

# INSTALLATION AND USER MANUAL

**AIRSOFT SYSTEMS**

[www.airsoftsystems.com](http://www.airsoftsystems.com)



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**ASCU 3**

Gen. **5**

FOR GEARBOX VER. 3

**ATTENTION! PLEASE READ CAREFULLY THIS INSTRUCTION AND USER MANUAL BEFORE YOU PROCEED WITH THE INSTALLATION OF THE ASCU.**

## AIRSOFT SMART CONTROL UNIT (ASCU) GEN. 5

**WARNING! Please read carefully this Instruction manual before proceeding with the installation. We strongly recommend that the ASCU to be installed by an experienced airsoft technician.**

The ASCU is a electronic module which when installed in an airsoft electric gun, drastically improves the way the gearbox cycles and the realism in imitating the functions of a real weapon.

The ASCU system monitors the operation of the AEG in any time, and no matter how fast you tap the trigger, the AEG will always complete the full cycle, no matter if you shoot in Semi or Full Auto mode.

The ASCU has an integrated Low Drain Protection. LiPo, NiMH, and NiCd batteries from 7,4 V to 12 V can be used safely. The ASCU automatically recognizes the battery type and voltage, even if the battery is not fully charged.



**The use of high quality motor with the ASCU is highly recommended.**  
**The use of high quality battery with the ASCU is highly recommended.**  
**Do not use old and damaged batteries!**

**11. 1V or 12V Battery is recommended!**

**7.4V to 8.4V Battery to be used only with M90 up to M100 springs.**

The ASCU will stop the AEG firing if any mechanical problem occurs to the gears in the AEG, which protects the internals of the gearbox from further damage.

The ASCU Gen.4 is easy to install in all AEGs with Ver.2 gearbox. In most of the models there is no need for any modification of the original parts of the airsoft rifle, nevertheless some models may need some minor and easy to do, modifications of some parts in order make the installation easier.

The ASCU-V3 is easy to install in all AEGs with Ver.3 gearbox (except AUG). In most of the models there is no need for any modification of the original parts of the airsoft rifle, nevertheless some models may need some minor and easy to do, modifications of some parts of the gearbox shells in order make the installation easier.



# ASCU INSTALLATION STEPS.

**\*Before installation check on [www.airsoftsystems.com](http://www.airsoftsystems.com) for any updates!**

**WARNING! If you are not familiar with the AEG's gearbox internals and you do not have good gearbox repair experience, please do not proceed with the installation and turn to your nearest airsoft service.**



As there are a lot of AEG producers, and no matter that all of them are producing AEGs with gearboxes that are clones of the Tokyo Marui ver.3, some times there are very small difference in dimensions and shapes of some parts.

## The ASCU kit includes:

- ECU board + Mosfet Board with Wires
- Selector Plate
- Cut-Off Lever + Cut-Off lever spring
- Instruction Manual

## Tools needed:

- Set of Philips screwdrivers.

## Tools that may be needed:

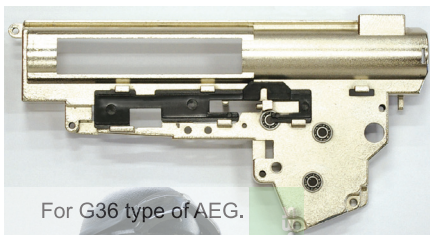
- Small file
- Dremel tool

**IMPORTANT: The ASCU works properly only with motors with strong magnets. With weak magnet motors the active brake will not be effective.**

