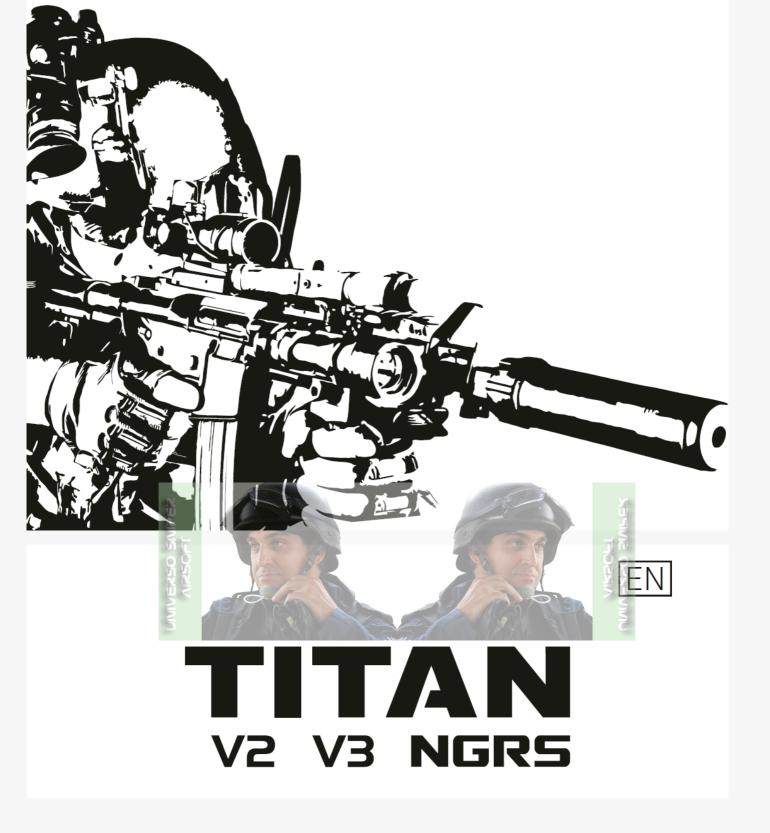
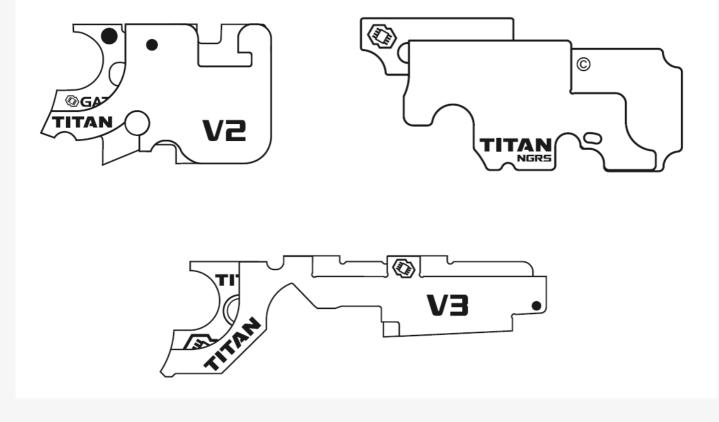
TITAN V2 EXPERT – User Manual

Última actualización 26 noviembre, 2024 • 25 min de lectura

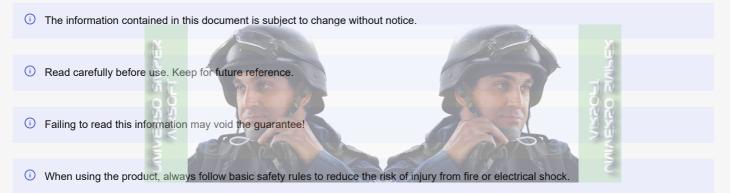
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General Information



Safety Summary

Please read this to ensure safe and correct use. Retain this information for future reference. The information contained in this document is subject to update without notice.

For your safety, this product should be installed by a skilled person.

▲ Warning

Situations that may cause injury to yourself or others.

Caution

Situations that may cause damage to your device or other equipment.

⊘ Note Notes, usage tips or additional information.

🛆 Warning

This device is not a toy and may not be operated by people (including children) with limited physical or mental abilities, as well as by people with no earlier experience in operation of electronic equipment. They may use the device only under the supervision of people responsible for their safety.

▲ Warning

Before starting the installation process, make sure that your AEG magazine is empty and there are no BBs inside.

▲ Warning

This equipment is not suitable for use in locations where children are likely to be present.

▲ Warning

Persons under 18 years of age ought not stay unattended near the device during the installation or servicing of a device installed in an ASG replica.

▲ Warning

Persons under 18 years of age ought not stay unattended near the device installed in an ASG replica ready for use.

▲ Warning

Persons under 18 years of age are not allowed to install or commission the device in an ASG replica.

▲ Warning

Persons under 18 years of age are not allowed to service this device.

▲ Warning

Do not store or carry flammable liquids, gases or explosive materials in the same compartment as the device, its parts or accessories.

▲ Warning

Incorrectly connecting positive and negative battery terminals will cause immediate damage to the device, which is not covered by warranty, and can lead to fire.

▲ Warning

Take caution to prevent short-circuiting the battery as the consequences may be very dangerous.

▲ Warning

Excessive trigger sensitivity may cause unintentional discharge (firing).

▲ Warning

When an airsoft replica is not in use, its battery must be disconnected and the hop-up chamber must be empty.

▲ Warning

While handling an AEG replica with a connected battery, anyone within the range of the replica must wear personal protective equipment.

▲ Warning

When not in SAFE mode, avoid using the device around strong electromagnetic fields, such as PMR transmitters exceeding European standards or when electrostatic discharges, e.g. lightning, occur in the atmosphere, which may cause malfunction of the device and unintentional discharge (firing).

▲ Warning

When an airsoft gun is not in use, its magazine must be detached or kept empty with no BBs inside.

Caution

Do not remove the device protective film or heat shrink tubes. Removing them will void the warranty.

Caution

Do not swap TITAN PCB boards between different sets. The serial numbers of each board must match. Mixing boards can cause incorrect measurements of voltage and current, which affects the smart fuse and can lead to device damage not covered by warranty.

Distance Caution

For your own safety you ought to use an additional fuse between the battery and the device.

Caution

When operating under unusual conditions, perform maintenance outlined below for the climate similar to your area. Operating in extremely cold temperatures is not recommended. Do not expose TITAN to direct sunlight for long periods of time. Keep away from dust or sand, which can cause malfunctions and/or excessive wear. Keep TITAN out of snow, rain, and water. This will prevent electrical failure and fluid buildup inside the gearbox.

⊘ Note

The product Warranty Form is available here: http://www.gatee.eu/warranty.



Installation

Caution

Regardless of your previous experience, follow all safety precautions to prevent any damage to your TITAN.

Caution

TITAN installation requires deep technical knowledge of gearbox internals. To avoid damage, we recommend it to be installed by a skilled person. If, however, you wish to proceed with TITAN installation on your own, you must read this full-length document and watch the installation video beforehand. Incorrect installation may result in, among others, sensor damage, which is not covered by warranty.



Watch the Video

⊘ Note

TITAN V2 and TITAN V3 do not support infinite torque-up gears, only TITAN NGRS does.

⊘ Note

Apply a thin layer of grease. Excessive grease may cover sensors or gaps between teeth, which will result in cycle detection issues. Use grease of appropriate viscosity and density to avoid splashing.



In GCS configure the gear type (if your gears are not stock) and perform first-time sensor calibration for TITAN V3 and TITAN V2 NGRS.

⊘ Note

In case you have any difficulties while installing or using this product:

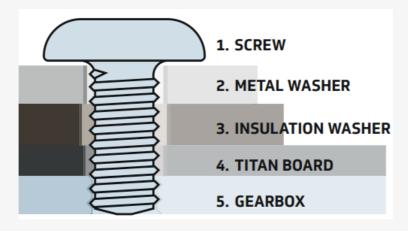
- contact us via https://help.gatee.eu
- send us an e-mail: support@gatee.eu
- join GATE Airsoft Community Discord Server

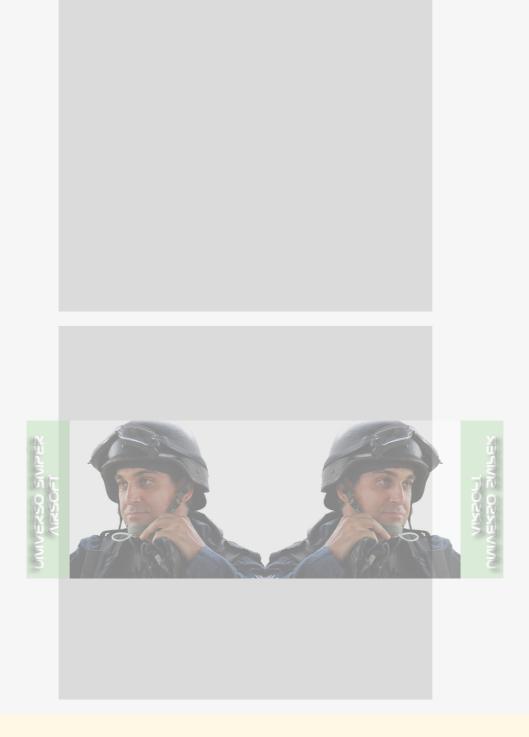
TITAN V2



() Caution

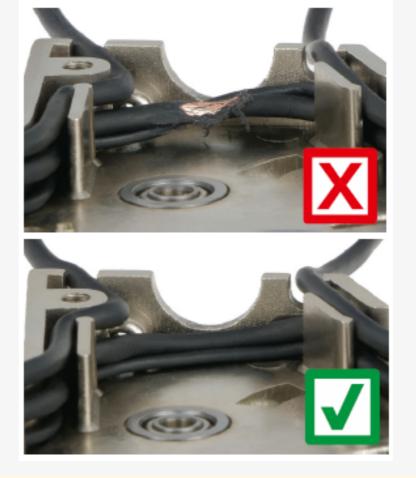
An insulation washer is required. Place the washers according to the graphic below. Placing washers in the wrong order will cause a short circuit and permanent damage to TITAN, which is not covered by warranty.





① Caution

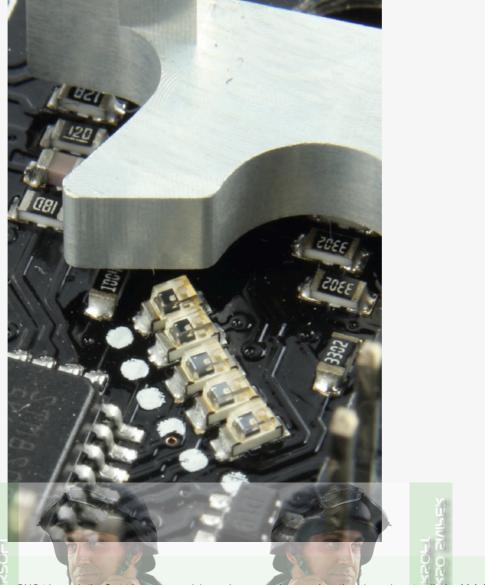
Incorrect placement of wiring under the motor gear may cause insulation damage and a short circuit, which is not covered by warranty.





① Caution

Do not pull the trigger when the gearbox is open. This may result in trigger sensor damage.

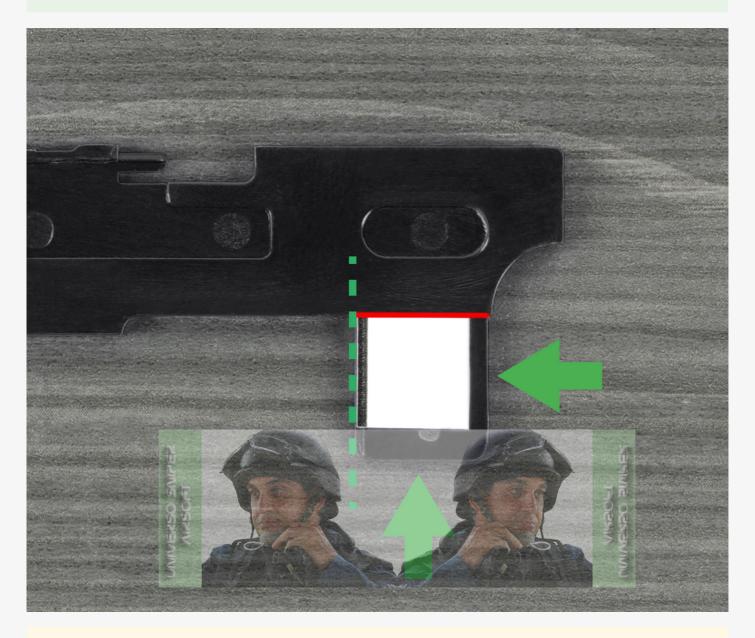


In some cases (e.g. speed or CNC triggers), the first trigger sensor(s) may be covered even when the trigger is not pulled, which is due to its design.

⊘ Note

The selector sensor does not detect black surface. If the selector does not come with a metal connector or is not working correctly, you must use an appropriate sticker from the INSTALLATION KIT.

Sticker position is crucial. Make sure to align it exactly to the left edge and the top red line. The set contains 3 different sticker types. First, use the one with the thinner black line. If you are not able to calibrate the selector, try the other ones.

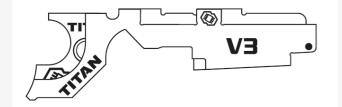


() Caution

In TITAN V2 connectors must be bent according to the photo below. Bending connectors in the opposite direction may cause them to break. If this should happen, spare terminals are included in the INSTALLATION KIT.



TITAN V3

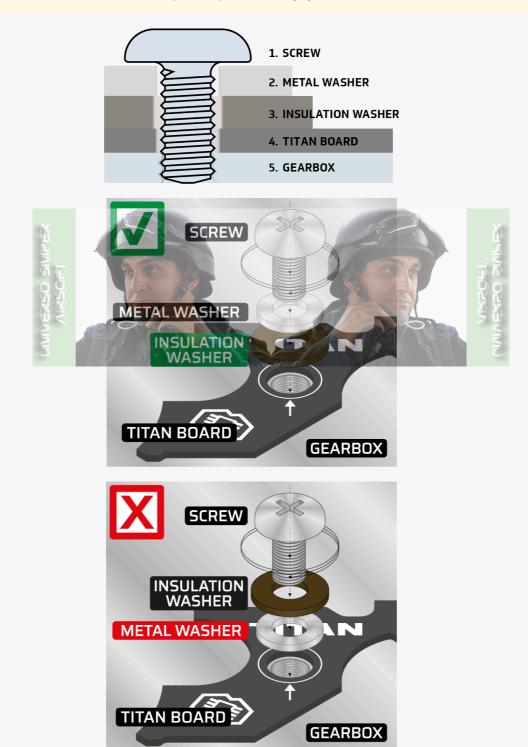


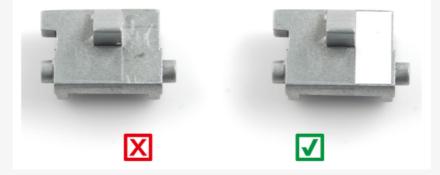
TITAN V3 fits CNC gearboxes with very low backlash. While fitting TITAN, pull the cables and at the same time push the board into the right place. Pay attention to the area marked yellow to fit the board correctly. Do this carefully so as not to damage the insulation of the wires.



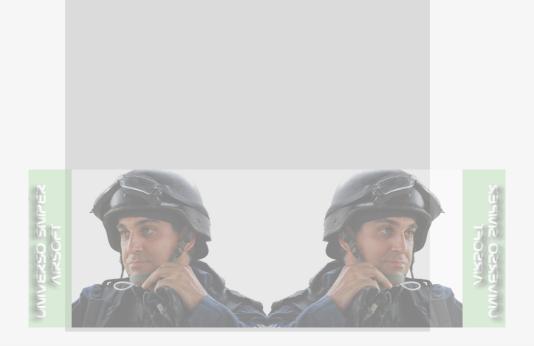
Caution

Use a metal washer with a diameter of max. 8 mm [0.31 inch] to avoid damaging TITAN.





TITAN can detect trigger position very precisely. In order to increase sensitivity, you need to eliminate trigger backlash. The set contains 3 trigger anti-backlash stickers of various thicknesses. Try each one of them or a combination of more than one and choose the most appropriate one.



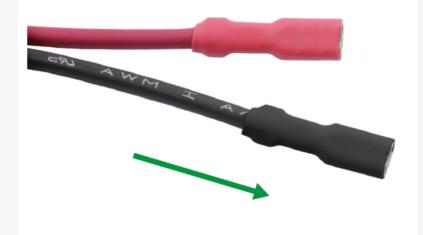
⊘ Note

The selector plate requires modification. Place the selector sticker according to the photos below. Its position is crucial.

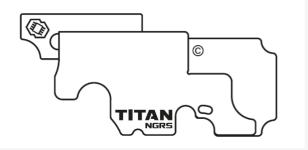


() Caution

In TITAN V3 the connectors must be straight according to the photo below. Bending and straightening the connectors back may cause them to break. If this should happen, spare terminals are included in the INSTALLATION KIT.



TITAN V2 NGRS



▲ Warning

If you are using a recoil system and set excessive trigger sensitivity, it may cause accidental discharge (firing) even without pressing the trigger.



▲ Warning

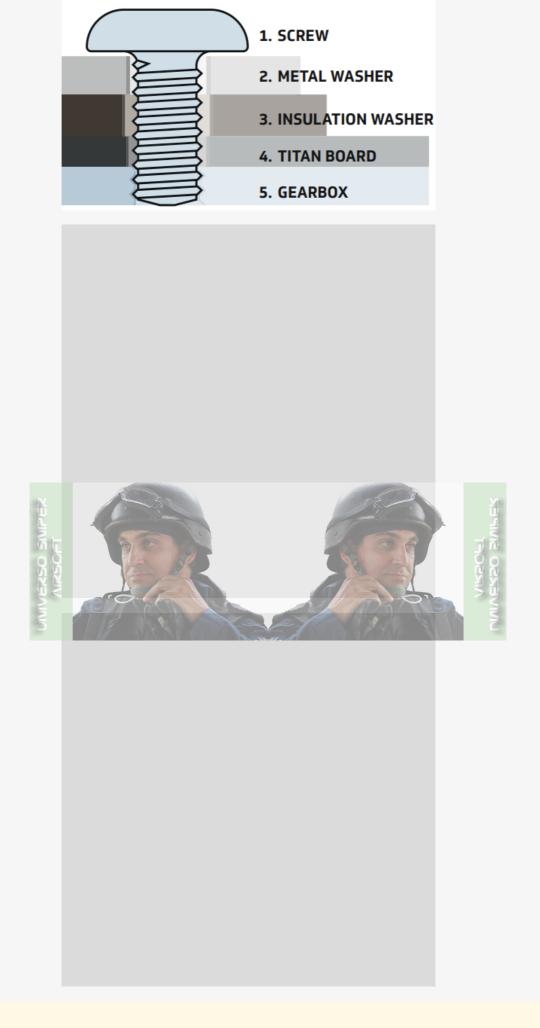
Pay attention to correctly solder positive and negative TITAN wires to the connector. Incorrectly connecting positive and negative battery terminals will cause immediate damage to the device, which is not covered by warranty and can lead to fire.

() Caution

An insulation washer is required. Place the washer(s) according to the graphic below. Placing washers in the wrong order will cause a short circuit and permanent damage to TITAN, which is not covered by warranty.

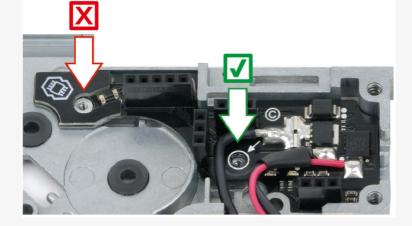
() Caution

If the PCB does not perfectly fit in your shell, make the necessary modifications to the gearbox shell, **not to the PCB**. It is forbidden to make any modifications to the PCB shell such as drilling the screw hole, grinding the edges of the PCB, etc. Doing so may result in immediate damage to the circuit, which is not covered by the warranty.



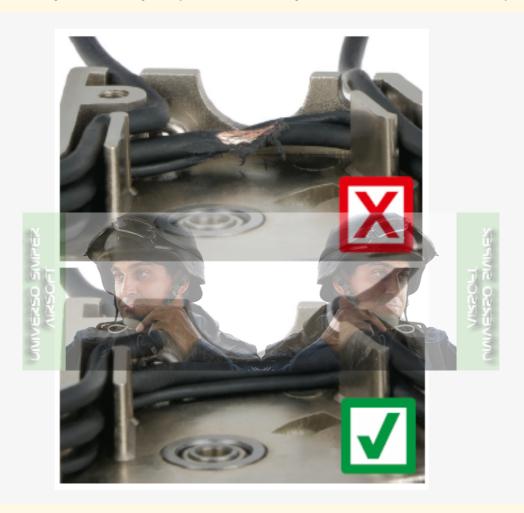
() Caution

Do not locate the screw in the cut-off lever hole to secure the TITAN board. Use a contact block mounting screw in the hole indicated by the arrow.



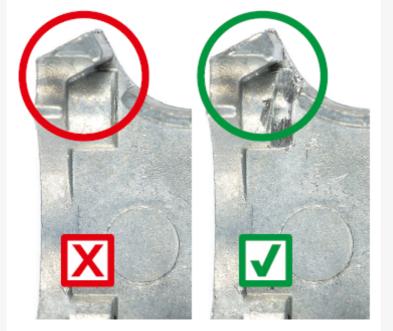
() Caution

Incorrect placement of wiring under the motor gear may cause insulation damage and a short circuit, which is not covered by warranty.



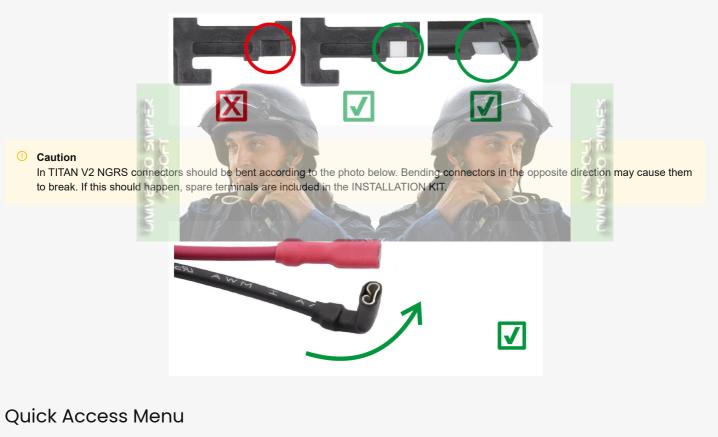
Caution

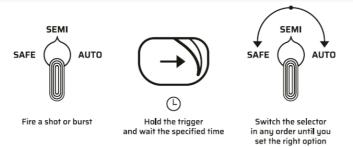
In order to secure the wires properly, modify the gearbox as shown in the photos below.



Ø Note

The selector plate requires modification. Place the selector sticker according to the photos below. Its position is crucial.





You can access **Pre-Cocking** or **Profiles** using a shortcut. After firing a shot, burst or while in SAFE (only if the safety lever has been removed)*, hold the trigger and switch the selector within the specified time (see table). Switch the selector in any order to change between the options indicated by motor vibrations.

By releasing the trigger, you exit the function confirming it. Bear in mind that **Programming via Trigger** is a different process. To find out more check the PROGRAMMING VIA TRIGGER CARD included or continue reading below.

	Function				
	available if preset in GCS				
	Pre-Cocking		Profiles (EXPERT only)		
To enter the function: hold the trigger	and switch the selector within 2 s		and switch the selector within 2–7 s		
	Option	Low frequency vibration	Option	High frequency vibration	
Available options	Off	1	Profile 1	1	
	Auto	2	Profile 2	2	
	Manual*	3	Profile 3	3	

*If defined in GCS



Pre-Cocking

In GCS go to Trigger>Pre-Cocking>Switch Mode via Selector and use the toggle button to activate this function.

- 1. Fire a shot, burst or pull the trigger while in SAFE mode (only if the safety lever has been removed) and do not release the trigger.
- 2. Switch the selector within 2 s. There is a single low frequency vibration.
- 3. Switch the selector in any order to change between the options indicated by vibrations:
 - a. 1 low vibration Pre-Cocking Off
 - b. 2 low vibrations Pre-Cocking Auto
 - c. 3 low vibrations Pre-Cocking Manual

4. Release the trigger to save the selected mode.

De-Cocking

Forcing the piston release after firing with Pre-Cocking enabled

- 1. Press the trigger in SEMI or BINARY mode and wait for the firing cycle to end do not release the trigger.
- 2. After 1.5 s, a high, medium, high, medium, high, medium frequency audible message will be triggered.
- 3. Releasing the trigger after the sound message is equivalent to firing without Pre-Cocking. The piston remains in the rest position.

⊘ Note

Releasing the piston to the rest position does not mean that Pre-Cocking mode is deactivated. Each subsequent shot after pressing the trigger will be made with the piston cocked according to the selected Pre-Cocking mode.

Profile Selection

Profiles are sets of particular settings of configurable TITAN functions. You can choose one of the three profiles at a time. Go to **General>Profiles>Change Profile via Selector** in GCS to be able to use this function. If you want to change the active profile:

- 1. Fire a shot, burst or pull the trigger while in SAFE (only if the safety lever has been removed) and **do not release the trigger**.
- 2. Switch the selector within 2-7 s. There is a single high frequency vibration.
- 3. Switch the selector in any order to change between options, which are indicated by vibrations.
 - a. 1 high frequency vibration Profile 1
 - b. 2 high frequency vibrations Profile 2
 - c. 3 high frequency vibrations Profile 3
- 4. Release the trigger to save the selected profile.

Programming via USB-Link

⊘ Note

You can use a USB-Link to connect your TITAN to GCS for Android and Windows/macOS. To connect to GCS for iOS, you must use a Blu-Link.

Caution

Prevent the USB-Link and the ends of the USB cable from contact with conductive materials, such as dust, liquid or metal powder.

Caution

Do not remove the device heat shrink tube.

1. Connect the USB-Link via its Micro-USB plug to your PC, Mac or smartphone using one of the dedicated USB cables:

- USB-A cable for PC/Mac
- Micro-USB or USB-C cable for smartphones

⊘ Note



⊘ Note

If your USB-Link cannot be detected, follow the instructions displayed in GCS.

2. Connect TITAN to the USB-Link.

⊘ Note

In case you have any difficulties while installing or using this product:

- contact us via https://help.gatee.eu
- send us an e-mail: support@gatee.eu
- join GATE Airsoft Community Discord Server

3. Now you can control TITAN via GCS.

USB-Link Troubleshooting

The USB-Link has a 4-color LED indicator.

		GLOWING	BLINKING			
	blue	The USB-Link is connected to the PC, Mac or smartphone; your TITAN is not connected or the PC/Mac driver is not installed, you can download the driver here: https://www.gatee.eu/drivers	There is no firmware installed on the USB-Link; install USB-Link firmware			
	green	The USB-Link is connected to your TITAN and PC, Mac or smartphone	The USB-Link is connected to your TITAN and PC, Mac or smartphone, but there is no firmware installed on the TITAN; install TITAN firmware			
	yellow	The USB-Link is transmitting data				
	red	Communication with TITAN was interrupted while saving settings; TITAN settings may have been transmitted incorrectly; check the connection between the USB-Link and TITAN				
Restoring Factory Settings						

Restoring the factory settings results in resetting the default settings, erasing adaptations and statistical data.

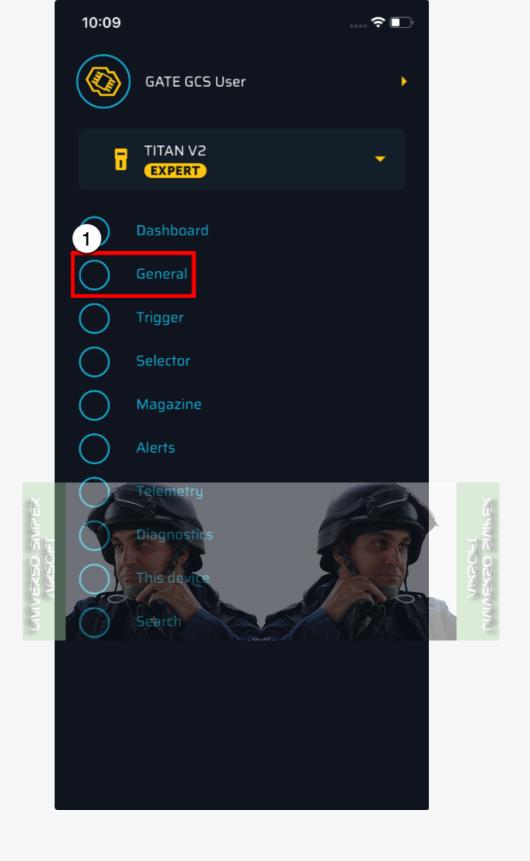
Ø Note

Restoring the factory settings of TITAN V3 or TITAN NGRS requires re-calibration in GCS.

You can restore Factory Settings in 3 ways:

• Via GCS:

Go to General. Open the menu in the upper right corner and select Restore factory settings.





Troubleshooting

Low Battery Warnings

When activated, you are warned 5 times before the battery is discharged. Each warning is communicated by 3 vibrations: High \rightarrow Mid \rightarrow High.

Vibrations after Connecting the Battery

TITAN can detect the number of battery cells automatically. If you activate this function, vibrations start once the battery is connected. Remember to always check if your TITAN detects the correct number of battery cells.

Vibrations after connecting the battery	Explanation			
1 short high frequency 📈	Cell detection error			
2 short high frequency AMA	Two cells detected			
3 short high frequency 👭 👭	Three cells detected			
4 short high frequency A short high frequency	Four cells detected			
3 short low frequency	Lack of trigger or selector calibration			
4 short low frequency	Trigger error: after connecting the battery, TITAN detected a trigger position where a shot may be fired			

Diagnostic Trouble Codes

Diagnostic Trouble Codes (DTC) enable detecting basic malfunctions and problems with your AEG or TITAN. You are notified of the main errors by vibrations. DTCs can later be read and cleared in the DTC menu in GCS as well as in the Programming Mode in Advanced Settings.

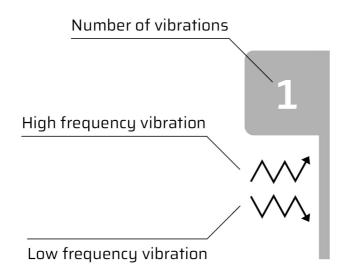
If DTCs are read while in Programming Mode:

- Each vibration type corresponds to an issue type
 - High frequency vibrations: warning
 - Low frequency vibrations: problem
 - Low-High frequency vibrations: device failed self-test
 - High-Low vibrations: another error
- The number of vibrations determines exactly what the problem is (for reference read the DTC explanations presented later on in this guide)

⊘ Note

It is good practice to clear the DTCs in GCS before each skirmish.

Diagnostic Trouble Codes



No errors

No errors detected. Enjoy airsofting



Under Voltage Protection 1 (UVP1)

Protection against Battery Over-Discharge (Battery Protection) Activated

- Why it happened:
- What to do:
- 1. Discharged battery
- 1 Charachett
- 1. Charge battery

Under Voltage Protection 2 (UVP2)

The voltage has dropped below critical level for TITAN to work properly

Why it happened:

- 1. Discharged battery
- The battery is worn out and there is excessive internal resistance
- Inadequate battery type for the current AEG configuration
- Excessive electrical resistance between TITAN and the battery
- 5. Motor too strong for the connected battery

What to do:

- 1. Charge battery
- 2. Replace battery
- Use a battery with more capacity or higher voltage
- We recommend using

 a battery with a Deans-T
 connector; if you need
 to use an adaptor,
 check the quality
- 5. Use standard or hightorque motors instead

- 6. Motor connection short circuit
- 7. Motor is jammed
- 8. Motor is damaged

Motor Disc (MOTOR DISC)

TITAN did not detect the motor

Why it happened:

- 1. The motor is not connected
- 2. The brushes are worn out
- 3. The motor is damaged

- of high-speed ones
- 6. Check and fix motor wire insulation
- 7. Unjam the motor
- 8. Replace the motor

What to do:

- Check wiring and motor connectors; connect the motor
- 2. Replace the brushes
- 3. Replace the motor

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Gear Not Detected (GND)

TITAN did not detect the sector gear

Why it happened:

- 1. Excessive sector gear shimming
- 2. Dirty sector gear sensor
- 3. Jammed sector gear
- 4. Damaged sector gear sensor
- 5. Damaged motor

- What to do:
 - 1. Remove the shims from underneath the sector gear
- Clean sector gear sensor; inspect the sensor using GCS; alternatively set
 Cycle detection to OFF
- 3. Check the condition of the gears
- Set Cycle Detection

 Set Cycle Detection
 to OFF (to maintain
 minimum and contact us
 at support@gatee.eu
- 5. Replace the motor



Over Current Protection (OCP)

TITAN has detected excessive current. Over current protection has been activated.

Why it happened:

- 1. Motor connection short circuit
- 2. Motor or gearbox jammed
- 2 Motor damaged

What to do:

- 1. Check and fix motor wire insulation
- Unjam the motor or gearbox
- Doplace motor

~~~\* ~~~\* ~~~\*

- 5. Mutul uamayeu
- 5. Replace motor

# Short Circuit Protection (SCP)

TITAN has detected current over 220 A. Short circuit protection has been activated.

## Why it happened:

- 1. Motor connection short circuit
- 2. Motor or gearbox jammed
- 3. Motor damaged

# What to do:

- 1. Check and fix motor wire insulation
- 2. Unjam the motor or gearbox
- 3. Replace motor



# **Over Temperature Protection** (OTP)

TITAN temperature is too high. Over temperature protection has been activated.

## Why it happened:

- The outside temperature is too high in relation to the requirements of your AEG
- 2. Frequent short circuits and TITAN electrical overloads

# What to do:

Wait until temperature drops



What to do: 1. Contact *support@gatee.eu* 



## The device failed on self-test Why it happened:

1. Device Internal error

Self-test Failure (STF)



# Other error

# What to do:

Connect TITAN to GCS and check for DTCs

# TITAN V2

TITAN V2 has the following optical sensors: 1 sector gear sensor 2 selector sensors 5 trigger sensors

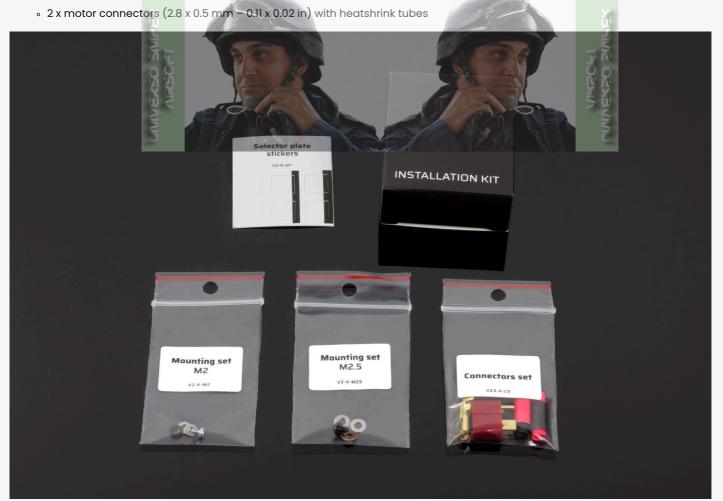


## Installation

Please read the installation guide below before proceeding.

## **INSTALLATION KIT Contents**

- selector plate sticker set (6 pcs)
- M2 screw and washer set:
  - 1 x screw
  - 1 x pressboard insulation washer
  - 2 x steel washers
- M2.5 screw and washer set:
  - 1x screw
  - 1 x pressboard insulation washer
  - 2 x steel washers
- connector set:
  - 1 x Deans-T connector with heatshrink tubes



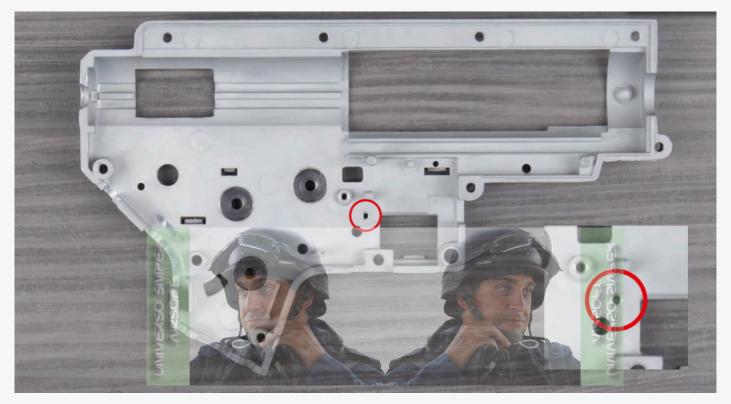
Procedure You will need:

- a cross-head screwdriver
- a flat-blade screwdriver
- a metal file or milling machine
- solvent
- grease
- a Blu-Link or USB-Link with a micro USB-Cable and a Windows/Mac/Android/iOS device

Follow the steps below in order to mount the TITAN drop-in module:

- 1. Remove the gearbox from the AEG body
- 2. Disassemble your gearbox, take out all the internals
- 3. Clean the gearbox case using solvent

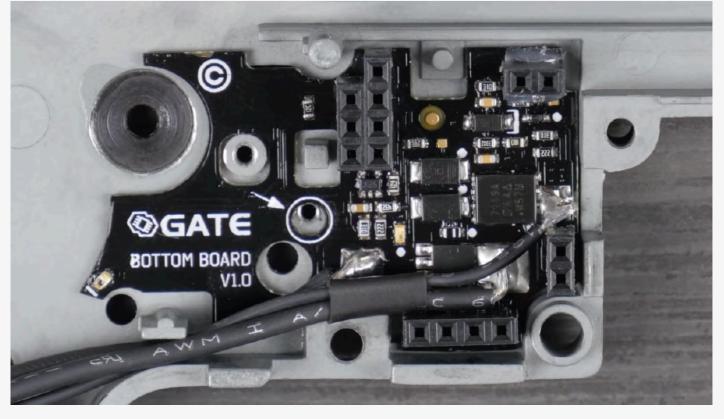
4. Pay attention to the marked area. If you see that it is not smooth, use a metal file or grindstone to prepare the surface. The gearbox surface should be smooth, with no sharp edges which may damage the TITAN.



5. Detach the drop-in module carefully.



6. Place the bottom board in the bottom part of the gearbox. Do not use a screw yet. Check if the bottom board is laid flat in the gearbox.



7. Make sure the electronic components are not touching the gearbox case.





8. Use the (black) insulation washer from the kit.

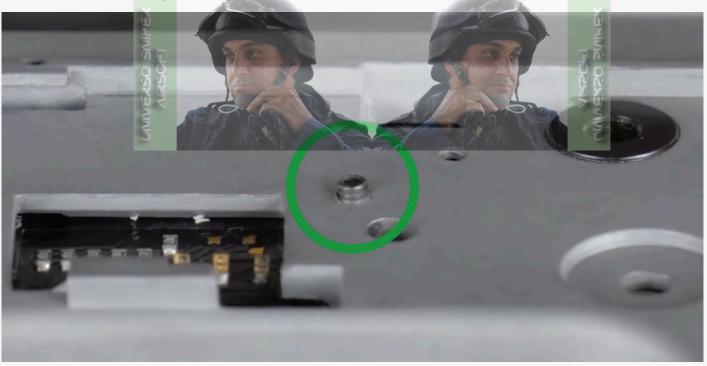
## () Caution

The insulation washer must protect the circuit board. The metal screw and the metal washer cannot touch the board directly as this can result in a short circuit and TITAN damage, which is not covered by warranty.



9. Fasten the bottom board to the case. Use the original screw or the one(s) from the kit.

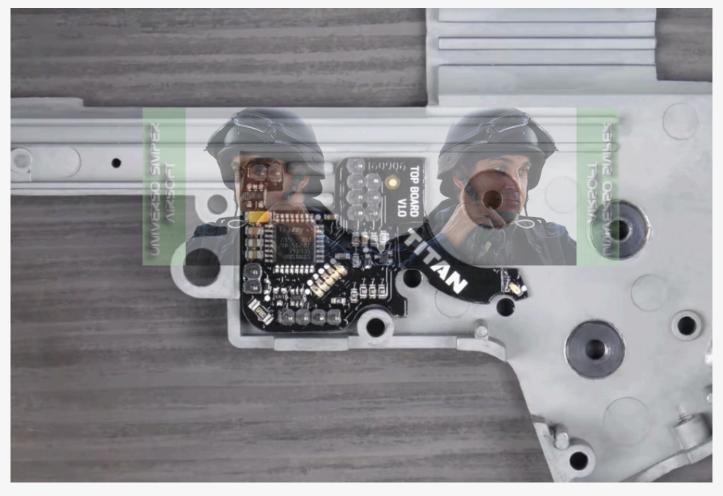
10. Check if the screw is sticking out of the gearbox.



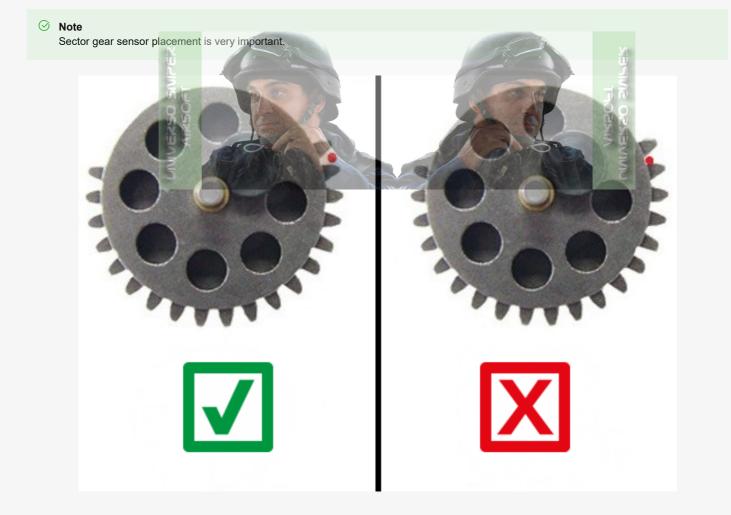
11. If so, add the metal washer(s) included in the kit. Make sure that the metal washer is placed between the screw and the insulation washer. It cannot be touching the circuit board directly.



12. Check if the top board fits the gearbox without any problems.



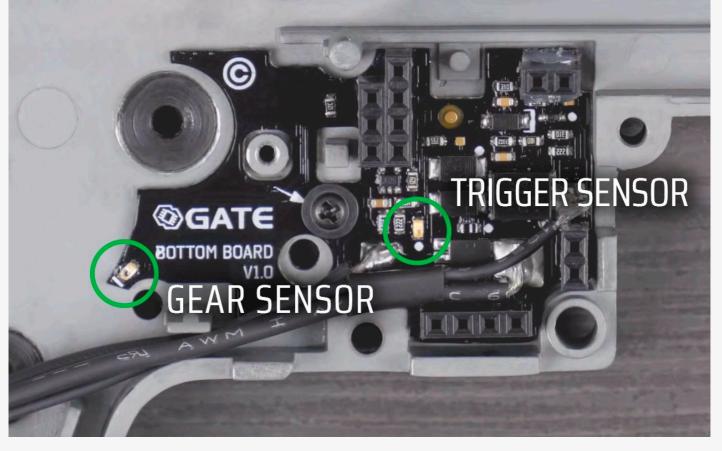
13. Loosen the screw. Adjust the position of the bottom board. The distance between the PCB and the bearing must be the same throughout (as indicated in the marked area).



14. Make sure the marked areas are not covered by the board or wires.



15. Check if the sensors are clean and not covered by wires.

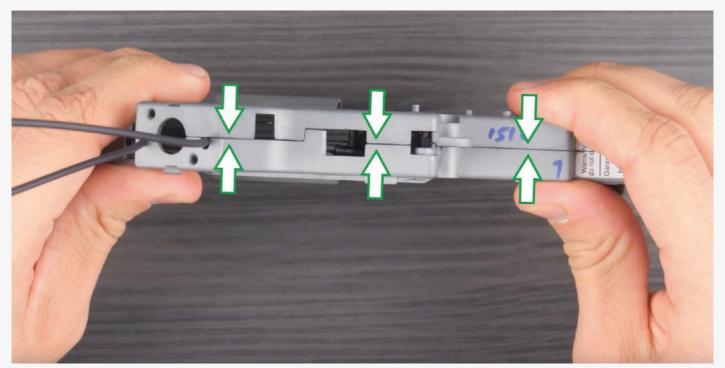


16. Some gearboxes need modification. Check if your gearbox has the marked pins. If so, remove them.





17. Check if both parts of the gearbox fit together perfectly.

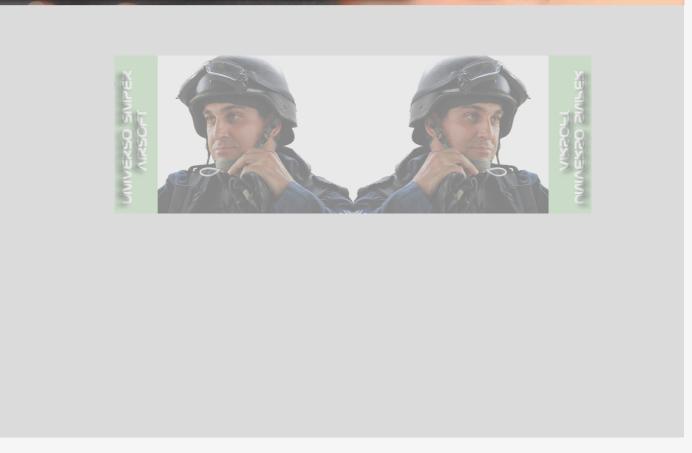


18. Mount the trigger without the spring. Insert the TITAN top board. Close the gearbox. When the gearbox is closed, carefully check if the trigger can move smoothly and is not touching any TITAN components.



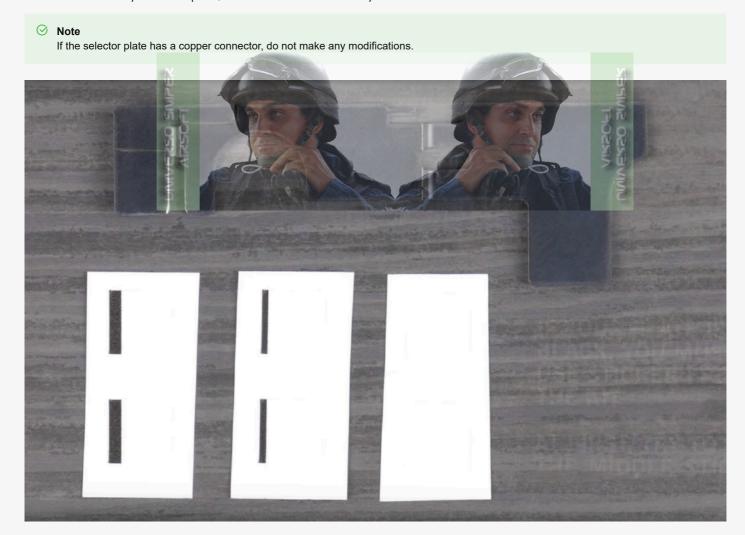
19. Mount the sector gear, trigger with the spring and the top TITAN board. Make sure that the gear is not touching TITAN.

20. Close the gearbox. Tighten the two screws on the top part of the gearbox case.



21. Prepare the selector plate. If the selector plate does not have a copper connector, you need to modify it. The black surface does not reflect light, so sensors will not work properly.

22. In order to modify the black plate, use a sticker from the kit. Try the sticker with the thinner black line first.



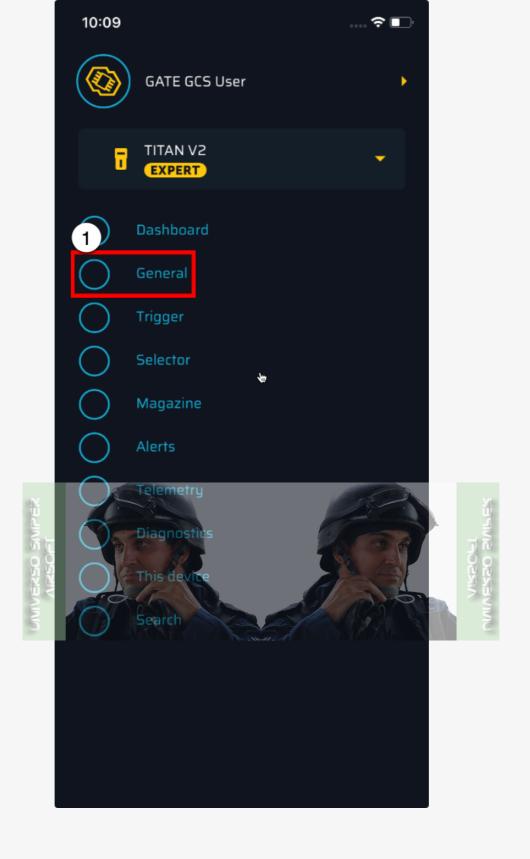
23. The black plate after modification. Sticker location is crucial. Carefully align it to the left-hand side.

24. Install the selector plate.



25. Connect TITAN to your desktop/mobile device using a USB-Link or a Blu-Link. Start GCS.

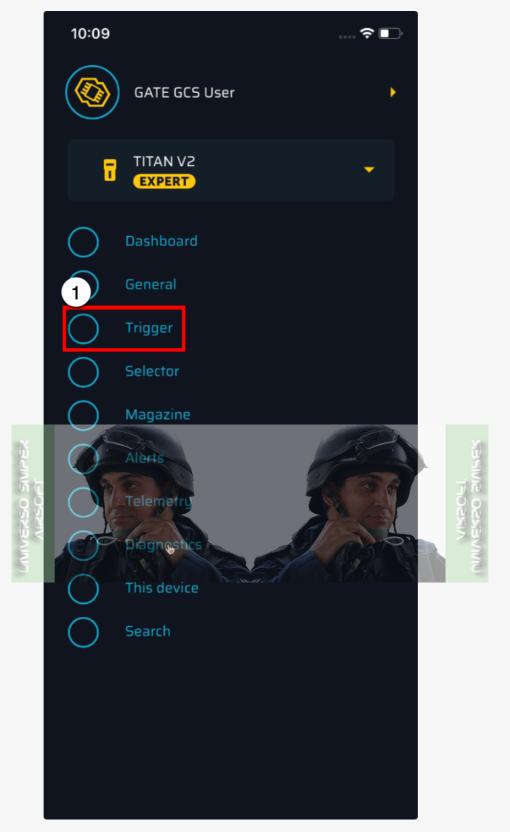
26. Check Gear and Tooth Detection: Go to **General**. Turn the gears slowly to check if the sensor can detect teeth. Keep in mind that TITAN reads the sensors much quicker than GCS.

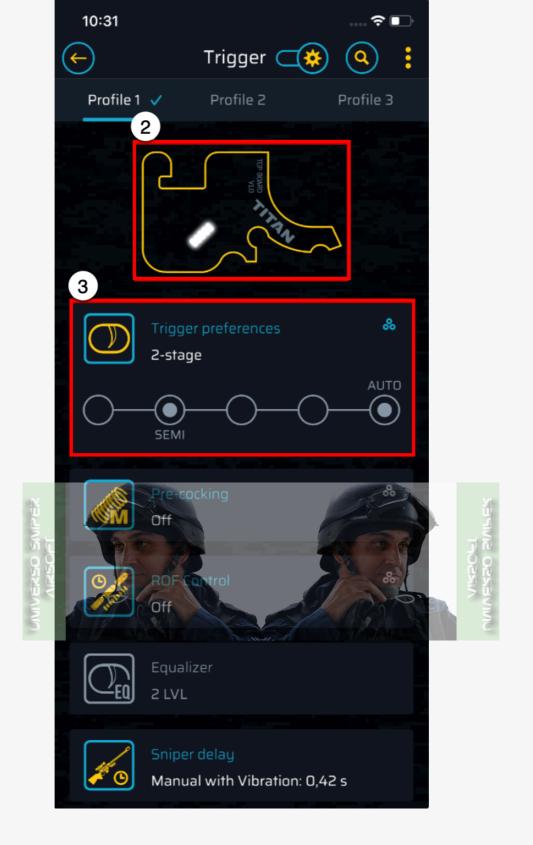


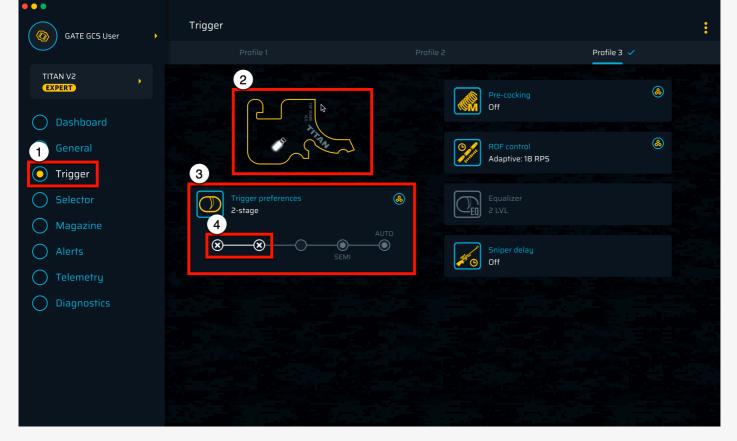


27. Check trigger sensitivity:

Go to **Trigger**. Pull the trigger slowly. The sensor indicators will stop glowing one by one in the area marked, you will also see a change in the colour of the indicators marked, which mean active sensors. In case of some trigger models, the first sensor(s) might be active even when the trigger is not pulled.



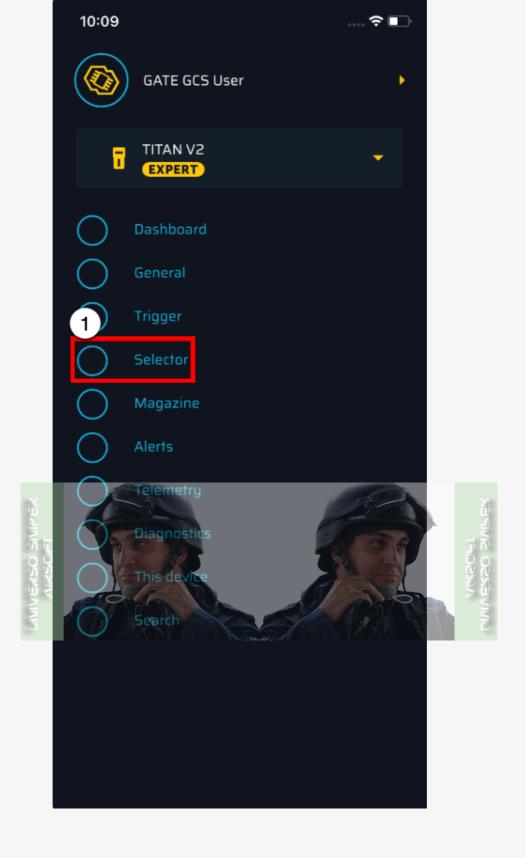


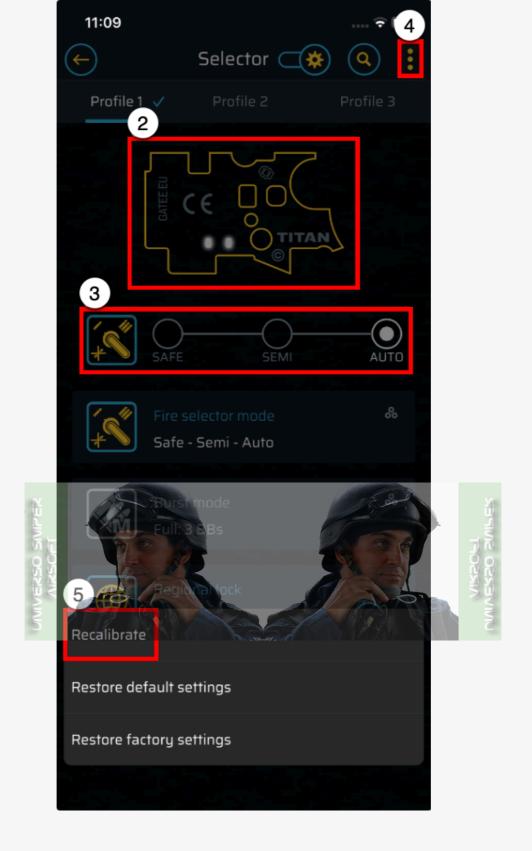


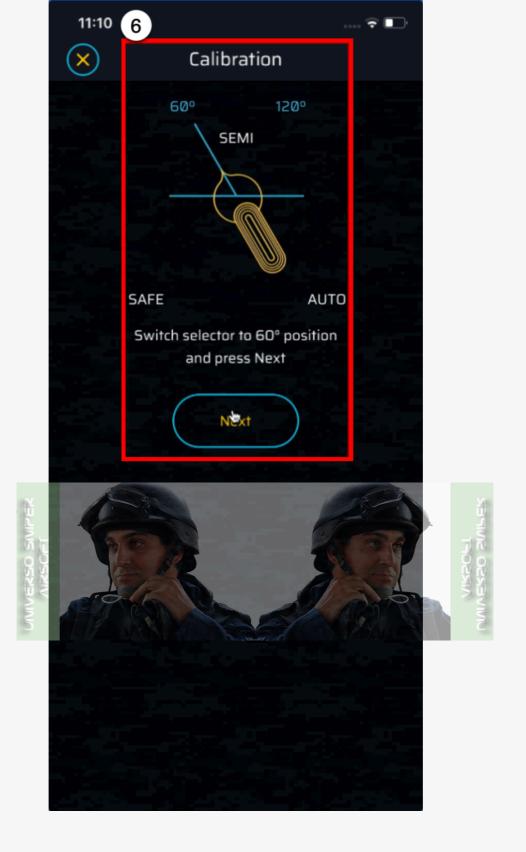
28. Check selector calibration:

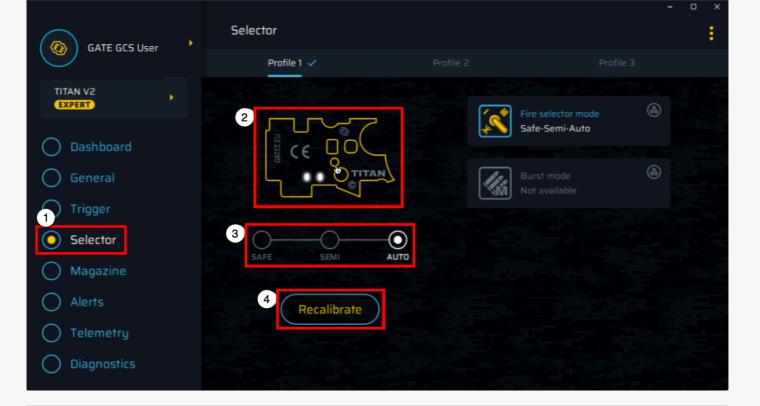
Go to **Selector**. Check if the sensors recognize the selector plate. Moving the selector plate, verify if TITAN detects SAFE, SEMI and AUTO. You will notice changes in the marked areas . If necessary, go to Recalibrate and follow the instructions in GCS.













Otherwise, you need to modify the selector plate with another sticker as mentioned above in steps 21-23 and shown below:

29. Insert the gearbox into the body

30. If all the sensors are working flawlessy, you can assemble the gearbox. Do not use too much grease. In a critical situation, excessive grease may cover sensors.

### ⊘ Note

The first few shots are *calibration shots*. TITAN adapts to gearbox configuration. In order to readapt TITAN, you must Restore Factory Settings or change the Gear Ratio. This is necessary if e.g. you replace the motor.





# Installation

Please read the installation guide below before proceeding.

### **INSTALLATION KIT Contents**

- 3 x selector plate stickers
- trigger sticker set (6 pcs)
- 3 x anti-backlash stickers (0.15 mm 0.006 in)
- 3 x anti-backlash stickers (0.3 mm 0.012 in)
- 3 x anti-backlash stickers (0.5 mm 0.02 in)
- 2 x washers (0.3 mm 0.012 in)
- 2 x washers (0.2 mm 0.008 in)
- 2 x washers (0.1 mm 0.004 in)
- set of connectors:
  - 1 x Deans-T connector with heatshrink tubes
  - 2 x motor connectors (2.8 x 0.5 mm 0.11 x 0.02 in) with heatshrink tubes



# Procedure

You will need:

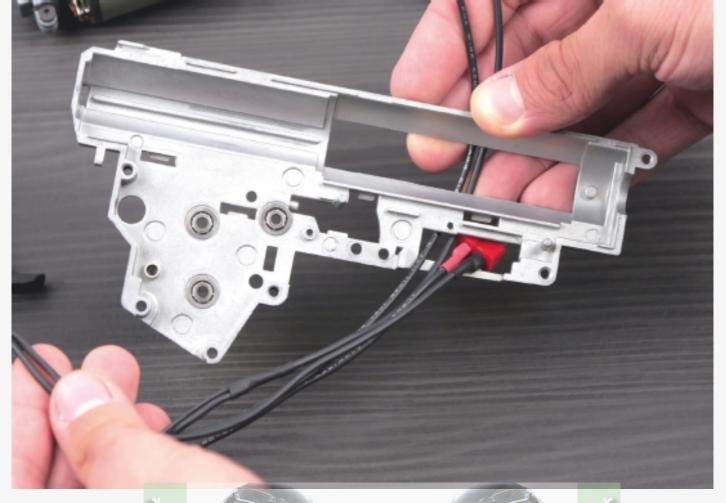
- a cross-head screwdriver
- a flat-blade screwdriver
- a metal file or milling machine
- solvent
- grease
- Blu-Link or USB-Link with a micro USB-Cable and a mobile/desktop

#### Follow the steps below in order to mount TITAN:

- 1. Remove the gearbox from the AEG body.
- 2. Disassemble your gearbox, take out all the internals.
- 3. Clean the gearbox case using solvent.



5. Route the wires through the gearbox shell from the inside.



6. Place the wires in the gearbox shell so as the unit can fit properly without any resistance.





7. Place the bottom board on the bottom part of the gearbox. Do not use any screw yet. Check if the bottom board is laid flat in the gearbox.





9. If the bottom board fits correctly, use a cut-off lever screw to stabilize the unit. Also use the included washers.

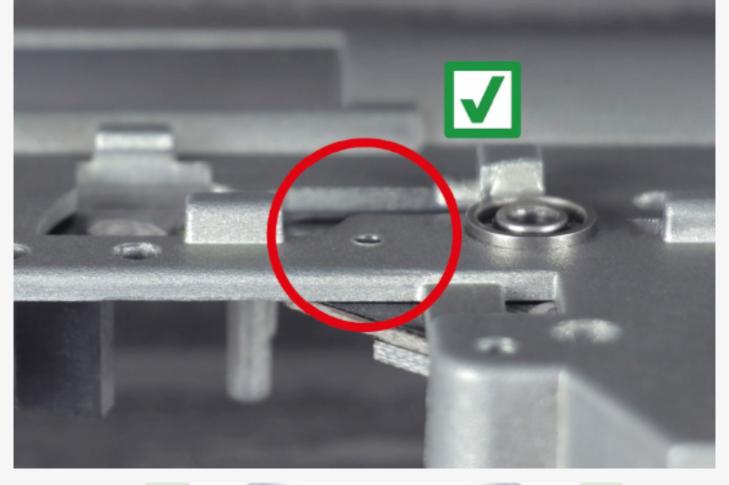


## ⊘ Note TITAN V3 does not require an insulation washer.

10. Check if the screw is sticking out of the gearbox.

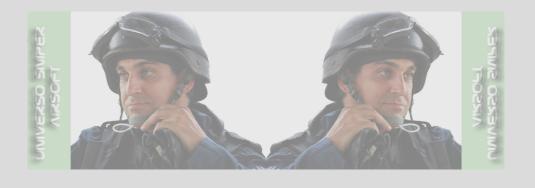


11. If so, add the metal washer(s) included in the kit.

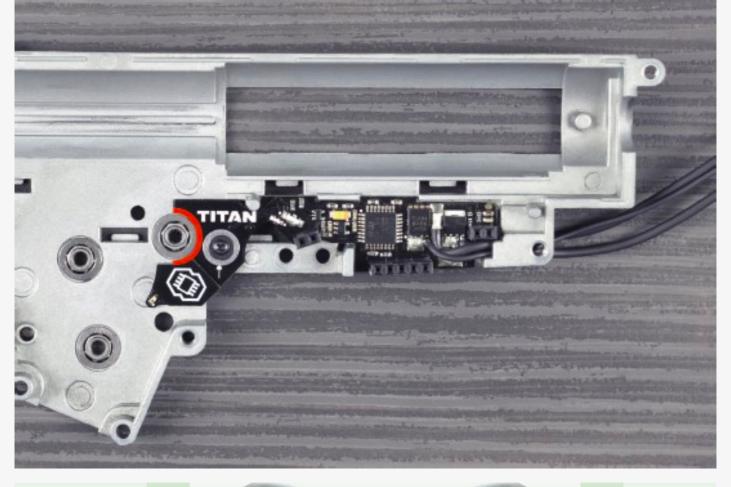


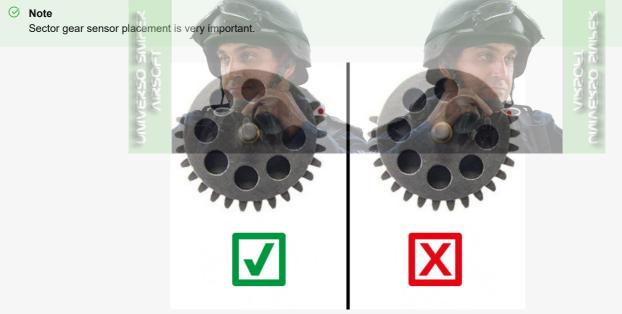
12. Check if the top board fits the gearbox without any problems.



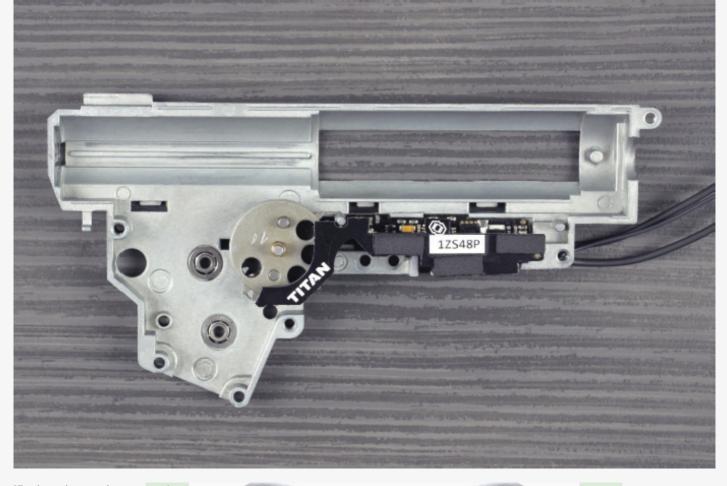


13. Loosen the screw. Adjust the position of the bottom board. The distance between the board and the bearing should be similar as indicated in the marked area.





14. Mount the sector gear and top TITAN board. Make sure that the gear is not touching TITAN.

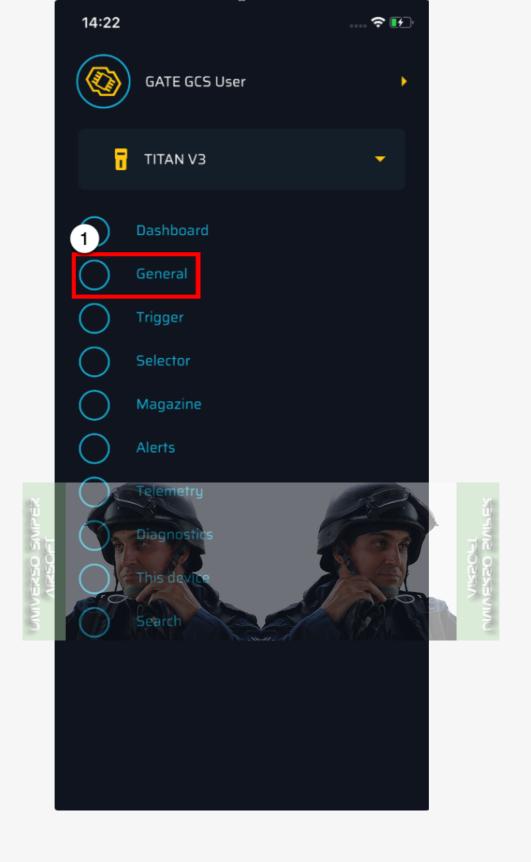


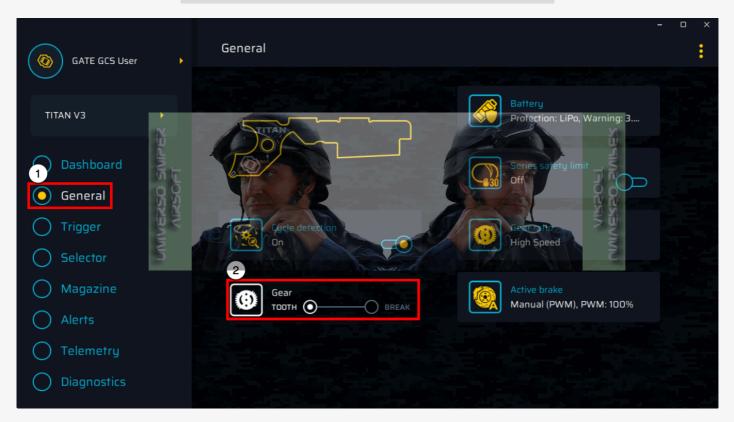
15. Close the gearbox. Use at least two screws.





16. Connect TITAN to your mobile/desktop device with a USB-Link or Blu-Link. Run GCS. Go to General.

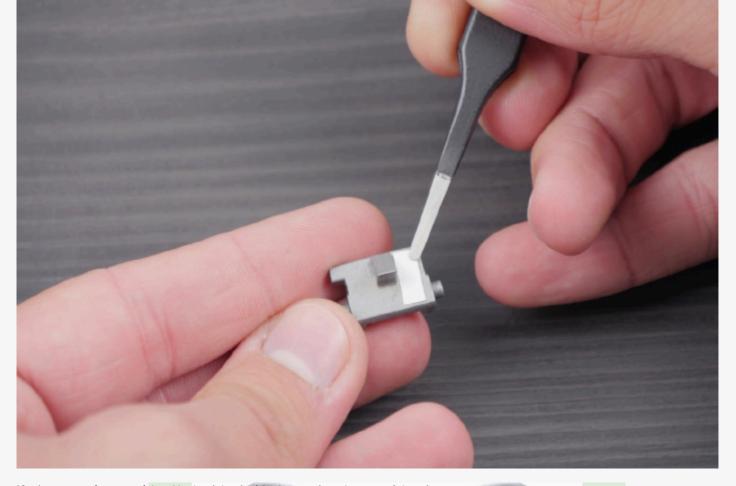




17. Turn the gear slowly to check if the sensor detects teeth (2). Keep in mind that TITAN reads the sensors much quicker than the GCS.



18. Use solvent to clean trigger elements. Next, place the smaller sticker (trigger sticker) on the flat surface.



19. Place one trigger anti-backlash sticker inside the moving element of the trigger.

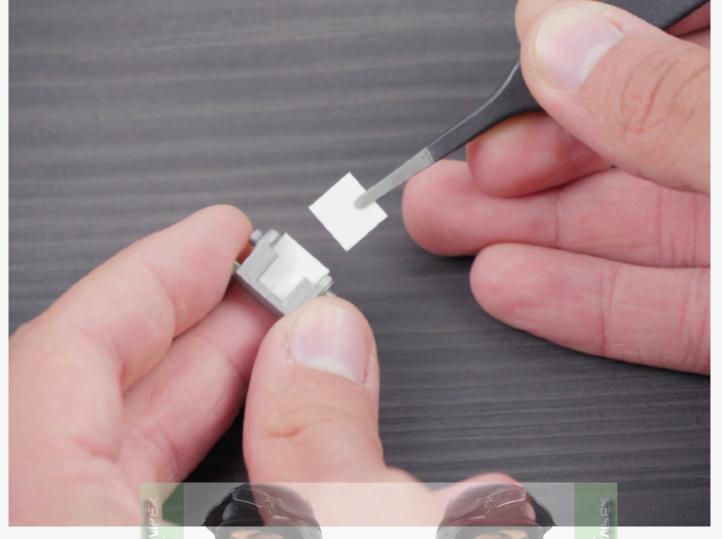




#### Ø Note

The stickers reduce space between the trigger and the moving element, so as the trigger works more precisely. The INSTALLATION KIT includes three stickers of different thicknesses.

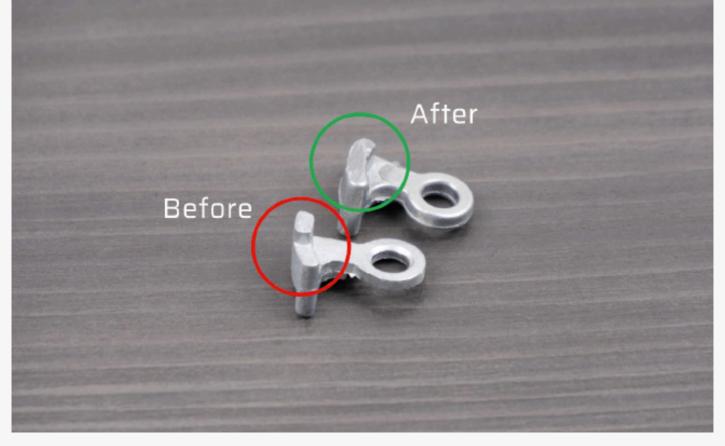
20. After placing the first sticker, assemble both trigger elements and estimate the clearance between them. If you feel that there is still some clearance, you can use more stickers. Remember that the trigger should work smoothly.



21. All the steps performed inside the gearbox are complete. Now you can assemble the gearbox. Do not use too much grease. In a critical situation, excessive grease may cover a sensor.



22. In some replicas (G36, UMP, etc.) you need to modify the mechanical trigger lock, because it is too long and touches the TITAN top board. In this case, grind the protruding element by around 1.5/2 mm [0.06/0.08 in].



23. After modification, check if the mechanical trigger lock is touching the TITAN top board. If it is not, you can proceed.



24. Install the remaining external gearbox components and start wire placement. You can use the picture below or your previous wiring as a suggestion.



25. Prepare the selector plate following the steps below. If the plate is a standard one (AK, most of G36, etc.), paste the sticker as in the picture below. If necessary, enlarge the hole in the plate – the space between the selector plate border and the sticker border should be approximately 10mm [0.4 in].



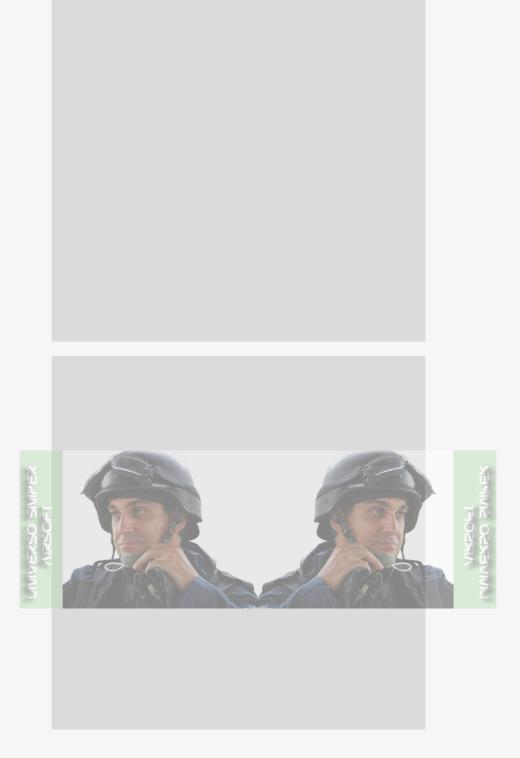
26. If there are any issues with sticker adhesion, modify the selector plate.

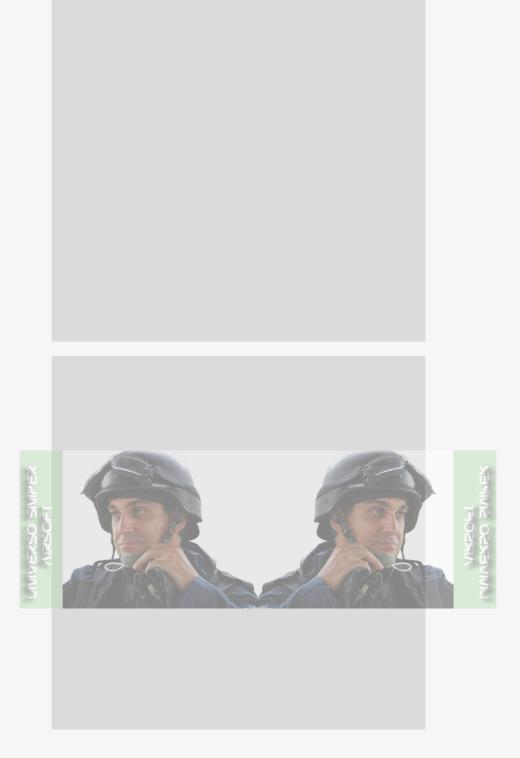


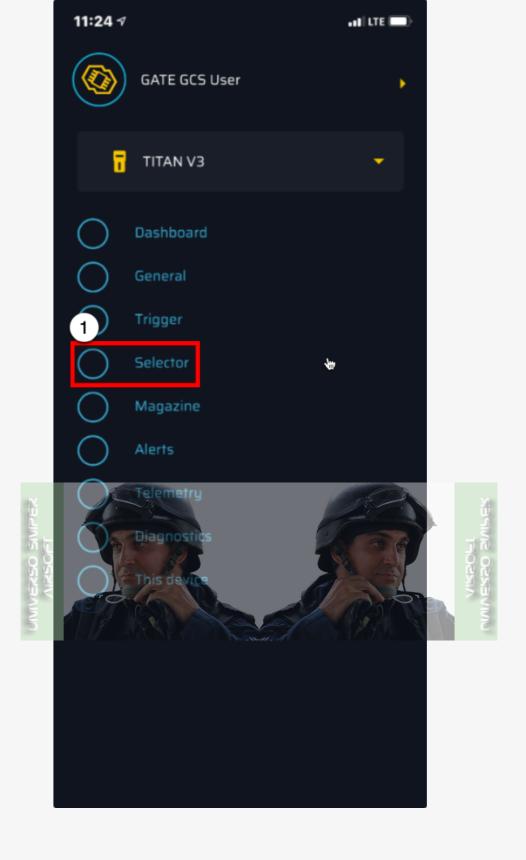
27. Finish gearbox assembly and put it in the replica body. Next, connect TITAN to a mobile/desktop device using a USB-Link or Blu-Link and perform sensor calibration following the instructions in GCS. Follow the steps below.

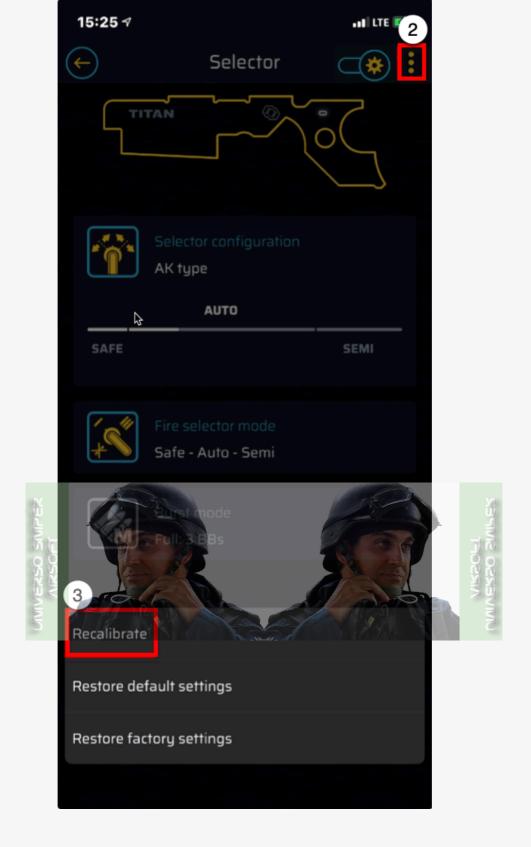
#### () Caution

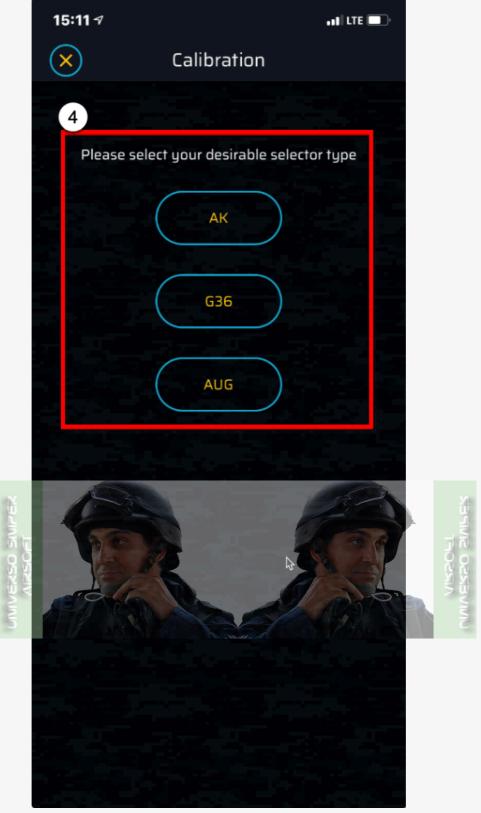
Calibrate the trigger and selector sensors only after the gearbox is mounted in the replica body.



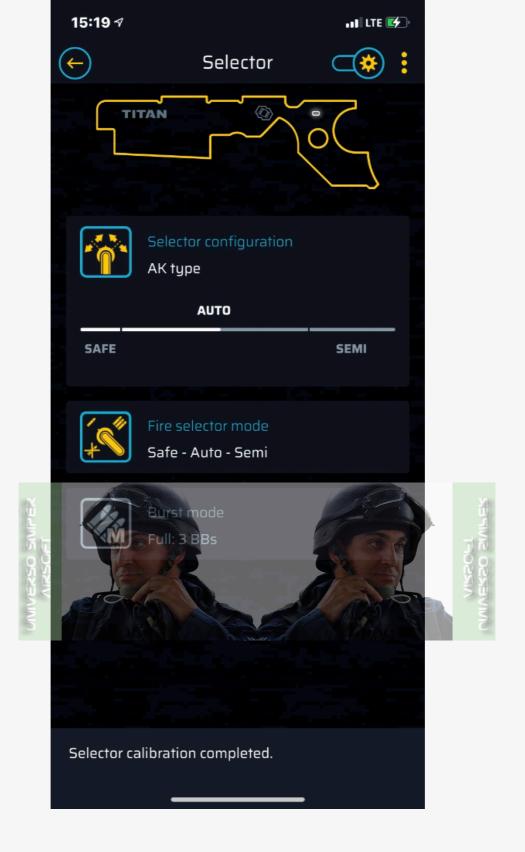


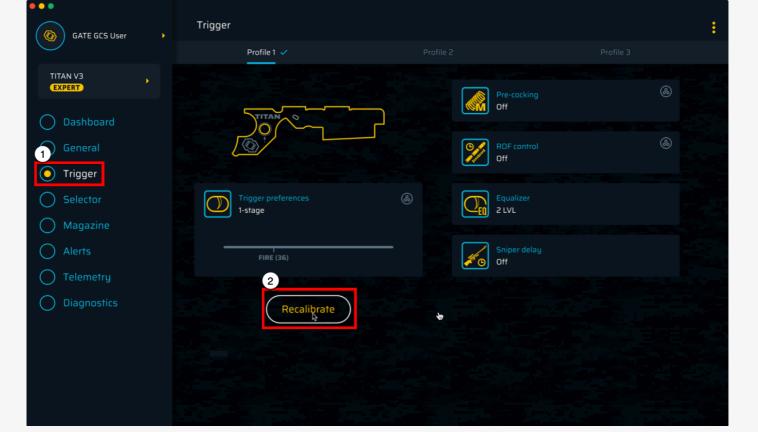


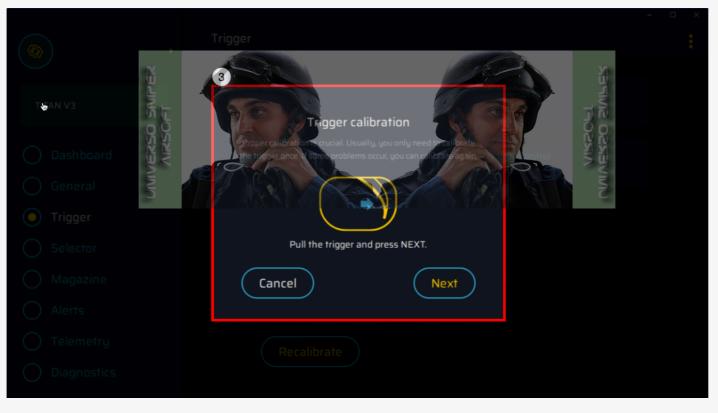










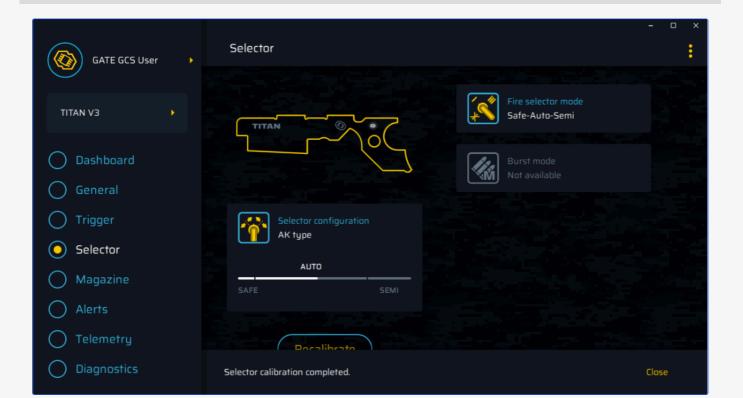


|  | TITAN 0                           |  |
|--|-----------------------------------|--|
|  | Trigger calibration completed Off |  |
|  | Fire (36)                         |  |
|  |                                   |  |









# **TITAN V2 NGRS**

TITAN V2 NGRS has the following optical sensors:

2 gear sensors 1 selector sensor 1 trigger sensor

1 bolt catch sensor

# Installation

Please read the Installation Guide below before proceeding.

#### **INSTALLATION KIT Contents**

- selector plate sticker set (6 pcs)
- M2 washer set:
  - 2 x insulation pressboard insulation washers
  - 2 x insulation steel washers
- connector set:
  - 1 x Deans-T connector with heatshrink tubes
  - 2 x motor connectors (2.8 x 0.5 mm 0.11 x 0.02 in) with heatshrink tubes



## Procedure

You will need:

- a cross-head screwdriver
- a Torx screwdriver
- a flat-blade screwdriver
- ametal file or milling machine
- solvent
- grease
- a USB-Link with a micro USB-Cable or a Blu-Link and a Windows/Mac/Android/iOS device

Follow the steps below in order to mount the TITAN drop-in module:

- 1. Remove the gearbox from the AEG body.
- 2. Disassemble your gearbox, take out all the internals.
- 3. Clean the gearbox case using solvent.



4. Detach the drop-in module carefully.



5. Place the bottom board in the bottom part of the gearbox. Do not use any screw yet. Check if the bottom board is laid flat in the gearbox.



6. Make sure the electronic components are not touching the gearbox case.



7. Use the insulation (black) washer from the INSTALLATION KIT.

