User Manual – TITAN II Bluetooth® EXPERT for V2 GB [AEG]

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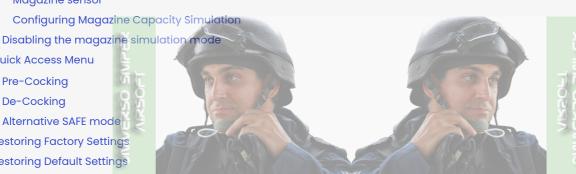
Bluetooth® Trademark Attribution

Product Compliance

Declaration of Conformity

Product Compliance Regarding the Use of the BGM220S Module

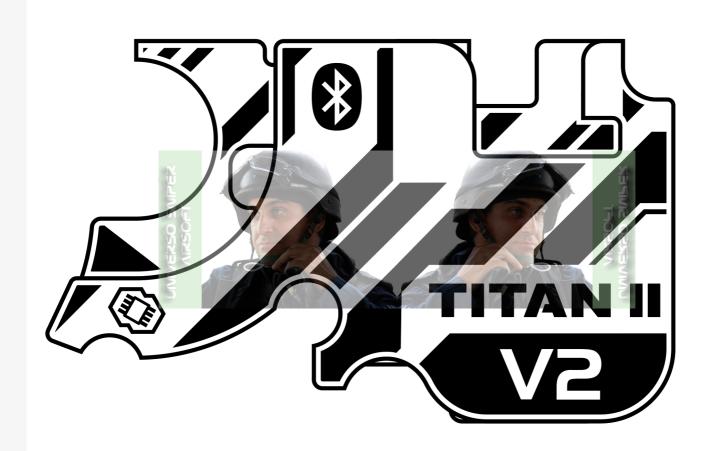
• Stay tuned with GATE





TITANI



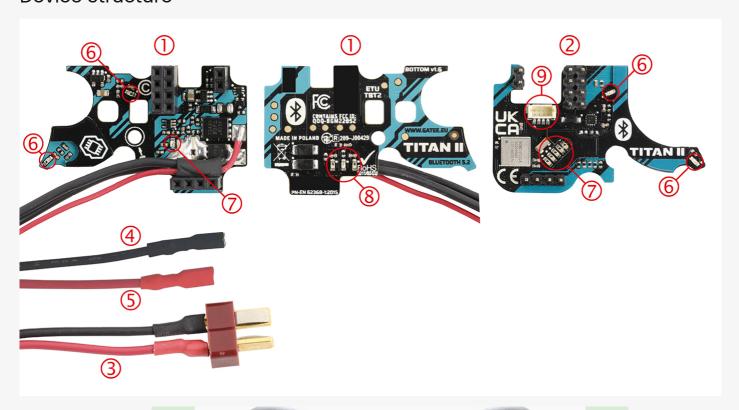


General Information

Congratulations on your new TITAN II Bluetooth® V2 gearbox drop-in ETU mosfet AEG – our flagship optical Electronic Trigger Unit (ETU), replacing mechanical contacts in the replica. TITAN II Bluetooth® that turns your AEG into a future-proof advanced training weapon. Make no compromises and utilize years of experience of hundreds of thousands of users around the world, proving TITAN II Bluetooth® to be the best choice for advanced and professional players. Built-in Bluetooth® 5.2 gives you direct access to TITAN II Bluetooth® settings, AEG telemetry, and the ability to use a smartwatch, STATUS as well as other future parts of the GATE Ecosystem.

- ① The information contained in this document is subject to change without notice.
- i Read carefully before use. Keep for future reference.
- i Failing to read this information may void the guarantee!

Device Structure





- 2. TOP PCB (printed circuit board)
- 3. Circuit power wires with JST connector
- 4. JST to DEANS-T adaptor
- 5. Main solenoid valve power supply
- 6. Sector gear position sensors
- 7. Trigger sensor
- 8. Fire selector sensor
- 9. Multifunctional port

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.



Situations that may cause injury to yourself or others.

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

⊘ Note

Notes, usage tips or additional information.

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.

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

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

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.

Marning

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

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

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.

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

Excessive trigger sensitivity may cause unintentional discharge (firing).

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

▲ Warning

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

▲ Warning

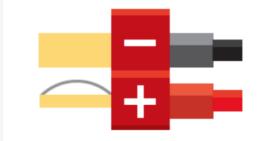
When not in SAFE mode, avoid using the device around strong electromagnetic fields, such as PMR transmitters exceeding European standards or when electrostatic discharges, e.g. lightning, occur in the atmosphere, which may cause malfunction of the device and unintentional discharge (firing).

Warning

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

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.

Pay attention to correctly connect positive and negative wires to the battery. Make sure you are connecting the positive terminal of the battery to the red wire of the device, and the negative terminal of the battery is connected to the black wire of the device. Incorrect power polarity may result in damage to the device and could even lead to fire or battery explosion.



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

Caution

Do not swap TITAN II Bluetooth® 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.

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 II Bluetooth® to direct sunlight for long periods of time. Keep away from dust or sand, which can cause malfunctions and/or excessive wear. Keep TITAN II Bluetooth® 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.

✓ Note

Bluetooth 4.0 or higher is required to connect to TITAN II Bluetooth® with a smartphone or other device.Installation

Installation

Introductory information

Caution

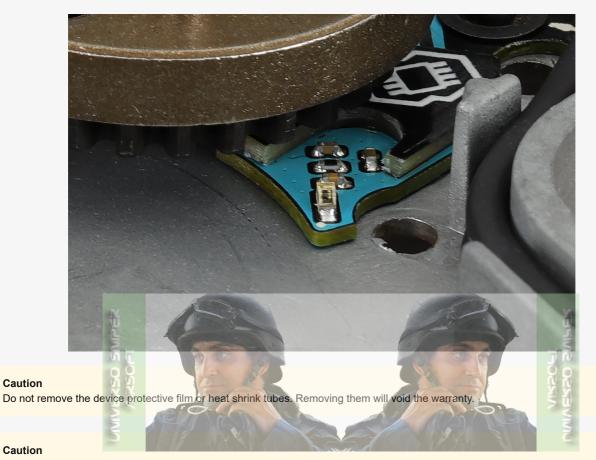
Regardless of your previous experience, follow all safety precautions to prevent any damage to your TITAN II Bluetooth®.

TITAN II Bluetooth® 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 II Bluetooth® 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.

- YouTube

⊘ Note

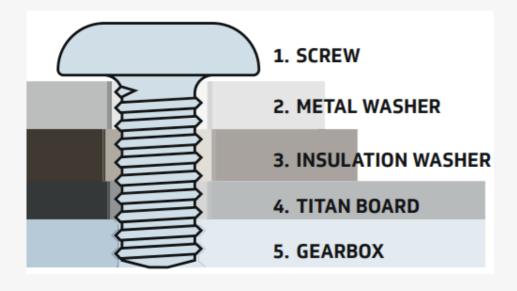
In TITAN II Bluetooth®, the trigger and gear sensors are protected from mechanical damage and are covered by a warranty.

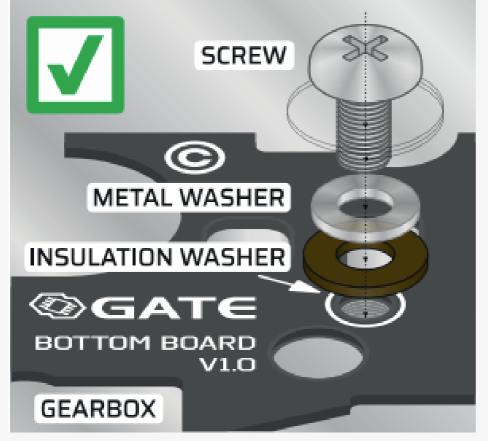


Caution

Caution

We recommend using an insulation washer when placing the BOTTOM board in the gearbox. When fastening the board, place the washers according to the graphic below.







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





In TITAN II Bluetooth® 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.



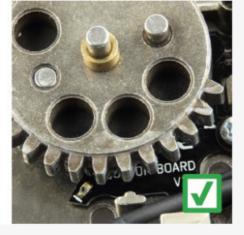
⊘ Note

TITAN II Bluetooth® does not support infinite torque-up gears.

⊘ 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.





For triggers that have adjustable pivot, first adjust the range of trigger movement using the screws, only then calibrate the trigger.

⊘ Note

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



⊘ Note

Sticker position is crucial. Make sure to align it exactly **to the left edge and the top red line**. The INSTALLATION KIT 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.



⊘ Note

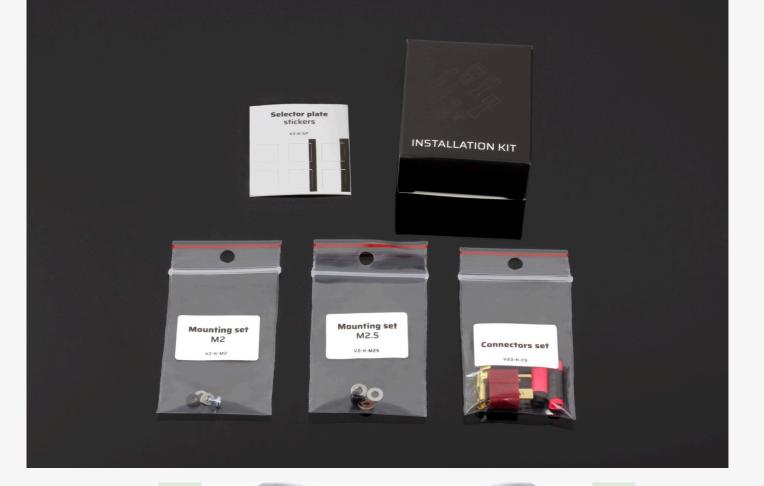
In case you have any difficulties while installing or using this product:

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

Installation of the unit in the gearbox

INSTALLATION KIT Contents

- selector plate sticker set (6 pcs)
- M2 screw and washer set:
 - 1x 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
 - 2 x motor connectors (2.8 x 0.5 mm 0.11 x 0.02 in) with heatshrink tubes



Tools and Materials Needed

- · a cross-head screwdriver
- · a flat-blade screwdriver
- · a metal file or milling machine
- solvent / petroleum ether
- grease
- smartphone/tablet with the GCS app installed

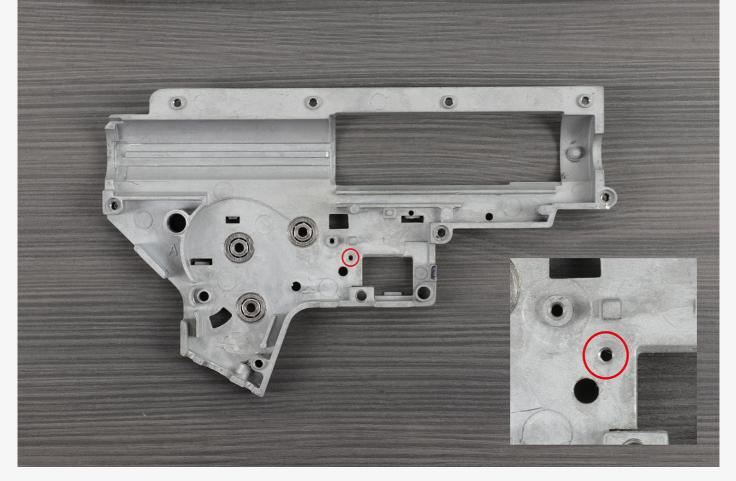
Installation procedure

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

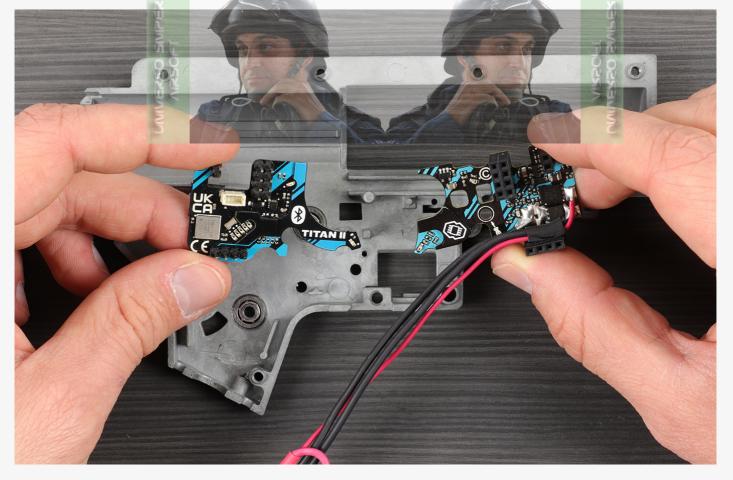
- 1. Remove the gearbox from the AEG body
- 2. Disassemble your gearbox and take out all the internals
- 3. Clean the gearbox case using solvent
- 4. Pay attention to the marked area. If you see that it is not smooth, use a metal file or grindstone to prepare the surface. The gearbox surface should be smooth, with no sharp edges which may damage TITAN II Bluetooth®.

Caution

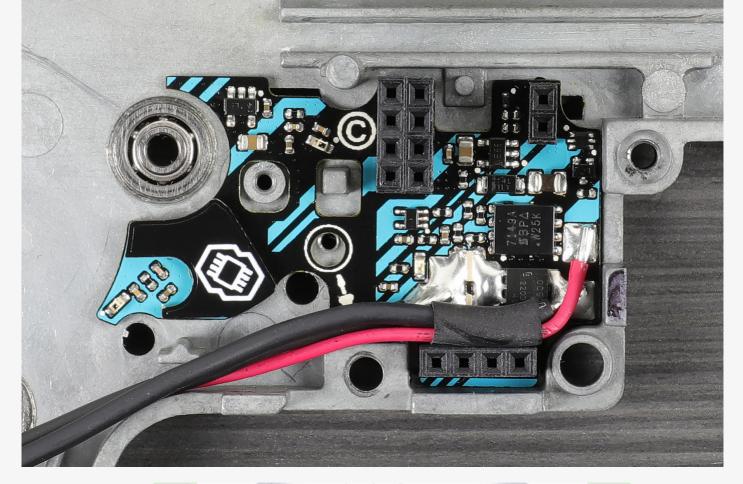
If the PCB does not perfectly fit in your shell, make the necessary modifications to the gearbox shell, **not to the PCB**. It is forbidden to make any modifications to the PCB shell such as drilling the screw hole, grinding the edges of the PCB, etc. Doing so may result in immediate damage to the circuit,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



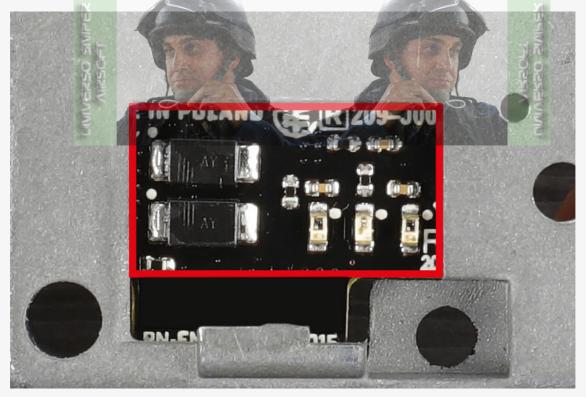
5. Carefully separate the TOP and BOTTOM boards of the TITAN II Bluetooth® unit from each other.



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

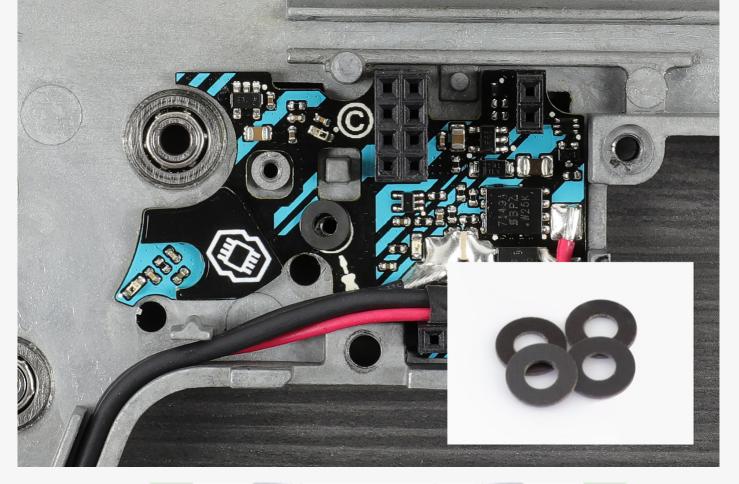


7. Make sure that the electronic components found on the side of the fire selector board do not touch the gearbox case.

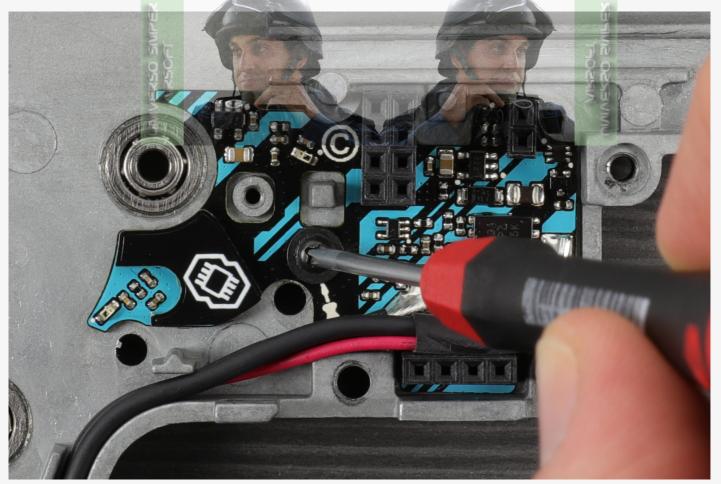


8. Use the (black) insulation washer from the INSTALLATION KIT.

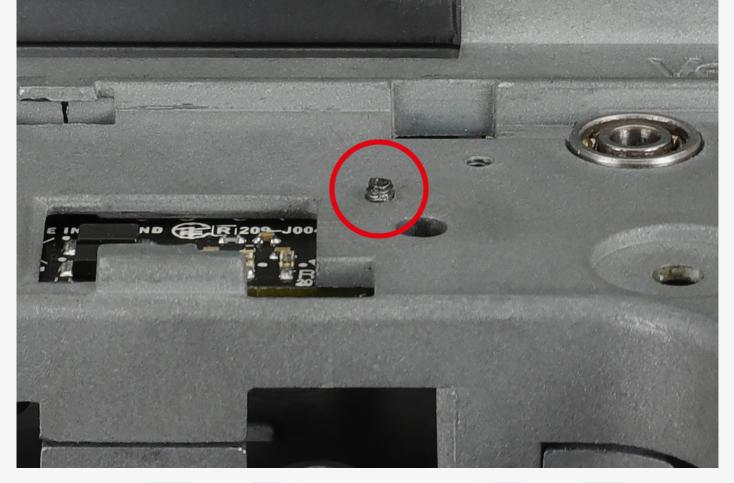
The insulation washer must protect the circuit board. The metal screw and the metal washer cannot touch the board directly as this can result in a short circuit and TITAN II Bluetooth® damage, which is not covered by warranty.



9. Fasten the bottom board to the case. Use the original screw or the appropriate one from the INSTALLATION KIT.



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



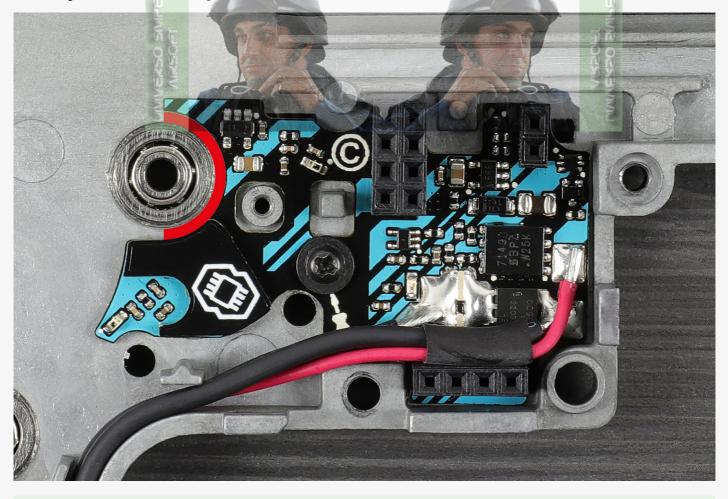
11. If so, add the metal washer(s) included in the kit. Make sure that the metal washer is placed between the screw and the insulation washer. It cannot be touching the circuit board directly.



12. Check that the TOP board of the TITAN II Bluetooth® unit fits into the gearbox without any collisions with its structure. The geometry of the TITAN II Bluetooth® allows the use of a mechanical bolt-catch lever. However, due to the different types of this solution depending on the manufacturer of the replica, it is necessary to pay attention to whether the solution used in your replica does not interfere with the PCB of the system before assembling the gearbox. Read more about compatibility here: Is TITAN/ASTER compatible with KWA gearboxes?

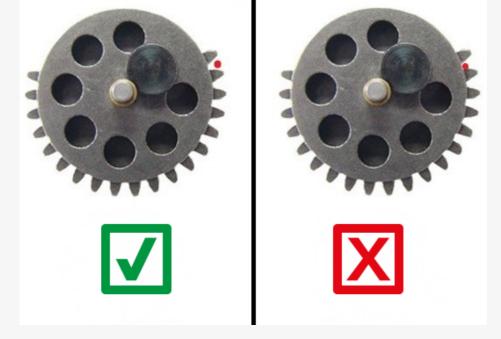


13. Loosen the screw. Adjust the position of the BOTTOM TITAN II Bluetooth® unit board. The distance between the PCB and the bearing must be the same throughout (as indicated in the marked area).

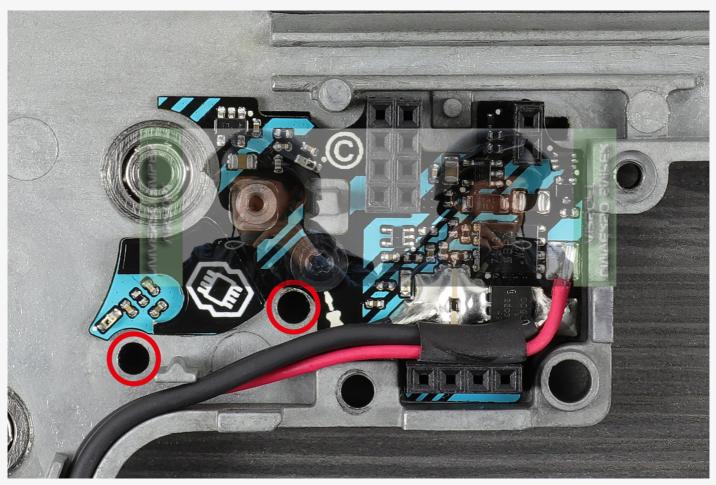


⊘ Note

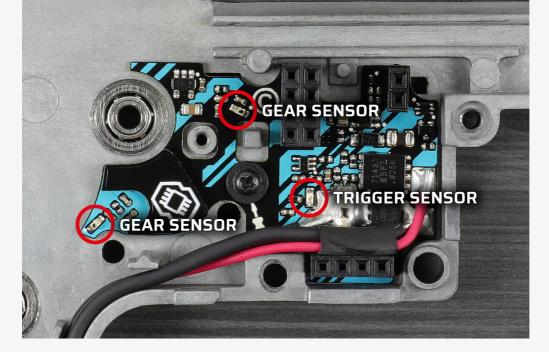
Sector gear sensor placement is very important. The red dot in the graphic below reflects the location of the gear sensor's photoelements.



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.



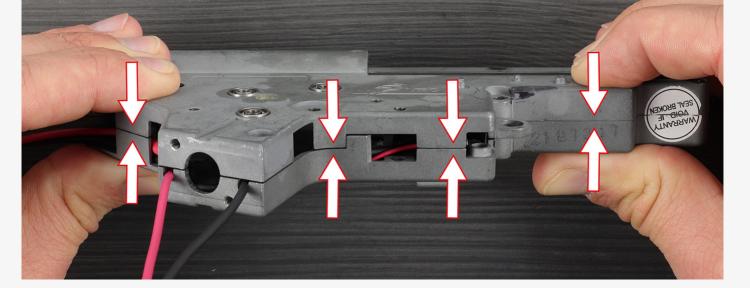
16. Some gearboxes need modification. Check if your gearbox has the marked pins. If so, remove them.



Modification may also be required for the element indicated below. If its height exceeds 0.9 mm, it is necessary to grind it down so that it does not exceed the mentioned value along its entire length.



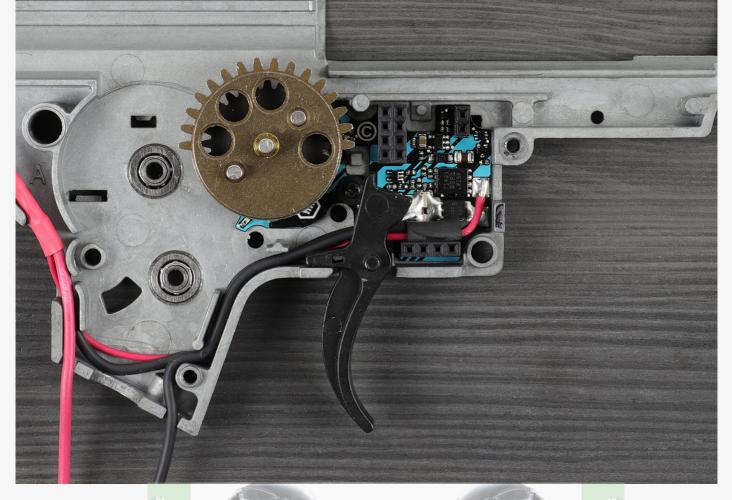
17. Check if both parts of the gearbox fit together perfectly.



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



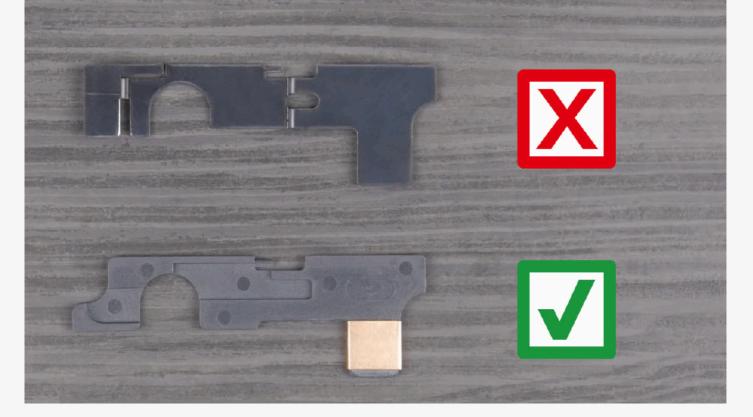
19. Mount the sector gear, the trigger with the spring, and the TOP TITAN II Bluetooth® board. Make sure that the gear is not touching TITAN II Bluetooth®.



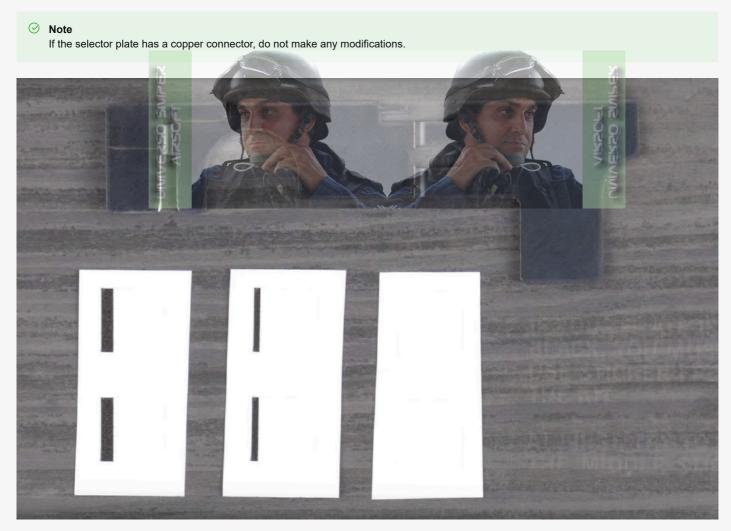
- 20. If you intend to use accessories such as bolt-catch or magazine sensor, go to this section: Installation of Accessories. However, please note that if the sensors are trigger and selector sensors, they must be configured before configuring the engine itself. Install accessories before closing the gearbox and return here.
- 21. 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.



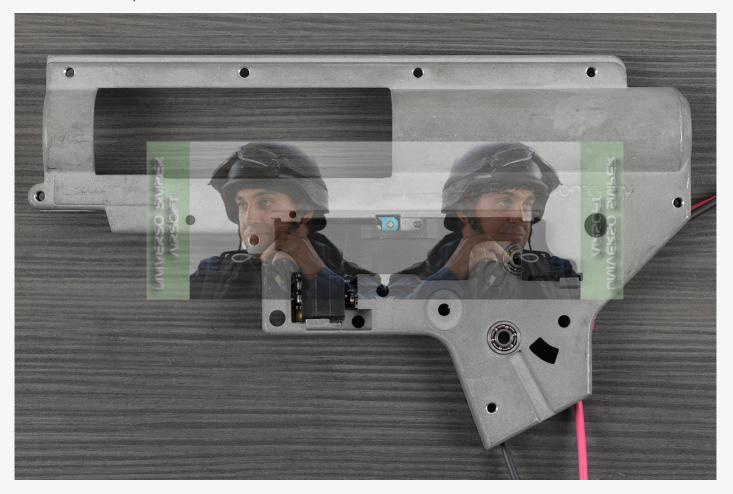
22. In order to modify the black plate, use a sticker from the INSTALLATION KIT. Try the sticker with the thinner black line first.



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



24. Install the selector plate.

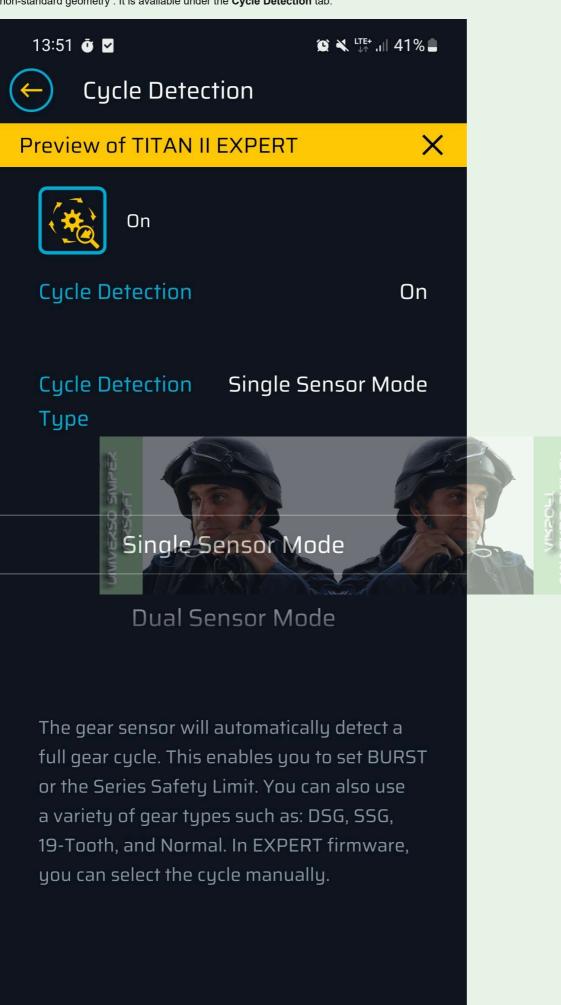


25. Connect TITAN II Bluetooth® to your device:

- 1. Download and install the GCS app on your device $\, \, \otimes \, \,$ GATE CONTROL STATION .
- 2. Start **Bluetooth**® communication on your device
- 3. Connect the battery to TITAN II Bluetooth®
- 4. Launch the GCS app and confirm all the required approvals
- 5. Tap "+" on the **Dashboard** of the app
- 6. In the list of devices, locate your TITAN II Bluetooth®. If it is not found, drag the screen down to refresh or tap **Refresh Scan**
- 7. Enter the **PIN** code found on the included stickers
- 8. Update the TITAN II Bluetooth® firmware
- 9. It is recommended to restore the factory settings after each firmware update
- 10. Choose the type of replica you want to use AEG or HPA

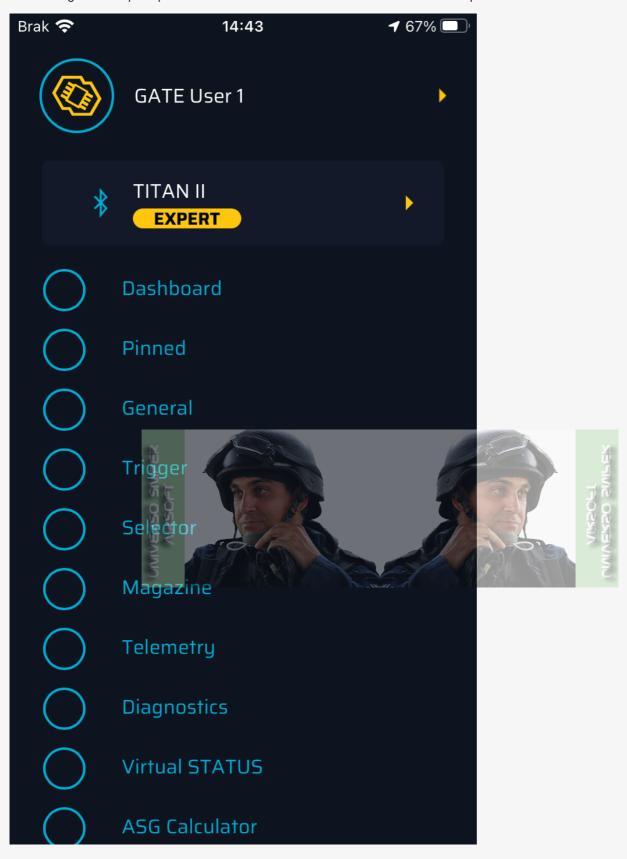


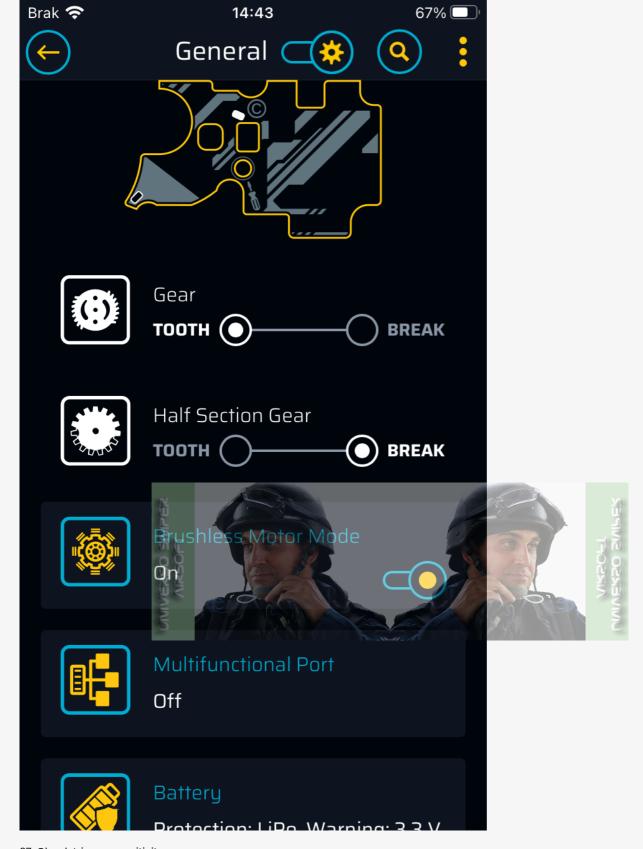
KWA replicas equipped with a 2.5+/3+ gearbox require the Single Sensor Mode setting for correct TITAN operation due to the gearbox's non-standard geometry . It is available under the Cycle Detection tab.



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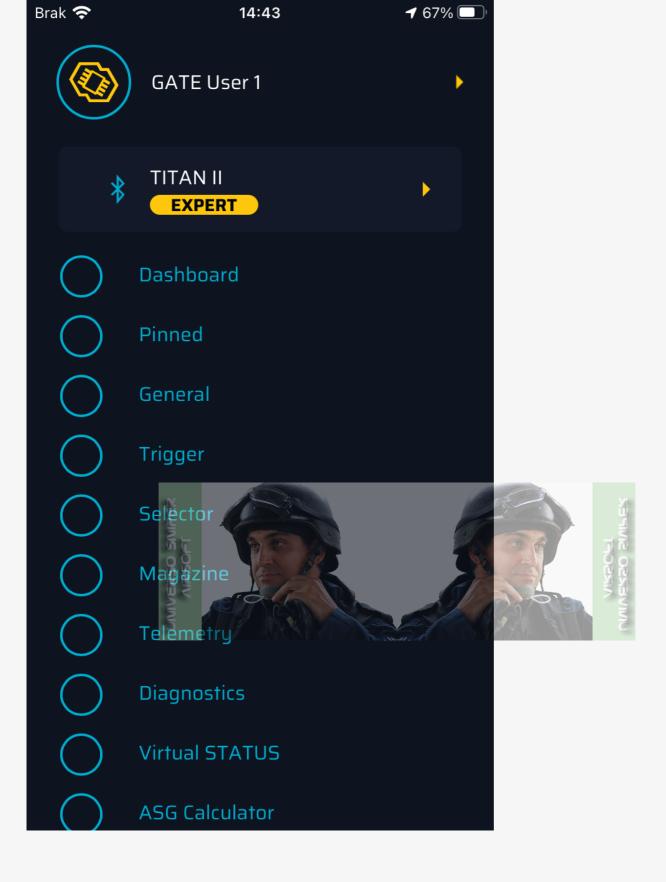
Rotate the gears slowly. Keep in mind that TITAN II Bluetooth® reads the sensors much quicker than GCS.

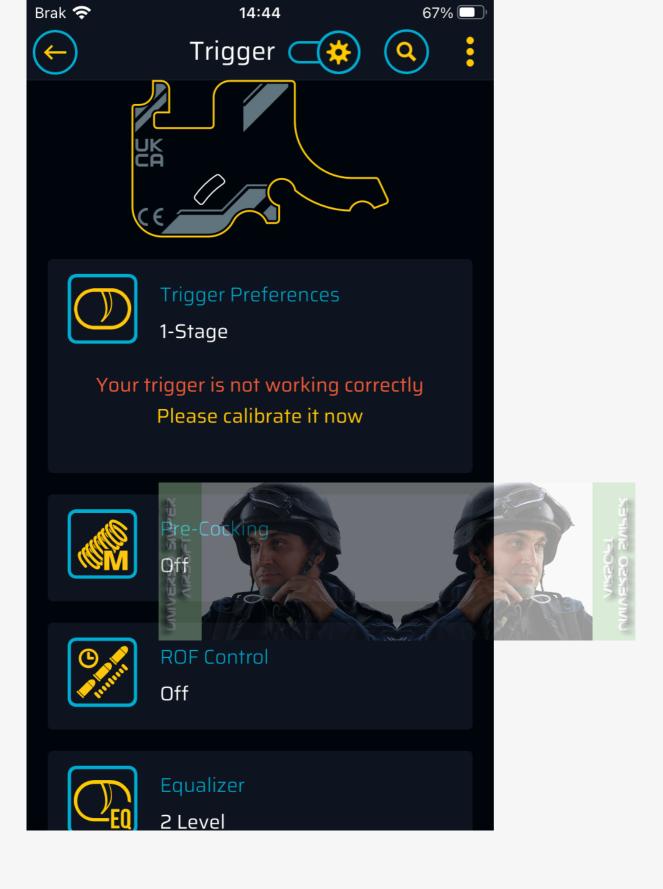




27. Check trigger sensitivity:

In GCS, go to the **Trigger** tab. Perform the first trigger calibration.



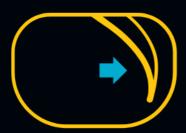






Calibration

Correct calibration is crucial. Generally, you only need to calibrate the trigger once, however, should an issue occur, you can always recalibrate it.



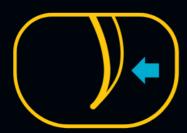




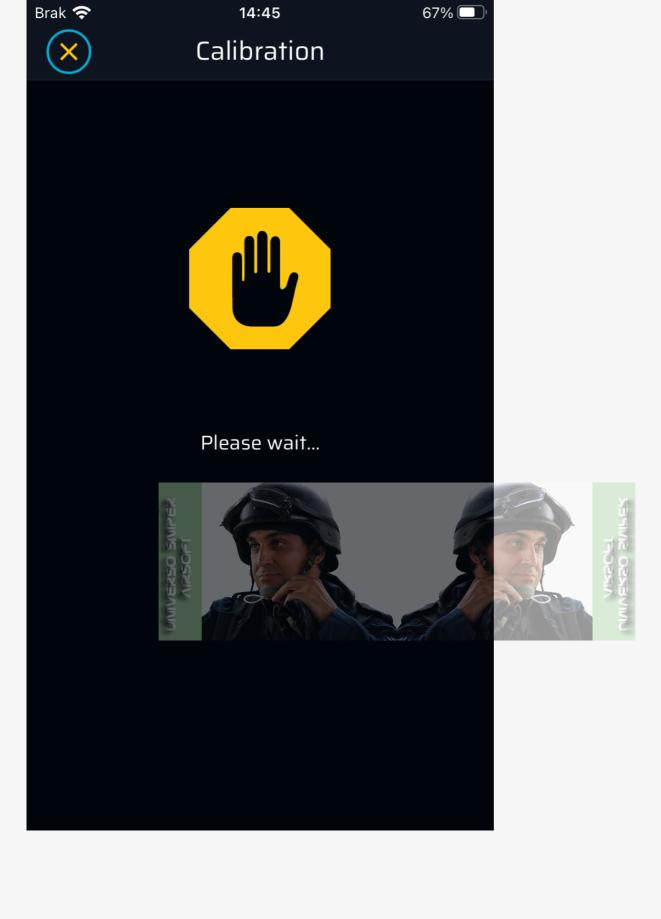


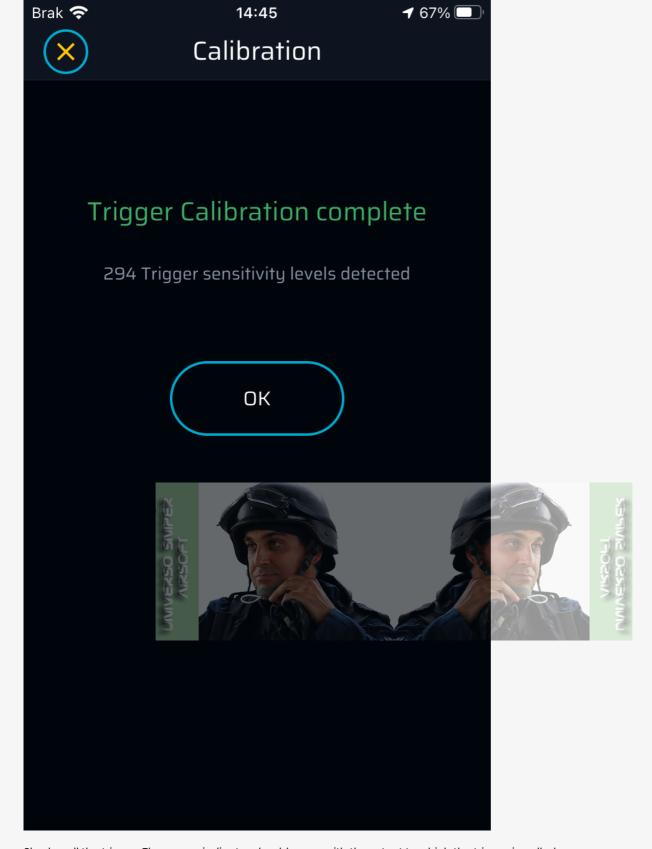
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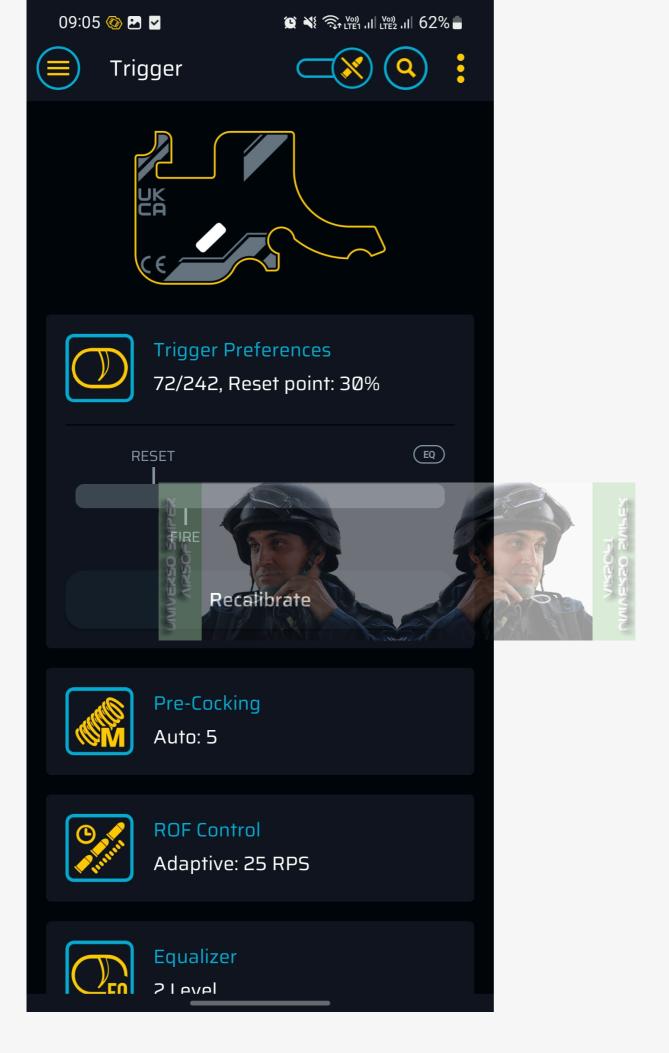


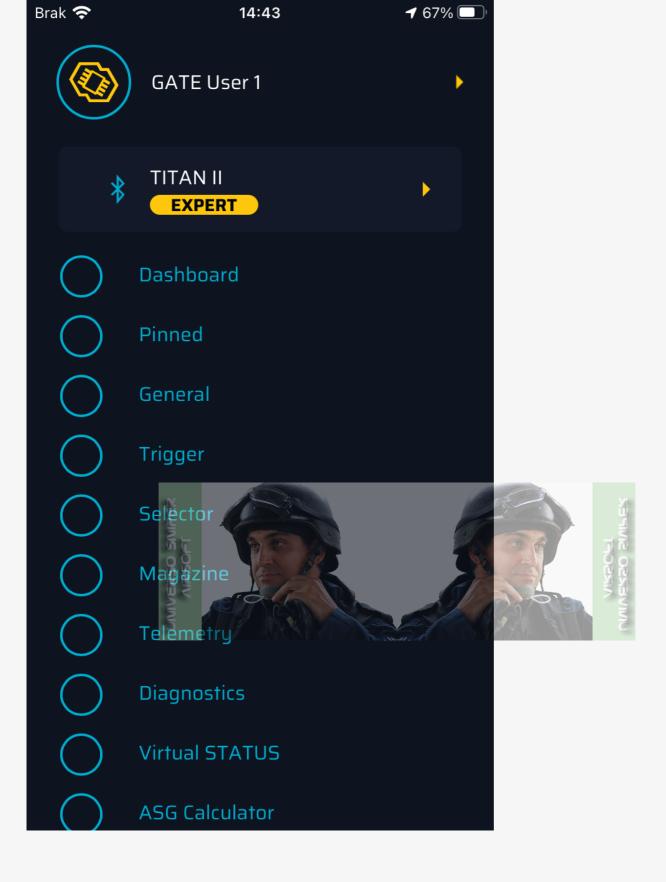


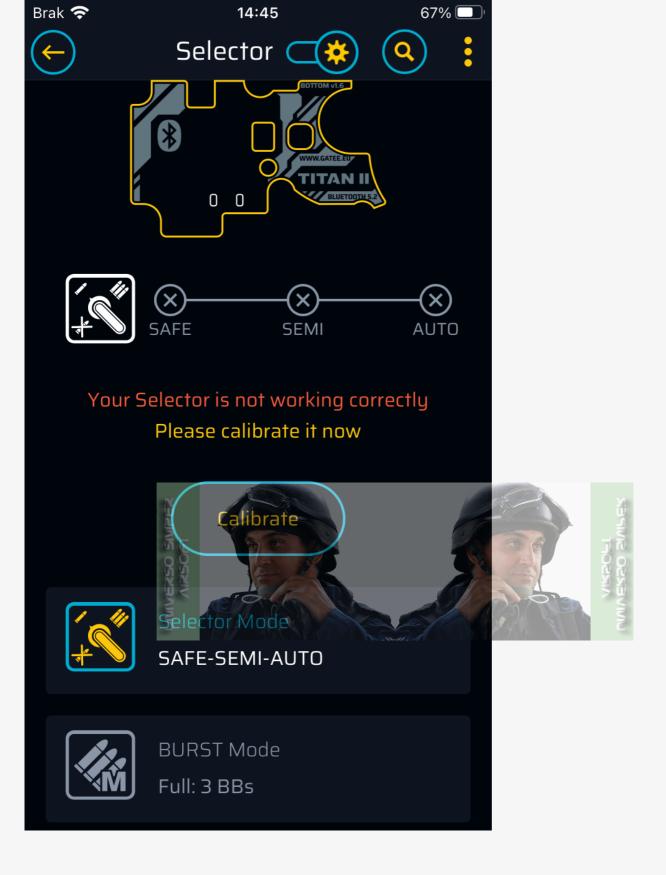


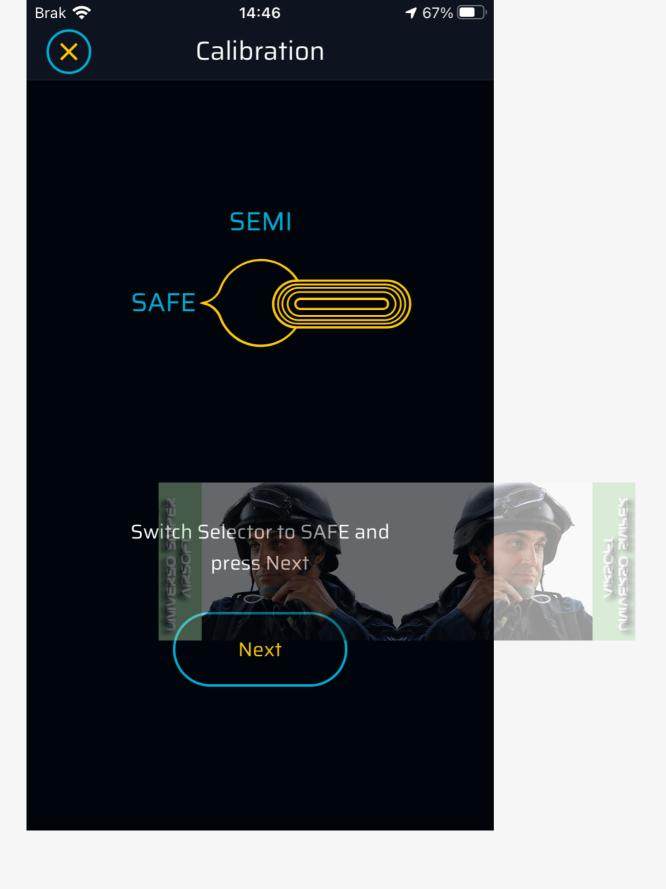


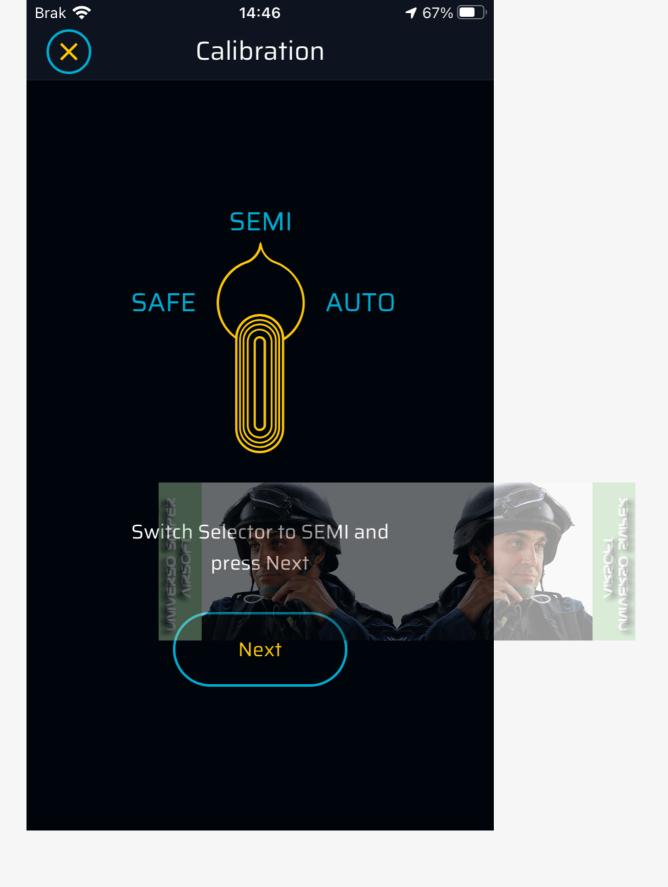
Slowly pull the trigger. The sensor indicator should move with the extent to which the trigger is pulled.

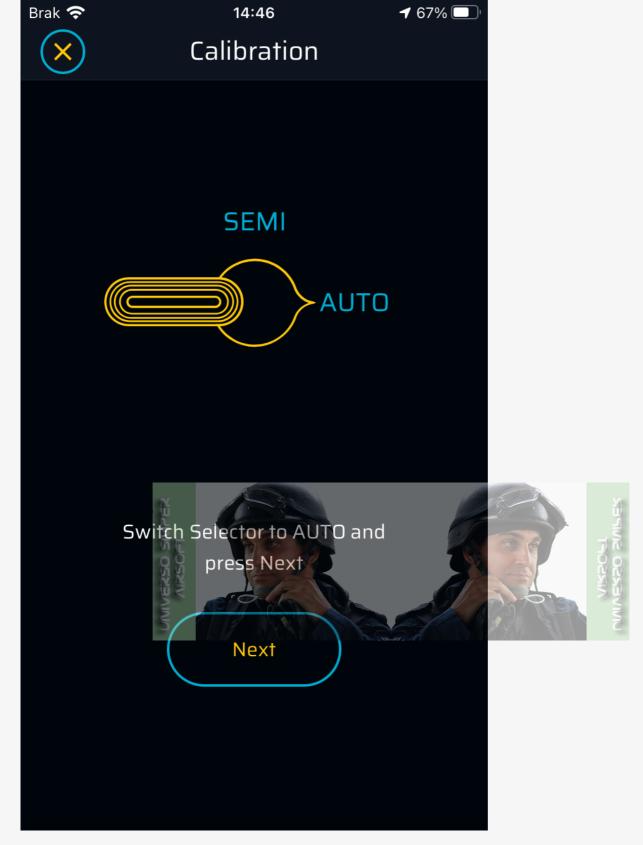




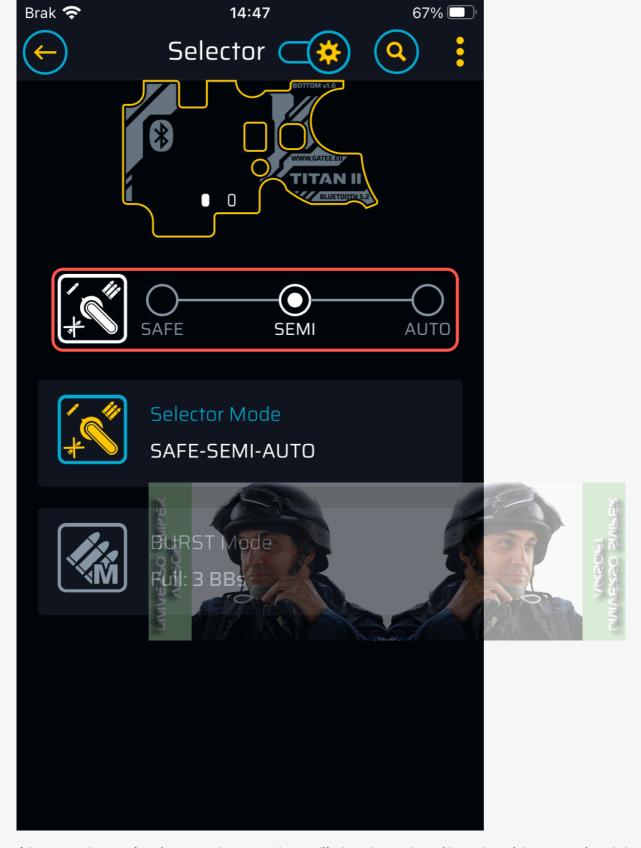








Move the selector plate to see if TITAN II Bluetooth® detects SAFE, SEMI and AUTO. You will notice changes in the marked areas.



If the sensor does not function correctly, you need to modify the selector plate with another sticker as mentioned above in steps 21-23 and shown below:



29. 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.

Caution

After assembling the entire replica, recalibrate the trigger and selector sensors.

⊘ Note

Pierwsze kilka strzałów to strzały kalibracyjne. TITAN II Bluetooth® dostosowuje się do konfiguracji gearboxa. Aby ponownie dostosować TITAN II Bluetooth®, musisz przywrócić ustawienia fabryczne. Jest to konieczne, jeśli np. gdy wymieniasz silnik.

Installation of Accessories

⊘ Note

Please note that in the case of dual solenoid engines, it is not possible to connect any extra devices requiring a power supply such as an electric magazine or BB tracer.

Bolt-Catch button

The Bolt-Catch button with cable for TITAN II Bluetooth® V2 gearbox drop-in FCU mosfet HPA is a separate accessory that is not included. To connect the button to TITAN II Bluetooth®, follow these steps:

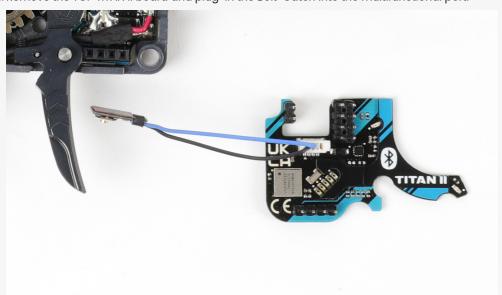
1. Prepare your gearbox for accessory installation. Lay the gearbox flat on a stable surface as shown in the following photo.



2. If possible, remove the piston spring before unscrewing the gearbox screws. Otherwise, unscrew the gearbox screws and carefully remove the cover making sure that the spring does not shoot out of the gearbox.



3. Remove the TOP TITAN II board and plug-in the Bolt-Catch into the multifunctional port.



4. Connect the TOP board of TITAN II Bluetooth® unit with the BOTTOM board. Run the wires from the bolt-catch button out of the gearbox as shown in the following photo.



5. Close the gearbox shell, and make sure that the gearbox shell does not pinch the bolt-catch cables as this might cause permanent damage to the accessory.



6. Remove the protective film from the tape being careful not to damage the adhesive layer.

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7. Degrease the bolt-catch lever and stick the button in the place shown in the photo.



Magazine Sensor

The magazine sensor with cable for the TITAN II Bluetooth® V2 gearbox drop-in ETU mosfet AEG is a separate accessory that is not included. To connect the sensor to TITAN II Bluetooth®, follow these steps:



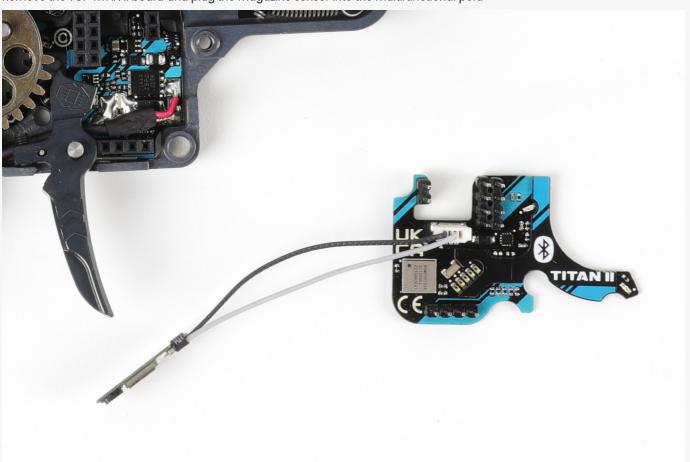
1. Prepare your gearbox for accessory installation. Lay the gearbox flat on a stable surface as shown in the following photo.



2. If possible, remove the piston spring before unscrewing the gearbox screws. Otherwise, unscrew the gearbox screws and carefully remove the cover making sure that the spring does not shoot out of the gearbox.



3. Remove the TOP TITAN II board and plug the magazine sensor into the multifunctional port.



4. Connect the TOP board of TITAN II Bluetooth® unit with the BOTTOM board. Run the wires from the magazine sensor out of the gearbox as shown in the following photo.



5. Close the gearbox shell, please make sure that the gearbox shell does not pinch magazine sensor cables as this might cause permanent damage to the accessory.





7. Degrease the gearbox in the place of gluing and stick the magazine sensor in the place shown in the photo. Align the plate to the bottom of the gearbox.



Magazine Compatibility

The magazine sensor only supports magazines with a completely flat top surface. Magazines with longer side panels may not work properly. If you have such magazines, here is a solution to ensure compatibility with the sensor. Stick a 2 mm shim on the lower surface of the magazine, which will make the sensor work correctly.

Installation of the Divider for connecting many accessories

The Divider with cable for the TITAN II Bluetooth® V2 gearbox drop-in ETU mosfet AEG is a separate accessory that is not included. To connect the divider to TITAN II Bluetooth®, follow these steps:

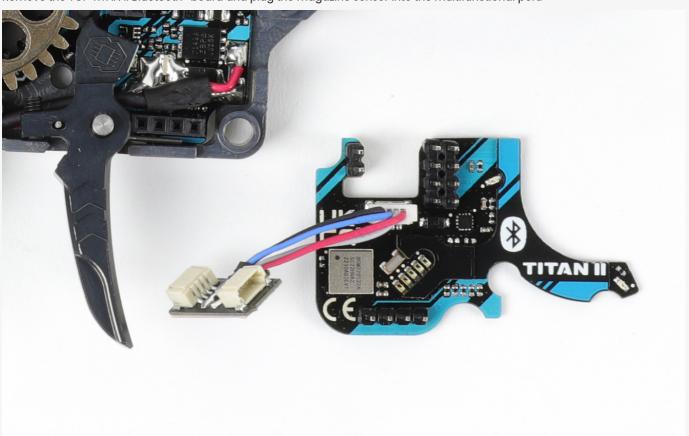
1. Prepare your gearbox for accessory installation. Lay the gearbox flat on a stable surface as shown in the following photo.



2. If possible, remove the piston spring before unscrewing the gearbox screws. Otherwise, unscrew the gearbox screws and carefully remove the cover making sure that the spring does not shoot out of the gearbox.



3. Remove the TOP TITAN II Bluetooth® board and plug the magazine sensor into the multifunctional port.

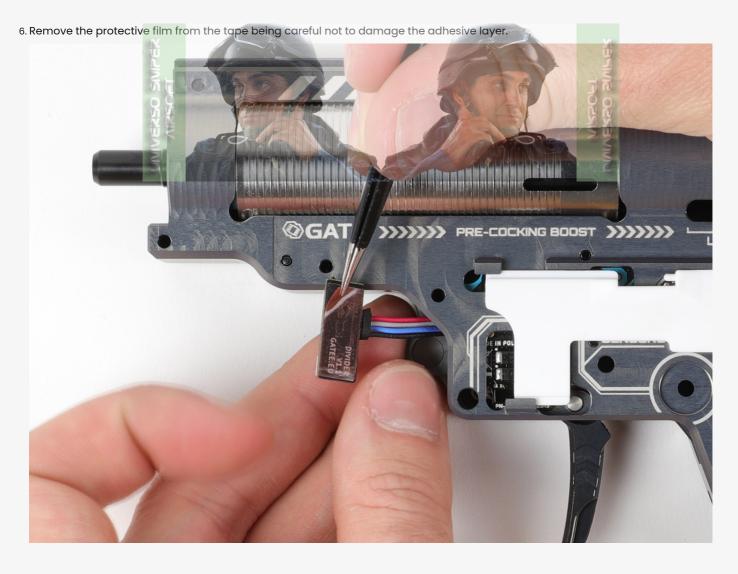


4. Connect the TOP board of TITAN II Bluetooth® unit with the BOTTOM board. Run the wires from the magazine sensor out of the gearbox as shown in the following photo.

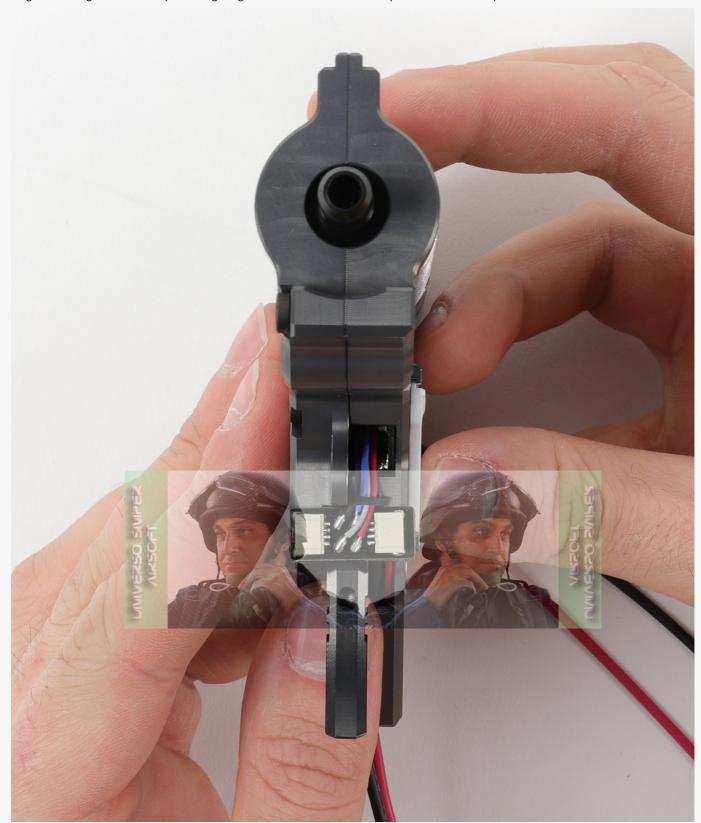


5. Close the gearbox shell, please make sure that the gearbox shell does not pinch the divider cables as this might cause permanent damage to the accessory.





7. Degrease the gearbox in the place of gluing and stick the divider in the place shown in the photo.



Connecting Accessories Requiring Power



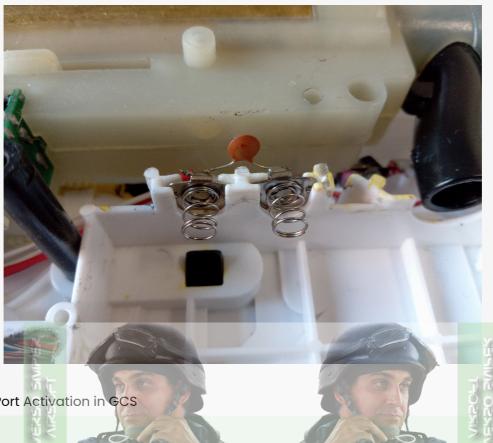
Please note that in the case of dual solenoid engines, it is not possible to connect any extra devices requiring a power supply such as an electric magazine or BB tracer.

Connecting accessories that require power can be done via the Universal DIY Power supply cable (GEL BLASTER / Electric Magazine / Tracer) for TITAN II Bluetooth® to TITAN II Bluetooth®. The cable can be connected directly to the I/O port, and on the TITAN II Bluetooth®, however, we recommend connecting the cable via a Divider ready for connecting many accessories - 1x power supply and 2x multifunctional for TITAN II Bluetooth® to TITAN II Bluetooth® for convenience in the later assembly and disassembly of the replica. Solder the free ends of the cable according to the polarity to the wires or power fields of the accessory.

Caution

Once connected to the I/O port, accessories can only be powered through this I/O port. The previous power source must be disconnected. The voltage flowing from the unit is equal to the voltage of the battery connected to it while the maximum current consumption can be 6 A.

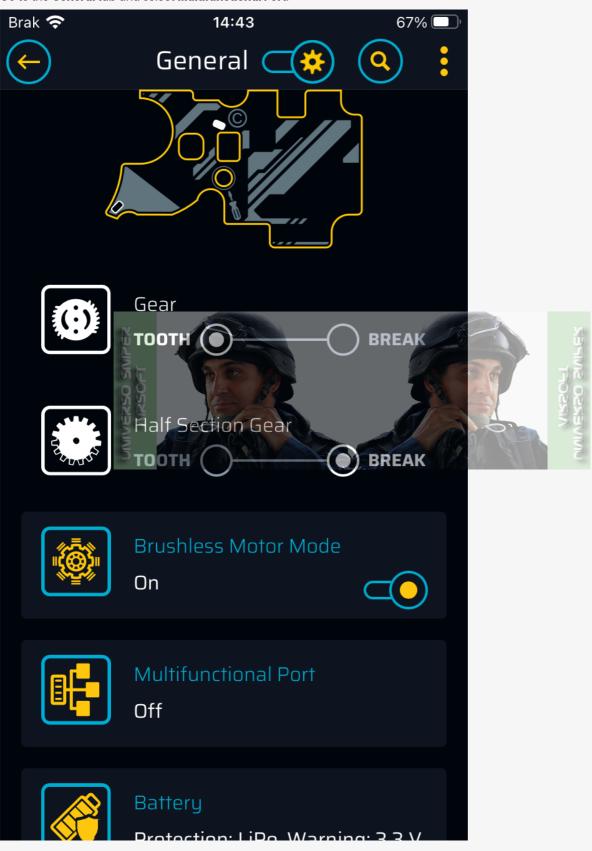
In some magazines, there may be a problem manifested by the fact that they are still powered by the circuit when the trigger is released. If this is the case, solder the supplied capacitor into the circuit so that one lead of the capacitor is soldered to the negative supply wire and the other to the positive supply wire. The place where the capacitor is soldered can be anywhere depending on the room in the replica. When powering Gel Blaster magazines, we recommend soldering it directly to the contacts in the magazine socket.



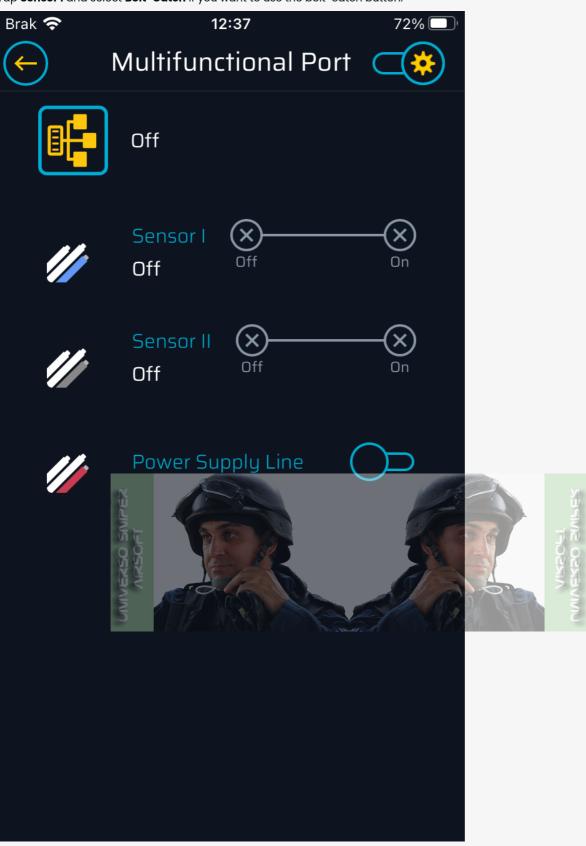
Multifunctional Port Activation in GCS

An external trigger and selector can be connected to the Multifunctional Port.

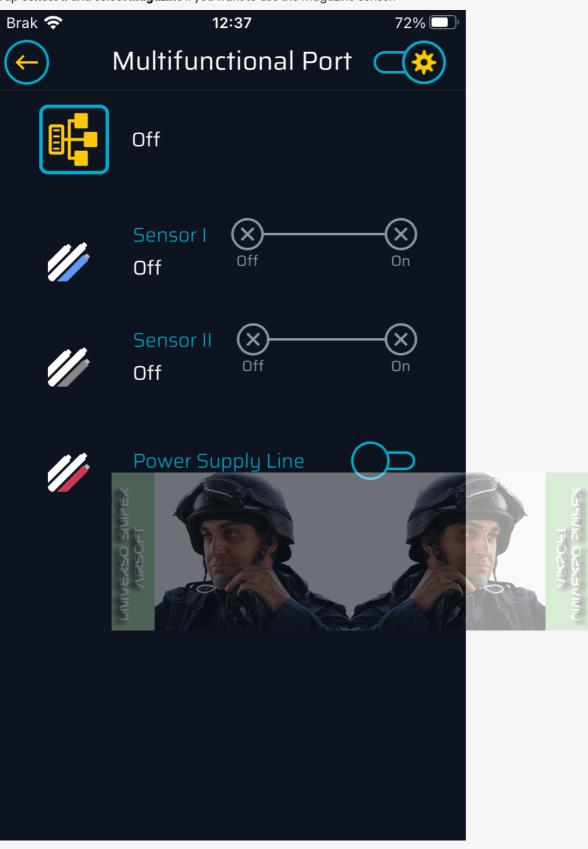
- 1. Download and install the GCS app on your device $\, \, \otimes \,$ GATE CONTROL STATION .
- 2. Start **Bluetooth**® communication on your device.
- 3. Connect the battery to TITAN II Bluetooth®.
- 4. Launch the GCS app and confirm all the required approvals.
- 5. Tap "+" on the **Dashboard** of the app.
- 6. In the list of devices, locate your TITAN II Bluetooth®. If it is not found, drag the screen down to refresh or tap **Refresh Scan**.
- 7. Enter the **PIN** code found on the included stickers.
- 8. Update the TITAN II Bluetooth® firmware.
- 9. Go to the **General** tab and select **Multifunctional Port**.



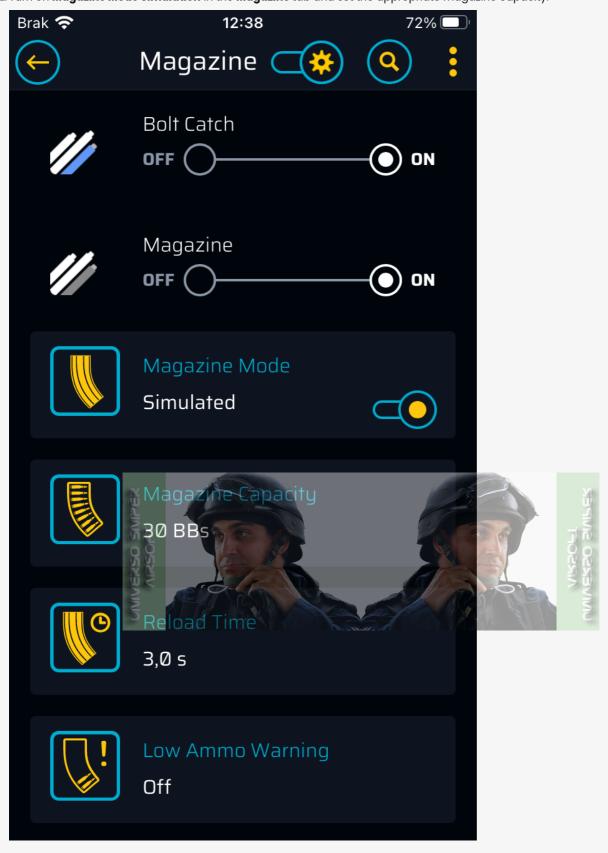
10. Tap **Sensor I** and select **Bolt-Catch** if you want to use the bolt-catch button.



11. Tap $\textbf{Sensor\,II}$ and select Magazine if you want to use the magazine sensor.



12. Turn on Magazine Mode Simulation in the Magazine tab and set the appropriate magazine capacity.



13. The bolt catch sensor and magazine sensor can act as an external trigger sensor and selector in custom replicas. You can also use a universal accessory cable and use buttons/switches as desired. Their installation, due to the variety of non-standard or custom replicas and the existing technical solutions in them, may strongly vary. Leave the design and process of such installation in the hands of a qualified person.

Configuring the Magazine and Bolt-Catch Sensor

You can configure the sensors in the Multifunctional Port tab

Bolt-Catch

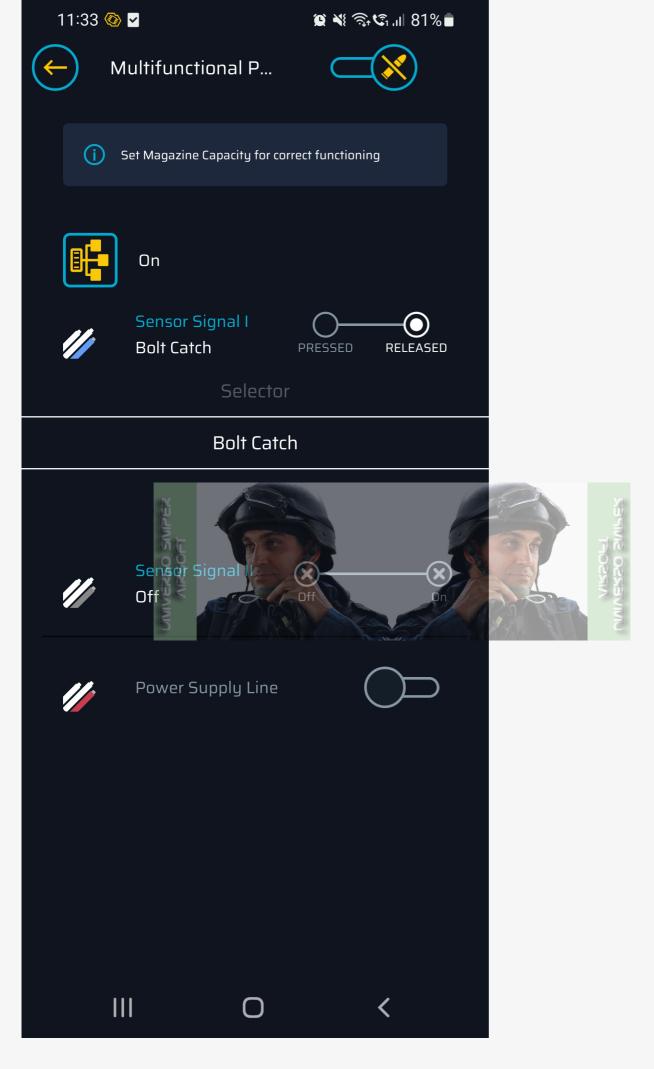
You can configure the sensors in the Multifunctional Port tab

Go to tab General>Multifunctional Port

In the **Multifunctional Port** tab, you can enable or disable the external sensors like **Bolt-Catch Sensor**, as well as check if the sensor is working properly.

- Tap the Sensor Signal I (marked blue)
- To enable the sensor select **Bolt-Catch**
- To turn off the sensor select OFF



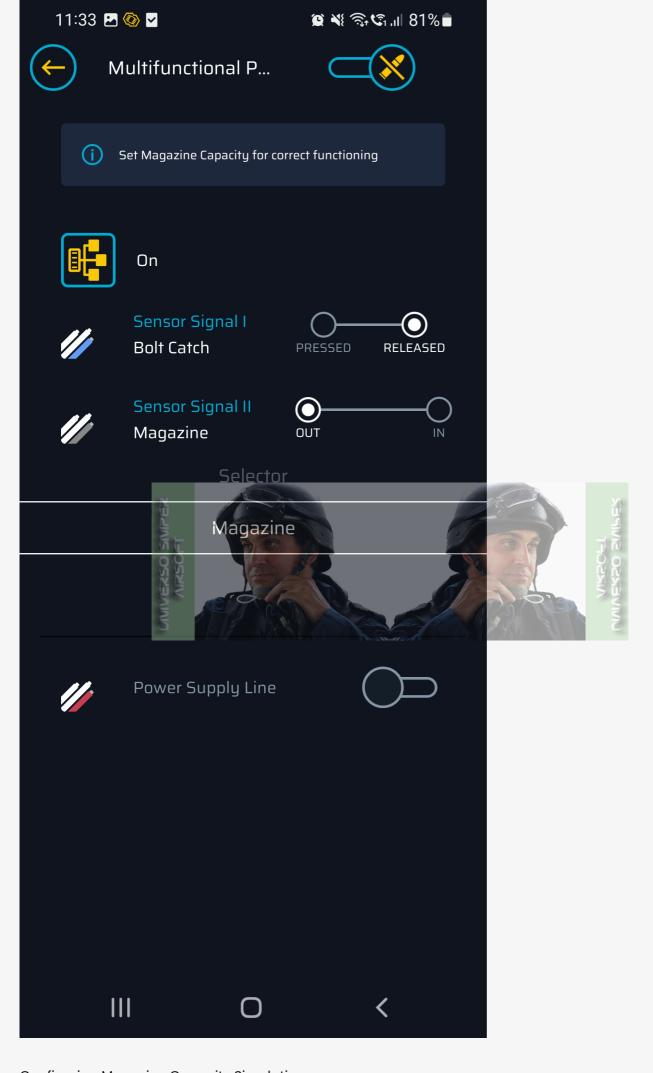


Go to **General>Multifunctional Port**

In the **Multifunctional Port** tab, you can enable or disable the external sensors like **Magazine Sensor**, as well as check if the sensor is working properly.

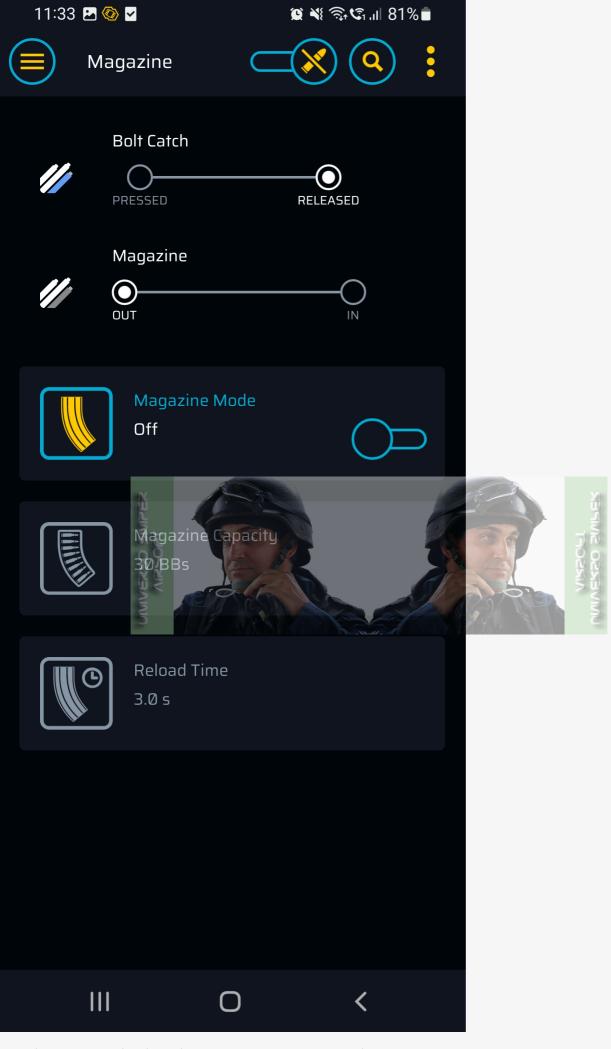
- Tap the Sensor Signal II (marked grey)
- To enable the sensor select **Magazine**
- To turn off the sensor select **OFF**

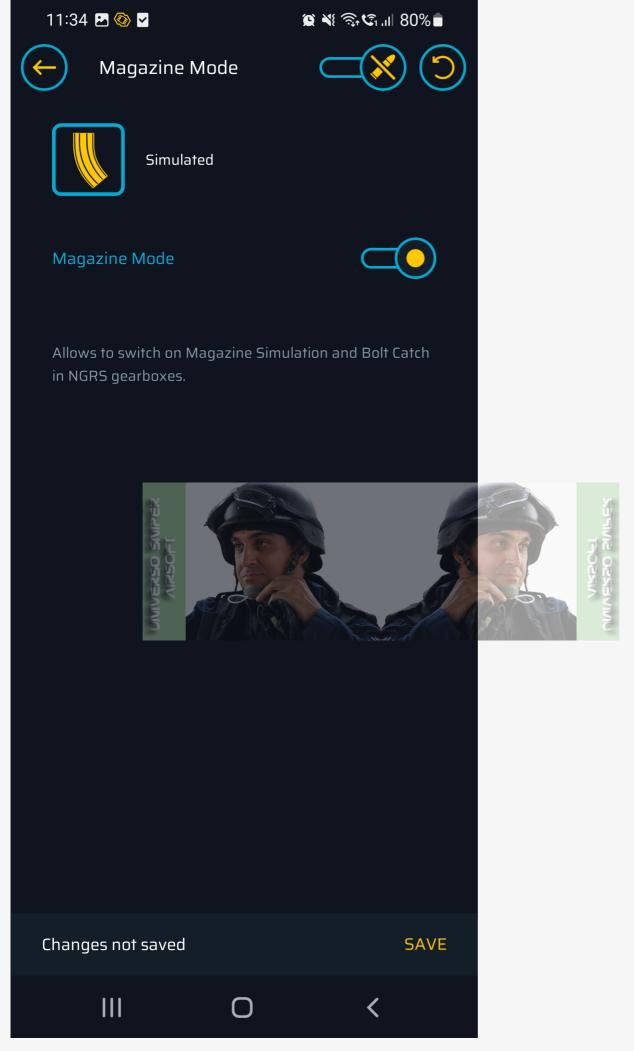


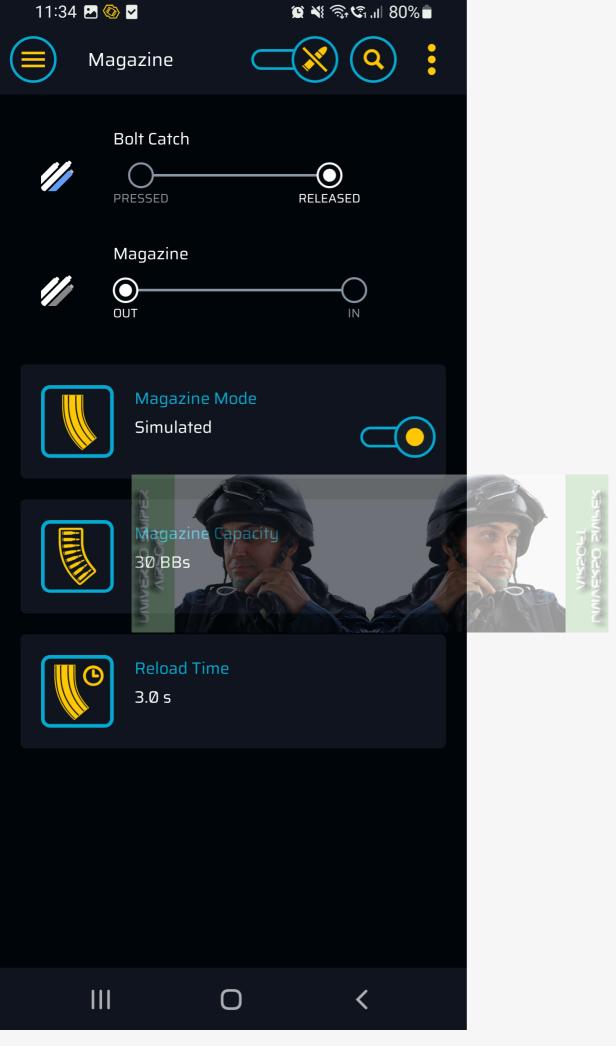


- Magazine mode means enabled or disabled magazine simulation mode and the need to reload the magazine
- Magazine Capacity here you can set the real or predefined number of BBs that are in the magazine and after which the replica will stop firing and you will need to reload it
- **Reload Time** the amount of time which prevents the replica from firing after emptying the magazine of a predefined number of BBs. Does not work when you have set the magazine and bolt-catch sensors. Represents the time needed to reload the replica after this time has elapsed, you can continue to fire.



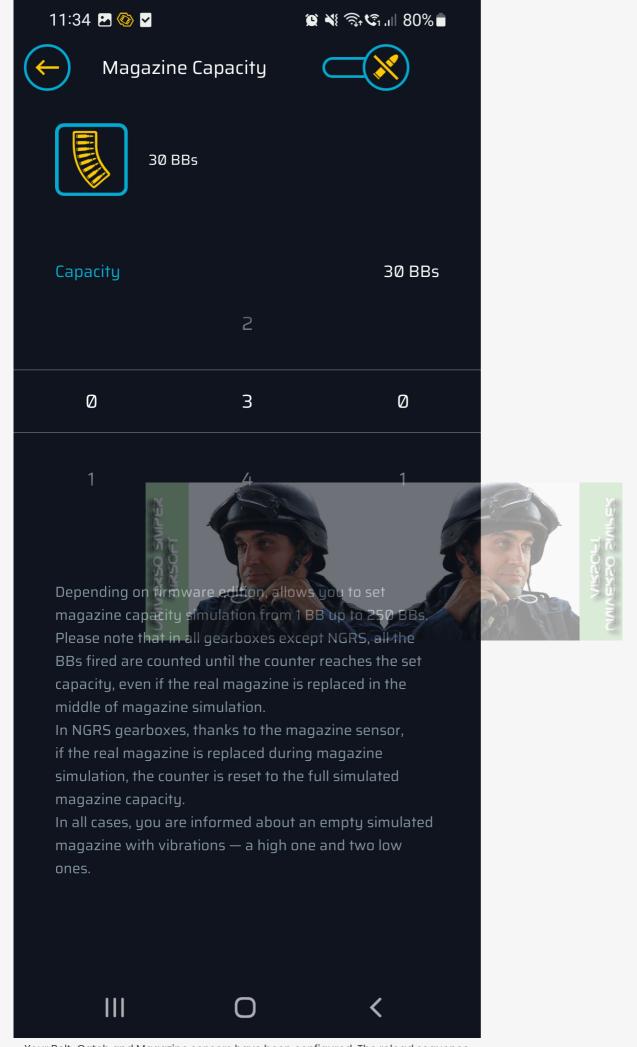






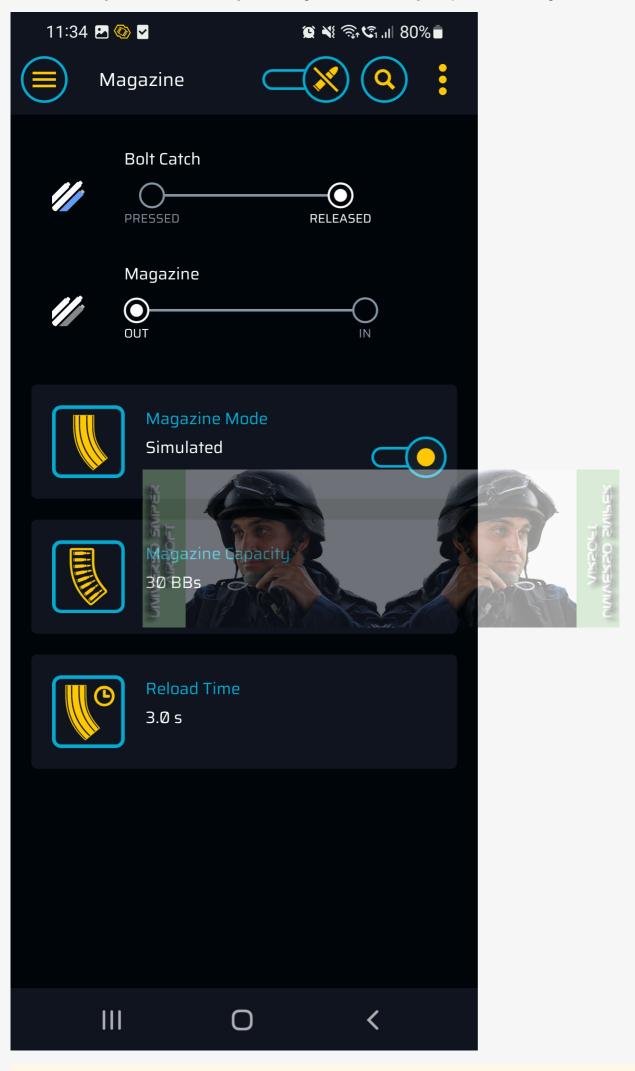
4. In the **Magazine Capacity** tab, set the number of BBs after which the replica will stop firing and a reload sequence will be required.

The reload time does not matter when using the magazine sensor and bolt-catch. It can be left at the default value.



Your Bolt-Catch and Magazine sensors have been configured. The reload sequence has been activated.

Disabling the magazine simulation mode

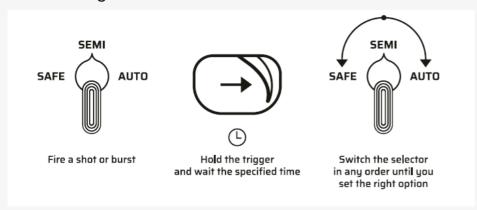


Disassembly should be carried out checking the position of the wires and the bolt-catch sensor at all times.

Please bear in mind that damage to the bolt-catch button and its wires is not covered by the warranty. If necessary, you can find spare parts at @ GATE Enterprise.

Quick Access Menu

Pre-Cocking



You can access **Pre-Cocking** using a shortcut without connecting the unit to the GCS app. In GCS, go to **Trigger>Pre-Cocking>Switch Mode via Selector** and use the toggle button to activate this function.

- 1. Fire a shot on SEMI, 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.

 Available options for Pre-Cocking

 Off

 Auto

 2

 Manual*

 3

Zwolnienie spustu powoduje wyjście z danej funkcji zatwierdzając ją.

*If defined in GCS

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.

Alternative SAFE mode

If the user has configured the selector so that SAFE mode is not assigned to any selector position, the user can activate SAFE mode at any time by doing the following:

- 1. Set the selector lever to SAFE
- 2. Change the selector position to SEMI
- 3. Return to SAFE position again.



Note that the above sequence must be performed within 0.5 s. Activation of SAFE mode will be confirmed by a short low tone vibration. The SAFE mode is deactivated when the fire selector position is changed.

Restoring Factory Settings

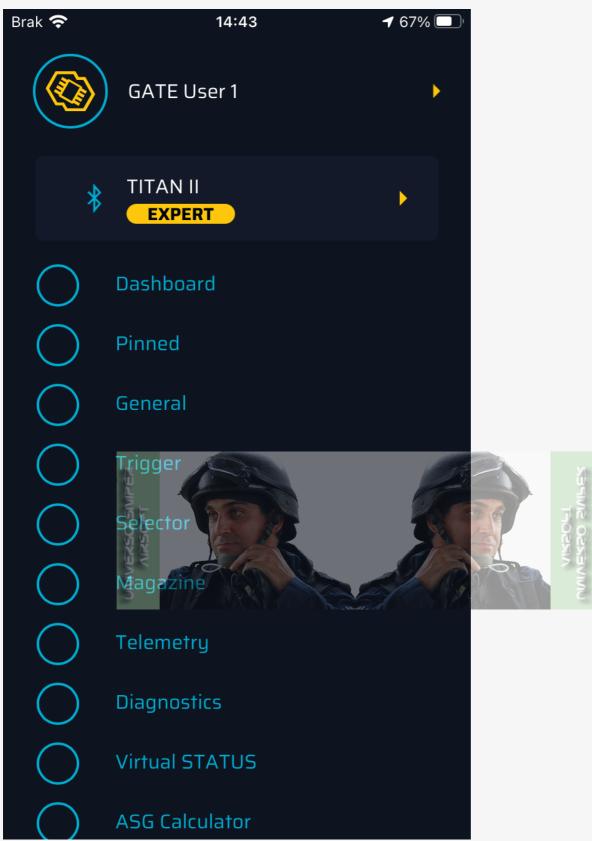
⊘ Note

Restoring the factory settings results in resetting the default settings, erasing adaptations, calibration of the trigger sensor and fire selector as well as statistical data.

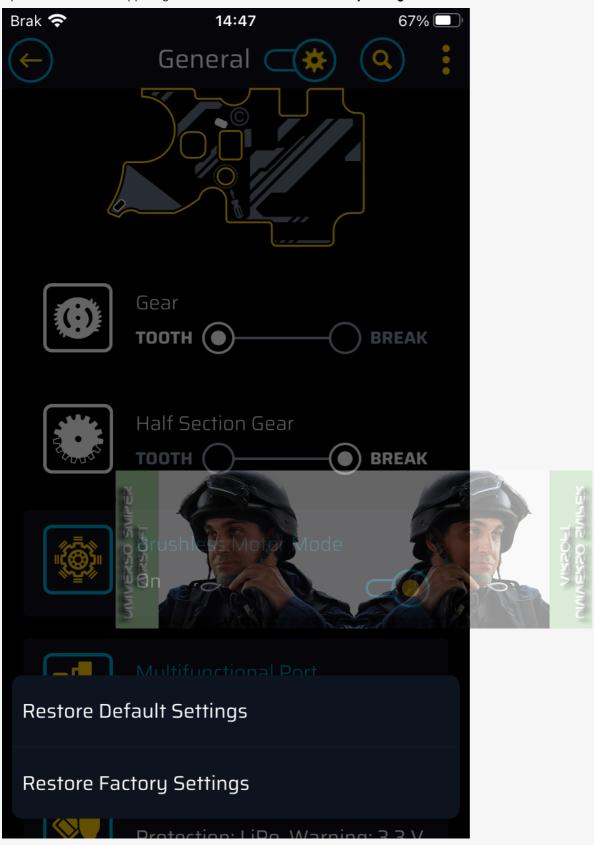
Factory settings can be restored only when the TITAN II Bluetooth® is connected to the GCS app. Follow the steps below:



2. Go to the **General** tab.



3. Open the menu in the upper right corner and select **Restore factory settings**.



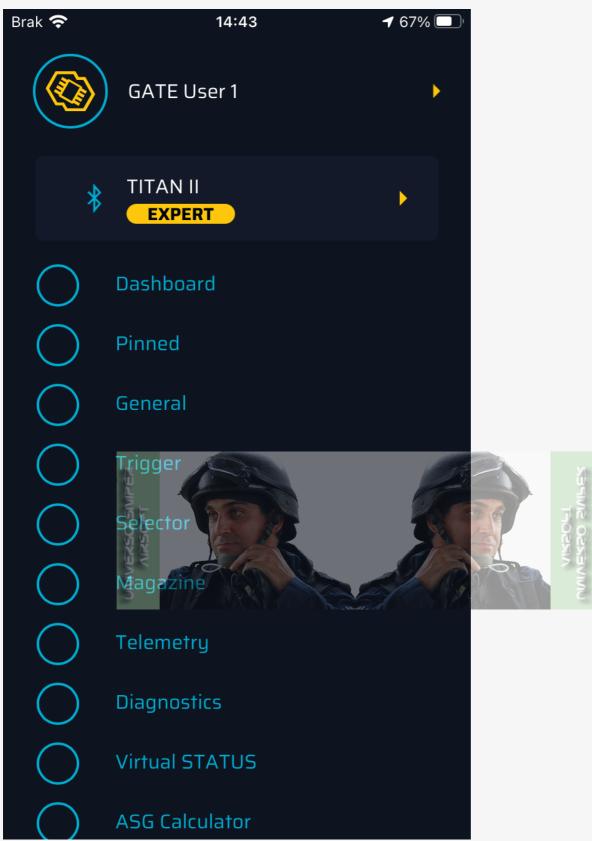
Restoring Default Settings

⊘ Note

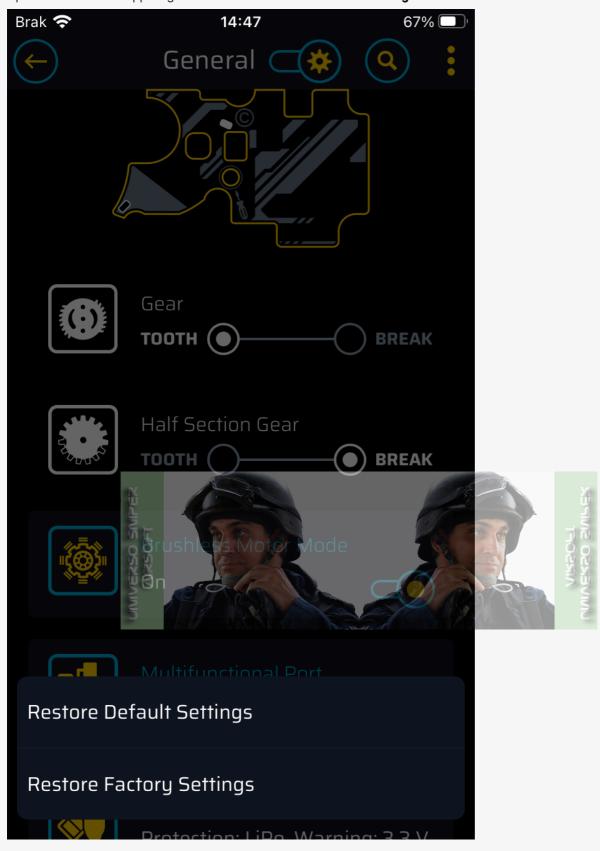
Restoring the default settings results in resetting your personal settings. This action **does not** erase adaptations, calibration of the trigger sensor and fire selector or statistical data.

Default settings can be restored only when TITAN II Bluetooth® is connected to the GCS app. Follow the steps below:

2. Go to the **General** tab.



3. Open the menu in the upper right corner and select Restore default settings.



Troubleshooting

Low Battery Warnings

When activated in GCS, 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 II Bluetooth® 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 II Bluetooth® detects the correct number of battery cells.

Vibrations after connecting the battery	Explanation
1 short high frequency 🁭	Cell detection error
2 short high frequency M	Two cells detected
3 short high frequency \\displaystyle \displaystyle \dintit{\displaystyle \displaystyle \displa	Three cells detected
4 short high frequency \\displaystyle \displaystyle \dintit{\displaystyle \displaystyle \displa	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

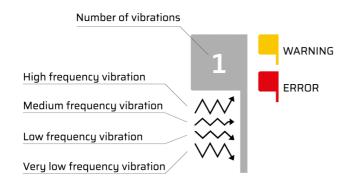
Diagnostic Trouble Codes (DTC) enable detecting basic malfunctions and problems with your AEG or TITAN II Bluetooth®. You are notified of the main errors by vibrations. DTCs can be read and cleared in the DTC menu in GCS.



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



Diagnostic Trouble Codes – TITAN II Bluetooth® V2 gearbox drop-in ETU mosfet AEG





No errors

No errors detected. Enjoy airsofting



Under Voltage Protection 1 (UVP1)

Protection against battery over-discharge (battery protection) activated

×× '

What happened:

- 1. Discharged battery
- 2. Battery type or number of battery cells set incorrectly

What to do:

- 1. Charge the battery
- 2. Set the correct battery type or number of battery cells



Under Voltage Protection 1 (UVP1 Warning)

Warning against battery over-discharge



What happened:

- 1. Discharged battery
- 2. Battery type or number of battery cells set incorrectly

What to do:

- 1. Charge the battery
- 2. Set the correct battery type or number of battery cells



Under Voltage Protection 2 (UVP2)

Voltage has dropped below a critical level for your device to work properly

What happened:

- 1. Discharged battery
- 2. The battery is worn out and there is excessive internal resistance
- Inadequate battery type for the current AEG configuration
- Excessive electrical resistance between your device and the battery
- 5. Motor too strong for the connected battery
- 6. Motor connection short circuit
- 7. Jammed motor
- 8. Damaged motor

What to do:

- 1. Charge the battery
- 2. Replace battery
- 3. 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
- Use standard or hightorque motors instead of high-speed ones
- 6. Check and fix motor wire insulation
- 7. Unjam the motor
- 8. Replace the motor

Under Voltage Protection 3 (UVP3)

Protection against battery over-discharge (battery protection) activated immediately after connecting the battery

What happened:

What to do:

- The number of cells Set the same number of cells in GCS as in the battery is different from the number set in GCS 2. Discharged battery
 - 2. Charge the battery

Over Voltage Protection (OVP)

Voltage exceeding a critical level for your device to work properly

What happened:

1. Connected battery type not supported by the unit

What to do:

1. Replace the battery

 $\wedge \sqrt{2}$

Over Current Protection Type 1 (OCP1)

Excessive current detected – overcurrent protection activated

What 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 Current Protection Type 2 (OCP2)

Excessive current detected – overcurrent protection activated

What happened:

- 1. Motor connection short circuit
- 2. Motor or gearbox jammed
- 3. Motor damaged
- 4. Battery voltage too high for the current motor

What to do:

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



Short Circuit Protection (SCP)

Current over 220 A detected – short circuit protection activated

What 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



Too high load. The load limit was exceeded

What happened:

1. BASIC and ADVANCED firmware edition is dedicatedto mid-tuned guns

What to do:

- 1. Use a high-torque motor and gears
- 2. Upgrade firmware to EXPERT

Over Temperature Protection (TEMP)

Excessive device temperature – over-temperature protection activated

What happened:

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

What to do:

1. Wait until the temperature drops

Under Temperature Protection (MIN TEMP)

Temperature below a critical level for your device to work properly

What happened:

 The outside temperature is too low in relation to the requirements of your AEG

What to do:

 Wait until the temperature increases

4

Gear Not Detected (GEAR)

ETU did not detect any movement of the sector gear

What happened:

1. Dirty sector gear sensor

What to do:

- Clean sector gear sensor; inspect the sensor using GCS; alternatively set Cycle detection to OFF
- 2. Jammed sector gear
- Damaged sector gear sensor
- 2. Check the condition of the gears
- 3. Set Cycle Detection to OFF (you will retain minimal replica functionality) and contact us: https://help. gatee.eu/page/contact
- 4. Damaged motor
- 4. Replace the motor



Motor Disconnected (MOTOR DISC)

ETU did not detect the motor

What happened:

- 1. Motor not connected
- l N
- 2. Brushes worn out
- 3. Damaged motor

What to do:

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



Gear Sensor Overexposed (GEAR-OE)



Gear Sensor Overexposed

What happened:

1. Too much external light reaching the gear sensor

What to do:

1. Cover the gearbox against external light



Series Safety Limit (SSL)

Series Safety Limit activated

What happened:

- 1. The function is active in GCS
- 2. The allowed limit of shots in a series has been exceeded

What to do:

- 1. Increase the limit of shots in GCS
- 2. Disable function in GCS



Selector Error (SEL-ERR)

Selector Error

What happened:

- 1. Badly calibrated selector
- 2. Outside light reaching selector sensor
- Selector plate not reflecting light

What to do:

- 1. Perform selector calibration
- 2. Insert the gearbox into the body
- 3. Modify the selector plate using the sticker from the INSTALLATION KIT



Switched Selector (SEL-SW)

The selector has switched during a shot

What happened:

- 1. The selector was switched deliberately during a shot
- 2. Sensors detect switching the selector at the edge of a selector position

What to do:

1. Inspect selector sensors; if the switch takes place near one of the three selector positions (SAFE, SEMI or AUTO), you must modify the selector plate

$\wedge \vee$

Selector Sensor Overexposed (SEL-OE)

Selector Sensor Overexposed

What happened:

1. Too much external light reaching the selector sensor

What to do:

1. Cover the gearbox against external light



Selector not Calibrated (SEL-CAL)

Selector Calibration not Performed

What happened:

1. Selector calibration not Performed

What to do:

1. Calibrate the selector



Trigger Error (TRIG-ERR)

A pulled trigger detected when connecting the battery

What happened:

- 1. Trigger pulled while connecting the battery
- 2. Trigger sensitivity

What to do:

- 1. Release the trigger
- 2. Using GCS set a lower trigger sensitivity







Trigger Sensor Overexposed (TRIG-OE)

Trigger Sensor Overexposed

What happened:

1. Too much external light reaching the trigger sensor

What to do:

1. Cover the gearbox against external light



Trigger Not Calibrated (TRIG-CAL)

Trigger Calibration Not Performed

What happened:

1. Trigger Calibration Not Performed

What to do:

1. Calibrate the trigger



Main Transistors Error (FET1 (E01))

Main Transistors Error

What happened:

1. Device Internal Error

What to do:

- 1. Clear the DTC
- 2. Unplug your device from the battery and wait 10 s
- 3. Connect your device to the battery and wait again 10 s
- 4. Check the DTC again - if the error persists, contact us: https://help. gatee.eu/page/contact

Brake Transistor Error (FET2 (E02))

Brake Transistor Error

What happened:

1. Device Internal Error

What to do:

- 1. Clear the DTC
- 2. Unplug your device from the battery and wait 10s
- 3. Connect your device to the battery and wait again 10s
- Check the DTC again

 if the error persists,
 contact us: https://help.
 gatee.eu/page/contact

Voltage Measurement Error (VME1 (E03))

Voltage Measurement Error

What happened:

1. Device Internal Error

What to do:

- 1. Clear the DTC
- 2. Unplug your device from the battery and wait 10s
- 3. Connect your device to the battery and wait again 10s
- 4. Check the DTC again– if the error persists,contact us: https://help.gatee.eu/page/contact

Temperature Sensor Error (TSE (E04))

Temperature Sensor Error

What happened:

1. Device Internal Error

What to do:

- 1. Clear the DTC
- 2. Unplug your device from the battery and wait 10s
- 3. Connect your device to the battery and wait again 10s
- 4. Check the DTC again– if the error persists,contact us: https://help.gatee.eu/page/contact

Current Sensor Error (CSE (E05))

Current Sensor Error

What happened:

1. Device Internal Error

What to do:

- 1. Clear the DTC
- 2. Unplug your device from the battery and wait 10s
- 3. Connect your device to the battery and wait again 10s
- 4. Check the DTC again– if the error persists,contact us: https://help.gatee.eu/page/contact

Motor Sensor Error (MSE)

Motor Sensor Error

What happened:

1. Device Internal Error

What to do:

- 1. Clear the DTC
- 2. Unplug your device from



- the battery and wait 10s
- 3. Connect your device to the battery and wait again 10s
- 4. Check the DTC again

 if the error persists,
 contact us: https://help.
 gatee.eu/page/contact

Self-Test Failure (SELF)

The device failed on self-test

What happened:

- 1. Device Internal Error
- Always activated with other Device Internal Errors

What to do:

- 1. Clear the DTC
- 2. Unplug your device from the battery and wait 10s
- 3. Connect your device to the battery and wait again 10s
- Check the DTC again

 if the error persists,
 contact us: https://help.
 gatee.eu/page/contact

Configuration Error (CFG)

Configuration Error

What happened:

- 1. The firmware was upgraded
- 2. Device Internal Error

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What to do:

- 1. Restore factory settings
- 2. Install the newest firmware
- 3. Clear the DTC
- Unplug your device from the battery and wait 10s
- 5. Connect your device to the battery and wait again 10s
- 6. Check the DTC again
 - if the error persists,

contact us: https://help.gatee.eu/page/contact

Multifunctional Port Voltage Protection

Multifunctional Port interface's voltage is out of range

What happened:

- 1. A discharged battery was connected to the unit
- 2. Wrong battery was connected to the system

What to do:

- 1. Change the battery
- 2. Check the wires connected to the multifunctional port
- 3. Clear DTCs
- 4. Disconnect the device from the battery and wait 10 s.
- 5. Connect the device to the battery and wait 10 s again
- Check DTC again if the error persists, contact us: https://help.gatee. eu/page/contact

Multifunctional Port Current Protection

Excessive Multifunctional Port interface's current detected – overcurrent protection activated

What happened:

1. Damaged cables connected

What to do:

1. Check that the device



- to the multifunctional port

 2. A device with excessive power consumption was connected to the multifunctional port
- connected to the multifunction port meets the allowed parameters
- 2. Check the wires connected to the multifunctional port
- 3. Clear DTCs
- 4. Disconnect the device from the battery and wait 10 s
- 5. Connect the device to the battery and wait 10 s again
- 6. Check DTCs again if the error persists, contact us: https://help.gatee. eu/page/contact

Technical Specifications

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

Supply Voltage Range	3.75-17 VDC
Rated Current	30 A
Current Consumption	27 mA
Low Power Mode	100 µА
Connectivity	Bluetooth® 5.2 Low Energy
Dimensions (Length x Width x Thickness)	47.2 mm x 28.9 mm x 14.5 mm
Finished Product Weight	28.2 g
Operating Temperature Range	min15° C, max. +50° C
Relative Humidity	≤80%

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. is 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.

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GATE Limited Warranty Policy

GATE Enterprise sp. z o.o. sp. k. warrants 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.

The color of the product may vary slightly depending on the batch.

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.



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Product Compliance

Declaration of Conformity

GATE Enterprise sp. z o.o. sp. k. hereby declares under our sole responsibility that GATE TITAN II Bluetooth® is in conformity with the essential requirements of the following directives: 2014/53/UE, 2011/65/UE.



Product Compliance Regarding the Use of the BGM220S Module

The BGM220S modules have been tested against the relevant harmonized standards and are in conformity with the essential requirements and other relevant requirements of the Radio Equipment Directive (RED) (2014/53/EU).

This device complies with FCC's e-CFR Title 47, Part 15, Subpart C, Section 15.247 (and related relevant parts of the ANSI C63.10.2013 standard) when operating with the embedded antenna or with the antenna type(s) listed in 11.1.1 Qualified Antennas. Operation is subject to the following two conditions:

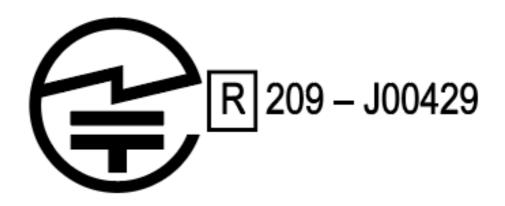
- 1. This device may not cause harmful interference; and
- 2. This device must accept any interference received, including interference that may cause undesirable operation. Any changes or modifications not expressly approved by Silicon Labs could void the user's authority to operate the equipment

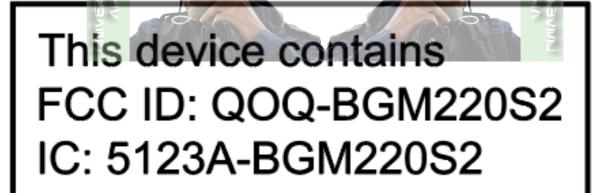
This radio transmitter (IC: 5123A-BGM220S for the BGM220S12A and IC: 5123A-BGM220S2 for the BGM220S22A) has been approved by Innovation, Science and Economic Development Canada (ISED Canada, formerly Industry Canada) to operate with the embedded antenna and with the antenna type(s) listed in 11.1.1 Qualified Antennas, with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain listed, are strictly prohibited for use with this device. This device complies with ISED's license-exempt RSS standards. Operation is subject to the following two conditions:

- 1. This device may not cause interference; and
- 2. This device must accept any interference, including interference that may cause undesired operation of the device

Contains a radio module

当該機器には電波法に基づく、 技術基準適合証明等を受けた 特定無線設備を装着している。





Contient le module transmetteur: 5123A-BGM220S

当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している。

This equipment operates on a secondary basis and, consequently, must accept harmful interference, including from stations of the same kind, and may not cause harmful interference to systems operating on a primary basis.

The BGM220S22A are certified in Japan with certification number 209-J00429.

The BGM220S22A modules have a RF certification for import and use in South-Korea. Certification number is: R-R-BGT-BGM220S2. The BGM220S modules come at launch with a pre-qualified Bluetooth Low Energy RF-PHY Tested Component having Declaration ID of D044526 and QDID of 155407, and having a listing date of 2020-09-04.

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🖒 Aún no le ha gustado a nadie