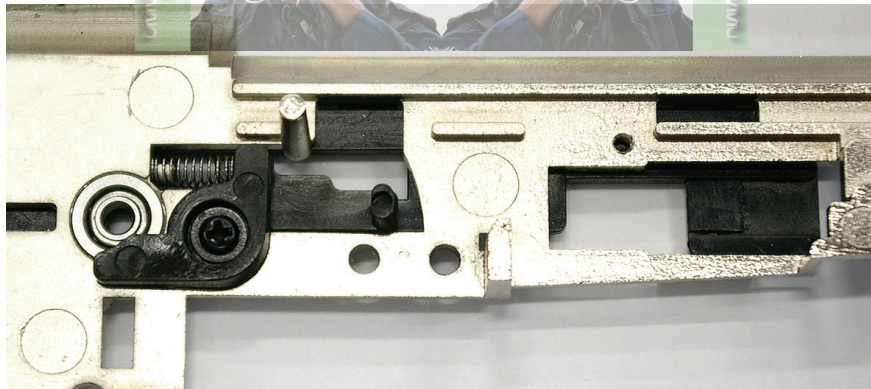
1. Remove the gearbox from your AEG by following the manufacturers procedures.
2. Open the gearbox and remove the cylinder together with the piston and the spring. Remove the gears and the anti-reversal latch and the selector plate. Unscrew the trigger switch assembly and remove it together with the wiring. (keep the screw, it is needed to hold the ASCU)

**Gearbox Maintenance Tip:** If your gearbox has a lot of grease inside and over the gears, clean it and lube the gears, and their axis with thin layer of silicone grease. Apply a thin layer of lubricant only to the contact surfaces. Over lubricating can result in drop of rate of firing and malfunction of the gearbox.

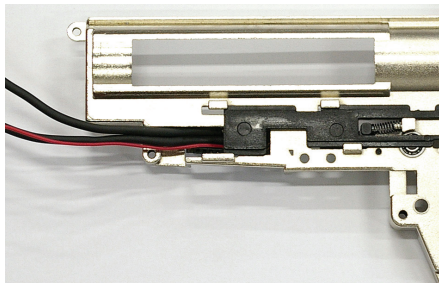
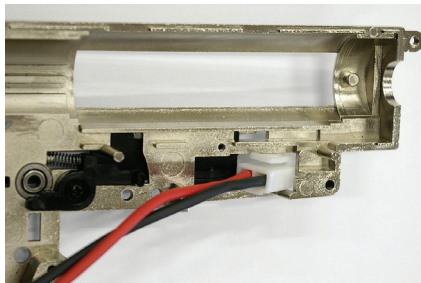
3. Insert the provided with your ASCU-V3 selector plate.



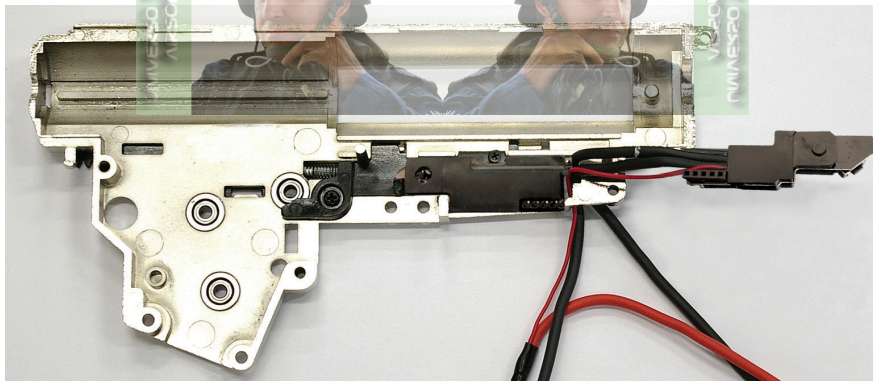
4. Remove the cut-off lever, and replace it with the polymer cut-off lever provided with your ASCU-V3. Replace the cut-off lever spring. Use the original screw.



