

JeffTron
21st century electronics for AEG weapons



EXTREME PROCESSOR UNIT WITH WIRING



Spring limit M190

Installation of this device leave to expert
He must know how to solder and disassemble airsoft gun
Never use soldering gun!

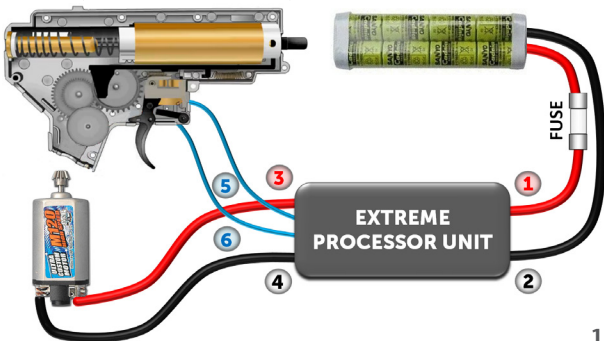
Device parameters

It is program-controlled device with motor active braking, designed for airsoft electric guns (AEG). Limited functions for guns without semi fire (M249, M60,...). It adds five new shooting modes, controls rate of fire, active braking, pre-cocing and low battery indication. Specified for batteries up to 16V (Ni-xx 8.4V - 14.4V, li-pol 7.4V - 14.8V, li-fe 9.9V - 13.2V). Gun trigger is used for programming this device, motor vibrates as a feedback for user. Coated with lacquer, it protects device against water.

Connection device into the gun

- 1) Red thick cable lead to the positive pole of battery. Add fuse between battery and device. (not included in package)
- 2) Black thick cable lead to the negative pole of battery
- 3) Red thick cable lead to the positive pole of motor
- 4) Black thick cable lead to the negative pole of motor
- 5) Blue thin cable lead to the one trigger contact in gearbox (no matter where)
- 6) Blue thin cable lead to the one trigger contact in gearbox (no matter where)

Be extra sure to connect the red and black wires appropriately, otherwise you will destroy device, weapon or battery.



First battery connection

1. Connect battery - you will feel a short vibration, then a longer vibration in the grip with motor. This means that the power-up self-test is complete and OK.
2. Put the gun into SEMI and **fire the gun 3 times**. The Processor unit will now be “trained” for your gun, battery and gear timing. You should do this every time you power up the gun. Ignore this step for a gun with no SEMI capability such as M249.
3. Put the gun into AUTO and pull the trigger shortly. Gun should fire a burst of 3 rounds. If you held down the trigger longer the gun will go to auto fire.
4. If everything works as it should, congratulations for the correct installation of the processor unit. If not, read chapter **Startup codes, Post firing codes or Troubleshooting** in manual.

WARNINIG - Disconnect battery, when you don't use gun for longer time, because processor unit drains small amount of current from battery all the time.

Startup codes

After connecting battery processor unit does a power up self check, which lasts a few seconds. It results vibrating the motor with meaning:

- 1 **vibration** - All systems are OK. This vibration is about half second long.
- 2 **vibrations** - Battery voltage is less than 6.0 volts.
- 3 **vibrations** - Battery voltage is more than 17.0 volts.
- 4 **vibrations** - Trigger is pulled during startup. Keep your finger off the trigger, disconnect and reconnect battery. If your finger is not on the trigger, check the trigger wiring for a shortcut.

Post firing codes

If it is any problem during firing, it will be signaled by vibrations from the motor:

- 1 **vibration** - Battery is Low. This is a single vibration immediately after shooting. If the battery drops much further, the gun will stop firing. Now is a good time to change your battery.
- 2 **vibrations** - Over current detected. Motor is stopped immediately and the gun will not fire. (Motor may “click” when trigger is pulled). Check for shorts wiring or motor.
- 3 **vibrations** - Overheating detected. Release the trigger, disconnect the power and inspect your gun for faults

Programming method

Anything you set here will be remembered even if you disconnect the battery.