### () Caution

The insulation washer must protect the circuit board. The metal screw and metal washer cannot touch the board directly as this can result in short circuit and TITAN damage, which is not covered by warranty.

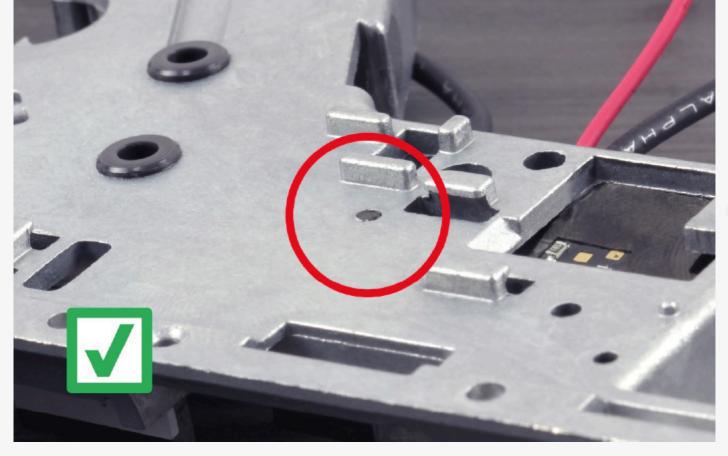


8. Screw on the bottom board to the case. Use the original screw or the one from the kit.

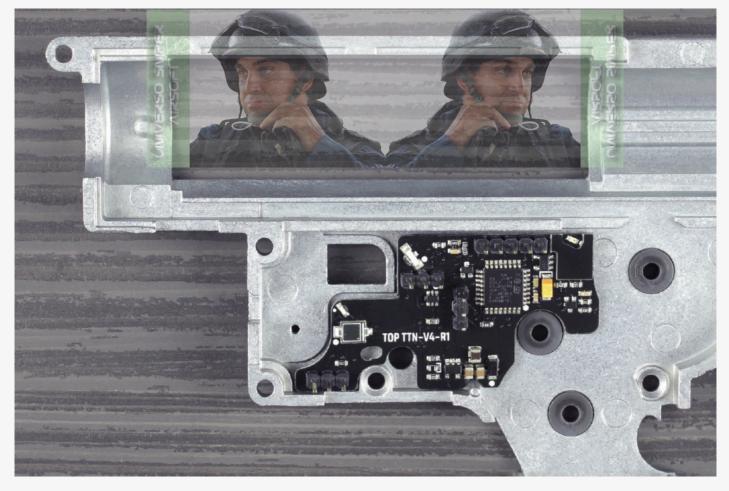
9. Check if the screw is sticking out of the gearbox.



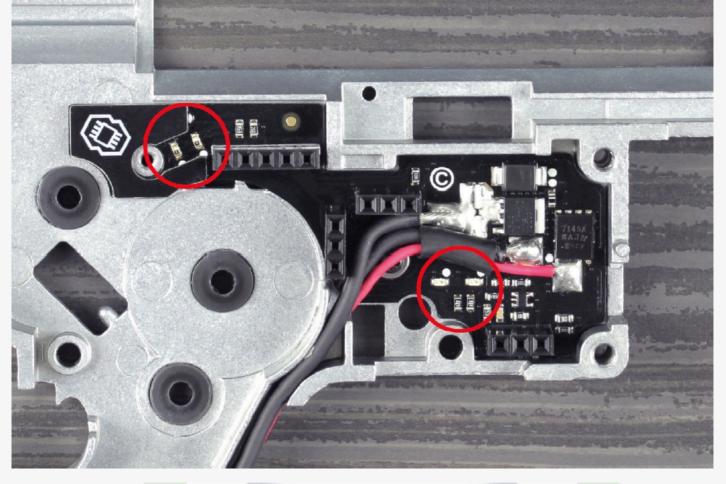
10. If so, add metal washer(s) included in the kit. Make sure that the metal washer is placed between the screw and the insulation washer. It cannot touch the circuit board directly.



11. Check if the top board fits gearbox without any problems.



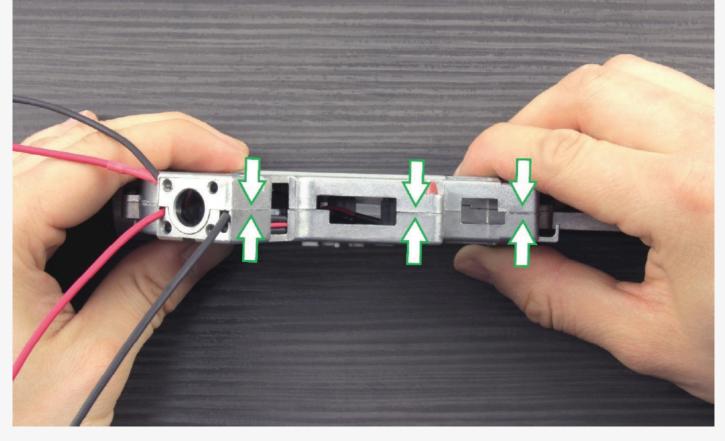
12. Make sure the marked areas are not covered by the board or wires. Check if the sensors are clean.



13. Place the wires in the gearbox shell, in exactly the same way as in the picture. The order is important.



14. Check if both parts of the gearbox fit together perfectly.



15. Mount the sector gear and top TITAN board. Make sure that the gear is not touching TITAN.

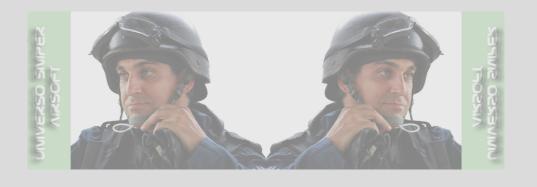




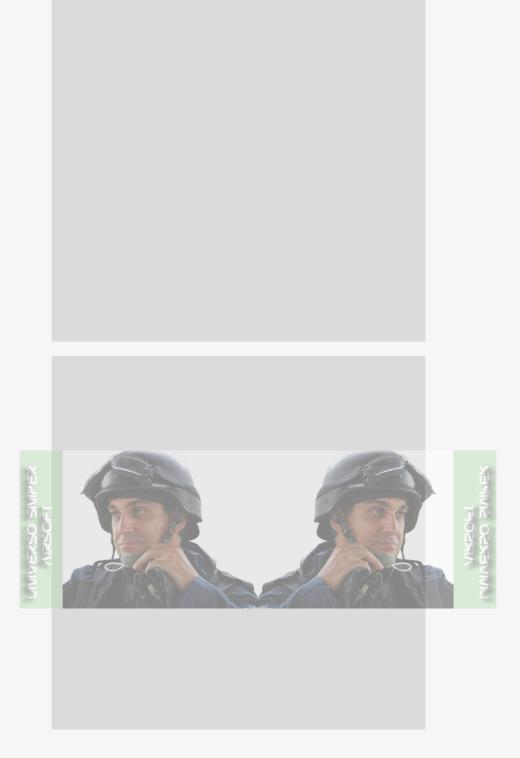
16. Close the gearbox. Tighten at least three screws.



17. Connect the unit to GCS using a USB cable and a USB-Link or Blu-Link (do not solder the Deans-T connector yet).



18. Go to **General**. While moving the gear, observe what happens with the gear sensors and Full Section Gear and Half Section Gear icons.

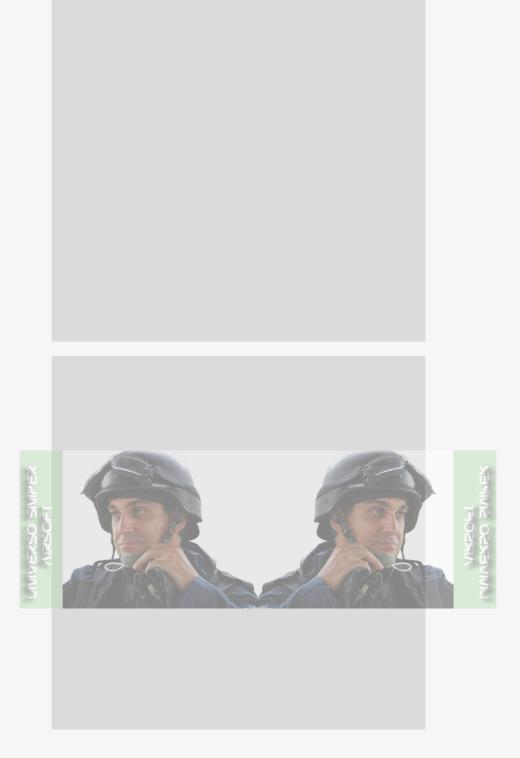






19. Test the bolt catch sensor by moving the lever up and down. Observe what happens with the BOLT CATCH SENSOR icons. Depending on the position of the lever, the icons will flash alternately.











20. If both sensors are working flawlessly, you can assemble the gearbox. Do not use too much grease. In a critical situation, excessive grease may cover a sensor.

21. Modify the selector plate. Use solvent to clean the selector plate. Next, take the stickers shown in the picture below. Take the small sticker (selector sticker) and stick it on the flat surface shown below.



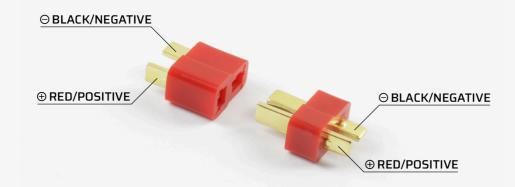
23. The wires in the buffer tube have to be placed according to the photos below.





#### ▲ Warning

Pay attention to correctly solder positive and negative TITAN wires to the connector. Otherwise, after plugging in the battery, reverse battery polarity will cause immediate damage to the device, which is not covered by the warranty and can lead to fire, burn or even battery explosion.





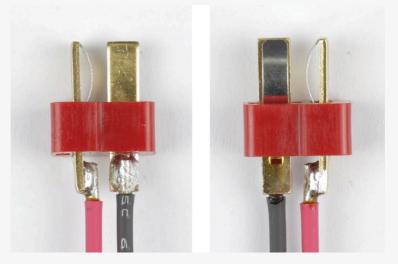
24. Place the heat-shrink tube on the wire, cover the connector with a thin layer of solder. (Always use flux or rosin during soldering, especially when solder melts. This is necessary to achieve the correct connection.)



25. Have a look at the connection and check if it is done properly. Pay attention while soldering – it should fill the soldered space correctly and the solder cannot be oxidized. Remove excess rosin from the connection.



26. Repeat the procedure with the black (negative) wire.

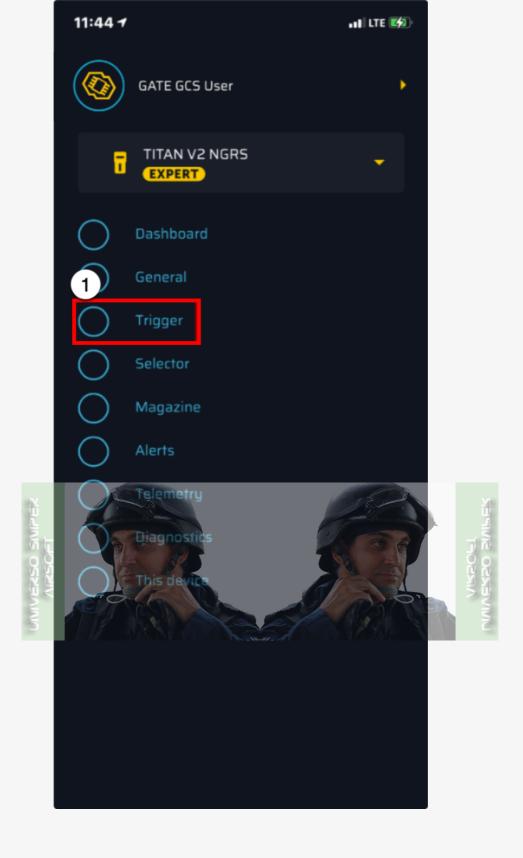


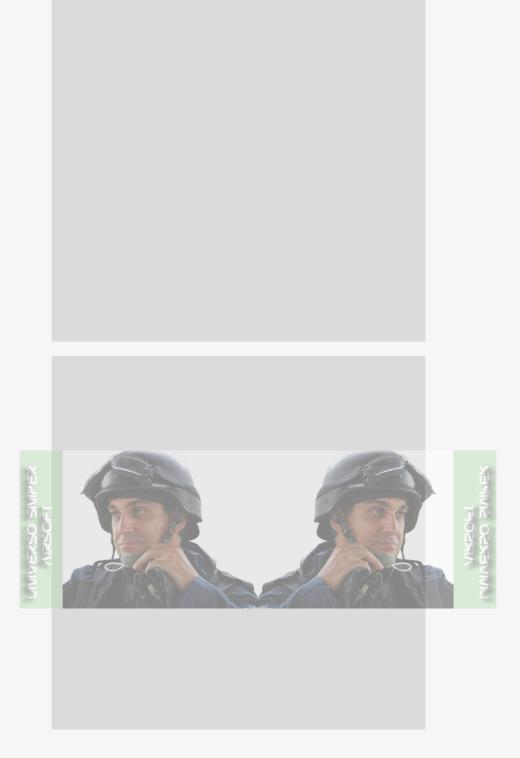
27. Prepare the heat-shrink tubes and close them. Heat each heat-shrink tube carefully from all sides. Do it over the flame of a gas range or lighter.



28. If your gun is completely assembled, perform sensor calibration. Go to **Trigger** in GCS and calibrate it.





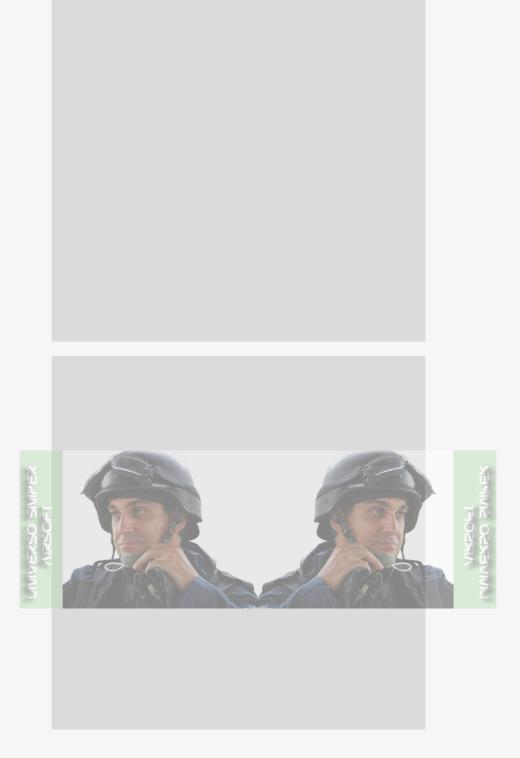


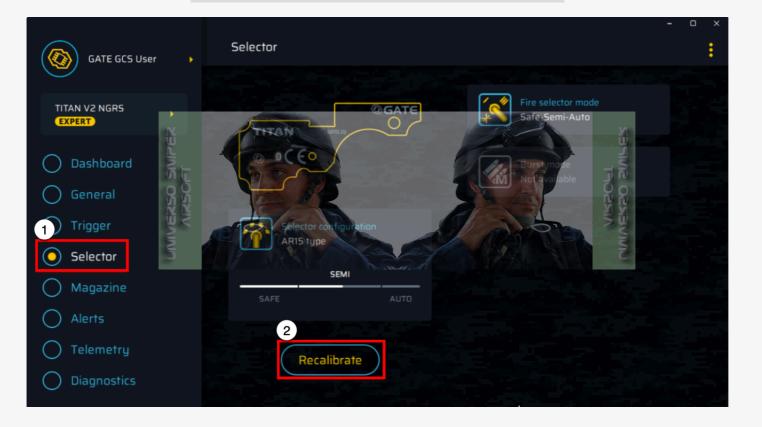




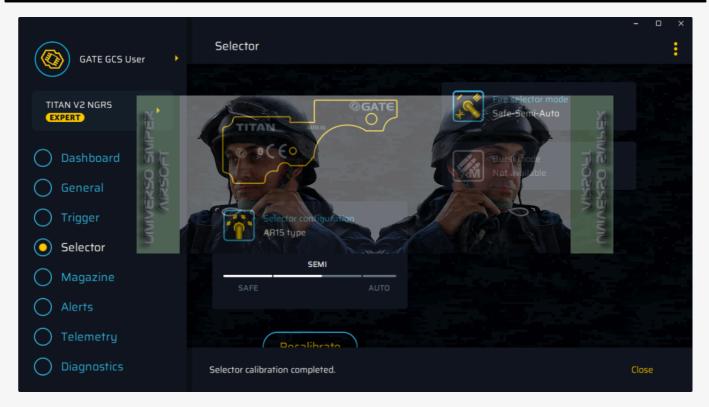


29. Then go to **Selector** and calibrate it.





| 3 Fire selector mode<br>afe-Semi-Auto                                        |  |
|------------------------------------------------------------------------------|--|
| Selector calibration Please select your desirable selector type of available |  |
| AR15 SCAR                                                                    |  |
| Cancel                                                                       |  |
|                                                                              |  |
|                                                                              |  |



After successful calibration your AEG is ready to use.