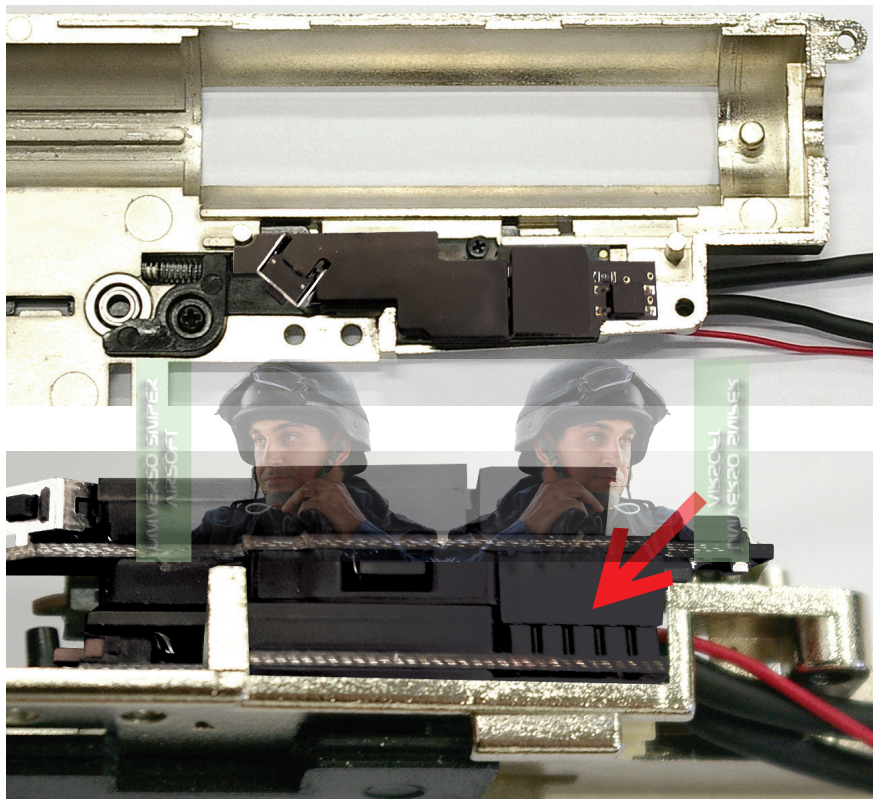
5. Separate the ECU and the Mosfet of the ASCU. Pass the wires through the opening in the gearbox shell as shown on the picture.



6. In the place of the original switch group fix the Sensor Unit by screwing back the screw that was used for the original switch assembly.



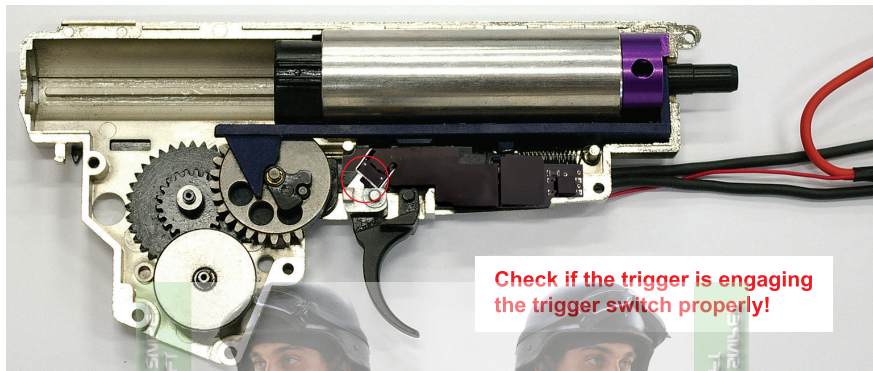
7. Place over & connect the ASCU Mosfet to the ECU. **Be carefull to connect accurately the connecting pins of the ECU and Mosfet Boards.**



8. When connecting the two boards connect the pins EXACTLY as it is shown on the picture above.



9. Replace the gears. **Rotate by hand the sector gear and check if the cut-off lever is moving properly and if it activates the cut-off sensor lever. At the bottom position of the cut-off lever and the cut-off sensor, there must be a small gap between them.**



