T238 Digital Trigger Unit V1.42

(With overheat protection & auto-loading)

Warning:

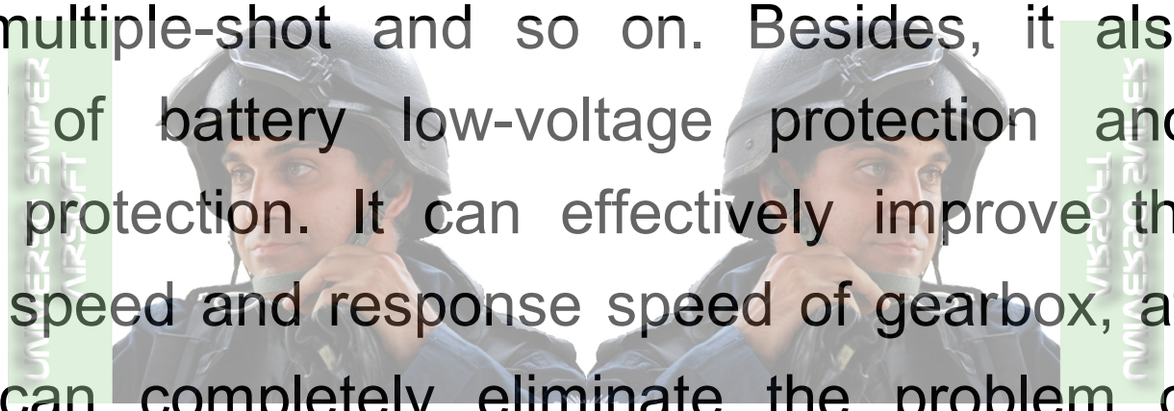
This upgrade kit is designed for professional AIRSOFT/gel ball blaster player who can fully disassemble and assemble Automatic Electric Gun. The compatibility with all Gearboxes is not guaranteed, but it can fit into standard or common brand Gearboxes V2 without larger modification. Related Tools and skills is needed for installing the product.

Attention:

1. Protect the detection switch while installing, do not pull the trigger before finishing installation in case that the trigger breaks the detection switch.
2. Mind the positive and negative of the motor, do not reverse.
3. Gearbox, motor and grip is not functional before finishing installation. Please finish the installation at first.

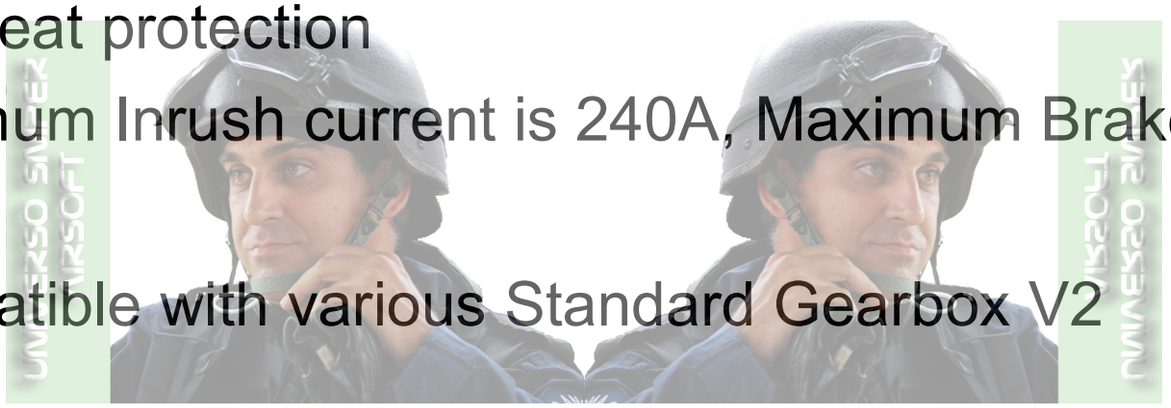
Description:

T238 digital trigger unit is a programmable MOSFET which is specially designed for AIRSOFT and gel ball version Gearbox V2. With high speed processor and 2 high power MOSFET chips, this system has many individualized programmable functions, such as piston positioning, binary trigger, multiple-shot and so on. Besides, it also has the functions of battery low-voltage protection and gearbox block-up protection. It can effectively improve the stability, shooting speed and response speed of gearbox, at the same time, it can completely eliminate the problem of gearbox single-shot become multiple-shot. The module uses a maximum of 14.8V batteries. Soldering and wiring are required.



Main parameters:

- Size: 45*30*14mm
- Operating voltage: 7.4-14.8V
- Active break tech & Piston reset
- Programmable auto-loading function
- Multiple programmable shooting mode
- Overheat protection
- Maximum Inrush current is 240A, Maximum Brake current is 100A
- Compatible with various Standard Gearbox V2



Functions:

1. Low battery voltage protection, the default setting is 7.4V battery. Change the battery when hearing ‘beep beep beep beep’ 4 times low voltage warning sound.
2. Block-up protection. When gearbox Block-up occurs, the system stops working and emits an elongated ‘beep’ sound. Please check the wave box immediately by power off.
3. Auto-loading function is designed for gel ball blaster magazines with motor inside, when changing the magazine, the magazine motor will run automatically for a period of time, and the length of time can be programmed by 9th option.
4. This module is able to increase rate of fire, the stability of single-shot and make batteries have higher durability.
5. The energy that support the active brake function comes from the inertia of motor, stop the piston

without delay. The effect of active brake is significant on high torque motor

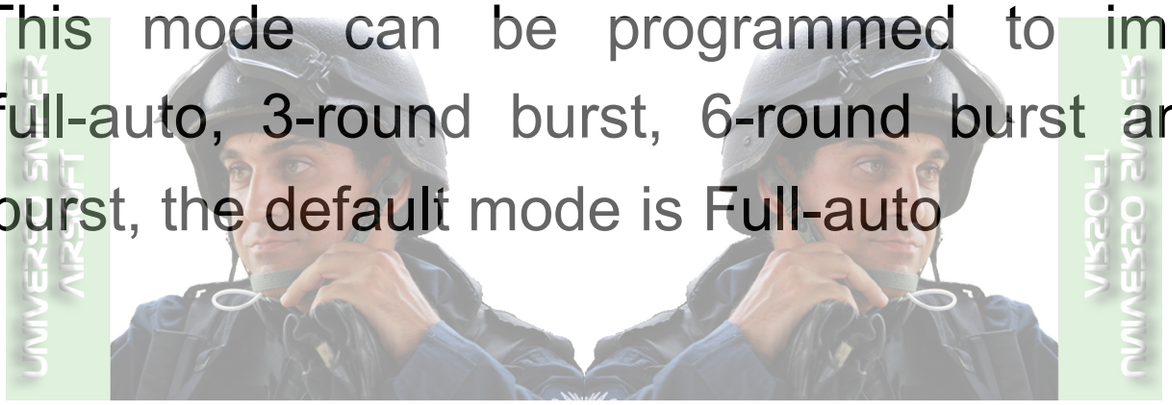
6. The active function prevents the over-spin of gears, this solve the issue that the single shot becomes multiple shot under high voltage. Meanwhile, the spring is fully released in semi-auto mode and parts in gearbox are not under strain, increase the life cycle of gearbox and parts.
7. The system includes multiple shooting mode, these modes can be selected by fire select switch
8. The default position of the piston is adjustable in semi-auto mode. Pre-cocking function can be implementing, zero trigger delay
9. Adjustable rate of fire, the gap between two single shots can be programmable, to achieve adjustable rate of fire
10. When the DTU is overheated, after the trigger is pulled, the motor will give a beep prompt until it is automatically restarted after cooling.

Modes:

SAFE： This mode is completely the same as original safe mode. The trigger is stopped by Safety lever

SEMI: This mode can be programmed to implementing semi-auto, double stroke single shot, 3-round burst to 6-round burst, the default mode is semi auto

AUTO: This mode can be programmed to implementing full-auto, 3-round burst, 6-round burst and 9-round burst, the default mode is Full-auto

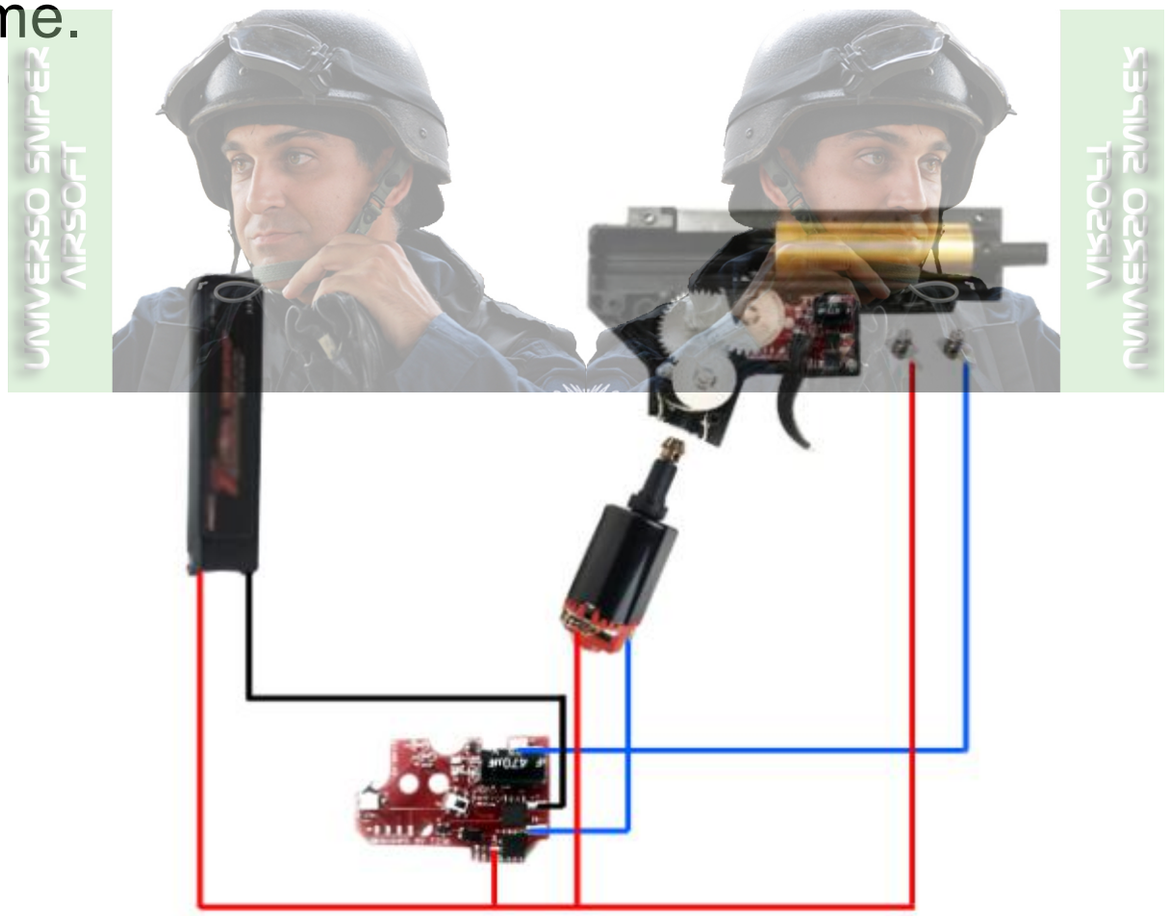


Requirements:

1. Silver plate wire is needed for this system, power wire for motor and battery should be larger than 0.5sqm silver plate wire, wire for electronic powered magazine should be around 0.25sqm.
2. High-power soldering iron (higher than 50W) is recommended, solder the clop with 0.5sqm soldering wire

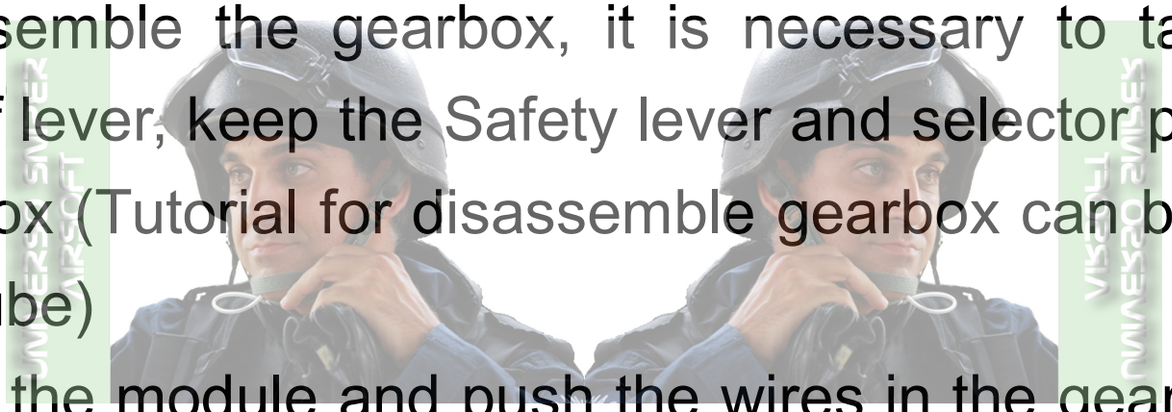
and soldering rosin. Please ask professional for help if you do not know to solder.

3. Please use Spring smaller than M150.
4. Use high torque motor can stop the motor faster and prevent DTU from overheating .
5. In standby state, the current of the system is smaller than 0.01A. Please disconnect the battery if it is not used for a long time.



Installation:

1. Measure the length of each wire according to the wiring diagram then solder the wires on the clip (The exposed solder joint on the PCB clip is not stand too much force, do not pull the wire after the wire is soldered in case damaging the clip)
2. Disassemble the gearbox, it is necessary to take off the cut-off lever, keep the Safety lever and selector plate on the gearbox (Tutorial for disassemble gearbox can be found on YouTube)
3. Install the module and push the wires in the gearbox (some gearbox needs to be cut off stiffener or drilled hole)
4. Assemble the gearbox
5. For more details, scan the QR code



Quick Test:

After soldering, connect the motor. Make sure the wires are connected correctly, then press the trigger button ‘S2’ and connect the battery to it. After the battery is connected, release the trigger button ‘S2’, the the module will run into Quick Test mode. Press each button one by one, you will get two ‘beep’s, if not, your module is not right, contact the customer service immediately.

Programming:

1. Disconnect the battery, then set the fire selector switch to auto.
2. Connect the battery and pull the trigger in 3 seconds, After hearing 2 long ‘beep~’ , the module runs into programmable mode, otherwise it will be in auto mode.
3. In the programmable mode, the motor emits short ‘beep’, the numbers of ‘beep’ means the serial number of the option. If you want to choose the option, pull and hold the trigger in 2 seconds after ‘beep’s till a long ‘beep’, the module will be set to matched option. (The options and matched function/parameter are in the table below).
4. After setting to the selected option, the motor emits short ‘beep’s, the number of ‘beep’s means the different function/parameter of this option. If you want to program to set it to certain option or parameter, pull and hold the trigger in 2 second after ‘beep’ till 2 long ‘beep’, then the module is in programmable mode again.

Option\Parameter	1	2	3	4	5	6	
1 Low Battery Warning	7.4V	11.1V	14.8V	9.6V	OFF	RESET	
2 Semi-auto mode	Semi	Binary trigger	3 round bursts	4 round bursts	5 round bursts	6 round bursts	
3 Full-auto mode	Auto	Semi	3 round bursts	4 round bursts	5 round bursts	6 round bursts	
4 Pre-cocking control	1：The most front position, 2~15：The larger the parameter is the further back the piston is. The certain position is related the strength of the spring.						
5 Firing interval	OFF	0.3s	0.6s	0.9s	1.2s	1.5s	
6 Rate of fire	100%	80%	70%	60%	50%		
7 Trigger mode (V1.5+ only)	Normal	Sensitive	AUG Mode：Light press semi-auto and heavy press auto				
8 Selector type	G36	AK47					
9 Auto-loading (for gel ball only)	3S	2.5S	2S	1.5S	1S	0.5S	OFF