Programming procedure:

1. Put the gun into SEMI and power up the gun. You will feel one short vibration.
2. Pull the trigger once (before the second longer vibration).
3. The gun will make 3 quick vibrations. You are now in programming mode and the device is waiting for option you want to change. If you do nothing for 2 seconds, it will go to step 4.
 - a) Push the trigger "X" times where X is the number of the option you want to change. (1. FIRE MODE, 2. BURST TIME - Reduction, 3. BURST TIME - Increase, ...)
 - b) The gun will vibrate "X" times to confirm the option number selected. If you make a mistake, wait for 3 quick vibrations and try it again.
 - c) To set attribute push the trigger "X" times where X is the number of the attribute you want to set. The gun will vibrate with each trigger push to confirm it's right detection.
 - d) After a short pause, the gun make 3 quick vibrations to signal that processor unit accepted new settings and is ready for new input.
 - e) Go to step 3. a) to select another option or do nothing to exit program.
4. The gun will make a long vibration signaling that programming is done and the gun is ready to fire.
5. At last put the gun into SEMI and fire the gun **3 times** to teach device right burst timing. You should do this every time you power up the gun – fire the first 3 shots in SEMI. Ignore this step for a gun with no SEMI capability such as M249.

WARNINIG - Disconnect battery, when you don't use gun for longer time, because processor unit drains small amount of current from battery all the time.

Brief programming scheme

Connection battery

Short vibration --> **PUSH TRIGGER = ENTER THE PROGRAMMING**

TRIGGER RELEASED

1. choice -----> 1. attribute: **Semi – Full** (*standard shooting*)
FIRE MODE 2. attribute: **Semi - Semi/Burst/Full** (*factory default*)
3. attribute: **Semi – Semi**
4. attribute: **Semi – Semi/Burst**
5. attribute: **Semi - Semi** (*delay*)
6. attribute: **Burst - Burst/Full**
2. choice **BURST TIME - Reduction** (*1x pull = -12% burst time*)
3. choice **BURST TIME - Increase** (*1x pull = +12% burst time*)
4. choice **MOTOR SPEED - Reduction** (*1x pull = -5% speed*)
5. choice **MOTOR SPEED - Increase** (*1x pull = +5% speed*)
6. choice -----> 1.attribute: [Fire mode 2 and 6] **None** (*fact. default*)
DELAY 2.attribute: [Fire mode 2 and 6] **Short**
3.attribute: [Fire mode 2 and 6] **Long**
4.attribute: [Fire mode 5] **Short (0,4s)**
5.attribute: [Fire mode 5] **Medium (1,0s)** (*fact. def.*)
6.attribute: [Fire mode 5] **Long (1,8s)**
7. choice -----> 1. attribute: **OFF** (*factory default*)
PRE-COCKING 2. attribute: **ON**
8. choice -----> 1. attribute: **OFF**
FAST SHOT 2. attribute: **ON** (*factory default*)
9. choice -----> 1. attribute: **Off** (*PRE-COCKING function disabled*)
ACTIVE BRAKE 2. attribute: **Low intensity**
3. attribute: **Medium intensity** (*factory default*)
4. attribute: **High intensity**
10. choice -----> 1. attribute: **OFF** (*factory default*)
LOW BATTERY 2. attribute: **2S li-pol** (*Low: 6.6V, dead: 6.2V*)
INDICATION 3. attribute: **3S li-pol** (*Low: 9.9V, dead: 9.4V*)
4. attribute: **3S li-fe** (*Low: 7.7V, dead: 7.2V*)
5. attribute: **3S li-on** (*Low: 8.5V, dead: 8.0V*)
6. attribute: **4S li-pol** (*Low: 13.2V, dead: 12.6V*)
7. attribute: **4S li-fe** (*Low: 10.2V, dead: 9.6V*)
11. choice **FACTORY RESET** (*hold trigger->vibration->unplug battery*)

Long vibration <-- **PROGRAMMING FINISHED AFTER IDLE FOR FEW SECONDS**
Ready to fire

Detailed programming scheme 1/2

- FIRE MODE** - 1.attribute: same as normal AEG (without Processor unit)
2.attribute: on AUTO tap trigger to shoot once. Press trigger little bit longer to shoot burst (*default 3 shots*), if the trigger is hold down longer it goes to auto fire (*factory default*). SEMI fire unchanged.
3.attribute: it fires single shot with selector on AUTO. SEMI fire unchanged.
4.attribute: on AUTO tap trigger to shoot once. Press trigger longer to shoot burst (*default 3 shots*). SEMI fire unchanged.
5.attribute: it fires only single shot with forced time delay for the next shot (*programmable delay- 6.choice*). Motor vibrates when it is ready to fire. The first 3 shots on SEMI are without delay (skipped after 2 min inactivity).
6.attribute: it fires burst (3 shots) on SEMI. On AUTO short trigger press fires burst. If the trigger is hold down longer the gun will go to auto fire. The first 3 shots on SEMI are single shots (skipped after 2 min inactivity).

BURST TIME - Each trigger press will shorten/lengthen burst time about 12%. You can refine burst cycle or increase/decrease the number of bullets fired in burst. To change the number of shots about 1 press trigger 8x to 10x. (*Factory setting is 3 shots, range 1 - 10 shots*)

MOTOR SPEED - Each trigger press will slow down/speed up motor about 5%. It is useful for too high gun rate of fire (RoF). (*Factory default is 100%*)

WARNING - Do not slow down motor speed too low, it could destroy processor unit. Recommended minimum RoF is 10 bb/s.

DELAY - The time between burst and auto in **FIRE MODE** = 2 and 6. In default is delay disabled, ie. short trigger press causes burst, long press auto fire. With delay ON is short pause between burst and auto. It is used for better burst fire recognition. You can choose shorter or longer delay time.
In **FIRE MODE 5** it is the time, in which it is not possible to shoot again. Default delay is *Medium*, you can choose shorter or longer period of time. Motor vibrates shortly after pass time delay. It is notification to shoot again.

PRE-COCKING - If is this function active, the piston is partly compressed after fire on semi. There is almost any delay between trigger press and shot. To release piston disconnect and reconnect battery, the first 3 shots on SEMI are with disabled pre-cocking - use it before storing gun.
Pre-cocking works only with active brake (9. choice). (*Factory default = OFF*)

Detailed programming scheme 2/2

FAST SHOT - It works only with **MOTOR SPEED – Reduction** (4.choice). The first shot is always at 100% RoF, next shots are fired with user set lower RoF. This function is used for quick gun response. (Factory default = ON)

ACTIVE BRAKE - If is this function active, it uses the excess energy from the motor to stop it. On SEMI fire piston isn't partially stretched, spring is fully released. The braking effect is morepowerful with high torque motor. In AUTO mode piston stops in random position. You can choose 3 intensity of active braking or turn it off completely. Higher power braking is suitable for weapons with high RoF. (factory default is on medium braking intensity)

LOW BATTERY INDICATION - it is used for only Li-xx batteries with the right number of cells. When processor unit detects low battery voltage, it will vibrate after each shot. Now replace the battery at the nearest opportunity. When the battery is depleted the gun vibrates instead of fire. The battery isn't disconnected, device very slowly discharges it. (Factory default = OFF)

FACTORY RESET - When you enter this option, immediately press and hold the trigger until you feel long vibration -> the gun will no longer respond for anything. Disconnect and connect the battery = device is back in factory settings.

Troubleshooting

ISSUE: It doesn't complete shots in semi fire mode or shoots like on AUTO.

SOLUTION: May be damaged mechanics aoung trigger, check its proper function. Also may be bad shot timing, so do a **Factory reset** (11. choice).

ISSUE: The gun sometimes shoots 2 bullets, then 3 bullets in burst.

SOLUTION: 2x - 4x press trigger in 3.choice **BURST TIME - Increase**. This increases the time for burst so the piston always completes three cycles.

ISSUE: Weapon shoots itself in automatic fire without pressed trigger.

SOLUTION: Mosfet is destroyed in processor unit, it is necessary to replace it.

ISSUE: You are not sure how you programmed processor unit.

SOLUTION: Best way is to do **FACTORY RESET** (11. choice) and start again.

ISSUE: The gun does something strange or nothing.

SOLUTION: STOP! Release trigger, disconnect battery and search for the problem before something will be irreversibly damaged!

MANUFACTURER

Ing. Filip Němec
Dr. Janského 724, 537 01 Chrudim II
ID: 87936062, TAX ID: CZ8503013475
Made in Czech Republic

www.JeffTron.eu

WARRANTY 2 YEARS