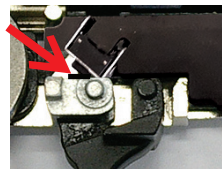
**WARNING! Do NOT reinstall the anti-reversal latch! You do not need it anymore.**  
**\*Anti-reversal latch may be reinstalled only if you use a low power magnetics motor.**

10. Replace the cylinder together with the piston and the tappet plate. Reconnect the tappet plate spring. Replace the trigger with its spring. Check if the trigger swing engages properly the trigger switch. If it does not, then use a drop of Super-Glue to fix the supplied plastic extension to the trigger swing to improve trigger engagement.

11. Insert the main spring and the spring guide. Close the gearbox.

12. Insert the gearbox in the AEG.

**Make sure to adjust the motor tension correctly.**



**WARNING! If changing the Tamiya connector to Deans /T-connector/ make sure to keep the correct polarity. If the polarity is switched the ASCU will burn instantly and this will not be covered by the warranty.**

## READ BEFORE USING YOUR AEG WITH ASCU!

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The ASCU has 5 selectable modes of function:

1. Single fire + Combined 3 round Burst and Full Auto. (Factory setting)
2. Single Fire + Full Auto
3. Single Fire + 3 round Burst
4. Single Fire only.
5. AK Mode: Full Auto +Semi

### CHOOSING BETWEEN MODES:

#### Coosing Fire Mode:

Set the fire selector to "SAFE", then connect the battery, and within 3 seconds move the fire selector to "FULL AUTO" and pull the trigger. A long buzz will indicate that you are now in "Program mode".

A buzz sequence will start: one buzz for mode-1; two buzzes for mode-2; three buzzes for mode-3; four buzzes for mode-4 and five buzzes for mode-5 (AK mode)

Once you hear the number of buzzes for the desired mode, pull the trigger and the mode will be selected. A single buzz will indicate that the mode has been selected and the AEG is ready to operate.

The ASCU will remember the last chosen mode and will keep it until another mode is selected. Disconnecting of the battery does not affect the selected mode.

## USING YOUR AEG WITH ASCU



**Never leave your Airsoft Electric Gun with ASCU stored with the battery connected!  
Always disconnect the battery when the Airsoft gun is not used, stored or transported.**

**Comply to all Airsoft Safety Rules at all times!**

- 1. Set the fire selector to “SAFE”,** then connect the Battery. After 3 seconds a single buzz signal will indicate that the battery is connected and the AEG is ready for use. **Do not pull the trigger before the beep!**
- 2. When the fire selector lever is on "SAFE" the AEG will not fire** when the trigger is pulled.
- 3. When the fire selector lever is on "SEMI" the AEG will fire a single shot** each time the trigger is pulled.
- 4. When the fire selector lever is on "AUTO" and the trigger is pulled the AEG will fire fully automatic** until the trigger is released, or 3 round burst, or a single shot, dependent on which fire program mode the ASCU is set.
- 5. When the battery is depleted, the AEG will stop firing and you will hear a double buzz** signal. Change the battery with a charged one.

### **DISCLAIMER:**

**Manufacturer / distributor assumes no liability or responsibility of any injury, damage of any type, third party liability, diminished value or any other type of claim raised by the user, their collaterals, assigns and or agents of this product. By using this product the user accepts all personal and legal liability of any type listed under the UCC and all state regulatory agencies where applicable.**

## TEST MODE:

*This version of ASCU has a test mode, which is used to check the functionality of each component in case the ASCU is not working properly.*

1. To enter in this mode, take the ASCU out of the gearbox.
2. Then connect the both boards to each other and then connect the motor. (hold the motor tight in hand to prevent jumping on rotation).
3. Now connect the battery. Within 3 seconds push the lever of the cut-off sensor once. If you do this properly (and cut-off sensor works), you must hear 3 long beeps.

