



Polaris Athlete

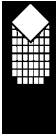


Operators Manual



Spectramed, Inc.
564 Harcourt Road
Mount Vernon, Ohio 43050

Phone: 1-800-643-1917
Fax: 1-877-843-1917
www.spectramedonline.com



Warnings

- * This unit must be used with the guidance of a Physician or Physical Therapist
- * Type BF equipment
- * Do not insert lead wires into a mains power supply
- * Do not immerse unit into water or any other substance
- * Do not use the Polaris Athlete unit in the presence of a flammable anaesthetic gas mixture and air or with Oxygen or Nitrous Oxide
- * If using rechargeable 9 volt PP3 Nickel Metal Hydride batteries be sure to use a U.L. approved battery charger.
- * Never connect the Polaris Athlete unit directly to a battery charger or any other mains powered equipment
- * Patient Electrodes are for *single patient use only*
- * Keep out of reach of children
- * Application of electrodes near the thorax may increase the risk of cardiac fibrillation
- * Operation in close proximity (e.g. 1m) to a shortwave or microwave therapy equipment may produce instability in the stimulator output
- * Simultaneous connection of a patient to a high frequency surgical equipment may result in burns at the site of the stimulator electrodes and possible damage to the stimulator.
- * No modification of this equipment is allowed!





Warranty

Spectramed, Inc. provides a warranty to the original purchaser that this product will be free from defects in the material, components and workmanship for a period of 1 year from the date of purchase [invoice date]. If Spectramed, Inc. are satisfied that the product/s is defective the purchaser may return this unit/s to Spectramed, Inc. or the appointed distributor for repair or replacement with a new unit. All returns must first be authorized by Spectramed, Inc. in advance. The liability of Spectramed, Inc. under this limited product warranty does not extend to any misuse or abuse such as dropping or immersing the unit in water or other liquid substance or tampering with the unit or normal wear and tear. Any evidence of tampering will nullify this warranty.

Customer Service

Any queries should be addressed to Spectramed, Inc. at:
564 Harcourt Road
Mount Vernon, Ohio 43050

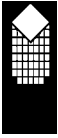
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Contra Indications & Precautions

Please read this users guide before using the Polaris Athlete unit!

Please read the following prescription information carefully before using your Polaris Athlete unit. If you have any questions regarding this information, consult your Physician or Physical Therapist before proceeding.

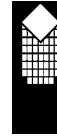
CAUTION: Federal (U.S.A) law restricts this device to sale by, or on the order of a licensed Physician. This device should only be used under medical supervision for adjunctive therapy and for the treatment of medical diseases and conditions.

Indications:

- a. TENS: The device is intended for the symptomatic relief and management of chronic intractable pain and/or as an adjunctive treatment in the management of post-surgical and post traumatic acute pain.
- b. NMS: The device is recommended for use for the following conditions:
 - 1. Relaxation of muscle spasms
 - 2. Prevention of retardation of disuse atrophy
 - 3. Increasing local blood circulation
 - 4. Muscle re-education
 - 5. Immediate post-surgical stimulation of calf muscles to prevent venous thrombosis
 - 6. Maintaining and increasing range of motion.

Contraindications:

- * Do not use your Polaris Athlete:
 - with demand-type cardiac pacemakers,
 - over the carotid sinus (neck) region,
 - transcerebrally (over the head),
 - over the eyes,
 - or whenever pain syndromes are undiagnosed, until the etiology has been established.
 - when there is a tendency to hemorrhage following acute trauma or fracture,
 - Following recent surgical procedures when muscle contraction may disrupt the healing process,
 - Over areas of skin which lack normal sensation.
- * NMS devices should not be used on cancer patients
- * Adequate precautions should be taken in the case of persons with suspected or diagnosed epilepsy



Specifications

General

1. Dual channel: individually isolated circuits.
2. Type: Constant Current.
3. Waveform: Asymmetrical, rectangular bi-phasic with zero DC current.
4. Low Battery Indicator: If the battery goes below 6.9 volts +/- 0.2 volts the battery symbol will flash on/off once every second.
5. If the battery voltage is below 6.6 (+/- 0.2) volts the unit will not turn on.
6. Open Electrode Detect: If an open circuit is detected at the output of channel A or B the output current will be reset at zero.

TENS

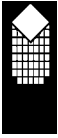
1. Amplitude: 0-80 mA; indication only; actual mA will tend to be less than indicated due to electrode impedance.
2. Selectable pulse width: 50 μ S - 300 μ S [2% accuracy].
3. Pulse Rate selection: in the continuous mode 2 – 200 Hz [2% accuracy].
4. Mode: Continuous, Burst, Modulated.
5. Burst mode: Bursts of 9 pulses 150 Hz at 200 μ S, repeating twice every second.
6. Modulation mode: 6-second cycle of concurrent width modulation and pulse repetition rate modulation. Width starting at 200 μ S and decreasing exponentially to 100 μ S in three seconds and then returning back to 200 μ S in the next three seconds.
7. Time duration of the custom programs selectable: 1 minute to 12 hours.

NMS

1. Amplitude: 0-90 mA; indication only; actual mA will tend to be less than indicated due to electrode impedance.
2. Selectable pulse width: 50 μ S - 450 μ S [2% accuracy].
3. Pulse Rate selection: in the continuous mode 2 – 100 Hz [2% accuracy].
4. Time duration of the custom programs selectable: 1 minute to 1 hour 30 minutes.
Ramp up time 0.3 to 9.9 seconds

Physical and Environmental

1. Physical dimensions: 108 x 62 x 23 mm.
2. Weight: 0.07KG without battery, 0.1KG with battery.
3. Environmental conditions for storage and transport: -10 to +50 degrees Centigrade, 0-90% Humidity.



Care & Maintenance

Control Unit:

- * Wipe the surface once a week with a damp cloth or antiseptic wipe
- * Do not use cleaning sprays or alcohol based cleaning solutions

Battery:

- * Check periodically for any discharge from the battery
- * Remove battery completely from unit if not in use for any extended period of time (typically one week)
- * Low battery indicator of 6.9 volts shown on LCD display, when flashing change battery for a new one
- * Preferably use a PP3 alkaline battery

Lead Wires

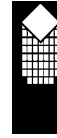
- * The lead wires should be handled carefully and never stretched, as this can cause the stimulation to function below normal standards or not at all
- * Examine lead wires before each treatment for loose connections or damage
- * Avoid stretching and twisting the lead wires
- * Store the lead wires carefully after each use

Self-Adhesive Electrodes

- * Check the short connectors have not become separated from the electrodes
- * Replace electrodes onto plastic film after use. If they drop onto the floor debris will adhere to conductive gel rendering the electrodes ineffective

Caution: Static electricity may damage this product

Note: Only appointed distributors/importers are approved to undertake servicing.

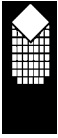


NMS devices should only be used under medical supervision for adjunctive therapy for the treatment of medical diseases and conditions.

If in doubt about the use of the Polaris Athlete unit call your distributor, Doctor or Healthcare professional for advice.

Warnings:

- * Safety during pregnancy, labor and delivery has not been established for either mother or fetus.
- * The Polaris Athlete is not effective in treating pain of central origin, including headache.
- * The Polaris Athlete should be used only under the continued supervision of a Physician.
- * The Polaris Athlete provides symptomatic relief only and has no curative value.
- * The Polaris Athlete in TENS mode provides symptomatic treatment and as such suppresses the sensation of pain, which would otherwise serve as a protective mechanism.
- * The user must keep the Polaris Athlete away from children.
- * Electronic monitoring equipment (such as ECG monitors and ECG alarms) may not operate properly when Polaris Athlete stimulation is in use.
- * The long-term effects of chronic electrical stimulation are unknown
- * Adequate precautions should be taken in the case of persons with suspected heart problems.
- * Stimulation should not be applied over the neck or mouth.
- * Stimulation should not be applied over the carotid sinus nerves, particularly in patients with a known sensitivity to the carotid sinus reflex.
- * Stimulation should not be applied transthoracically in that the introduction of electrical current into the heart may cause cardiac arrhythmias.
- * Stimulation should not be applied transcerebrally.
- * Stimulation should not be applied over swollen, infected, or inflamed areas or skin eruptions: e.g., phlebitis, thrombophlebitis, varicose veins etc.
- * Stimulation should not be applied over, or in proximity to cancerous lesions.



Precautions:

- * Isolated cases of skin irritation may occur at the site of the electrode placement following long-term application. Consult your physician if skin irritation develops.
- * The effectiveness of Polaris Athlete in TENS mode is highly dependent upon program selection by a person qualified in the management of pain patients.
- * Caution should be used for patients with suspected or diagnosed heart problems.
- * Caution should be used for patients with suspected or diagnosed epilepsy
- * Some patients may experience skin irritation or hypersensitivity due to the electrical stimulation or electrical conductive medium. The irritation can usually be reduced by using an alternate conductive medium or an alternate electrode placement.
- * Electrode placement and stimulation settings should be based on the guidance of the prescribing practitioner.
- * Powered muscle stimulators should be kept out of the reach of children.
- * Powered muscle stimulators should be used only with the leads and electrodes recommended for use by the manufacturer.
- * Powered muscle stimulators 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.
- * Do not immerse the unit in water or any other liquid.

Adverse Reactions: Skin irritation and electrode burns are potential adverse reactions.



Electrode Placement

The placement of electrodes is one of the most important parameters in achieving effective pain relief using TENS. This is best left to your Physiotherapist or Physician to advise as to which location is most appropriate.

Electrode Tips

A Few Good Tips [Self- Adhesive Electrodes]

- * If you find the electrodes will not stick due to oily skin, cleanse the skin with soap and water, then rinse and dry the area around the electrode site. If this does not work, try cleansing the skin with a swab impregnated with alcohol.
- * Clip away hairy skin using a scissors; don't use a razor to remove the hairs!

The electrodes conductive material is water- based. If it becomes saturated (e.g. from perspiration), it will lose its adhesive qualities. After use leave the electrodes face up overnight to dry out. At some point the electrodes will become dry. Moisten the adhesive surface with a few drops of water, and apply onto the plastic film overnight. This procedure will give you a few more days of electrode life.



Treatment Modes

There are four treatment modes available on the Polaris Athlete:

- 1. Conventional TENS or normal.** This mode enables the user to select any rate between 2 Hz – 200 Hz, and a pulse width between 50 μ S – 300 μ S. This is the most frequently used of the three modes. The most common selection is 80 Hz with a 200 μ S pulse width.
- 2. Burst Mode.** This mode is comparable to the low rate TENS technique except that each low rate pulse is substituted for by a short BURST of 9 pulses [200 μ S] at 150 Hz. It is a combination of conventional and low rate TENS.
- 3. Modulation TENS** This mode was designed to help prevent nerve accommodation that some patient's experience. It is achieved by continuously cycling the pulse width and rate.
- 4. NMS (Neuro Muscular Stimulation).** This mode enables the user to select work / rest stimulation with adjustable ramp up times and alternating or synchronous current. Pulse rates between 2 Hz - 100Hz and pulse widths between 50 μ S – 450 μ S may be selected.

Intensity [mA]

Patients respond differently to the level of intensity, this is due to differences in individual patient's skin resistance, enervation and the type and condition of electrode being used.

How Long Do I Use TENS For?

This depends on the individual patient's condition, accuracy of electrode placement, stimulation and the characteristics selected, but typically the onset of pain relief starts after 20 - 30 minutes. Generally TENS is used for longer periods of normally 1 hour 30 minutes per session. With some patients it can be much longer.



What is Pain?

When we feel pain it is the body's process of informing us that something is wrong. To feel pain is important, without this feeling abnormal conditions may go undetected, creating damage or injury to critical parts of the body.

Although pain is essential in warning our body of trauma or malfunction, nature may have gone too far in its design. Continued long-term chronic pain has no useful value apart from its importance in diagnosis. Pain only begins when a coded signal travels to the brain where it is decoded, and analyzed. The pain message travels from the injured area of the body along small diameter nerves leading to the spinal cord. At this point the message is switched to a different kind of nerve that travels up the spinal cord to the brain area. The brain then analysis the pain message, refers it back and the pain is felt.

What is TENS?

Transcutaneous Electrical Nerve Stimulation (TENS) uses a small battery operated unit to provide a non-invasive method of controlling acute and principally long term intractable pain. It can also be used as an adjunctive treatment in the management of post surgical traumatic pain problems. In TENS mild electrical impulses are transmuted through the skin via surface electrodes to modify the body's pain perception. TENS does not cure problematic physiological conditions; it only helps to control the pain perception. TENS will not work for every user. However Physical Therapists and Physicians throughout the world prescribe TENS extensively and it is generally seen to work for the majority of users. There are millions of small nerve fibres throughout the body and it only requires a few impulses to produce chronic pain. In addition to small fibres, which allow the sensation of pain to be felt, the body is also made up of larger diameter nerve fibres. These larger nerve fibres transmit less unpleasant sensations such as touch or warmth, assisting us to form an impression of our environment. Stimulating the larger nerve fibres using TENS may have the effect of inhibiting the transmission of pain along the smaller nerve fibres to the spinal cord [known as the 'Pain Gate Theory'].

What is STIM?

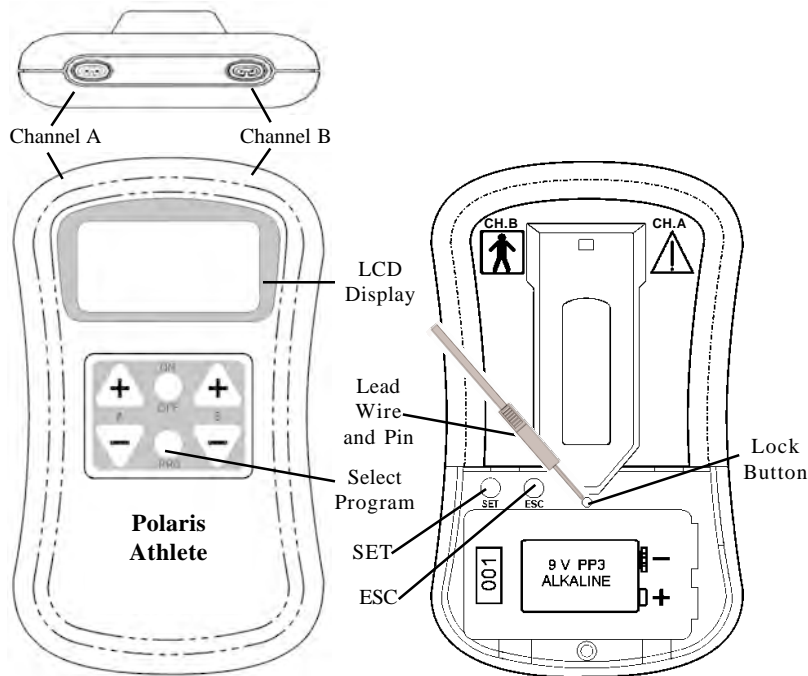
Neuromuscular Stimulation has been used for many years to stimulate muscle to treat a number of muscle and nerve related conditions.

The Polaris Athlete is a dual channel device combining several treatment programs into one unit. Neuromuscular Stimulation is increasingly understood by Therapists and Doctors. There is a better understanding of the mechanisms which exist between nerves and muscles that makes it possible to stimulate the neuromuscular system with precise electrical signals.

The Polaris Athlete offers precision giving full controls of Pulse Widths, Rates, Ramp up times, Work / Rest cycles as well as alternating or synchronous application if two channels are used.



Description of Unit & Functions



- * **PRG button** Selects the desired set program:
 P01 - P12 - TENS programs
 P13 - P27 - NMS programs
 PC1 - Custom TENS program
 PC2 - PC3 - Custom NMS programs
- * **SET button** Displays the menu and changes the parameters for Pulse Rate, Pulse Width and Time for custom program.
- * **ESC button** Stores customized program and returns to the home position.
- * **ON / OFF button** Turns unit on, off and ends the current program



Lock Mode Function

Lock Mode Function

A "concealed" Lock button is included in the Polaris Athlete, which allows the Physician to accurately monitor the "Home Compliance" of the patient between appointments. The lock function allows the device to be locked in two ways:- One {L:T} to measure the time in use over one hour, and the average mA current used, leaving the parameters i.e. Constant, Burst, Modulation and the Rate and Pulse Width to be freely altered by the user or alternatively {L:PT} Locking the device to measure, time, mA current used and locking the parameters in place, which then cannot be changed or altered by the patient during use.

Locking the Unit

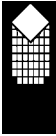
Remove the battery cover and, using the end of the lead wire, gently press on the concealed lock button as shown in the diagram on page 8 until you hear a double bleep. {L:T} Lock time and Current will appear on the LCD screen. If you want to lock the parameters as well press the +/- button until {L:PT} appears. Press the ESC button to lock parameters in place.

0mA	L:T 0mA	0mA	L:PT 0mA
Ch.A	Ch.B	Ch.A	Ch.B

To Unlock the Unit

To unlock the unit and display the lock information, remove the battery cover, using the end of the 2mm dia pin press the concealed switch once and you will hear a single bleep, this indicates the unit is now unlocked. The information for time in use and the average mA current used can be read on the front of the LCD display as seen on the diagram below. When you have noted the information press the ESC button to bring the unit back to the Home position.

Hours	45
	20 mA 20 mA
	Ch.A Ch.B



Program: P25		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	15	10	15	5
Mode		CON	W/R	W/R	W/R	CON
Frequency work 1	Hz	10	20	30	20	5
Frequency rest	Hz		3	3	3	
Pulse duration	µS	250	300	300	300	250
Ramp up time	secs		2	2	2.5	
Ramp down time	secs		1.8	1.8	1.8	
Work time	secs		6	10	6	
Rest time	secs		10	10	10	
Alternating						
Synchronous		*	*	*	*	*
Over all time	50 min					

Program: P26		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	3	3	2	2
Mode		CON	W/R	W/R	W/R	W/R
Frequency work	Hz	5	75	50	75	50
Frequency rest	Hz		3	3	3	3
Pulse duration	µS	250	250	300	300	250
Ramp up time	secs		3	2	3	2
Ramp down time	secs		2	1.5	2	1.5
Work time	secs		4	6	4	6
Rest time	secs		10	10	10	10
Alternating						
Synchronous		*	*	*	*	*
Over all time	15 min					

Program: P27		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	25	20	10		
Mode		MF	MF	W/R		
Frequency work	Hz	2-10	5-15	10		
Frequency rest	Hz					
Pulse duration	µS	150-250	150-250	150		
Modulation time	secs	10	10			
Ramp up time	secs			2		
Ramp down time	secs			2		
Work time	secs			10		
Rest time	secs			10		
Alternating						
Synchronous		*	*	*		
Over all time	60 min					



Quick Start Instructions

1. Insert a 9 volt PP3 Alkaline battery into the battery compartment.
2. Insert lead wire/s to channel A and B if both channels are to be used.
3. Switch on the unit by pressing the ON/OFF button.
4. Press the PRG [Program] button to select:
P01 - P12 for preset TENS programs (Page 11 of this manual).
P13 - P27 for preset STIM programs
PC1 - PC3 for customized programs
5. To start press channel A + and B + button if you are using both channels, increase the stimulation to the desired level.
6. To stop the program, press the ON/OFF button which will turn the unit off.

Setting up your own Continuous mode TENS parameters.

1. Select PC1 by pressing the PRG button on the front panel
Remove the battery lid where you will see two buttons SET and ESC.
2. Press the SET button and the Hz symbol will flash ON/OFF, then press the + or – button on the front panel to adjust the Pulse Rate from 2-200 Hz.
3. Press the SET button again and the µS symbol will flash ON/OFF, then press the + or – button to adjust the Pulse Duration from 50 - 300 µS.
4. Press the SET button again and the Clock symbol will flash ON/OFF, then press the + or – button to adjust the time. Channel A + or – button to hours and Channel B + or – button to change minutes. [Maximum time 12 hours].

After setting up the customized program parameters, press the ESC button to store the information. Simply repeating the above procedure can reprogram customized programs.

Intensity Lock Out Feature

Once the stimulation current is raised above zero, with no button activity for greater than 10 seconds, the unit will lockout the increase intensity buttons (A+ and B+).

To unlock channel A or channel B the A- or B- button needs to be pressed.

**Setting up your own STIM parameters.**

- Select PC2 or PC3 by pressing the PRG button on the front panel. Remove the battery lid where you will see two buttons SET and ESC. Press the SET button and the Hz symbol will flash ON/OFF, then press the + or – button on the front panel to adjust the Pulse Rate from 2 - 100 Hz.
- Press the SET button again and the μ S symbol will flash on/off, then press the + or – button to adjust the Pulse Duration from 50 to 450 μ S
- Press the SET button again and the Clock [Time] symbol will flash ON/OFF, then press the + or – button to adjust the time Channel A +/- button to alter the hours and Channel B +/- button to adjust minutes. [Maximum time 1 hour 30 minutes]
- Press the SET button again and the WRK [Work] symbol will flash ON/OFF, then press the + or – button to adjust the work period from 2 – 99 seconds.
- Press the SET button again and the RST [Rest] symbol will flash ON/OFF, then press the + or – button to adjust the rest period 2 – 99 seconds.
- Press the SET button again and the RMP [Ramp up] symbol will flash ON/OFF, then press the + or - button to adjust the ramp up period from 0.3 - 9.9 seconds.
- Press the SET button again and ALT [Alternating] or SYN [Synchronous] symbol will flash on/off, then press the + or – button to select ALT or SYN.
- If SYN [Synchronous] has been selected, press the SET button again to set the required delay time of Ch. B stimulation after Ch. A one. DLY will flash on the LCD display. Select the delay by pressing the Ch. B +/- buttons to read the appropriate delay value (between 0.1 sec. and 4 sec)

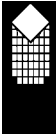
After setting up the program, press the ESC button to install and store the customized program. Repeat the above procedure to re-program.



Program: P22		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	20	20	10		
Mode		MF	MF	W/R		
Frequency work	Hz	2-5	5-10	10		
Frequency rest	Hz			3		
Pulse duration	μ S	150-250	150-250	200		
Modulation time	secs	10	10			
Ramp up time	secs			2		
Ramp down time	secs			2		
Work time	secs			10		
Rest time	secs			10		
Alternating						
Synchronous		*	*	*		
Over all time	50 min					

Program: P23		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	15	10		
Mode		CON	W/R	CON		
Frequency work 1	Hz	5	60	2		
Frequency rest	Hz		3			
Pulse duration	μ S	300	350	250		
Ramp up time	secs		2			
Ramp down time	secs		1.5			
Work time	secs		7			
Rest time	secs		14			
Alternating						
Synchronous		*	*	*		
Over all time	30 min					

Program: P24		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	Mins	10	25			
Mode		CON	CON			
Frequency work 1	Hz	2	2-10			
Frequency rest	Hz					
Pulse duration	μ S	250	150-250			
Modulated time	secs		10			
Ramp up time	secs					
Ramp down time	secs					
Work time	secs					
Rest time	secs					
Alternating						
Synchronous		*	*			
Over all time	35 min					



Program: P19		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	20	10		
Mode		CON	W/R	CON		
Frequency work	Hz	5	75	2		
Frequency rest	Hz		3			
Pulse duration	µS	300	300	250		
Ramp up time	secs		1.5			
Ramp down time	secs		1			
Work time	secs		5			
Rest time	secs		12			
Alternating						
Synchronous		*	*	*		
Over all time	35 min					

Program: P20		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	15	15		
Mode		CON	W/R	Cont		
Frequency work	Hz	5	90	10		
Frequency rest	Hz		3			
Pulse duration	µS	300	250	250		
Ramp up time	secs		2			
Ramp down time	secs		1.5			
Work time	secs		6			
Rest time	secs		6			
Alternating						
Synchronous		*	*	*		
Over all time	35 min					

Program: P21		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	5	5	5	5
Mode		CON	W/R	MF	W/R	CON
Frequency work	Hz	2	30	50	30	50
Frequency rest	Hz		3		3	
Pulse duration	µS	250	250	150 - 250	250	150-250
Modulation time	secs			3		3
Ramp up time	secs		1.5		1.5	
Ramp down time	secs		1.2		1.2	
Work time	secs		7		7	
Rest time	secs		7		7	
Alternating						
Synchronous		*	*	*	*	*
Over all time	25 min					



Programs

	Prog No.	Description	Freq	uS	time
TENS	P01	CON	80	200	4Hr
	P02	CON	80	175	4Hr
	P03	BST	150	200	4Hr
	P04	MOD	100/65	200/100	4Hr
	P05	CON	10	175	4Hr
	P06	CON	100	175	4Hr
	P07	CON	50	100	4Hr
	P08	CON	60	75	4Hr
	P09	CON	2	175	4Hr
	P10	CON	80	175	1.5Hr
	P11	MOD	65/100	200/100	45min
	P12	BST	150	175	35min
NMS	P13	NMS	5	300	6min
	P14	NMS	10	250	20min
	P15	NMS	See page 12		50min
	P16	NMS	See page 13		50min
	P17	NMS	See page 13		40min
	P18	NMS	See page 13		37min
	P19	NMS	See page 14		35min
	P20	NMS	See page 14		35min
	P21	NMS	See page 14		25min
	P22	NMS	See page 15		50min
	P23	NMS	See page 15		30min
	P24	NMS	See page 15		35min
	P25	NMS	See page 16		50min
	P26	NMS	See page 16		15min
	P27	NMS	See page 16		55min
CUSTOM	PC1 Custom	CON	2 – 200	50-300	1min -12h
	PC2 Custom	NMS	Hz, uS, Work Seconds, Rest Seconds, Ramp Seconds, Synchronous/Alternating, Delay		1min - 1.5h
	PC3 Custom	NMS			

CON = CONTINUOUS

BST = BURST

MF = MODULATED FREQUENCY IN LINEAR STEPS

W/R = INTERMITTENT WORK/REST

NMS = NEUROMUSCULAR STIMULATION

MODULATION TIME = EXPONENTIALLY

Example: Modulation time 6 seconds 50 µS-250 µS:- means starting at 50 µS increasing exponentially (fast then slow) to 250 µS in 3 seconds and returning (fast then slow) back to 50 µS to complete the cycle in 6 seconds.



Program : P13		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	6				
Mode		CON				
Frequency work	Hz	5				
Frequency rest	Hz					
Pulse duration	µS	300				
Ramp up time	secs					
Ramp down time	secs					
Work time	secs					
Rest time	secs					
Alternating						
Synchronous		*				
Overall time	6 min					

Program: P14		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	Min	20				
Mode		CON				
Frequency work	Hz	10				
Frequency rest	Hz					
Pulse duration	µS	250				
Ramp up time	Secs					
Ramp down time	Secs					
Work time	secs					
Rest time	Secs					
Alternating						
Synchronous		*				
Over all time	20 min					

Program: P15		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	50				
Mode		W/R				
Frequency work	Hz	20				
Frequency rest	Hz	3				
Pulse duration	µS	300				
Ramp up time	secs	2				
Ramp down time	secs	1.5				
Work time	secs	10				
Rest time	secs	10				
Alternating						
Synchronous		*				
Over all time	50 min					



Program: P16		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	12	7	10	16
Mode		CON	W/R	CON	W/R	CON
Frequency work 1	Hz	5	50	5	50	5
Frequency rest	Hz		5		5	
Pulse duration	µS	300	300	300	300	300
Ramp up time	secs		2		2	
Ramp down time	secs		2		2	
Work time	secs		8		8	
Rest time	secs		8		8	
Alternating						
Synchronous		*	*	*	*	*
Overall time	50 min					

Program: P17		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	12	5	12	6
Mode		CON	MF	CON	MF	CON
Frequency work	Hz	5	50-75	5	40-75	3
Frequency rest	Hz		3		3	
Pulse duration	µS	300	300	300	300	300
Modulation Time	secs		10		10	
Ramp up time	secs		2		2	
Ramp down time	secs		1		1	
Work time	secs		10		10	
Rest time	secs		8		8	
Alternating						
Synchronous		*	*	*	*	*
Over all time	40 min					

Program : P18		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase time	min	5	10	10	12	
Mode		CON	MF	MF	CON	
Frequency work	Hz	5	40-60	45-75	5	
Frequency rest	Hz		3	3		
Pulse duration	µS	300	300	300	300	
Modulation Time	secs		10	10		
Ramp up time	secs		2	2		
Ramp down time	secs		1.2	1.2		
Work time	secs		10	10		
Rest time	secs		4	4		
Alternating						
Synchronous		*	*	*	*	
Over all time	37 min					