such as following an injury or fracture.
- **During Use:** Do not disconnect any stimulation cables during a session while the Wireless USA is switched on. Switch the stimulator off first.
- **Driving:** The Compex Wireless USA should not be used while driving, operating machinery, or during any activity in which involuntary muscle contractions may put the user at undue risk of injury.
- **Children:** Do not use the Wireless USA on children, as it has not been evaluated for pediatric use
- **Medical Equipment:** Do not use the Compex Wireless USA if you are connected to a high- frequency surgical instrument as this could cause skin irritation or burns under the electrodes.
- **Medical Equipment:** The Compex Wireless USA should not be used adjacent to or stacked with other equipment, and if adjacent or stacked use is necessary, the unit should be observed to verify normal operation in the configuration in which it will be used.
- **Medical Equipment:** Do not apply Wireless USA in the presence of electronic monitoring equipment (e.g., cardiac monitors, ECG alarms), which may not operate properly when the electrical stimulation device is in use.
- **Charging:** Never use the Compex Wireless USA or the charger if it is damaged (case, cables, etc.) or if the battery compartment is open. There is a risk of electric shock.
- **Charging:** Disconnect the charger immediately if the Compex Wireless USA “bleeps” continuously, if there is abnormal heating or smell, or if smoke comes from the charger or the Compex Wireless USA.
- **Charging:** Do not recharge the battery in a confined space (carrying case, etc.). There is a risk of fire or electric shock.
- **Charging:** Never connect stimulation cables to an external power supply. There is a risk of electric shock.
- **Charging:** Never recharge the stimulator without first disconnecting the stimulation cables.
- **Bath or Shower:** Do not apply Wireless USA when in the bath or shower

- **Sleeping:** Do not apply Wireless USA while sleeping
- **Cancer:** Do not apply stimulation from the Wireless USA over, or in proximity to, cancerous lesions.
- **Environment:** DO NOT operate this unit in an environment where other devices that intentionally radiate electromagnetic energy, such as RFID equipment, are being used in an unshielded manner. Fixed, portable and mobile RF communications equipment can affect Medical Electrical Equipment. RFID equipment can, for example, be Anti-Theft equipment in stores. In case of doubt about the presence of RFID equipment in the vicinity of the device, DO NOT use the Compex Wireless USA device.



BIOHAZARD

- **Waveform:** Stimulus delivered by the waveforms of this device, in certain configurations, will deliver a charge of 25 microcoulombs ( $\mu\text{C}$ ) or greater per pulse and may be sufficient to cause electrocution. Electrical current of this magnitude must not flow through the thorax because it may cause a cardiac arrhythmia.
- **Battery:** Battery replacement is to be done by service personnel only. Incorrect placement of batteries can result in excessive heat, fire, or explosion.”
- **Biohazard:** Handle, clean and dispose of components and accessories that have come in contact with bodily fluids according to National, Local and Facility rules, regulations and procedures.
- **Hazard:** Explosion hazard if the Compex Wireless USA is used in the presence of flammable anesthetics mixture with air, oxygen, or nitrous oxide.



## PRECAUTION

- **Read, understand, and practice the precautionary and operating instructions found in this manual. Know the limitations and hazards associated with the treatment table. Observe any and all precautionary and operational decals placed on the unit.**
- **Medical Equipment:** DO NOT operate this unit in an environment where other devices are being used that intentionally radiate electromagnetic energy in an unshielded manner. Portable and mobile RF communications equipment can affect Medical Electrical Equipment.
- **Radio Frequency:** This unit generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. Harmful interference to other devices can be determined by turning this unit on and off. Try to correct the interference using one or more of the following: reorient or relocate the receiving device, increase the separation between the equipment, connect the unit to an outlet on a different circuit from that which the other device(s) are connected, and consult DJO, LLC for help.
- **NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna
  - Increase the separation between the equipment and receiver
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
  - Consult the dealer or an experienced radio/TV technician for help
- **Irritation:** You may experience skin irritation or hypersensitivity due to the electrical stimulation or electrical conductive medium (gel). The irritation can usually be reduced by using an alternative conductive medium or alternative electrode placement.
- **Heart Disease:** If you have suspected or diagnosed heart disease, you should follow the precautions recommended by your physician.
- **Physician Care:** Consult with your physician prior to using the device after a recent surgical procedure, because stimulation may disrupt the healing process.

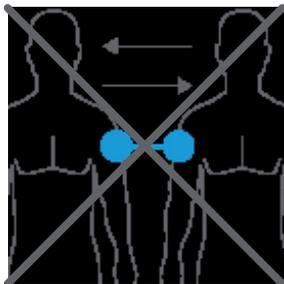
- **EPILEPSY:** If you have suspected or diagnosed epilepsy, you should follow the precautions recommended by your physician.
- **Cleaning:** Do not allow any foreign bodies (soil, water, metal, etc.) to penetrate the device, the battery compartment and the charger.
- **Humidity:** Do not use the device in water or in a humid atmosphere (sauna, hydrotherapy, etc.).
- **Temperature:** This unit should be operated in temperatures between 32 °F and 104 °F (0 °C and 40 °C), atmospheric pressures between 700 and 1060 hPa and Relative Humidity ranging from 30%-75%.
- **Skin Care:** Use caution if stimulation is applied over areas of skin that lack normal sensation.
- **Condensation:** Sudden temperature changes can cause condensation to build up inside the stimulator. To prevent this, allow it to reach ambient temperature before use.
- **Pregnancy:** The safety of electrical stimulation during pregnancy has not been established.
- **Children:** Keep the device out of the reach of children.
- **IMPORTANT!** Changes or modifications not expressly approved by DJO, LLC could void the user's authority to operate the equipment.
- **TENS:** TENS is not effective for pain of central origin, including headache
- **TENS:** TENS is not a substitute for pain medications and other pain management therapies
- **TENS:** TENS devices have no curative value
- **TENS:** Effectiveness is highly dependent upon patient selection by a practitioner qualified in the management of pain patients.
- **TENS:** TENS is a symptomatic treatment and, as such, suppresses the sensation of pain that would otherwise serve as a protective mechanism.
- **Accessories:** Only use accessories that are specifically designed for the Compex Wireless USA. Do not use accessories manufactured by other companies with the Compex Wireless USA device. DJO, LLC is not responsible for any consequence resulting from using products manufactured by other companies. The use of other accessories or cables may result in increased emissions or decreased immunity of the Compex Wireless

## PRECAUTIONS WHEN USING ELECTRODES



# PRECAUTION

- Only use electrodes supplied by DJO, LLC. Other electrodes may have electrical properties that are unsuitable for the Compex Wireless USA stimulator.
- Do not use electrodes with a surface  $<16 \text{ cm}^2$  ( $2.94 \text{ in}^2$ ), as there will be a risk of suffering a burn injury. Caution should always be exercised with current densities  $> 2 \text{ mA/cm}^2$  ( $12.9 \text{ mA/in}^2$ ).
- Always turn off the stimulator before moving or removing any electrodes during a session.
- Do not place the electrodes in water.
- Do not apply solvents of any kind to the electrodes.
- For best results, wash and clean the skin of any oil and dry it before attaching the electrodes.
- Attach the electrodes in such a way that their entire surface is in contact with the skin.



- For obvious reasons of hygiene, each user must have his/her own electrode set. Do not use the same electrodes on different people.
- Self-adhesive electrodes should be replaced if they no longer stick firmly to the skin.
- Some people with very sensitive skin may experience redness under the electrodes after a session. Generally, this redness is completely harmless and disappears after 10 to 20 minutes. Never start another stimulation session in the same area, however, if the redness is still visible.

## SAFETY GUIDE

ENGLISH



### *WHERE NEVER TO APPLY ELECTRODES*

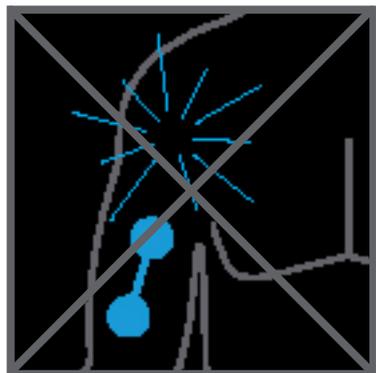
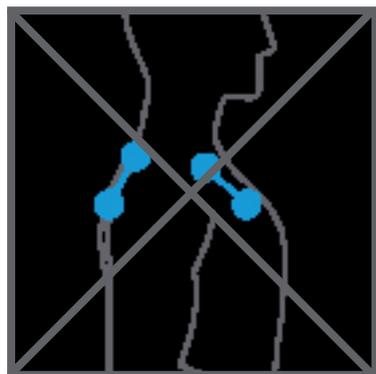
- *On the head or any area of the face*



- *On the neck or any area of the throat*

## SAFETY GUIDE

ENGLISH



### WHERE NEVER TO APPLY ELECTRODES

- On both sides of the chest simultaneously (front and back sides, or lateral sides)
- On, or in the vicinity of skin lesions or eruptions of any kind (wounds, swelling, burns, irritation, eczema, etc.)
- Over the abdominal region during menstruation periods
- On skin areas lacking of normal sensation.

## 5. SAFETY GUIDE

WHO SHOULD NOT USE THE COMPEX WIRELESS USA

Check the following list of 17 questions:

	QUESTIONS	YES/NO
1	Do you have a cardiac pacemaker, defibrillator, or other implanted metallic or electronic device?	
2	Have you ever been diagnosed or suspected of having epilepsy?	
3	Have you recently been victim of an acute trauma (less than 6 months)?	
4	Have you recently been subject to a surgical procedure (less than 6 months)?	
5	Do you have blood flow deficiency in your lower limbs?	
6	Do you have an abdominal or inguinal hernia?	
7	Do you suffer from cancer?	
8	Are you pregnant?	
9	Have you ever suffered from or been diagnosed with cardiac problems or diseases?	
10	Do you have painful or afflicted joints?	
11	Do you have muscle spasms?	
12	Do you have atrophied muscles?	
13	Do you have a tendency to bleed internally, such as following an injury or fracture?	
14	Do you need muscle reeducation?	
15	Do you have any joint showing a decrease in its range of motion?	
16	Are you in the presence of electrical monitoring equipment (e.g.. cardiac monitors, ECG alarms)	
17	Are you under the age of 18?	

If you answer "Yes", or "Maybe" , or "I don't know" to one or more questions, do not use the device and contact Compex Product Support, DJO, LLC for more information.

If you have 17 "No" answers, you can use the Compex Wireless USA.

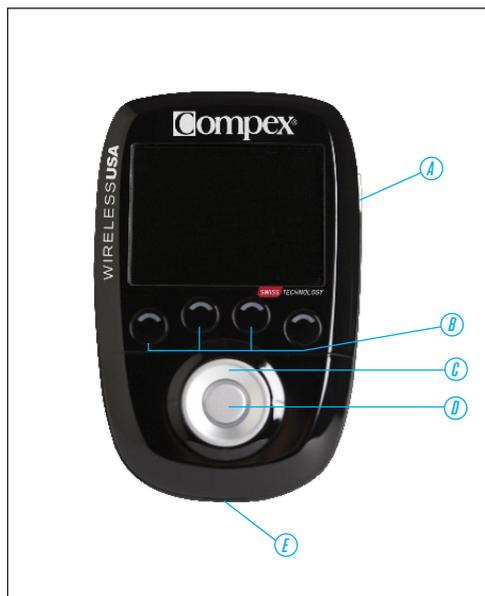
Compex Product Support – Toll Free: 877-266-7398 (877-COMPEX8)

## 3. CONTENTS

### COMPEX WIRELESS USA

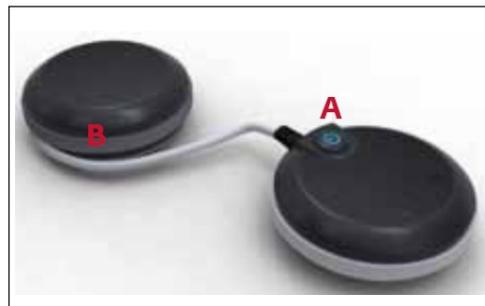
Note: You are strongly advised to carefully read the safety precautions and contraindications described at the start of this manual prior to using your stimulator.

### DEVICE DESCRIPTION



### REMOTE CONTROL

- A** On/Off button (press briefly to turn on, hold down for more than 2 seconds to turn off)
- B** 4 buttons for the selection/deselection of the stimulation channel
- C** Multifunction pad (up-down-left-right) to navigate the interface and increase or decrease the level of stimulation intensity of the selected channels
- D** Confirm button
- E** Plug for the docking station connector



### MODULE

- A** On/Off button (press briefly to turn on, press and hold down to turn off)  
Flashing green LED: Ready  
Flashing yellow LED: In stimulation
- B** Groove for winding the cable

## DEVICE DESCRIPTION



## COMPEX WIRELESS USA DOCK

- A - Remote control charging connector
- B - Notch to open the lid of the docking station



- C - Location for positioning the modules to be recharged
- D - Charger plug

## ACCESSORIES

	REFERENCE	QUANTITY
Remote Control	00300	1
Modules	001062	4
Docking Station	002000	1
Instructions on USB Stick	13-8851	1
Electrode Placement Guide	4525534	1
Quick Tips Sheet	4884430	1
Quick Start Guide	885742	1
Carry Case	680042	1
Remote Control Protection Sleeve	5529029	1
Wireless Desktop Adapter 5v 3.5A	649028	1
Compex Lanyard	5529028	1
Remote Control Protection Sleeve	001094	1
Performance Electrodes 2" X 2", Compex	11-9119	2
Performance Electrodes 2" X 4", Compex	11-9120	2
Performance Electrodes 2" X 4", Compex Rectangular 1 Snap	11-9123	2

Only use this device with electrodes, battery, Docking Station and accessories recommended by Compex.



Compex Wireless USA users can purchase electrodes for their device via phone by dialing Toll Free 1-877-266-7398 or shop online at [www.Compexusa.com](http://www.Compexusa.com).

## 4. INTRODUCTION

### *HOW DOES ELECTROMUSCULAR STIMULATION WORK?*

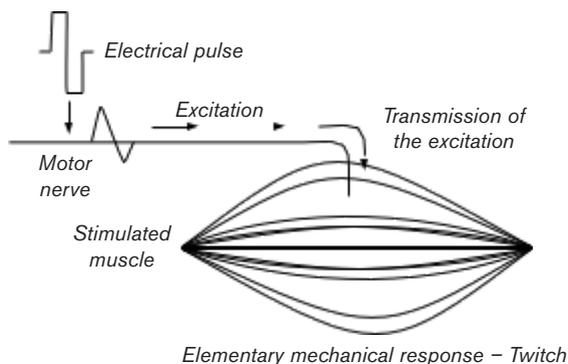
The principle of electrostimulation is to stimulate nerve fibers by means of electrical impulses transmitted by electrodes. The electrical pulses generated by Compex Wireless USA stimulator are high quality pulses - offering safety, comfort and efficiency.

The motor nerves, to stimulate a muscular response. The quantity and the benefits obtained depend on the stimulation parameters and this is known as electro- muscular stimulation (EMS).

### *ELECTROMUSCULAR STIMULATION (EMS)*

In voluntary activity, the order for muscular work comes from the brain, which sends a command to the nerve fibers in the form of an electrical signal. This signal is then transmitted to the muscular fibers, which contract. The principle of electrostimulation accurately reproduces the process observed during a voluntary contraction. The stimulator sends an electrical current impulse to the nerve fibers, exciting them.

This excitation is then transmitted to the muscular fibers causing a basic mechanical response (= muscular twitch). The latter constitutes the basic requirement for muscular contraction. This muscular response is completely identical to muscular work controlled by the brain. In other words, the muscle cannot distinguish whether the command comes from the brain or from the stimulator. The parameters of the Compex Wireless USA programs (number of impulses per second, contraction time, rest time, total program time) subject the muscles to different types of work, by stimulating different types of muscle fibers. In fact, different types of muscular fibers may be distinguished according to their respective contraction speed: slow, intermediate and fast fibers. Fast fibers will obviously predominate in a sprinter, while a marathon runner will have more slow fibers. With a good knowledge of human physiology and a perfect mastery of the stimulation parameters of the various programs, muscular work can be directed very precisely towards the desired goal (muscular reinforcement, increased blood flow, firming up, etc.).



## ***BENEFITS OF ELECTROSTIMULATION***

Electrostimulation is a very effective way to make your muscles work:

- *with significant improvement of different muscular qualities*
- *without cardio-vascular or mental fatigue*
- *with limited stress on the joints and tendons. Electrostimulation thus allows a greater quantity of work by the muscles compared with voluntary activity.*

To be effective, this work must involve the greatest possible number of muscular fibers. The number of fibers working depends on the stimulation energy. The maximum tolerable energy should therefore be used. The user controls this aspect of stimulation. The higher the stimulation energy, the greater the number of muscular fibers that are working and, therefore, the more significant the progress achieved. To maximize results, DJO, LLC recommends that you complement your electrostimulation sessions with other efforts, such as:

- *regular exercise*
- *proper and healthy nutrition*

## ***TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS)***

Pain, whether chronic (long-term) or acute (short-term), can be relieved through a variety of methods, including drugs, topical ointments, surgery, and electrical stimulation. TENS devices deliver electrical pulses through the skin to the cutaneous (surface) and afferent (deep) nerves to control pain. Unlike drugs and topical ointments, TENS does not have any systemic side effects.

## ***HOW DOES TENS CONTROL PAIN***

TENS provides pain relief in two ways. One is the gate control mechanism. When the body is injured, both pain and non-pain impulses are sent to the brain from the nervous system. These pulses travel through nerves in your skin to deeper nerves, and then to the spinal cord and brain. Along the path are many areas referred to as “gates”. These gates determine which impulses are allowed to continue to the brain. The gates prevent the brain from receiving too much information too quickly.

Since the same nerve cannot carry a pain and a non-pain impulse at the same time, the stronger, non-pain impulse from the TENS device “controls the gate”.

The other mechanism of pain control is endorphin release. The TENS device can trigger the body's natural pain killers, called endorphins. These chemicals interact with receptors, blocking the perception of pain. This is similar to the way the pharmaceutical drug, morphine works, but without morphine's side effects.

## 6. OPERATION

### *PRELIMINARY SETTINGS*

Before using the unit for the first time, you should select the working language of the device which is displayed on the options screen. Afterwards, for the greatest comfort, the Compex Wireless USA offers you a number of setting options (operating language selection, display contrast setting, adjusting backlighting and volume setting). To change any of these settings, bring up the settings screen by navigating to the settings icon and selecting settings by pushing the center button on the remote control.

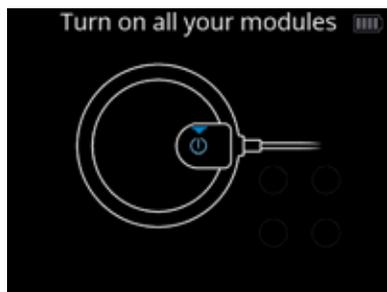
### *FIRST USE*

When using the device for the first time, the following steps must be followed:

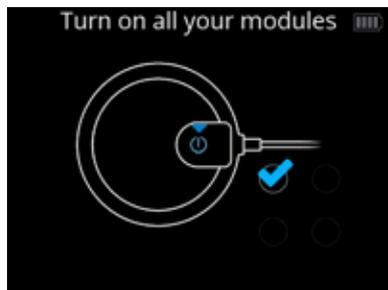
1. Select language.



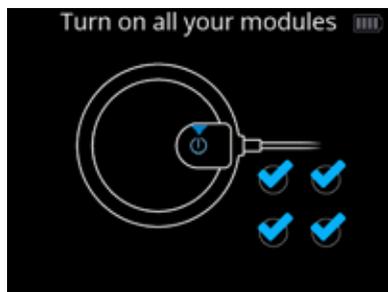
2. Turn on all modules in order to pair them with the remote control.



Once a module is turned on and recognized by the remote control, a check appears on the module.



When all modules are paired, all check marks appear.



Note: This pairing procedure is to be performed only once.

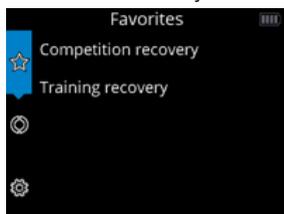
ENGLISH

## DEVICE FUNCTION

The following screens are generic examples but they work in the same way regardless of the device that you have.

### HOW TO ACCESS FAVORITES

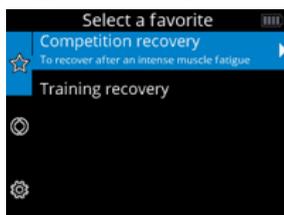
The Favorites menu displays the last programs used. You need only to have one program in the Favorites menu to become directly accessible after turning on the device.



- A Select the Favorites menu
- B Confirm your selection

The programs done will automatically be placed in the Favorites menu. The Favorites menu can contain up to 9 programs. If new programs are done, the old ones will automatically be removed from the list of favorites.

### 1. SELECT A FAVORITE



- A Select the desired favorite program
- B Confirm your selection
- C Return to the previous step

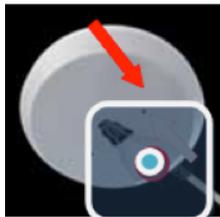
### 2. SELECT ELECTRODE PLACEMENT



- A Select the desired electrode placement
- B Confirm your selection
- C Return to the previous step

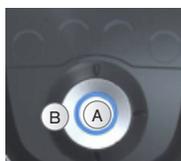
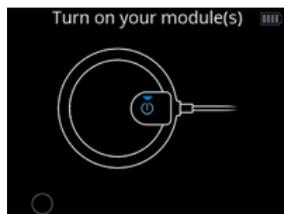
The placement of electrodes selected during the program appears. It is possible to scroll through other electrode placements.

### 3. *CONNECT THE MODULES TO THE ELECTRODES*



Stick the electrodes to your skin. The module is attached to the electrode from the side. Slide the module onto the electrode's snap until it clips into place.

### 4. *TURN ON THE MODULES*



- A** Confirm your selection
- B** Return to the previous step

To launch the program, see the section entitled "Start a stimulation program!"

## HOW TO ACCESS PROGRAMS

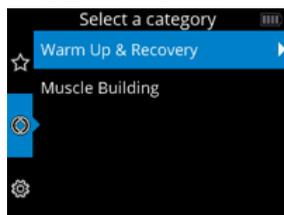
For more information on programs, connect to: [www.Compexusa.com](http://www.Compexusa.com)

The Programs menu displays the program categories.



- A** Select the Program menu
- B** Confirm your selection

### 1. SELECT A CATEGORY



- A** Select the desired program category
- B** Confirm your selection
- C** Return to the previous step

### 2. SELECT A PROGRAM



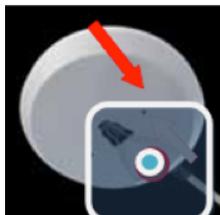
- A** Select the desired program
- B** Confirm your selection
- C** Return to the previous step

### 3. SELECT ELECTRODE PLACEMENT



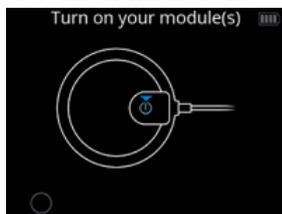
- A** Select the desired electrode placement
- B** Confirm your selection
- C** Return to the previous step

### 4. CONNECT THE MODULES TO THE ELECTRODES



Stick the electrodes to your skin. The module is attached to the electrode snap from the side. Slide the module onto the electrode's snap until it clips into place.

### 5. TURN ON THE MODULES

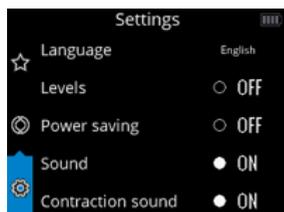


- A** Confirm your selection
- B** Return to the previous step

To launch the program, see the section entitled "Start a stimulation program."

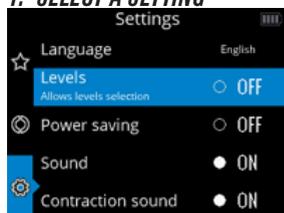
## HOW TO ACCESS SETTINGS

The Settings menu enables certain elements to be configured such as backlighting, volume, language, etc. Some settings are not available in all devices.



- A** Select the Settings menu
- B** Confirm your selection

### 1. SELECT A SETTING



- A** Select the desired setting
- B** Confirm your selection
- C** Return to the previous step

Levels: Turns the Levels function on (ON) or off (OFF)

The Levels function is for people who are already accustomed to electrostimulation and want to perform several training cycles. If the Levels function is turned on (ON) an additional screen will appear for certain programs (programs inducing powerful muscle contractions) enabling the training cycle to be selected.

## PROGRESSION IN THE LEVELS

In general, it is not advisable to go through the different levels quickly with the intention of reaching level 5 as fast as possible. In fact, the different levels correspond to progress with electrostimulation.

The goal is to progress through the electrical intensities and then through the levels. The more numerous the muscle fibers you stimulate, the more numerous will be the fibers that are going to progress. But the speed of progress of these fibers and their aptitude for operating at a higher rating depend on the program and level used, the number of sessions per week, the length of these sessions and on intrinsic factors specific to each individual.

The simplest and most usual procedure is to start with level 1 and raise the level when changing to a new stimulation cycle.

At the end of a cycle, you may either start a new cycle at the next level up or do some maintenance at the rate of 1 session.

**Power Saving:** Turns the Power Saving mode function on (ON) or off (OFF). Decreases the intensity and the backlighting time.

**Sound:** Turns the Sound function on (ON) or off (OFF).

**Contraction Sound:** Turns the contraction arrival warning sound on (ON) or off (OFF).

**Set Time:** Allows you to set the time on the device.

**Set Date:** Allows you to set the date on the device.

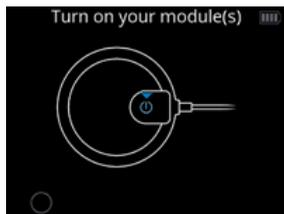
**Pair a new module:** Enables a new module to be paired to the remote control.

**Reset to factory settings:** Enables the device to be re-set and return to the basic settings (Favorites deleted, Objectives cleared, Default settings).

**System info:** Enables information related to the device to be viewed.

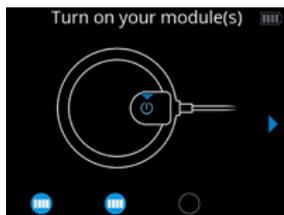
## START A STIMULATION PROGRAM

Before beginning any stimulation program, you must turn the modules on.

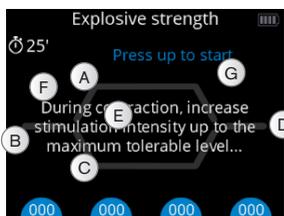


- A Return to the previous step
- B Confirm your selection and start the program

To turn on the modules, press their respective On/Off button. As soon as the module is turned on, its battery level appears on the screen. Turn on the number of modules desired according to the electrode placement selected. As soon as a sufficient number of modules is turned on, a small arrow appears on the right of the screen.



## STIMULATION ALWAYS STARTS AT 000.



- A Contraction phase
- B Warm-up phase
- C Active rest phase
- E Relaxation phase
- F Number of contractions performed / Total number of contraction
- G Guiding message
- H Help message



- A** Select the channels on which to act. When a channel is active the LED button emits a strong blue light.
- B** Pause
- C** Increase or decrease the stimulation intensities on the selected channels

Increase the stimulation intensities on the selected channels.

By default, all of the channels are active at the beginning of the session. To deselect a channel, simply press the corresponding button.



In this case only channel 1 is active. Any change of intensity will only be performed on channel 1.

## ***ADJUSTING STIMULATION ENERGIES***

In a stimulated muscle, the number of recruited fibers depends on the stimulation energy. With a lower current intensity, there are fewer working fibers. With a higher current intensity the number of working fibers is increased.

For programs involving powerful muscular contractions, you must therefore use maximum stimulation energies (up to 999), always at the limit that you can endure, in order to recruit the maximum number of fibers.

## CONTRACTION/ACTIVE REST PROGRAMS

- Endurance
- Resistance
- Strength
- Explosive Strength

These programs always begin with a warm-up phase. After this warm-up phase, a contraction cycles phase followed by active rest occurs (the number of cycles depends on the program) and when all cycles are completed, the program ends with a relaxation phase.



- A** Warm-up phase
- B** Active rest phase
- C** Relaxation phase
- D** Contraction phase
- E** Number of work phase cycles completed/total number of work phase cycles in the program

## MUSCLE RELAXATION, RECOVERY TYPE PROGRAM

These programs consist of a single phase and have no contraction/active rest cycle. These are recovery, muscle relaxation, pre-warmup programs. During this type of program, frequency variations can occur.



- A** Work phase

## PAUSE AND CONTINUE A STIMULATION PROGRAM



- A** Skip the current phase  or exit the program 
- B** Resume the stimulation session
- C** Exit the program and return to the previous step

- A** Average stimulation intensity
- B** Maximum stimulation intensity

By pressing on the central button of the remote control or on the On/Off button of one of the modules during the stimulation, the device goes into pause. At this point it is possible to skip the current phase or exit the program.

Depending on the program, maximum and average intensities statistics may appear.

Note: The session restarts with intensities equal to 80% of those used prior to the interruption.

## END A STIMULATION PROGRAM

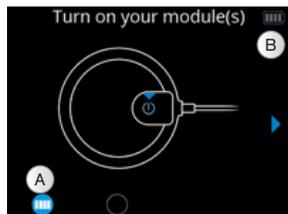


At the end of the session a screen with a check mark appears. Pressing on any button returns you to the Main menu. To turn off the device, hold down the remote control's On/Off button for 2 seconds. This will also result in turning off all modules.

Depending on the program, maximum and average intensities statistics may appear.

## CHARGING

### BATTERY LEVEL INDICATION



- A Module battery level
- B Remote control battery level

Module battery levels appear just prior to launching the stimulation session. The remote control battery level is always visible in the top right corner.

### CONNECT THE DOCKING STATION

Connect the AC adapter supplied with your device to the docking station and then plug it into a power outlet. It is strongly recommended that you fully charge the remote control batteries and modules before first use in order to improve its performance and life expectancy.

## ***CHARGE THE REMOTE CONTROL AND THE MODULES***

At the end of the stimulation session, it is strongly recommended that you store the remote control and modules in the docking station to charge the elements.

### ***COMPEX WIRELESS USA***

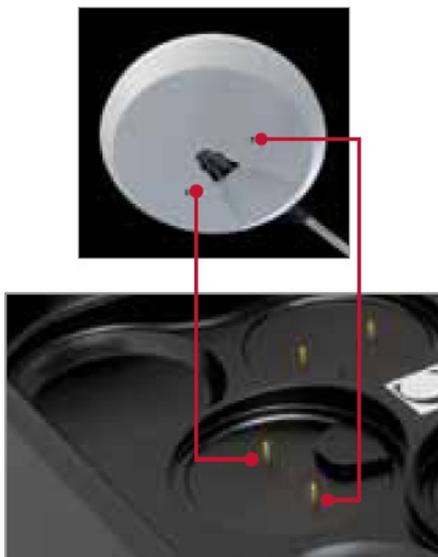


In order to do so, place the remote control on its connector.

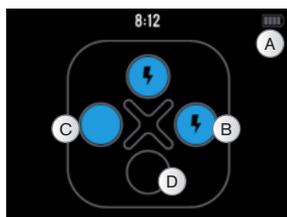


Then place the modules in the slots provided for this purpose.

To do so, place the "A" pod without the On/Off button (the green one in the figure) in the location indicated in green and the other pod "B" in the location indicated in blue. Do the same for the other modules.



The pod without the On/Off button must fit on the small connectors. A magnet as well as the small vertical mark on the hull of the pod helps to position the pod correctly in its slot. When it is positioned correctly you should hear a click.



- A** Remote control battery charging
- B** Module charging
- C** Module charged
- D** No module present

When a module is placed on the docking station it appears on the remote control's screen.

As soon as the remote control and modules are fully charged, they go into standby mode.

**Note About Battery Shelf Life:** If the device is not used for an extended period, we recommend that you charge the batteries to 50% of their capacity every 3 months. You should also store the device containing the batteries in a cool and dry environment. Service Life of battery is 5 years.

## **PROGRAMS**

### **EMS TRAINING PROGRAMS**

Note: For the 4 basic workout programs: Endurance, Resistance, Strength, Explosive Strength, we advise you to consult the training planner on our website [www.Compexusa.com](http://www.Compexusa.com).

The Compex Wireless USA provides four muscle stimulation training programs. They correspond to the type of muscle performance the athlete wishes to improve or maintain. These training programs are:

- *Endurance*
- *Resistance*
- *Strength*
- *Explosive Strength*

Each of these four training programs offers five different working levels that enable the amount of work to be gradually increased.

### **ENDURANCE**

The Compex Endurance program imposes an average medium working level on muscle fibers. This working level is maintained over a long period (40 minutes per session). The Endurance program particularly activates the aerobic metabolism of the fibers during the stimulation session. The purpose is to increase the time the muscle is able to maintain a medium level of working power or the average power level the muscle is able to maintain durations of 1 to 5 (7) minutes. The program may be used in most physical preparations to establish or improve basic muscle endurance. It is designed to increase the average intensity of muscle effort that must be maintained over a long period. It is most appropriate for athletes engaged in endurance sports such as marathon, triathlon, cycling, etc.

### **RESISTANCE**

The Compex Resistance program imposes an average high power working level on muscle fibers. This working level is maintained over a short period (12 minutes per session). The Resistance program activates the anaerobic metabolism of muscle fibers during the stimulation session and induces the production of lactic acid. It is intended to increase the time the muscle is able to maintain a high power working level (close to its maximum) or the average power working level the muscle is able to maintain for a short duration. It is designed for sporting activities, which are characterized by a need for intense (close to the maximum) efforts to be maintained or repeated to approach the limit of muscle exhaustion. Sports requiring this type of effort are, for example, the 400 and 1600 meters, one-kilometer cycle races and 200 and 400 meters swimming. It is appropriate for many other sports based on duration, such as cycling, which makes repeated demands on muscle resistance.

## ***STRENGTH***

The Compex Strength program imposes a high and instantaneous power working level on muscle fibers during tetanic contractions. These contractions are separated by long periods of rest. The result is an average medium power working level (+ 20 minutes). This program is intended to increase the maximum strength of muscle contraction, which is carried out isometrically or dynamically. It is specifically designed for sports characterized by a need for maximum but very brief strength contractions lasting 5-60 seconds. Weight lifting is a typical sport of this kind since a set of 10 repetitions will take ~30 seconds to complete. This program is also appropriate for any type of sports requiring a gain in strength on a specific muscle (cycling, short distance running, soccer, etc.).

## ***EXPLOSIVE STRENGTH***

The purpose of the Compex Explosive Strength program is to increase the speed with which maximum muscle strength can be supplied. It is designed to improve performance in sporting activities of very brief duration such as jumps, sprints and throwing. To ensure a progressive approach in the muscle stimulation training, you are strongly advised not to use this program without having previously worked through a cycle of sessions using the Strength program.

## ***SPECIALIZED EMS TRAINING PROGRAMS***

The Compex Wireless USA also offers five special muscle training programs. Their objective is to prepare muscles for activity, explosive motions or to facilitate recovery after active muscle training and competition:

- *Potentiation*
- *Pre-Warmup*
- *Muscle Relaxation*
- *Training Recovery*
- *Competition Recovery*

## ***POTENTIATION***

The Compex Potentiation program produces the physiological muscular phenomenon known as "Twitch potentiation". A specific system of stimulation increases the amplitude and the speed of the elementary muscle twitch response of muscle fibers, more particularly of fast fibers. A potentiated muscle gains in velocity and reaches its maximum strength more easily and rapidly. This program is recommended before performing a sprint, a jump or a throw. Applied briefly just before the beginning of a competition, it offers immediate, well potentiated muscle fibers and an optimal level of performance to basketball, soccer or volleyball players.

## ***TRAINING RECOVERY***

The Compex Training Recovery cool-down program produces muscle twitches at a very low frequency. Those twitches act like a muscle relaxation and induce an increase in blood flow. They are responsible for a faster reduces the levels of lactic acid in the blood (much better than mere rest) and accelerate the exchanges between muscle fibers and blood. Consequently, the stimulated muscles recuperate better from fatigue and the athlete has a feeling of relaxation and muscle lightness. This type of cool- down program is recommended after hard training sessions and competitions. It is particularly useful after sports requiring long duration efforts, combining endurance and resistance (cycling, marathon, triathlon, mountain-bike, etc.). The same is applicable to sports that require shorter efforts (basketball, soccer, football).

## ***PRE-WARMUP***

The Compex Pre-Warmup program helps muscles to get ready and should be used before training sessions and before competitions. The twitches increases blood flow, warm the muscle tissue, and speed all the reactions necessary for the most efficient muscular contraction.

## ***COMPETITION RECOVERY***

The Compex Recover Plus program is a sub-set of the Active Recovery program that produces the lower frequencies for inducing gentle muscle contractions and to increase in blood flow and generate endorphins-the bodies natural analgesic. This program should be used after training sessions and competitions.

## ***MUSCLE RELAXATION***

The Compex Muscle Relaxation program produces gentle muscle twitches to facilitate recovery from muscle fatigue and to help recover muscle strength after training sessions and competitions.

## ***TENS PROGRAMS***

### ***PAIN RELIEF TENS***

The Pain Relief TENS program is used to temporarily alleviate localized pain.

## 7. OPERATIONAL GUIDELINES

### *USAGE GUIDELINES*

The usage guidelines presented in this section should be considered as general rules. For all programs, it is recommended that you read carefully the usage information and advice presented in the Operation section. You should use the compexusa.com web site to establish an appropriate training plan. The compexusa.com web site helps you with your first steps with the device.

### *CHOOSING THE APPROPRIATE MUSCLE WORK PROGRAM*

The choice of a program determines the kind of work that is imposed on the stimulated muscles. Based on your knowledge about sport training, you can choose the program that is appropriate to your needs. Please go on the shopcompex.com web site as it offers an advanced interactive way to establish an appropriate work program. With just a few answers to basic questions, the "Training Planner" will determine which is the most appropriate program for you.

### *PLANNING STIMULATION SESSIONS*

The Training Planner (compexusa.com) will determine the number of training sessions per week you should do and the number of weeks you should use a muscle training program.

### *ELECTRODE POSITIONS*

For optimal results, use the electrode positions recommended by Compex. To do this, refer to the pictures and pictograms shown on the Remote Stimulator.

Each stimulation module has two pods:

- *A positive pole (+) = power on/off pod*
- *A negative pole (-) = smooth top connection*

A different electrode must be connected to each pole.

Depending on the characteristics of the current, efficacy can be optimized in certain programs by placing the electrode connected to the positive pole (positive pod connection) "strategically". When working with a muscle stimulation program (program involving muscle contractions), it is important to place the positive electrode on the motor point of the muscle.

It is crucial to choose the right size electrodes (large or small) and correctly position these on the muscle group you want to stimulate to ensure the efficacy of the program. Therefore, always use the size of electrodes shown in the pictures. Unless you have other specific medical instructions, always follow the placement directions in the pictures.

DJO, LLC disclaims all responsibility for consequences arising from electrodes placed in other positions. See the Safety Guide section of this manual to more information on where not to apply electrodes.

## ***STIMULATION POSITIONS***

This position will vary depending on the position of the electrodes, the muscle group you wish to stimulate, and the program you are using.

For recovery and warm up programs (for example, the Training Recovery), which do not involve powerful muscular contractions, position yourself as comfortably as possible.

## ***ADJUSTING STIMULATION ENERGIES***

In a stimulated muscle, the number of recruited fibers depends on the stimulation energy. With a lower current intensity, there are fewer working fibers. With a higher current intensity the number of working fibers is increased.

For programs involving powerful muscular contractions, you must therefore use maximum stimulation energies (range = 1 to 999), always at the limit that you can endure, in order to recruit the maximum number of fibers.

## *PROGRESSION IN THE LEVELS*

In general, it is not advisable to go through the different levels quickly with the intention of reaching level 3 as fast as possible. In fact, the different levels correspond to progress with electrostimulation.

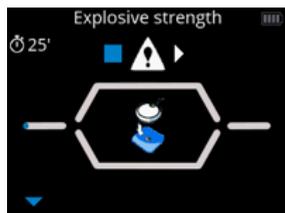
The goal is to progress through the electrical intensities and then through the levels. The more numerous the muscle fibers you stimulate, the more numerous will be the fibers that are going to progress. But the speed of progress of these fibers and their ability for handle increasing training loads depend on the program and level used, the number of sessions per week, the length of these sessions and on intrinsic factors specific to each individual.

The simplest and most usual procedure is to start with level 1 and raise the level after 3 to 6 training sessions (a cycle).

At the end of a cycle, you may either start a new cycle at the next level up or do some maintenance at the rate of 1 session.

## 8. TROUBLESHOOTING

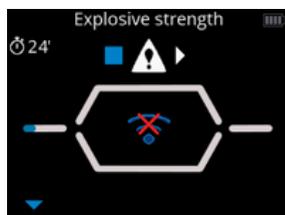
### *ELECTRODE FAULT*



The remote control displays the symbol of an electrode and a disconnected module and an arrow flashes on the channel in question (in this case, channel 1).

- *Ensure that the electrodes are properly connected to the module.*
- *Check to see if electrodes are old, worn and/or if contact is poor: try using new electrodes.*

### *MODULE OUT OF RANGE*



The remote control displays the out of range symbol and an arrow flashing on the channel where the problem was detected (in this case, channel 1).

- *Check to make sure that the module and the remote control are less than 7' (~2 meters) away from each other.*
- *Make sure you are not in an isolated area with no obstacle to reflect the signal from the remote control.*
- *Make sure you are in an area that enables the signal to be reflected from the remote control.*

## ***BEHAVIOR OF THE MODULE'S LED***

The LED alternately flashes green and red: the module is out of range or not recognized by the remote control.

- *Ensure the remote control is on.*
- *Ensure that the module and the remote control are less than 6' 5" (2 meters) away from each other.*

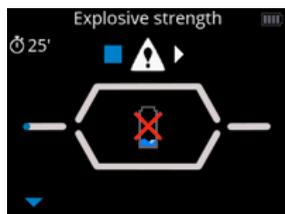
The LED is still red.

- *Ensure the module is charged.*
- *Try to restart the remote control and modules.*
- *If despite this, the LED is still red, contact customer service provided and approved by Compex.*

The LED does not turn on.

- *Ensure the module is charged.*
- *If despite this, the LED still does not turn on, contact customer service provided and approved by Compex.*

## ***MODULE UNCHARGED***



During the stimulation a module may be uncharged. In this case the symbol for an uncharged battery appears and an arrow flashing on the channel where the problem was detected (in this case, channel 1).

- *Stop the stimulation and recharge the uncharged module.*
- *Abandon the uncharged module and continue the stimulation session without it.*

## ***THE MODULE WILL NOT PAIR WITH THE REMOTE CONTROL***



At the time of first use, if the remote control is unable to pair all modules, an error message may appear.

- *Ensure that the module is charged, and repeat the pairing step.*
- *If despite this the message returns, contact customer service provided and approved by Compex.*

## ***STIMULATION DOES NOT PRODUCE THE USUAL SENSATION***

- *Check that all settings are right and check electrodes are properly positioned.*
- *Change the positioning of the electrodes slightly.*

## ***STIMULATION CAUSES DISCOMFORT***

- *Electrodes lose their adhesive capacity and no longer provide adequate contact with skin.*
- *Electrodes are worn and must be replaced.*
- *Change the positioning of the electrodes slightly.*

## ***THE DEVICE IS NOT WORKING***

- *Ensure that the remote control and modules are charged.*
- *Try to restart the remote control and modules.*
- *If despite this the device still does not work, contact customer service provided and approved by Compex.*

## 9. DEVICE MAINTENANCE

### *WARRANTY*

See the warranty card, enclosed.

### *MAINTENANCE*

Your stimulator does not require any calibration or periodic maintenance. Use a soft cloth and solvent-free alcohol-based detergent to clean your device. Use as little liquid as possible to clean the device. Do not dismantle the stimulator or the charger because they contain high voltage components which could cause electrocution. This must be carried out by Compex-approved technicians or repair services. If your stimulator contains parts that appear to be worn or faulty, please contact the closest Compex customer service center.

### *STORAGE, TRANSPORT AND USE*

	STORAGE AND TRANSPORT	USE
TEMPERATURE	-4° F to 113° F (-20° C to 45° C)	-32° F to 104° F (0° C to 40° C)
MAXIMUM RELATIVE HUMIDITY	75%	30% to 75%
ATMOSPHERIC PRESSURE	from 700 hPa to 1060 hPa	from 700 hPa to 1060 hPa

Do not use in areas at risk of explosion.

### *ELECTRODE TIPS*

Clean and degrease the skin with an alcohol swab or cotton ball with alcohol and then dry it before applying the pads. For hygiene purposes, do not share your pads with others.

When removing your pads from your skin, peel from the side of the pad. Do not pull the pad off by the wire. When you store your electrode pads after your session, make sure to stick them on the transparent plastic film provided. Always adhere the pad to the "on" side of the film. Place the film with the pads back inside the plastic bag, squeeze the excess air out of the bag, and then completely seal it for storage.

### *DISPOSAL*

Batteries must be disposed of in accordance with national current regulations.

## 10. TECHNICAL SPECIFICATIONS

### *GENERAL INFORMATION*

Remote control battery: Rechargeable 3.7[V] /  $\geq 1,500$ [mAh] lithium polymer (LiPo) battery.

Module battery: Rechargeable 3.7[V] /  $\geq 450$ [mAh] lithium polymer (LiPo) battery.

Compex Wireless USA docking station: Only 5[V] / 3.5 [A] AC power adapters bearing reference number 64902X can be used to recharge your device.

### *NEUROMUSCULAR STIMULATION*

All the electrical specifications are supplied for an impedance from 500 to 1000 ohms per channel.

Outputs: four independent and individually adjustable channels, electrically insulated from one another.

Impulsion form: constant rectangular current with compensated impulses to eliminate any direct element of continuous current to avoid any residual polarisation from the skin.

Maximum impulse intensity: 120 mA.

Impulse intensity increments: manual adjustment of stimulation intensity from 0 to 999 (energy) by minimum increments of 0.25 mA.

Duration of impulses: from 300 to 400  $\mu$ s.

Maximum quantity of electricity per impulse: 96 microcoulombs ( $2 \times 48 \mu$ C, compensated).

Typical impulse rise time: 3  $\mu$ s (20%-80% of maximum current).

Frequency of impulses: 1 to 120 Hz.

## ***RADIO FREQUENCY WIRELESS INFORMATION***

Radio Frequency Wireless technology is used in the Compex Wireless USA for communication between the remote control and the stimulation modules.

### ***RADIO FREQUENCY WIRELESS DESCRIPTION***

<b><i>WIRELESS PROTOCOL CHARACTERISTICS</i></b>	
Frequency band	2.4 GHz ISM
Protocol type	Proprietary frequency hopping
Channels	6 channels
Channel width	2 MHz
Frequency modulation	GFSK
Frequency deviation	± -320 kHz
EIRP	Measured max -6.2 dBm (0 dBm configured as maximum output power)
Effective emission power	4.4 [dBm]
Data rate	2 Mbps
Quality of service requirement	2 meter range between remote and stimulation modules
<b><i>WIRELESS SECURITY MEASURES</i></b>	
Device identification	32 bits, shared only with other Compex Wireless USA devices
Data integrity checks	Each data frame protected by a 16 [b] length CRC
Acknowledgement	Each point-to-point communication is acknowledged
Out of range behavior	<ul style="list-style-type: none"> <li>- Stimulation modules stop stimulation automatically when out of range from remote control.</li> <li>- Remote control stops entire network stimulation when it detects one module out of range.</li> </ul>

## RADIO FREQUENCY WIRELESS DESCRIPTION - CONTINUED

### COEXISTENCE WITH OTHER COMPEX WIRELESS USA DEVICES

Compex Wireless USA wireless protocol is designed to allow coexistence with at least 3 other Compex Wireless USA devices.

Each Compex Wireless USA remote control and module is assigned a unique ID. Before initial use, the remote is paired with the 4 stimulation modules in its network.

Designed for coexistence with wireless products in the same RF band.

- Bluetooth (IEEE 802.15.1)
- Wi-Fi (IEEE 802.11)

Utilizes established coexistence principles to minimize cross-talk with other wireless devices.

- FDMA (Frequency Division Multiple Access)
- TDMA (Time Division Multiple Access)

Interference from other devices

- If all Compex Wireless USA RF channels are saturated by emissions from other devices, the failsafe outcome is that all stimulation modules will stop stimulation.
- Interference from other RF wireless and mobile communication devices is possible. Refer to Table 4 for recommended distances between Compex Wireless USA and other RF devices.

### FCC REQUIREMENTS

This device complies with Part 15 of the FCC Rules. Operation is subject to the following 2 conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including the interference that may cause undesired operation.

Remote Control FCC ID

2AD2U-REMHHTFT24

Modules FCC ID

2AD2U-NMESTNSMOD

### IC REQUIREMENTS

This device complies with industry Canada's licence-exempt RSSs. Operation is subject to the following 2 conditions:

- This device may not cause harmful interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

Remote Control IC

12752A-REMHHTFT24

Modules IC

12752A-NMESTNSMOD

## ***STANDARDS***

The Compex Wireless USA complies with current medical standards.

The Compex Wireless USA also complies with the IEC 60601-1 standard on general safety requirements for electro-medical devices, the IEC 60601-1-2 standard on electromagnetic compatibility, the IEC 60601-2-10 standard on particular safety requirements for nerve and muscle stimulators, and the IEC 60601-1-11 standard for use in the home environment.

The Compex Wireless USA Docking Station is used to charge the remote control and stimulation modules. It complies with the IEC 60950-1 standard on general safety requirements for information technology equipment and the following standards for electromagnetic compatibility: IEC 61000-3-2, IEC 61000-3-3, CISPR 22, and CISPR 24.

## ***INFORMATION ABOUT ELECTROMAGNETIC COMPATIBILITY (EMC)***

The Compex Wireless USA is designed to be used in typical domestic approved environments in accordance with the safety standard EMC EN 60601-1-2.

The Compex Wireless USA is designed to support anticipated disturbance originating from electrostatic discharge, magnetic fields for the power supply or radiofrequency emitters.

However, it is not possible to guarantee that the stimulator will not be affected by powerful RF fields (radio frequency) originating from other sources.

For more information about electromagnetic emission and immunity, please contact Compex.

## ***PATENTS***

The Compex Wireless USA incorporates several innovations with patents pending.

## ***HOW TO GET HELP***

For Customer assistance or to order a hardcopy of the User Manual at no charge, please contact:

### ***COMPLEX PRODUCT SUPPORT***

**Toll Free:** 877-266-7398 (877-COMPEX8)

**Fax:** 1-760-734-1959

**E-Mail:** [Service@compexusa.com](mailto:Service@compexusa.com)

**Address:**

DJO, LLC

1430 Decision Street

Vista, CA 92081

Website: [www.compexusa.com](http://www.compexusa.com)

## DESCRIPTION OF DEVICE MARKINGS

The markings on the Compex Wireless USA are your assurance of its conformity to the highest applicable standards of medical equipment safety and electromagnetic compatibility. One or more of the following markings may appear on the device:

	<p>The stimulator is a Category II device with built-in power supply and BF Type parts</p>
	<p>Class II Device with internal electric power</p>
	<p>Refer to Instruction Manual / Booklet / Website (<a href="http://www.Compexusa.com">www.Compexusa.com</a>)</p>
	<p>The On/Off button is a multifunction button:</p> <ul style="list-style-type: none"> <li>• <i>On/Off (two stable positions)</i></li> <li>• <i>Waiting or on standby for a part of the unit</i></li> <li>• <i>Stop (turns system off )</i></li> </ul>
	<p>ETL Classified C US, Safety Mark 3184356</p>

## EXPLANATION OF SYMBOLS

	See the instructions
	Manufacturer's name and address and date of manufacture
	This device must be separated from household waste and recycled as electronic waste
	Protect from sunlight
	Store in a dry place
	Non-ionizing radiation
<b>IP20</b>	On the unit means: Protected against solid bodies with a diameter equal to or greater than 12.5 mm (0.5 po.)
<b>IP02</b>	IP02 on the carrying case means: Protected from the ingress of water droplets from a shower of rain.
<b>REF</b>	Reference
<b>LOT</b>	Batch number
	Refer to Instructions

## OUTPUT WAVEFORM

Biphasic rectangular impulse with electrical mean equal zero (net zero DC).

All electrical specifications are given for an impedance of 500-1000 ohms per channel.

Channels: Four independent and individually adjustable channels that are electrically isolated from each other and earthed.

**TABLE 1: RECOMMENDATIONS AND DECLARATION BY THE MANUFACTURER CONCERNING ELECTROMAGNETIC EMISSIONS**

The Compex Wireless USA is intended for use in the electromagnetic environment specified below. The customer or the user of the Compex Wireless USA should assure that it is used in such an environment.

<b><i>EMISSIONS TEST</i></b>	<b><i>COMPLIANCE</i></b>	<b><i>ELECTROMAGNETIC ENVIRONMENT – GUIDANCE</i></b>
RF Emissions Stimulation mode: CISPR 11  Charging mode: CISPR 22	Group 1  Complies	The Compex Wireless USA uses RF energy only for its internal operation. Consequently, its RF emissions are very low and are unlikely to interfere with any adjacent electrical device.
RF Emissions Stimulation mode: CISPR 11  Charging mode: CISPR 22	Class B  Class B	The Compex Wireless USA is suitable for use in any establishment, including a private dwelling and a place connected directly to the low voltage mains supply which powers residential.
Harmonic Emissions IEC 61000-3-2	Class A	
Voltage Fluctuations/ Emission Oscillations IEC 61000-3-3	Complies	

**TABLE 2: RECOMMENDATIONS AND DECLARATION BY THE MANUFACTURER CONCERNING ELECTROMAGNETIC IMMUNITY**

The Compex Wireless USA is designed for use in the electromagnetic environment stipulated below. The customer or the user of the Compex Wireless USA must ensure that it is used in this recommended environment.

<b>IMMUNITY TEST</b>	<b>IEC 60601 TEST LEVEL</b>	<b>COMPLIANCE LEVEL</b>	<b>ELECTROMAGNETIC ENVIRONMENT – GUIDANCE</b>
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV at the contact  ±15 kV in air	±8 kV at the contact  ±15 kV in air	Floors must be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at a minimum of 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lineS	±1 kV for power supply lines Not Applicable (I/O lines) CISPR24 COMPLIANCE LEVEL	The quality of the power supply should be that of a typical commercial or hospital environment.
Surge (1) IEC 61000-4-5	±1 kV differential mode  ±2 kV common mode	±1 kV differential mode  Not Applicable (Line to Earth) CISPR24 COMPLIANCE LEVEL	The quality of the power supply should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% UT (>95% dip in UT) for 0.5 cycle  40% UT (60% dip in UT) for 5 cycles  70% UT (30% dip in U) for 25 cycles  <5% UT (>95% dip in U) for 5 sec	<5% UT (>95% dip in UT) for 0.5 cycle <5% UT (>95% dip in UT) for 1 cycle 40% UT (60% dip in UT) for 10 cycles 70% UT (30% dip in U) for 25 cycles <5% UT (>95% dip in U) for 5 sec  CISPR24 COMPLIANCE LEVEL	The quality of the power supply should be that of a typical commercial or hospital environment. If the Compex Wireless USA user requires continuous operation during mains power cuts, we recommend that the Compex Wireless USA is powered by a UPS.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	30 A/m	Stimulation mode: 3 A/m  Charging mode: N/A  No components subject to magnetic field	Magnetic fields at the mains frequency should be at the level of a representative site located in a typical commercial or hospital environment.

Note: UT is the a.c. mains voltage prior to application of the test level.

**TABLE 3: RECOMMENDATIONS AND DECLARATION BY THE MANUFACTURER CONCERNING ELECTROMAGNETIC IMMUNITY**

The Compex Wireless USA is designed for use in the electromagnetic environment stipulated below. The customer or the user of the Compex Wireless USA must ensure that it is used in this recommended environment.

<b>IMMUNITY TEST</b>	<b>IEC 60601 TEST LEVEL</b>	<b>COMPLIANCE LEVEL</b>	<b>ELECTROMAGNETIC ENVIRONMENT – GUIDANCE</b>
			Portable and mobile RF communications equipment should be used no closer to any part of the Compex Wireless USA, 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 and 6 Vrms 150 kHz to 80 MHz	3 and 6 Vrms 150 kHz to 80MHz CISPR24 COMPLIANCE LEVEL	$d = 1.2\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 1 GHz 3 V/m 1 GHz to 2.7 GHz	3 V/m  3 V/m	$d = 4\sqrt{P}$ 80 MHz to 800 MHz  $d = 6.7\sqrt{P}$ 800 MHz to 2.7 GHz
			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).a Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey b , should be less than the compliance level in each frequency range c. Interference may occur in the vicinity of equipment marked with the following symbol:

Note 1: At 80 MHz and 800 MHz, 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.

**TABLE 4: RECOMMENDED SPACING BETWEEN A PORTABLE AND MOBILE COMMUNICATION APPLIANCE AND THE COMPEX WIRELESS USA**

The Compex Wireless USA is designed for use in an electromagnetic environment in which radiated RF waves are controlled. The buyer or user of the Compex Wireless USA can contribute to preventing electromagnetic interference by maintaining a minimum distance between RF portable and mobile communication appliances (transmitters) and the Compex Wireless USA according to the table of recommendations below and according to the maximum output power of the telecommunication appliance.

MAXIMUM TRANSMITTER OUTPUT POWER W	SPACING ACCORDING TO THE FREQUENCY OF THE TRANSMITTER M CISPR 11		
	FROM 150 KHZ TO 80 MHZ $D = 1.2\sqrt{P}$	FROM 80 MHZ TO 800 MHZ $D = 4\sqrt{P}$	FROM 800 MHZ TO 2.7 GHZ $D = 6.7\sqrt{P}$
0.01	0.12	0.4	0.67
0.1	0.38	1.26	2.11
1	1.2	4	6.7
10	3.8	12.6	21.1
100	12	40	67

In the case of whose maximum output power is not shown in the table above, the recommended spacing of d meters (m) can be calculated using the appropriate equation for the transmitter frequency, where P is the maximum output power of the transmitter in watts (W) as set by the transmitter manufacturer.

Note 1: At 80 MHz and at 800 MHz, the spacing for high frequency amplitude is applied.

Note 2: These guidelines may not be appropriate for some situations. Electromagnetic wave propagation is modified by absorption and reflection due to buildings, objects, and persons.

## 11. WARRANTY

DJO, LLC ("Company"), warrants that the Compex Wireless USA ("Product") is free of defects in material and workmanship. This warranty shall remain in effect for two years (24 months) from the date of original consumer purchase. If this Product fails to function during the two year warranty period due to a defect in material or workmanship, at the Company's option, the Company or the selling dealer will repair or replace this Product without charge within a period of thirty days from the date on which the Product is returned to the Company or the dealer.

All repairs to the Product must be performed by a service center certified by the Company. Any modifications or repairs performed by unauthorized centers or groups will void this warranty.

The warranty period for accessories is 90 days. Accessories include Pods and Power Supply.

### **This Warranty Does Not Cover:**

Replacement parts or labor furnished by anyone other than the Company, the selling dealer, or a service technician certified by the Company.

Defects or damage caused by labor furnished by someone other than the Company, the selling dealer, or a certified Company service technician.

Any malfunction or failure in the Product caused by product misuse, including, but not limited to, the failure to provide reasonable and required maintenance or any use that is inconsistent with the Product User Manual.

Company shall not be liable in any event for incidental or consequential damages.

Some locations do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

### **To obtain service from Company or the selling dealer under this warranty:**

1. *A written claim must be made within the warranty period to the Company or the selling dealer. Written claims made to the Company should be sent to:*

DJO, LLC  
1430 Decision Street  
Vista, CA 92081-8553 USA  
Phone: 1-877-266-7398 (877-COMPEX8)

2. *The Product must be returned to the Company or the selling dealer by the owner.*

This warranty gives you specific legal rights and you may also have other rights which vary from location to location.

The Company does not authorize any person or representative to create for it any other obligation or liability in connection with the sale of the Product.

Any representation or agreement not contained in the warranty shall be void and of no effect.

*The Foregoing Warranty is in lieu of all other Warranties, expressed or implied, including any Warranty or Merchantability or Fitness For a Particular Purpose.*

ENGLISH

ETL  
C 3184336 US  
Conforms to  
IEC Std 60081-1-2,  
60081-1-3, 60081-2-10  
UL STD 60081-1  
Certified to CAN/CSA STD  
C22.2 No. 601.1



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# Compex™

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