# Legal Notice

Please read the Legal Notice before operating your device and keep it for future reference. This document contains important terms and conditions with respect to your device. By using this device, you accept these terms and conditions.

### **Exclusion of Liability**

GATE Enterprise sp. z o.o. sp. k. are not liable for any damages, injuries or accidents of any kind resulting from the use of this product or airsoft gun with the product installed, including (but not limited to) incidental or special damages to airsoft gun, airsoft gun parts, batteries and gearbox internals.

### Disclaimer

GATE Enterprise sp. z o.o. sp. k. takes no responsibility regarding compliance of the product with the requirements of any law, rule or airsoft restrictions pertaining thereto.

### Intellectual Property

Intellectual Property owned by GATE Enterprise sp. z o.o. sp. k., including but not limited to, devices, accessories, parts, software, documentation, is proprietary to GATE Enterprise sp. z o.o. sp. k. and protected under Polish laws, EU laws, and international treaty provisions. You may not violate the rights of the Intellectual Property and you will not prepare derivative works of or reverse engineer the device or software. No ownership in the Intellectual Property is transferred to you.

## GATE Limited Warranty Policy

GATE Enterprise sp. z o.o. sp. k. warrant that its Product is free from manufacturing and material defects at the date of purchase and for a period of two (2) years from the date of purchase and it is nonextendable. This Limited Warranty is conditioned upon proper use of Product by Purchaser.

This Limited Warranty is valid provided that the owner provides a proof of purchase and properly completed warranty form.

This Limited Warranty does not cover: (a) defects or damage (e.g. mechanical, thermal or chemical) resulting from accident, misuse (misinterpretation of the instructions), abuse, neglect, unusual physical, electrical or electromechanical stress, water immersion, repairs or structural modification of any part of Product, or (b) the Product that has its serial number removed or made illegible; (c) defects or damage from improper operation, maintenance or installation, (d) installation of the products.

Requests for warranty are processed as soon as possible, not exceeding seven (7) working days. The company's obligation under this Limited Warranty shall be limited to providing replacement of parts only.

#### **Product Disposal Instructions**

The symbol shown here means that the product is classified as Electrical or Electronic Equipment and should not be disposed with other household and commercial waste at the end of its working life. The Waste of Electrical and Electronic Equipment (WEEE Directive 2012/19/EU) has been put in place to recycle products using best available recovery and recycling techniques to minimize the impact on the environment. Purchasers shall take any old electrical equipment to waste recycling public centres or points of sale.



## Certificate of Conformity

GATE Enterprise sp. z o.o. sp. k. hereby declare under our sole responsibility that the products GATE TITAN V2, TITAN V3 and TITAN V2 NGRS are in conformity with the essential requirements of the following Directives: 2011/65/EU, 2014/30/EU, 2014/35/EU, 2001/95/WE.



# **Technical Specifications**

The design and production of the device is based on harmonized standards.

|                                         | TITAN V2              | TITAN V3              | TITAN V2 NGRS         |
|-----------------------------------------|-----------------------|-----------------------|-----------------------|
| Supply Voltage Range                    | 3.75-17 V             | 3.75-17 V             | 3.75-17 V             |
| Current Consumption                     | 24 mA                 | 22 mA                 | 33 mA                 |
| Low Power Mode                          | 280 µA                | 320 µA                | 320 µA                |
| Dimensions<br>(Length x Width x Height) | 47.4 x 28.7 x 13.5 mm | 79.0 x 25.8 x 13.5 mm | 67.5 x 32.4 x 13.5 mm |
| Finished Product Weight                 | 27.6 g                | 28.2 g                | 28.2 g                |
| Operating Temperature Range             | min15°C max. + 50°C   | min15°C max. + 50°C   | min15°C max. + 50°C   |
| Relative Humidity                       | ≤ 80%                 | ≤ 80%                 | ≤ 80%                 |

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🖒 Le gusta a 1 personas