Now ASCU is in test mode and you can test its components:

4. Push the cut-off sensor: there must be a repeating buzz while holding; (no buzz means that sensor is not working)
5. Push the trigger switch on the Mosfet Board, the motor will start for a second and then stop. (no motor spinning means that trigger switch or selector switch is not working) After this you must push cut-off sensor again if you want to test fire again.
6. On the back of the ECU board you will find the fire-selector switch, hold the switch and press the trigger switch on the Mosfet Board, the motor will start spinning. (no motor spinning means that selector switch is not working).

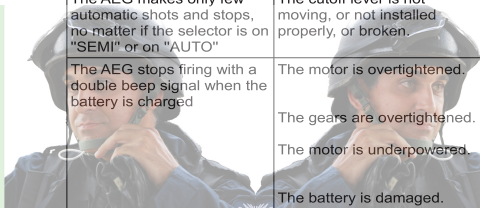
To exit of test mode just disconnect battery.



## TOUBLESHOOTING

The ASCU is designed to monitor the parameters in which your AEG works in. If by any reason mechanical or electrical failioure the AEG does not work within the normal parameters, the ASCU will stop it and inform you for that with a double beep signal.

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Malfunction	Possible reason	What to do
When battery is connected there is no a beep signal.	Bad battery or AEG cable plug	Check the plugs.
	Bad or no connection of one of the wires with the motor	Check the motor connections with the black and red wires
	Short circuit of wires.	Check all wires. After the short-circuit is fixed the ASCU will resume normal function
When the fire selector is on "SEMI" or "AUTO" the AEG wont fire.	The trigger is not engaging the trigger switch.	Check the trigger and the trigger switch.
When the fire selector is on "SEMI" the AEG fires in auto.	Misplaced selector plate.	Check the selector assembly.
When the fire selector is on "SAFE" the AEG fires.	Misplaced selector	Check the selector assembly.
The AEG makes only few automatic shots and stops, no matter if the selector is on "SEMI" or on "AUTO"	The cutoff lever is not moving, or not installed properly, or broken.	Check the cutoff lever. If it is not moving freely ad lubricant if it is damaged - change it.
	The AEG stops firing with a double beep signal when the battery is charged	The motor is overtightened. The gears are overtightened. The motor is underpowered. The battery is damaged.
	A broken or worn gear.	Change the gear.
	The gears backspin after the shot.	Weak motor magnets.  If there is no option to change the motor, install back the anti-reversal latch.
The wires get hot during firing	Loose connection to motor or battery.	Check all wire connections.
	Bad battery.	Change the battery.
	Bad Motor.	Change the motor.

**Technical support at: [info@airsoftsystems.com](mailto:info@airsoftsystems.com)**

For any other problems send your AEG to the nearest authorized service.

For complete list of authorized services check on [www.airsoftsystems.com](http://www.airsoftsystems.com)

For updates and other information check on [www.airsoftsystems.com](http://www.airsoftsystems.com)

# WARRANTY

The ASCU has a 36 months warranty for product defects from the date of the purchase. All ASCU with production defect will be replaced by Airsoft Systems.

**Keep your invoice with this Warranty Card as a proof of date of purchase.**

**WARRANTY VOID IF:** the ASCU is:

- modified by the user, or any of its parts is damaged due to bad installation.
- wires are cut or with damaged insulation.
- has traces of bad handling,
- if higher than 12V batteries are used.

## RETURN AND REPLACEMENT:

All defective units must be returned to Airsoft Systems or their distributor together with this warranty card and the purchase invoice. Replacement units will be returned within 45 days from the date they are received in Airsoft System's factory.

Airsoft Systems does not take any responsibility for delays and losses due to the post or courier services. Shipping back replacement units by mail / post service without insurance is free of charge. Shipping back replacement units by courier express service with insurance will be charged.

Owners name:

Date of instalation:

Authorized service  
signature and stamp:

