

MH8000 Combo

MH8100 EMS

MH8200 TENS

INSTALL THE UNIT

Get Ready to Start

Always make sure the power of the unit is switched off before install the unit or remove the electrodes from skin.

Battery

The device can be used with 6F22 9V battery or rechargeable battery. The battery compartment is located in the casing on the back of the unit. Make sure that the device are switched to power off, remove the battery cover and insert the battery into the compartment. Make sure that you are installing the battery properly. Please install battery according to their positive (+) and negative (-) ends correctly.

PRECAUTIONS

1. Follow the national regulation to dispose battery
2. Remove battery if equipment is not likely to be used for some time.

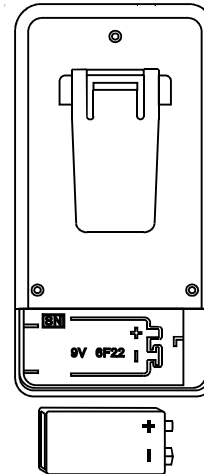
Rechargeable batteries

If you use rechargeable batteries, please follow the instructions.

Before using the battery charger, read all instructions and cautionary markings on the battery and battery charger instruction manual. After long periods of storage, batteries should be charged prior to use.

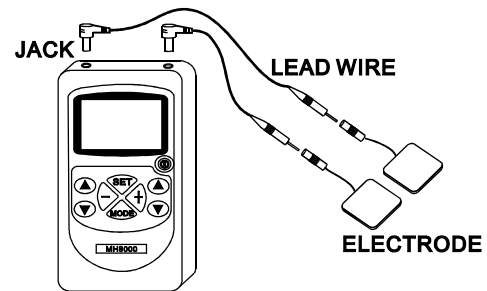
Battery charging

1. First, make sure the battery is properly seated.



2. The charger must be plugged in to a power source. For use in doors where there is a standard 110 or 220/240VAC mains electrical outlet. The use of any attachment not supplied with the charger may result in the risk of fire, electric shock, or injury to persons.
3. According to the battery manufacturer's instructions for charging time.
4. After the charging process is completed, unplug the charger and remove the battery.
5. WARNINGS:
Avoid charging in extreme temperatures, recommended atmospheric temperatures for charging should be between (0°C and 40°C) or (32°F and 104°F); Although overcharging the batteries for up to 24 hours will not damage them, repeated overcharging may decrease useful battery life; Do not incinerate the rechargeable battery as it may explode; Do not allow the battery terminals to become shorted; Batteries should always be stored in a fully charged state; Non-rechargeable batteries may not be charged due to the risk of explosion.

Connect device, lead wires and electrodes



Connect lead wires

Connect one or two lead wires to the jacks in the top of the unit. Please ensure the lead wires are connected correctly.

Connect electrodes

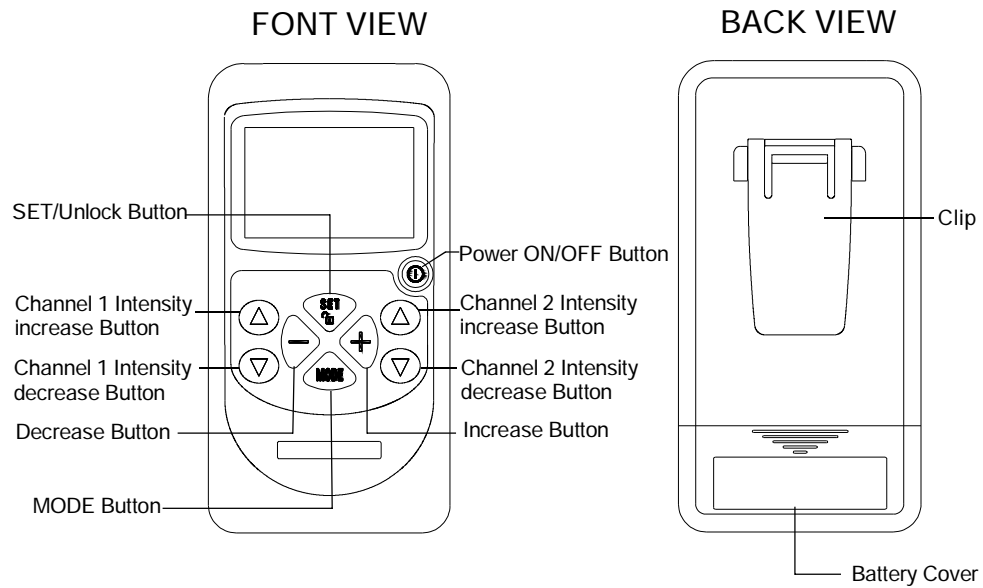
Connect electrodes to the lead wires, the unit can be used with two or four electrodes. Make sure that no bare metal of the pins is exposed.

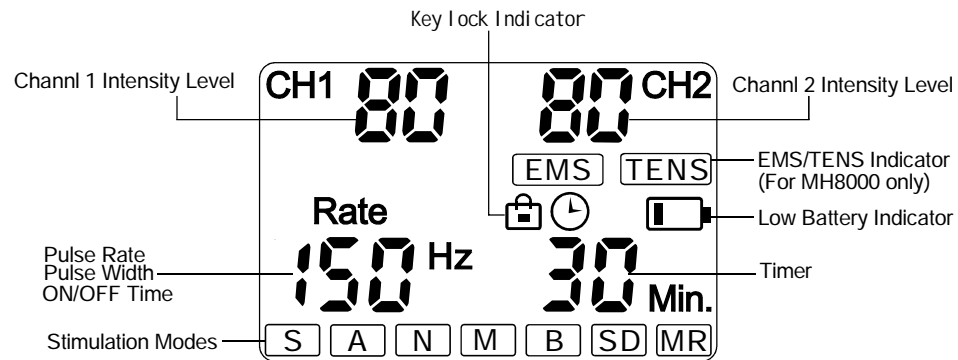
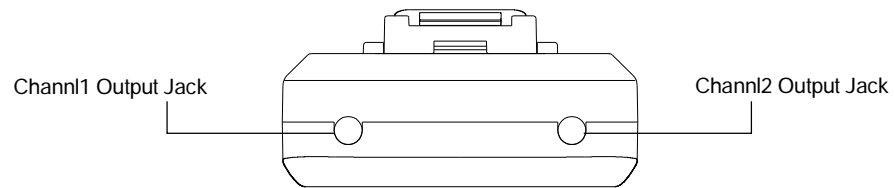
Placement of electrodes

Proper placement of electrodes is important to effective TENS/EMS therapy. Make sure the skin is clean and dry before placing the electrodes. Apply electrodes to the exact site indicated by your physician. Check the electrodes are placed firmly to the skin and make good contact between the skin and the electrodes.

INSTRUCTIONS FOR USE

Indicators and Controls






 **Power ON/OFF Button:**

This button switches the power ON/OFF. For power on press and hold power ON/OFF button for 1 second. If the Intensity setting of two channels is 0, it will power off automatically after 30 seconds. This button can be used as an emergency stop button.

 **SET/Unlock Button:**


All buttons except Power ON/OFF, Intensity Decrease and SET/Unlock will be auto-locked after 30 seconds idle time, there will be a  icon displayed on the LCD screen. You can press the SET/Unlock button to de-lock key pad. You can enter further settings, by press the SET/Unlock button after de-lock key pad.

 **MODE Button:**


This button will carry the characters for selecting a Stimulation Mode.

 **Increase Control Button:**

This button will carry the digits to increase the settings.

 **Decrease Control Button:**

This button will carry the digits to decrease the settings.

 **Intensity increase/decrease Buttons:**

These buttons control the Intensity level of stimulating pulses. If the stimulation levels are uncomfortable or become uncomfortable, reduce the stimulation intensity to a comfortable level and contact your physician if problems persist.

Stimulation Modes

S (Synchronous) Mode (EMS only)

Stimulation of both channels will occur simultaneously. The pulse active and inactive duration are adjustable by pressing Increase/Decrease buttons to set ON time and OFF time.

A (Alternative) Mode (EMS only)

Stimulation of Channel 1 and Channel 2 will occur alternately. The pulse active and inactive duration are adjustable by pressing Increase/Decrease buttons to set ON time and OFF time.

N (Normal) Mode

Continuous output, pulse rate and pulse width are adjustable.

M (Rate and Width Modulation) Mode

Per cycle time is 1 second. Each cycle contains two phases. During the first 0.5 sec. phase, the Pulse Width runs at 50% of its width setting and Pulse Rate runs at its rate setting, then during the second 0.5 sec. phase, the Pulse Rate runs at 50% of its rate setting and Pulse width runs at its width setting. The cycle is then repeated.

B (Burst) Mode

Pulse width is adjustable from 50~300uS at 10uS per step, Frequency is fixed at 100 Hz, Burst rate is fixed at 2 Hz.

SD (Width Modulation) Mode

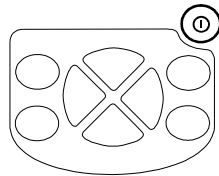
Pulse Width is modulated over a period of 3 seconds from its original setting value down to 60% of its setting, then modulated over another 3 seconds period at its original value. The cycle is then repeated. Per cycle time is 6 seconds.

MR (Rate Modulation) Mode

Pulse Rate is modulated over a period of 3 seconds from its original setting value down to 60% of its setting, then modulated over another 3 seconds period at its original setting. The cycle is then repeated. Per cycle time is 6 seconds.

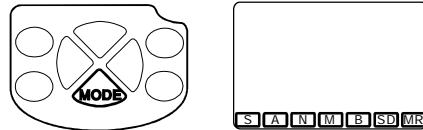
Turn Unit On

Press and hold power ON/OFF Button for one second to turn unit On.



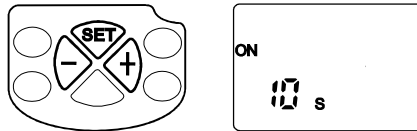
Set the stimulation mode

Press MODE button to set the stimulation mode. There are 7 modes available, S(EMS Synchronous mode), A(EMS Alternative mode), N(Normal), B(Burst), M(Rate and Width Modulation), SD(Width Modulation) and MR(Rate Modulation). The TENS function with 5 modes. The EMS function with 3 modes. Please consult physicians for your suitable stimulation mode.



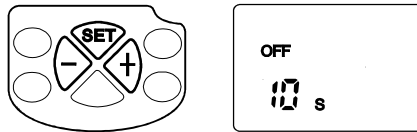
Adjust ON (Contraction) Time: (EMS function only)

The ON Time is adjustable from 2 to 90 seconds at one second per step. By pressing the SET button to enter the ON Time setting mode, then press Increase or Decrease button to adjust On Time. Ramp up time and Ramp down time are portions of ON Time. Ramp down time is always set to equal Ramp up time internally. ON Time should be set to be longer than or equal to the sum of Ramp up time and Ramp down time (i.e. Ramp time x 2). If the value setting of ON Time is shorter than Ramp time X 2, it will be revised automatically to equal Ramp time X 2 according to the Ramp time setting. Please consult physicians for your suitable setting.



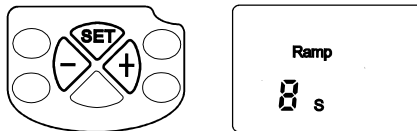
Adjust OFF (Relaxation) Time: (EMS function only)

The OFF Time is adjustable from 2 to 90 seconds at one second per step. By pressing the SET button to enter the OFF Time setting mode, then press Increase or Decrease button to adjust OFF Time. In the EMS Alternative mode, OFF Time should be set to be longer than or equal to ON Time. If the value setting of OFF Time is lesser than ON Time, it will be revised automatically to equal ON Time. Please consult physicians for your suitable setting.



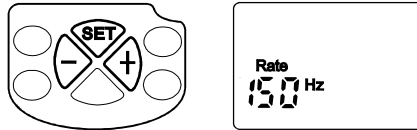
Adjust the Ramp Time: (EMS function only)

The Ramp Time is adjustable from 1 to 8 seconds at one second per step. By pressing the SET button to enter the Ramp Time setting mode, then press Increase or Decrease button to adjust Ramp Time. Please consult physicians for your suitable setting.



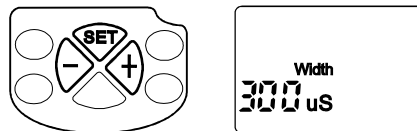
Adjust the Pulse Rate

The Pulse Rate is adjustable from 2 to 150 Hz in which from 2 to 20 Hz at 1 Hz per step and from 20 to 150 Hz at 5 Hz per step. By pressing the SET button to enter the Pulse Rate set mode, then press Increase or Decrease button to adjust Pulse Rate. Please consult physicians for your suitable setting.



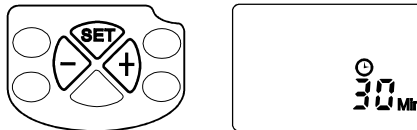
Adjust the Pulse Width

The Pulse Width is adjustable from 50 to 300uS at 10uS per step. By pressing the SET button to enter the Pulse Width set mode, then press Increase or Decrease button to adjust Pulse Width. Please consult physicians for your suitable setting.



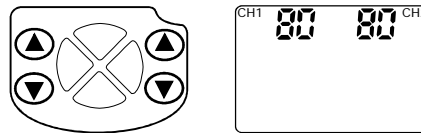
Adjust the Timer

The Timer is adjustable from 5 to 90 minutes at 5 minutes per step then to Continuous mode. By pressing the SET button to enter the Timer set mode, then press Increase or Decrease button to adjust Timer.



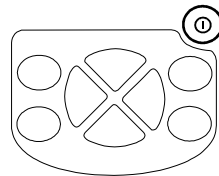
Adjust Intensity

The Intensity is adjustable from level 0 to level 80 at 1mA per step. Press Intensity increase/decrease buttons to set the Intensity level. You must set the mode, rate and width before starting to set the Intensity. Please consult physicians for your suitable setting. If the stimulation levels are uncomfortable or become uncomfortable, reduce the stimulation intensity to a comfortable level and contact your physician if problems persist. For the unit with electrode detection function, the Intensity level will be reset at 0 when an electrode open circuit is detected. (The electrode detection function is an option function, and this function only active in Pulse Width between from 100uS and 300uS.)



Turn Unit Off

Press the Power ON/OFF button to switch off unit. When the electrodes are removed, clean the skin thoroughly with mild soap and water. If there is skin irritation, consult your physicians. When a therapy session is completed and you don't press the Power ON/OFF button to switch off unit, the unit will be signaling "Bi" sound 15 seconds then power off automatically.

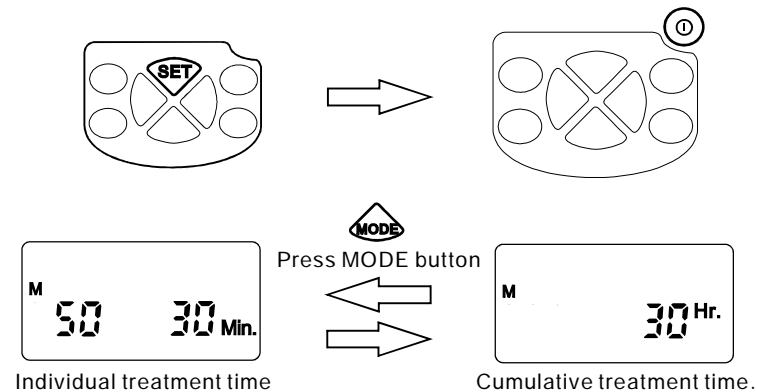


COMPLIANCE TIMER

The patient compliance timer can memorize 100 sets of therapy session records; the total record time is 400 hours. If a single treatment session is less than one minute, it will not be recorded. The patient compliance timer can maximally only record 240 minutes for a single therapy session.

Compliance Timer Mode

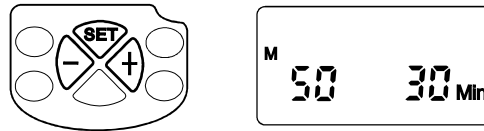
When the unit being powered off, you can press and hold SET button then press power ON/OFF button to activate the compliance timer mode. You can press MODE button to switch around the records of Individual treatment time and Cumulative treatment time.



Individual Compliance time:

Press INCREASE button or DECREASE button to see each session record. The session count will flash on the LCD screen.

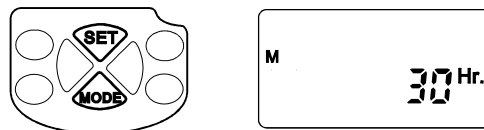
Press and hold SET button for 3 seconds to delete the on showing record. The unit will sound "Bi" when the on showing record is deleted.



Cumulative Compliance time:

Press MODE button to switch the individual treatment time record to cumulative treatment time record. When cumulative treatment time record coming up, there will be an "M" icon displaying and flashing on the LCD screen.

Press and hold SET button for 3 seconds to delete **ALL** records including individual treatment time record and cumulative treatment time record. After **ALL** records are deleted, the unit will sound "Bi".



LOW BATTERY INDICATOR

When the low power indicator flashes, the battery should be replaced with a new one. However, the device will continue to operate for several more hours.



CARE AND STORAGE INSTRUCTIONS

1. Clean with a damp cloth if necessary. Never expose the device to water and near excessive heat.
2. Keep this device in the carrying case and store at room temperature.
3. The device should be operating under the temperature range of +10°C ~ +35°C, relative humidity 20%~ 90%.
4. The packed device should be stored and transported under the temperature range of 0°C ~ +60°C, relative humidity 20%~ 90%.

SPECIFICATION

S: Synchronous, A: Alternative, N: Normal, M: Rate and Width Modulation, B: Burst,
SD: Width Modulation, MR: Rate Modulation

	MH8000 Combo	MH8100 EMS	MH8200 TENS
Channel	Dual		
Amplitude	Adjustable 0-80mA, Max output 80mA peak to peak (16.97mA rms) into 500ohm load each channel.		
Wave form	Asymmetrical rectangular biphasic pulse.		
Power source	DC 9V		
Size	13.6(L)x7(W)x2.65(H)(cm)		
Weight	162 grams (battery included)		
Pulse Rate	2Hz~20 Hz at 1 Hz/step and 20~ 150 Hz at 5 Hz/step		
Pulse Width	50uS~300uS, 10uS/step.		
Output mode	S,A,N,M,B,SD,MR	S, A, N	N, M, B, SD, MR
Contraction Time	2~90 seconds		None
Relaxation Time	2~90 seconds		None
Ramp Time	1~8 seconds		None
Timer	5~90 Minutes or continue.		
Charge delivered	24 microcoulombs per pulse into 500 ohm load.		

WAVEFORM

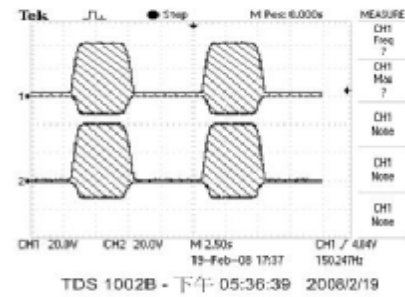
Test Equipment: Tektronix TDS1002B Oscilloscope

Load: 500 Ohm

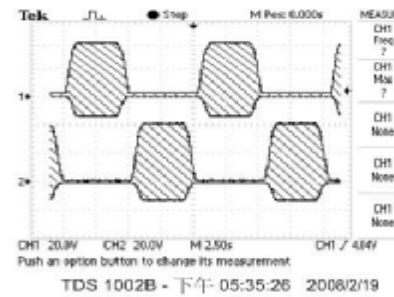
Test Parameters:

Pulse Rate: 150Hz, Pulse width: 300 μ Sec., ON Time: 5 Seconds, OFF Time: 5 Seconds,
Ramp Time: 1 Seconds

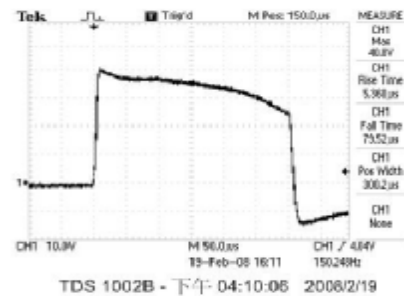
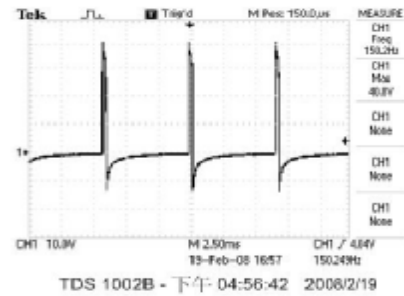
1. S Mode (Synchronous Mode)



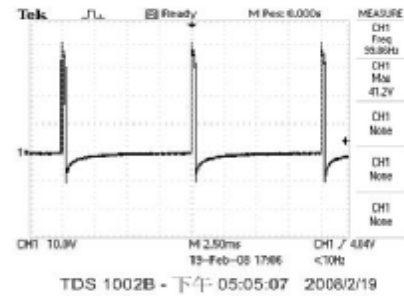
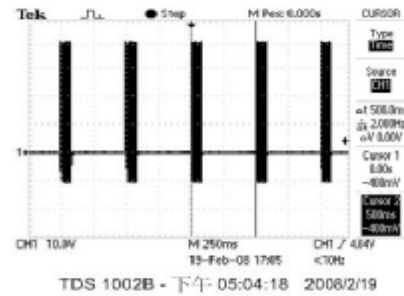
2. A Mode (Alternative Mode)



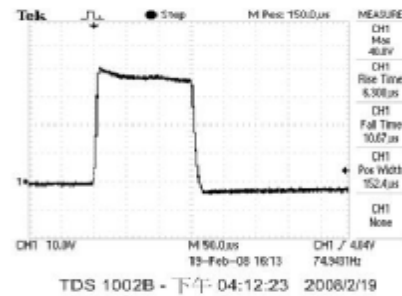
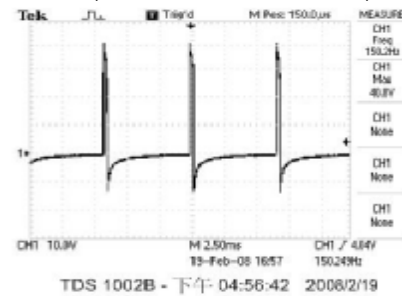
3. N Mode (Normal Mode)



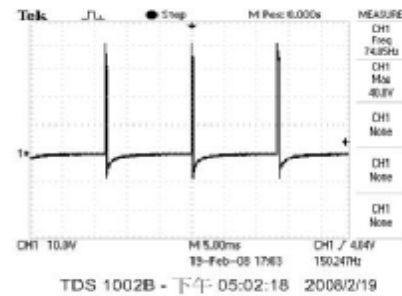
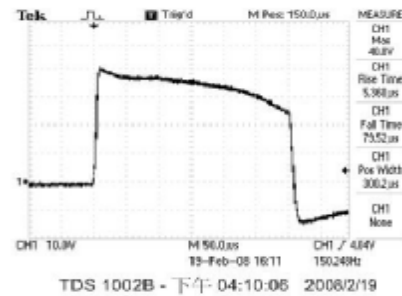
4. B Mode (Burst Mode)



5. M Mode (Rate and Width Modulation)

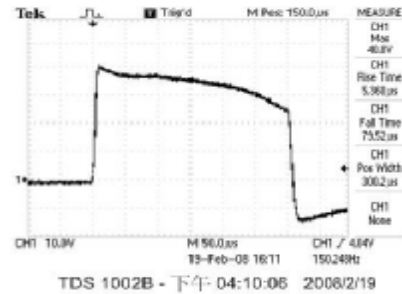


First phase Pulse Width runs at 50% of its width setting and Pulse Rate runs at its rate setting.

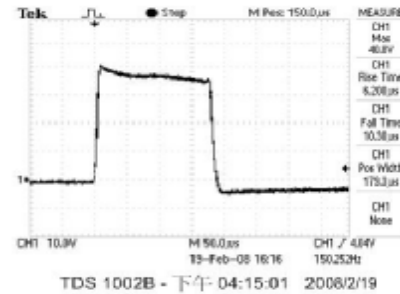


30 Second phase Pulse Rate runs at 50% of its rate setting and Pulse Width runs at its width setting.

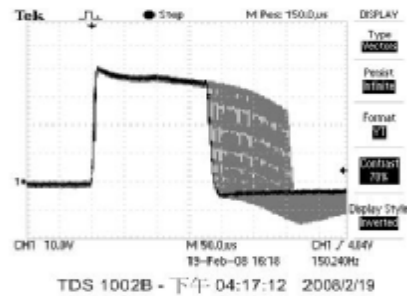
6. SD Mode (Width Modulation)



Pulse Width runs at its width setting.

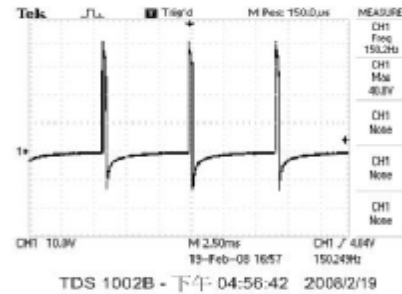


Pulse Width down to 60% of its setting.

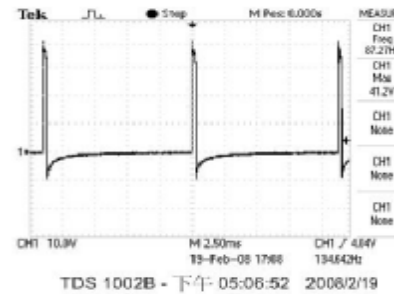


Pulse Width is modulated from its original setting value down to 60% of its setting,

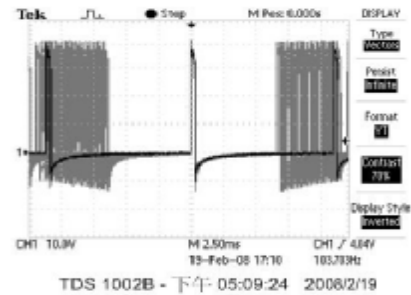
7. MR Mode (Rate Modulation)



Pulse Rate runs at its rate setting.



Pulse Rate down to 60% of its setting.



32 Pulse Rate is modulated from its original setting value down to 60% of its setting,