

User Manual – ASTER II Bluetooth® EXPERT for V3 GB [AEG & HPA]

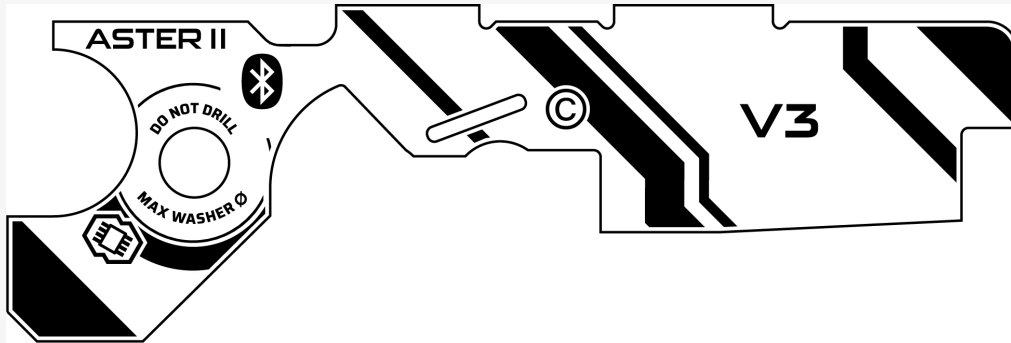
Última actualización hace un mes • 22 min de lectura

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Manual Version: 1.0.1.


ASTER II





General Information

Congratulations on the purchase of your new **ASTER II Bluetooth®** is a total game changer for **V3 gearbox owners** bringing a breath of fresh air and brand new capabilities to all **V3 gearbox replicas** both for **AEG** and **dual solenoid HPA**. With **Bluetooth 5.2 technology**, you have direct access to settings, AEG telemetry, and extended features with the GCS mobile device and smartwatch app. **ASTER II Bluetooth®** is the first such versatile unit for **V3 gearboxes** – compatible with both **AEG** and **HPA**. **The AEG version** works with both **brush motors** and also with **brushless motors**, even at **11.1V**. HPA enthusiasts, on the other hand, can connect both **single solenoid valve** and **dual solenoid HPA** engines. Adjustable trigger sensitivity, automatic Pre-cocking, Active Brake with adaptive mode and reliable optical sensors create an ideal system. The goal of creating **ASTER II Bluetooth®** for **GB V3** was to build a versatile ETU, incorporating the **latest GATE technology** at a **reasonable price**.

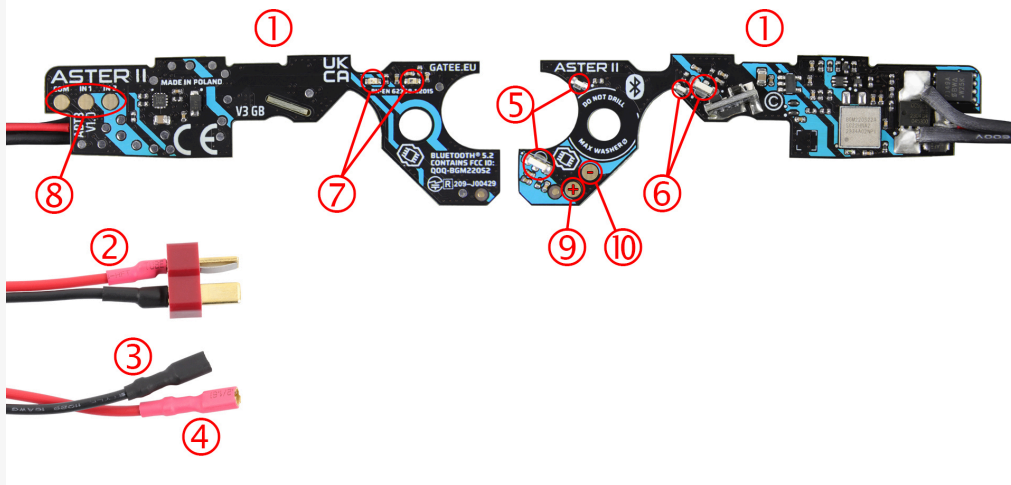
 The information contained in this document is subject to change without notice.

 Read carefully before use the whole manual. Keep for future reference.

 Failing to read this information may void the guarantee!

 When using the product, always follow basic safety rules to reduce the risk of injury from fire or electrical shock.

Device Structure



1. Printed Circuit Board (PCB)
2. Circuit power wires with DEANS-T connector
3. Motor power wire minus "-"
4. Motor power wire plus "+"
5. Sector gear position sensors
6. Trigger sensor
7. Fire selector sensor
8. Solder pad of the Multifunction Port
9. Solder pad of the Multifunction Port – plus of programmable power supply + (e.g., for the second HPA solenoid)
10. Solder pad of the Multifunction Port – minus of programmable power supply – (e.g., for the second HPA solenoid)

Kit Contents

- ASTER II Bluetooth®
- Gearbox stickers
- Selector plate stickers
- Installation Kit
- Safety, Regulatory & Initial Use 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

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

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.

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

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.



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



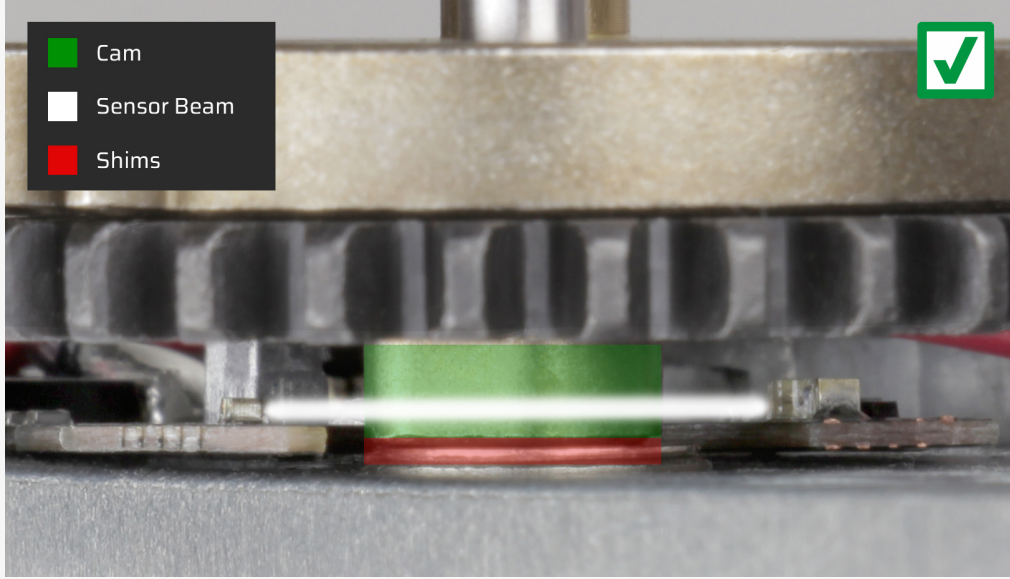
Note
Bluetooth 4.0 or higher is required to connect to ASTER II Bluetooth® with a smartphone or other device.

Installation

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

Caution
ASTER 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 ASTER installation on your own, you must read this full-length document. Incorrect installation may result in, among others, sensor damage, which is not covered by warranty.

Note
Excessive sector gear shimming may cause incorrect cycle detection. The gear cam must interrupt the sensor beam.



✔ **Note**

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

- contact us via <https://help.gatee.eu>
- send us an email: support@gatee.eu
- join [GATE Airsoft Community Discord Server](#)

⚠ **Caution**

The ASTER optoelectronic components in the photo below are very sensitive. Avoid their damage.

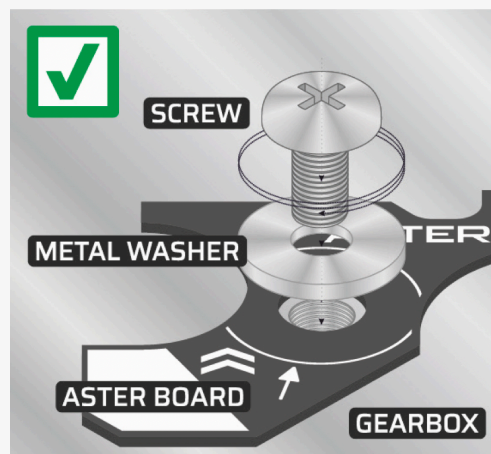


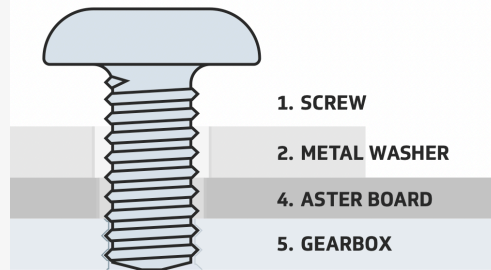
⚠ **Caution**

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

⚠ **Caution**

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





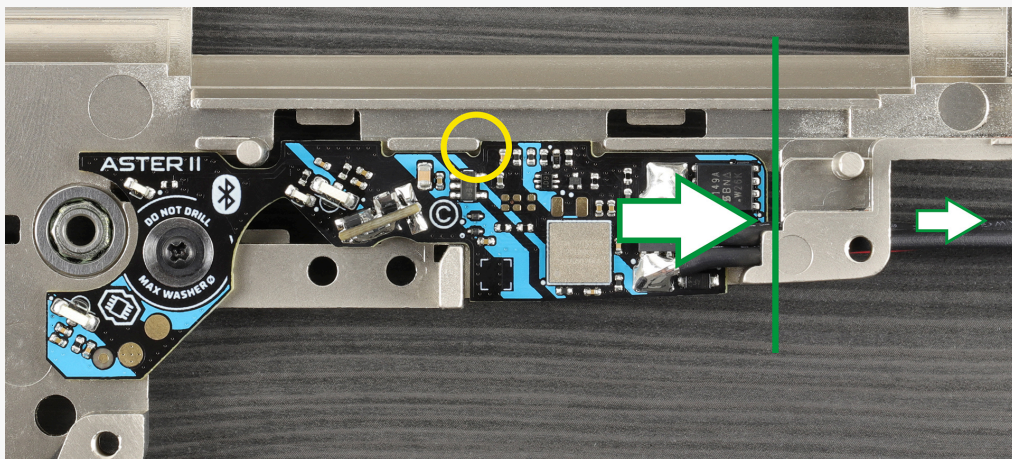
Caution

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



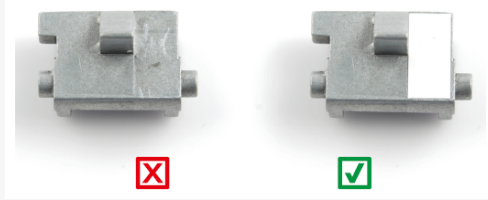
Caution

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.



Note

Use the trigger sticker to make it visible for the trigger sensor.



✔ **Note**

ASTER 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.



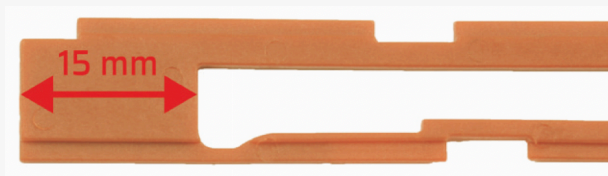
✔ **Note**

In AK type AEGs, eliminate as much backlash in the selector mechanism as possible. Tighten all screws and make sure you eliminate the micro moves indicated with arrows. You can do this using the additional stickers included in the INSTALLATION KIT.



✔ **Note**

For AK and G36 selector types, it may be required to sand the inner edge of the selector plate. The distance between the edges must be 15 mm [0.59 in].



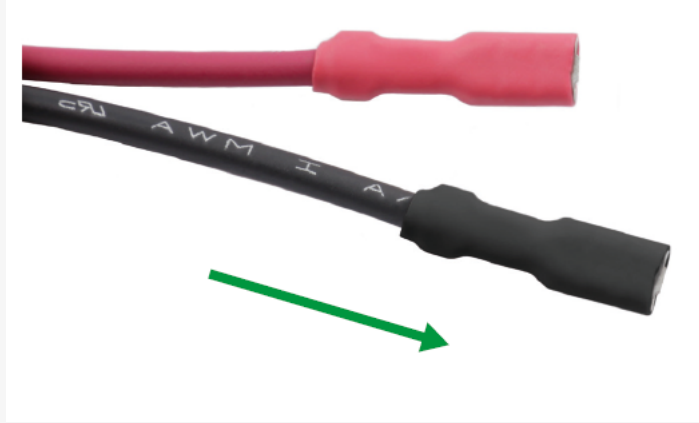
✔ **Note**

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



⚠ **Caution**

In ASTER 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.



✔ **Note**

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

- contact us via <https://help.gatee.eu>
- send us an email: support@gatee.eu
- join [GATE Airsoft Community Discord Server](#)

System Calibration and Sensor Performance Test Using the GCS App

Connect ASTER II Bluetooth® to your device:

1. Download and install the GCS app on your device @ [GATE CONTROL STATION](#)

GCS

Windows™ | macOS™
Android™ | iOS™

2. Start **Bluetooth®** communication on your device
3. Connect the battery to ASTER 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 ASTER 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 ASTER 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**

Initial Config



You can always change this setting - go to This Device

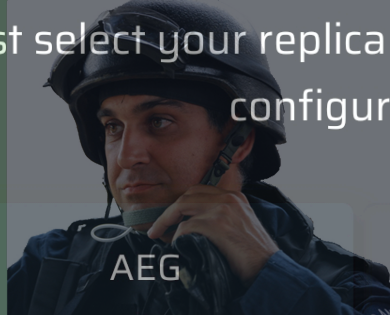


ASTER II for V3

EXPERT

First select your replica engine type to start configuration

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AEG



HPA



UNIVERSO SIMPLIFIED

Save



11. Check gear tooth detection by the unit sensors: Go to **General**.





GATE GCS User



ASTER II for V3

EXPERT



Dashboard



Pinned



General



Trigger



Selector



Magazine



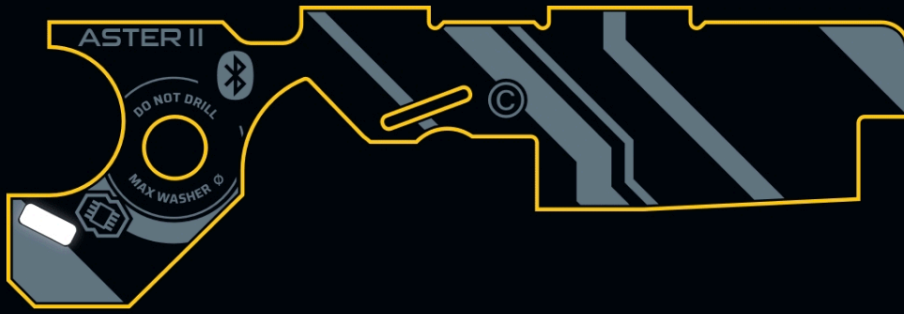
Telemetry



Diagnostics





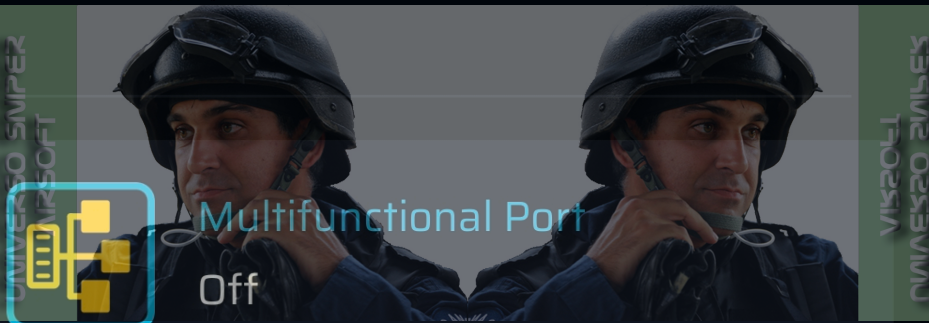


Gear



TOOTH

BREAK



Multifunctional Port

Off



Battery

Protection: LiPo, Warning: 3.2 V



Series Safety Limit

Off



Cycle Detection



12. Check trigger sensitivity:

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





GATE GCS User



ASTER II for V3

EXPERT

Dashboard

Pinned

General

Trigger

Selector

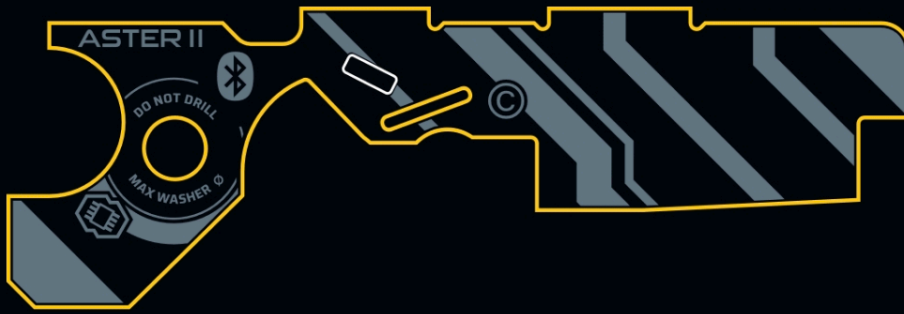
Magazine

Telemetry

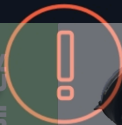
Diagnostics







Trigger Preferences



Your trigger is not working correctly
Please calibrate it now



Pre-Cocking

Off



ROF Control

Off



Equalizer

2 Level



Sniper Delay







Trigger 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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UNIVERSO SIMPER AIRSOFT

Pull the trigger and press Next

Next



Equalizer
2 Level



Sniper Delay







Trigger Calibration

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



Release the trigger and press Next

Next



Equalizer
2 Level



Sniper Delay







Trigger Calibration



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UNIVERSO SIMPER

Trigger Calibration complete
252 Trigger sensitivity levels detected

OK



ROF Control
Off

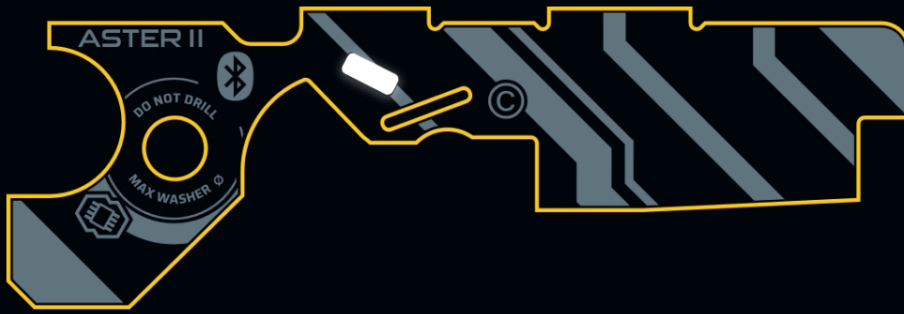


Equalizer



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





Trigger Preferences

75/252, Reset point: 30%

RESET EQ

Recalibrate



Pre-Cocking

Off



ROF Control

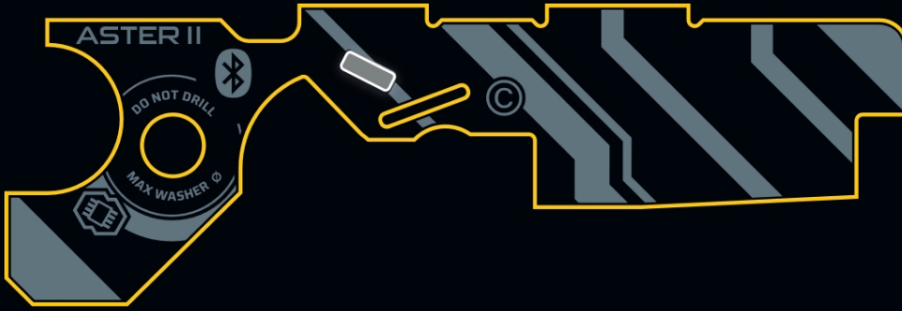
Off



Equalizer







Trigger Preferences

75/252, Reset point: 30%

RESET EQ

FIRE

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UNIVERSO SIMPER AIRSOFT

Recalibrate



Pre-Cocking

Off



ROF Control

Off



Equalizer



13. Check fire selector sensor calibration:

- In GCS, go to the **Selector** tab. Perform the first calibration of the selector sensor.





GATE GCS User



ASTER II for V3

EXPERT



Dashboard



Pinned



General



Trigger



Selector



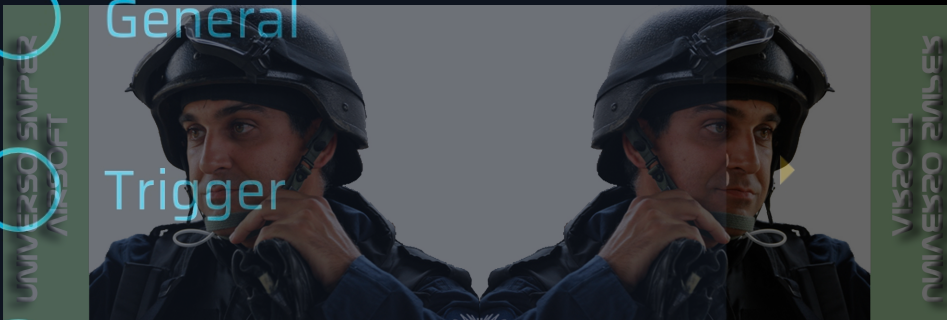
Magazine



Telemetry



Diagnostics





Your Selector is not working correctly
Please calibrate it now



Selector Configuration



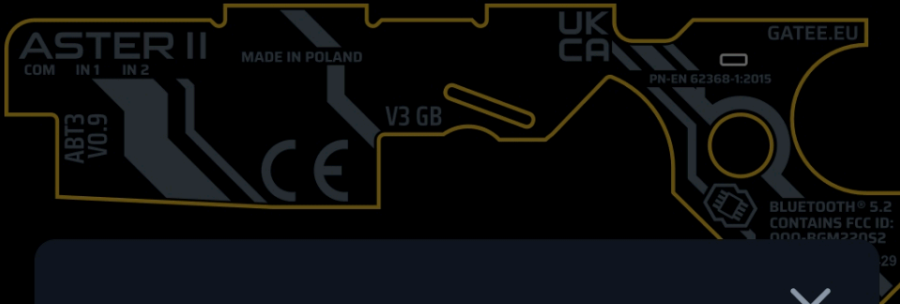
Selector Mode

SAFE-SEMI-AUTO



BURST Mode

Full: 3 BBs

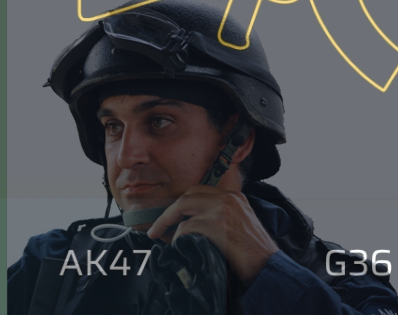


Selector Calibration

Choose your Selector type



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AK47



G36



UNIVERSO SIMPER



AUG



Next





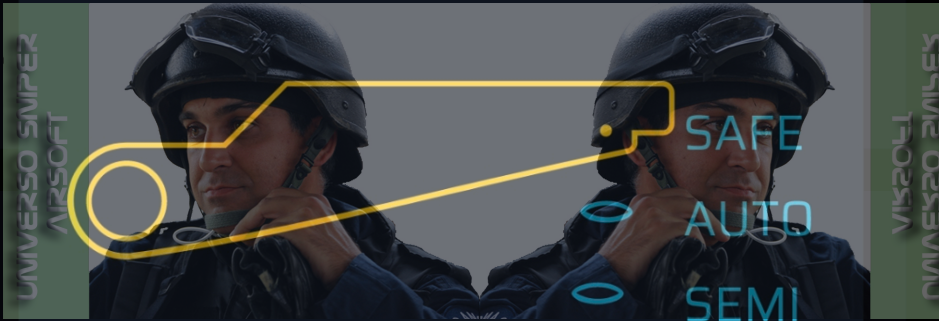
UNIVERSO SIMPER
AIRSOFT

VISIOLI
UNIVERSO SIMPER



Selector Calibration

Switch Selector to SAFE and press Next



Next

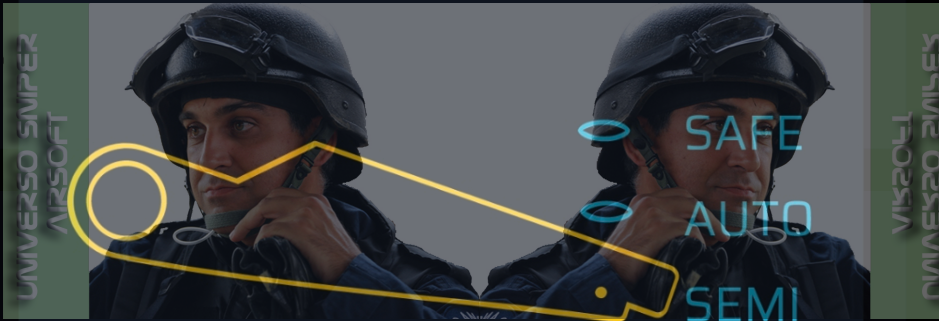






Selector Calibration

Switch Selector to SEMI and press Next



Next





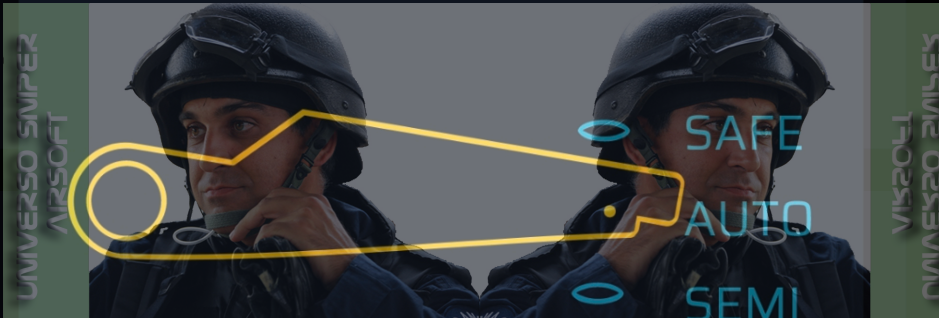
UNIVERSO SIMPER
AIRSOFT

UNIVERSO VISOR



Selector Calibration

Switch Selector to AUTO and press Next



UNIVERSO SIMPER AIRSOFT

UNIVERSO SIMPER

Next

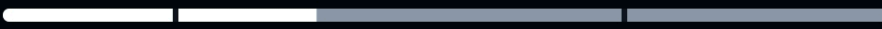


Move the selector plate to see if ASTER II Bluetooth® detects SAFE, SEMI and AUTO. You will notice changes from SAFE through AUTO to SEMI.





AUTO



SAFE

SEMI



Selector Configuration

AK



Selector Mode

SAFE-SEMI-AUTO

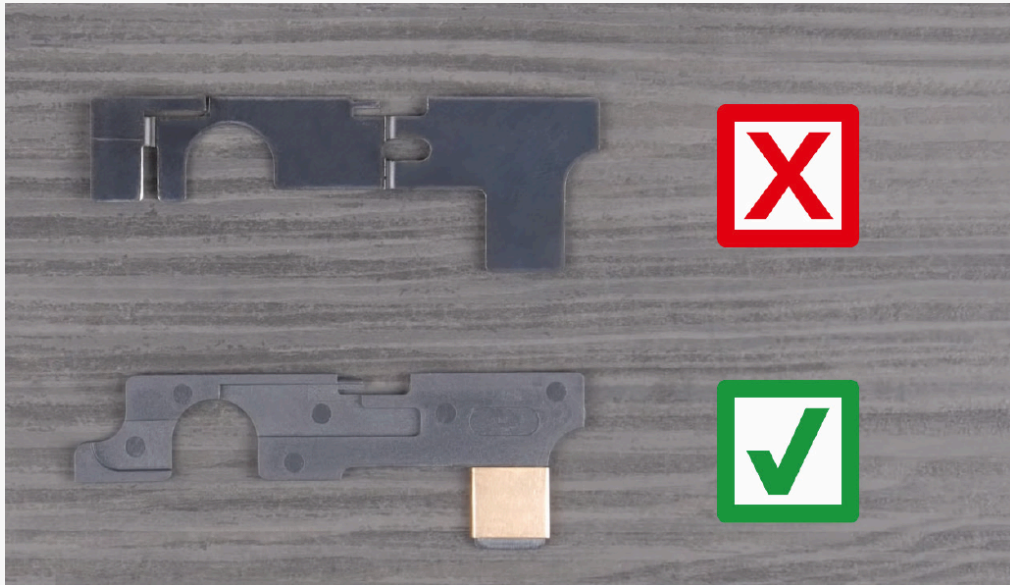


BURST Mode

Full: 3 BBs



If the sensor does not function correctly, you need to modify the selector plate with another sticker as mentioned above in steps 20-21 and shown below:



14. If all the sensors are working flawlessly, 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
The first few shots are calibration shots. ASTER II Bluetooth® adjusts to the gearbox configuration. To readjust the ASTER II Bluetooth®, you must restore factory settings. This is necessary if, for example, you are replacing the motor.

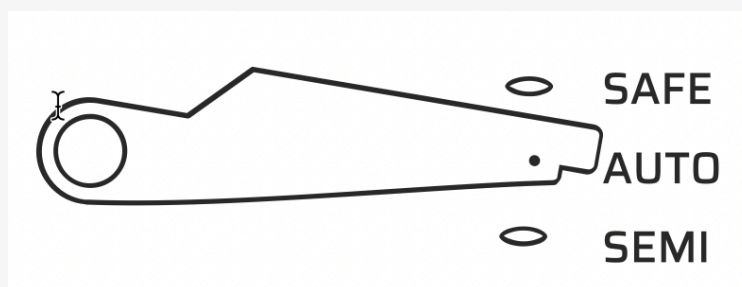
Calibration via Trigger and Selector without GCS

Note
During calibration, remember to pull the trigger completely each time (until you feel resistance).

Note
AUG type AEGs can only be calibrated in the GCS app.

Once ASTER is installed in an AEG, the trigger and selector sensors must be calibrated according to the steps below:

AK Type Selector



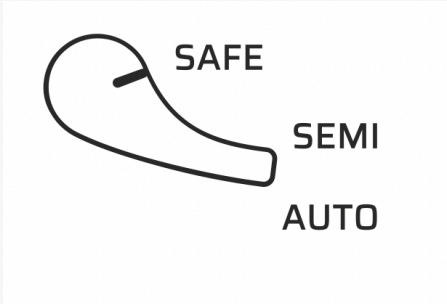
1. If your ASTER is brand new, go to step 2. If not, restore factory settings as described in

Restoring Factory Settings below and then go to step 2.

2. To calibrate ASTER, plug in the battery. You will hear 3 low frequency vibrations indicating lack of calibration error.
3. Switch the selector to AUTO.
4. Pull the trigger once and wait for a confirmation vibration.
5. Switch the selector to SEMI.
6. Pull the trigger once and wait for a confirmation vibration.
7. Switch the selector to AUTO again.
8. Pull the trigger once and wait for a confirmation vibration.
9. Switch the selector to SAFE.
10. Wait for a confirmation vibration. Now ASTER is fully calibrated and ready to use.*

*If there is a problem during calibration, you will hear a short high and mid frequency vibration. Then, calibrate the selector again.

G36 Type Selector



1. If your ASTER is brand new, go to step 2. If not, restore factory settings as described in

Restoring Factory Settings below and then go to step 2.

2. To calibrate ASTER, plug in the battery. You will hear 3 low frequency vibrations indicating lack of calibration error.
3. Switch the selector to SEMI.
4. Pull the trigger twice and wait for a confirmation vibration.
5. Switch the selector to AUTO.
6. Pull the trigger once and wait for a confirmation vibration.
7. Switch the selector to SEMI again.
8. Pull the trigger once and wait for a confirmation vibration.
9. Switch the selector to SAFE.
10. Wait for a confirmation vibration. Now ASTER is fully calibrated and ready to use.*

*If there is a problem during calibration, a short high and mid frequency vibration occurs. Then, calibrate the selector again.



Note

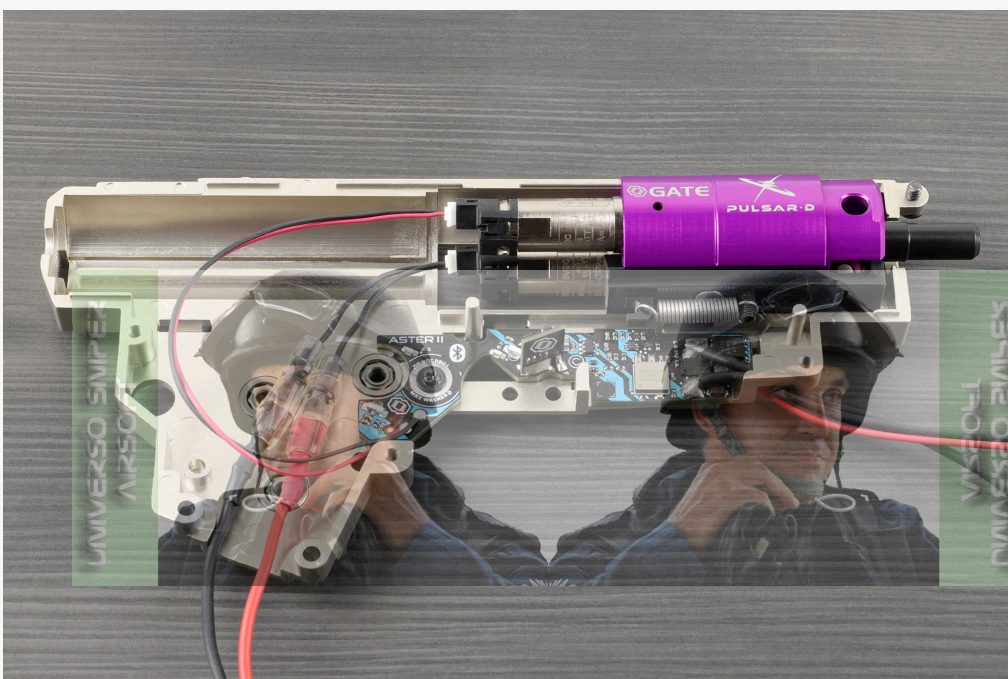
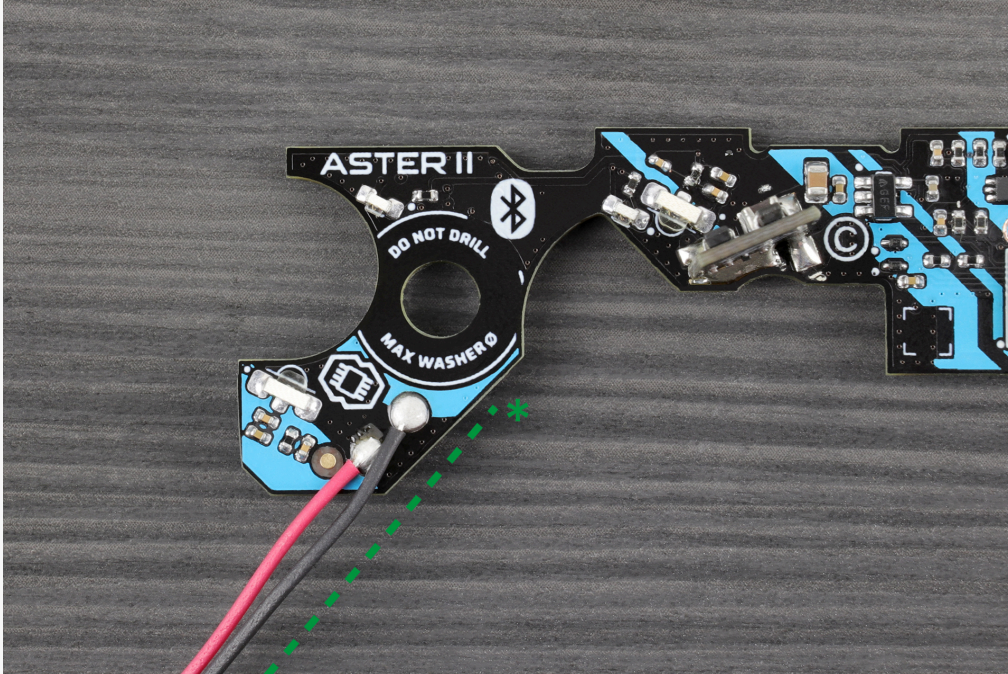
You do not have to calibrate your unit each time, only restoring the factory settings will require recalibration.

Installation of Accessories

Dual solenoid HPA engine

To connect a dual-solenoid HPA engine:

1. Connect the first solenoid to the motor wires using an adapter. For solenoids, polarity does not matter. You can connect the positive and negative in any way.
2. Solder the wires for the second solenoid to solder pads 9 and 10, as shown in the image below. In this case, polarity also does not matter.



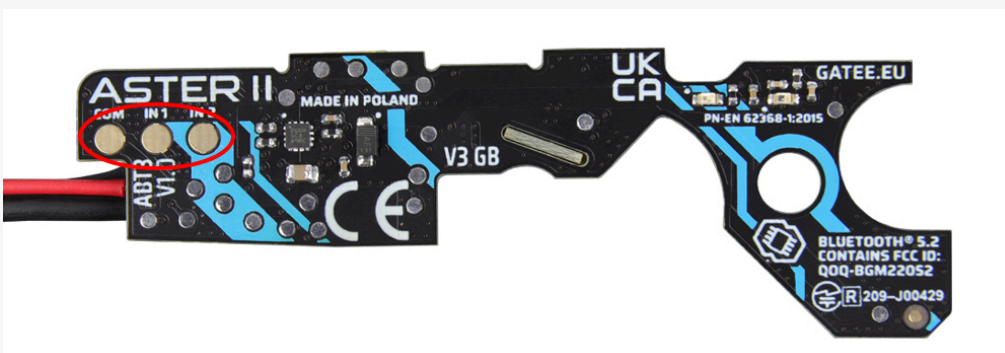
Bolt-Catch & Magazine Sensor Set



Note

The magazine and bolt-catch sensor for the ASTER II Bluetooth® V3 gearbox drop-in ETU mosfet AEG is a separate accessory that is not included.

To connect the magazine and bolt-catch sensor to ASTER II Bluetooth® you will need to solder wires to the solder fields provided on the PCB.



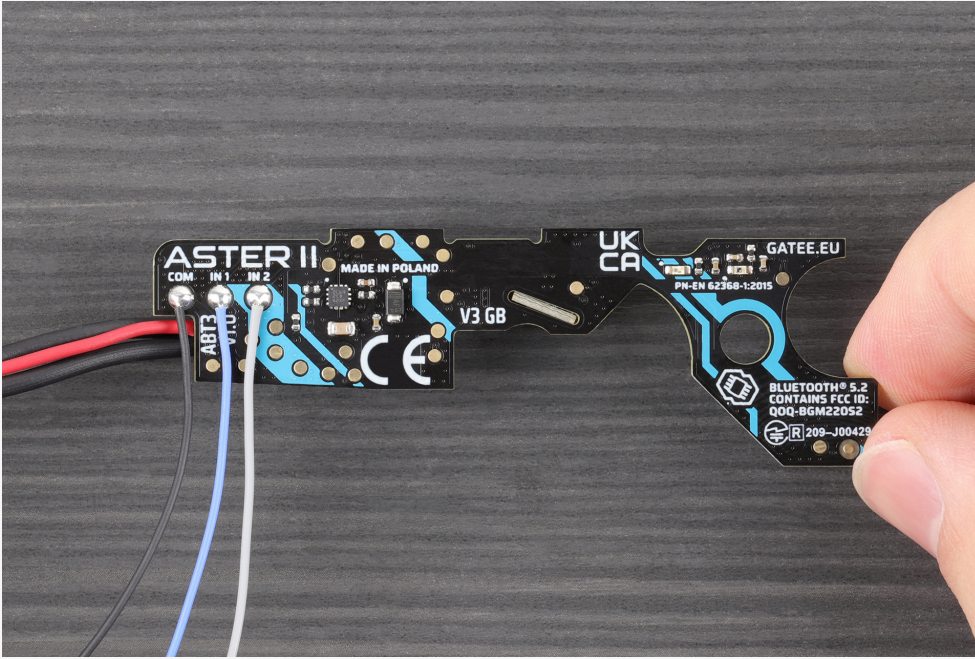
Caution

In order to connect this accessory, you will need a soldering iron (1.5 mm soldering tip) and basic skills in wire soldering. If you do not have the necessary equipment and experience, we recommend that you outsource this activity to a specialist (ASG replica service/GMS service). Improperly carried out soldering process can lead to permanent damage to the circuit, and this will void the warranty.



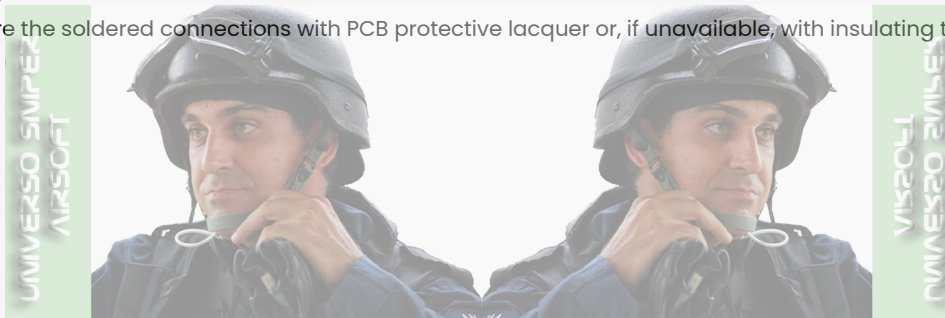
1. Place the ASTER II Bluetooth® on a flat and clean surface (THE BATTERY MUST BE DISCONNECTED).
2. Stabilize the ASTER to prevent it from moving during soldering.
3. Solder the wires of the magazine sensor and bolt-catch, paying special attention to the order of the cables (black – **COM**, blue – **IN1**, gray – **IN2**) and the angle at which they are routed.

The wires should be soldered as shown in the image below, as this will help ensure the correct routing of the wires.

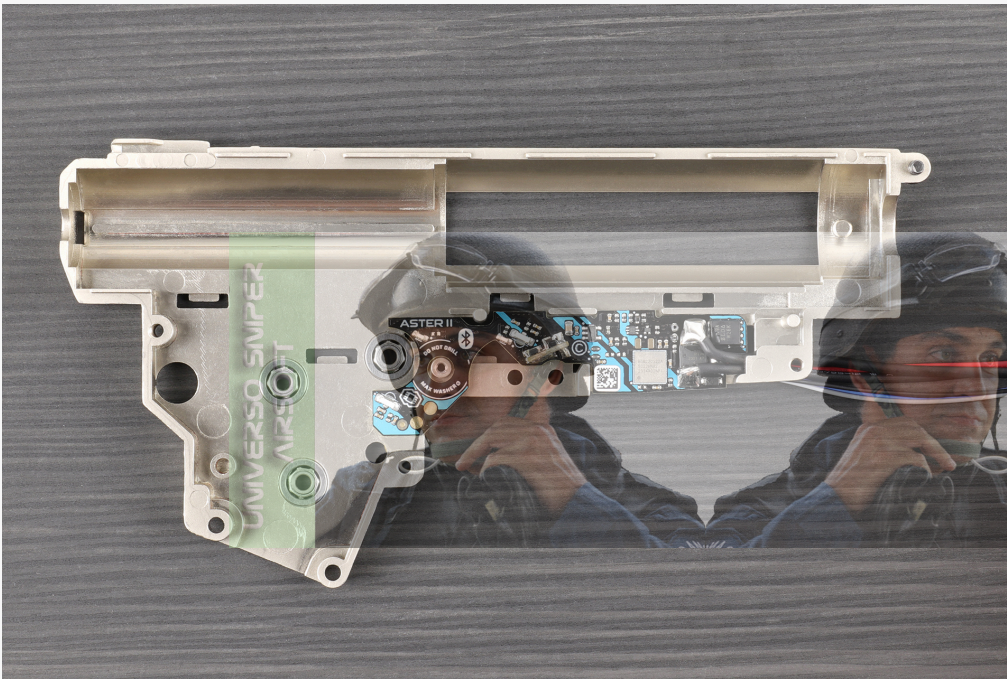
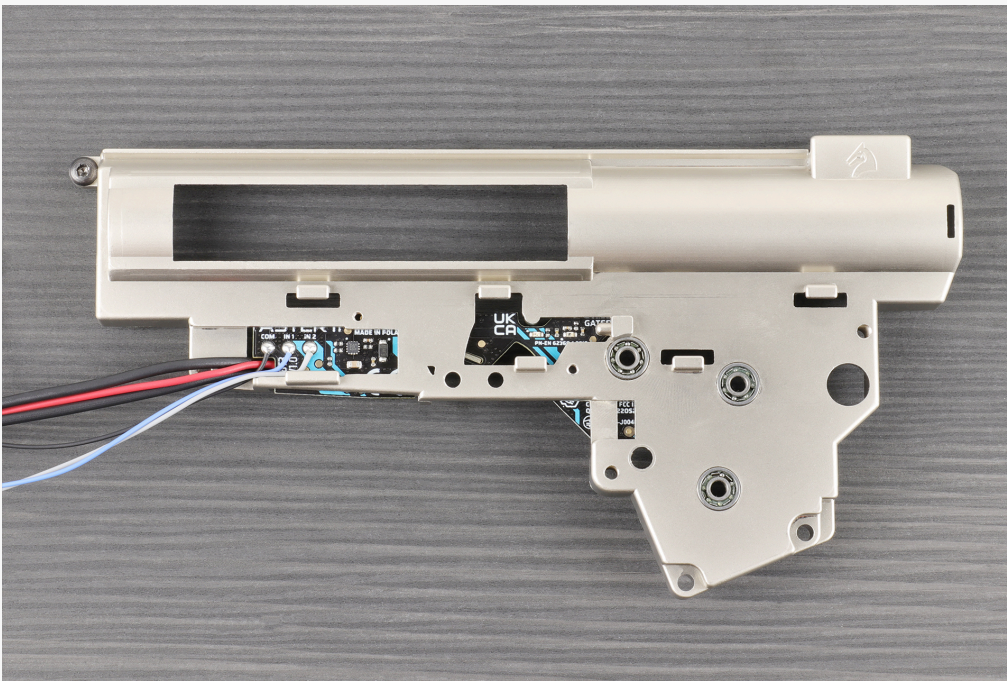


It is important that after soldering, there is no possibility of a short circuit between the pads. Otherwise, this may lead to improper functioning of the device.

4. After soldering, secure the soldered connections with PCB protective lacquer or, if unavailable, with insulating tape.



5. Install the ASTER II Bluetooth® in the gearbox and route the wires as shown in the image.



6. Close the gearbox and make sure that the sensor wires are not pinched. Pinching the wires may cause permanent damage to this accessory.

7. Route the wires to the location where you plan to install the accessories.

8. Connect the accessories according to the following diagrams:

a. **Only bolt-catch**

- blue and black wire to the bolt-catch button

b. **Only magazine sensor**

- gray and black wire to the magazine sensor

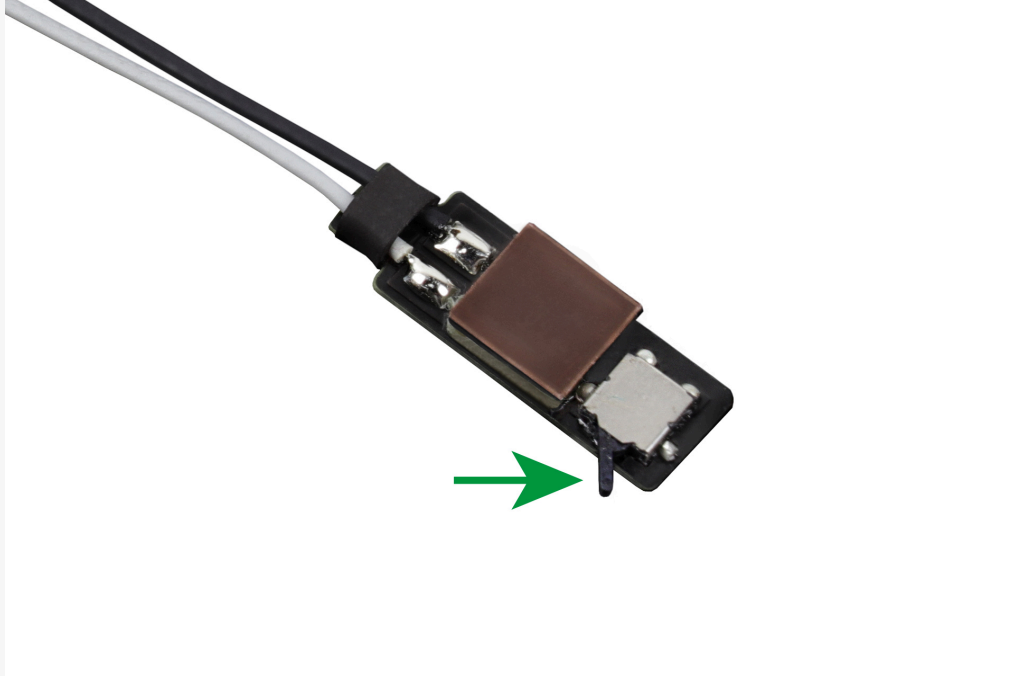
c. **Bolt-catch and magazine sensor**

- blue wire to the bolt-catch button
- gray wire to the magazine sensor
- black wire in series to both the bolt-catch button and the magazine sensor

9. Install the accessories in their designated locations.

Magazine compatibility

The magazines must press the lever shown in the picture. For the accessory to function correctly, the bottom edge of the accessory must be level with the top edge of the magazine.

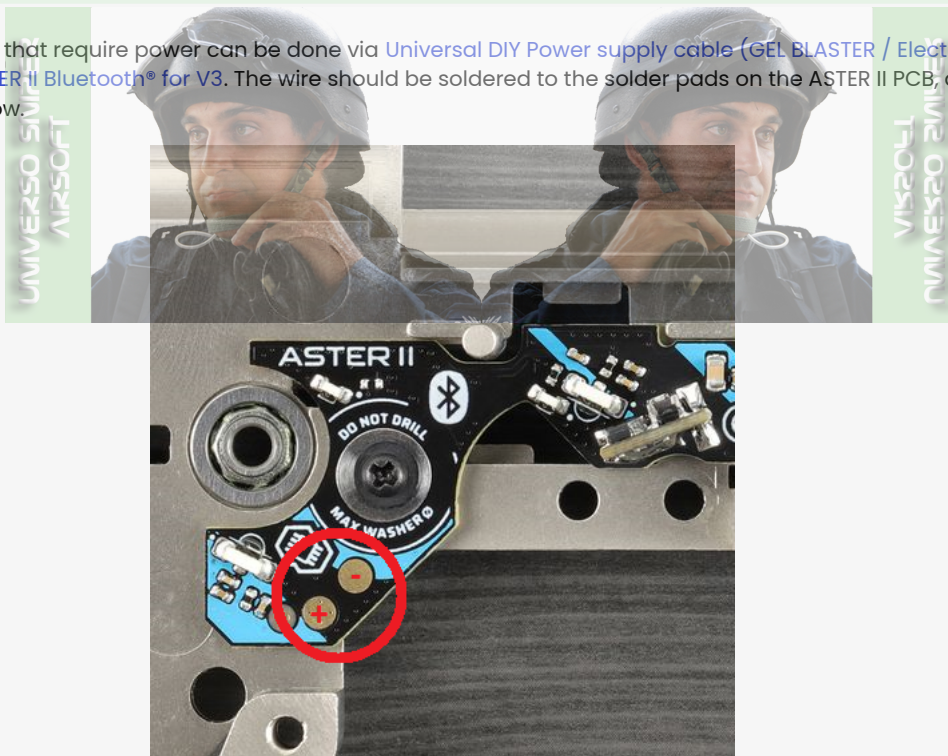


Connecting accessories that require power supply

✔ Note

Please note that for dual-solenoid engines, it is not possible to connect additional devices requiring power, such as electric magazines or tracer units.

Connecting accessories that require power can be done via [Universal DIY Power supply cable \(GEL BLASTER / Electric Magazine / Tracer\)](#) for TITAN II & ASTER II Bluetooth® for V3. The wire should be soldered to the solder pads on the ASTER II PCB, at the location shown in the image below.

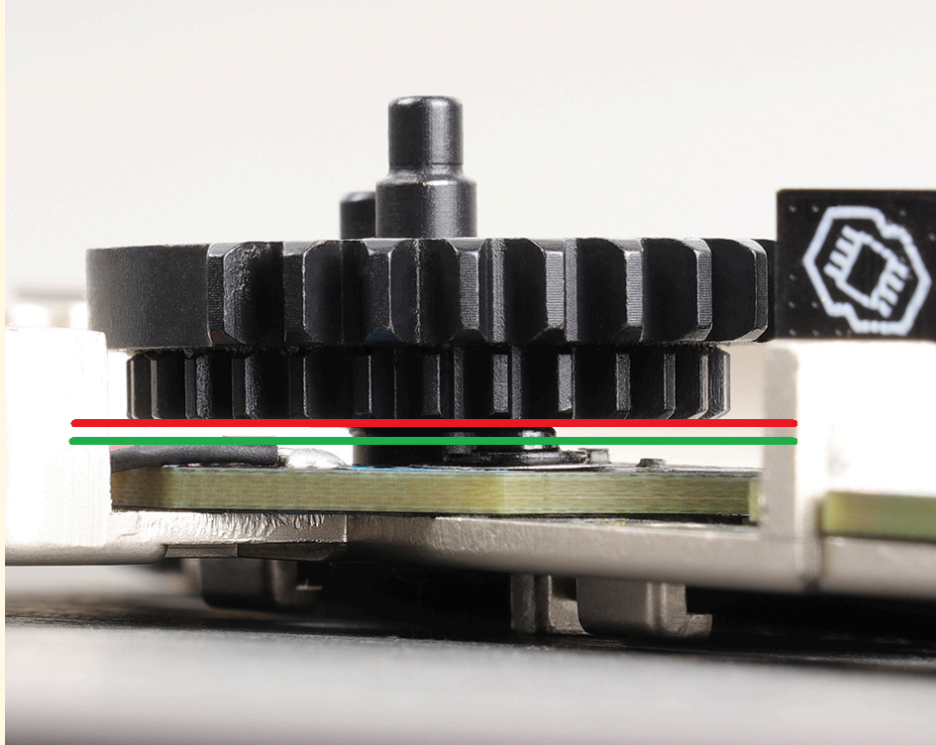


The solder pads are located directly under the sector gear, so the wires must be soldered in such a way that they lie flat on the surface of the PCB. To protect the wires from being torn by the sector gear, they should also be glued to the PCB with cyanoacrylate adhesive.

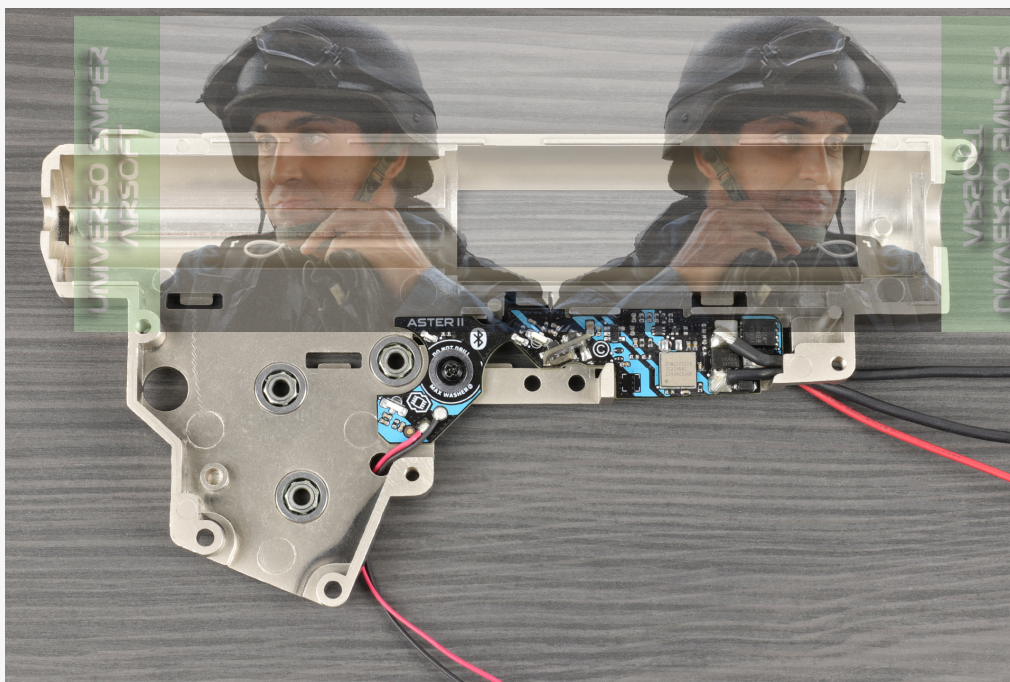
The solder pads must be coated with a layer of lacquer to electrically isolate them from other components of the gearbox.

⚠ Caution

It is essential to check the distance between the wires and the sector gear. The sector gear must not rub against the wires or soldered connections, as this could damage the ASTER II BT V3 unit.



We suggest routing the wires outside the gearbox through the structural hole, as shown in the image below.



The free ends of the wires should be soldered according to the polarity to the power wires or pads of the respective accessory.

⚠ Caution

After connecting to the I/O port, the accessories can only be powered through it. The previous power source must be disconnected. The voltage supplied by the system is equal to the voltage of the connected battery, while the maximum current draw can be up to 6 A.

In some magazines, they may still be powered after releasing the trigger. In this case, the capacitor from the kit should be soldered into the circuit – one lead to the negative power wire and the other to the positive power wire. The capacitor can be soldered anywhere in the replica, but for Gel Blaster magazines, it is recommended to solder it directly to the contacts in the magazine socket.



Multifunctional Port Activation in GCS

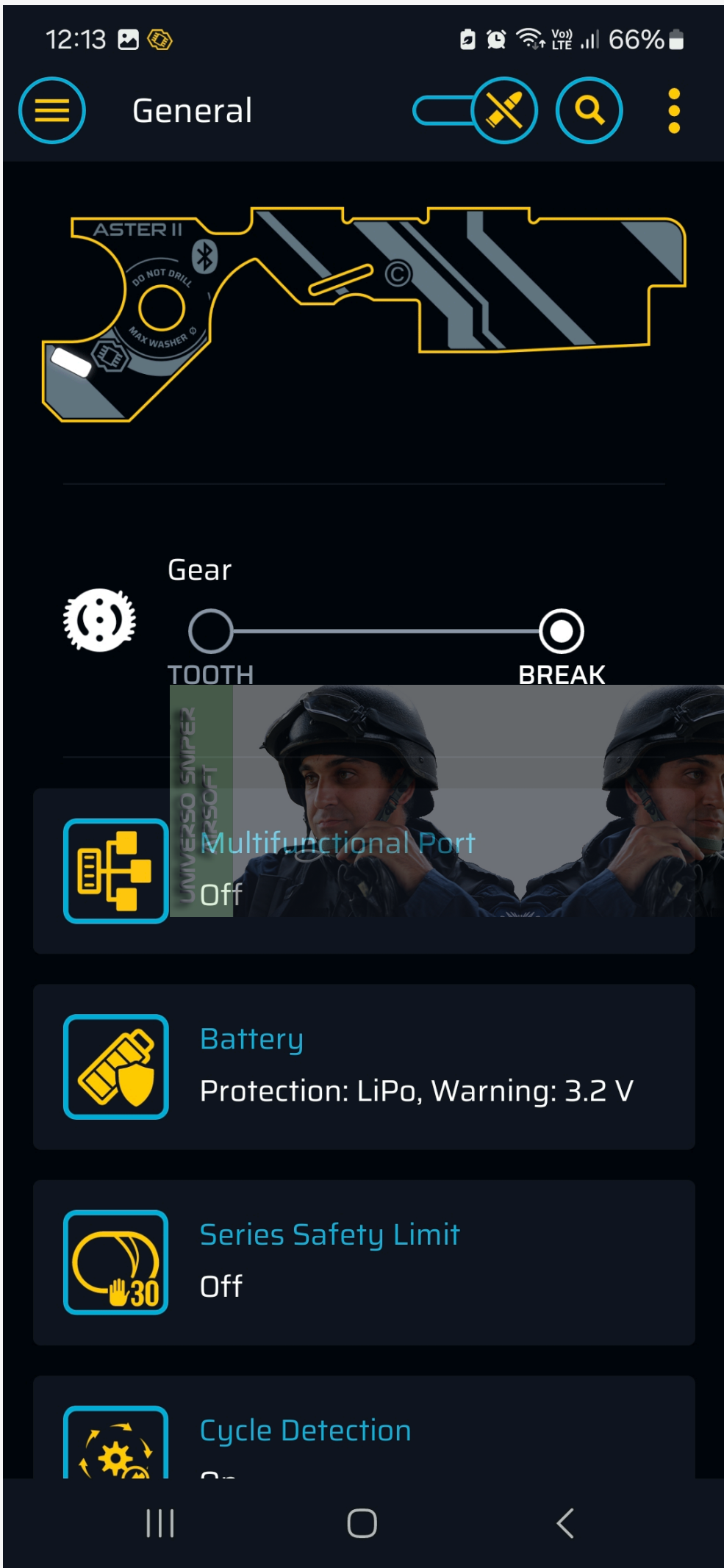




Windows™ | macOS™
Android™ | iOS™

2. Start **Bluetooth**® communication on your device
3. Connect the battery to ASTER 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 ASTER 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 ASTER II Bluetooth® firmware







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

13:47

100



Multifunctional Port



Set Magazine Capacity for correct functioning



On



Sensor Signal I

Bolt Catch



PRESSED

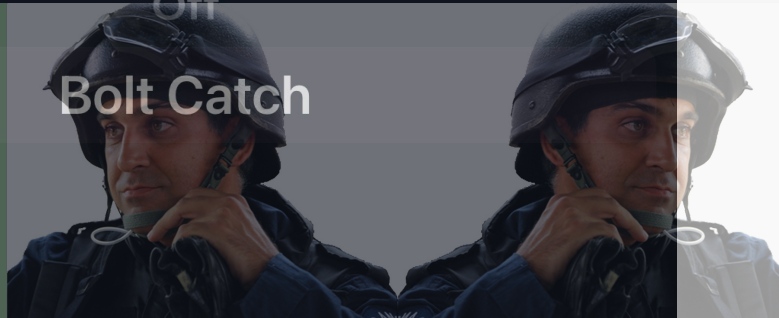


RELEASED

Off

Bolt Catch

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Sensor Signal II

Off



Off



On

11. Tap **Sensor Signal II** and select **Magazine** if you want to use the magazine sensor.

13:49

100



Multifunctional Port



Set Magazine Capacity for correct functioning



On



Sensor Signal I

Bolt Catch



PRESSED



RELEASED



Sensor Signal II

Magazine

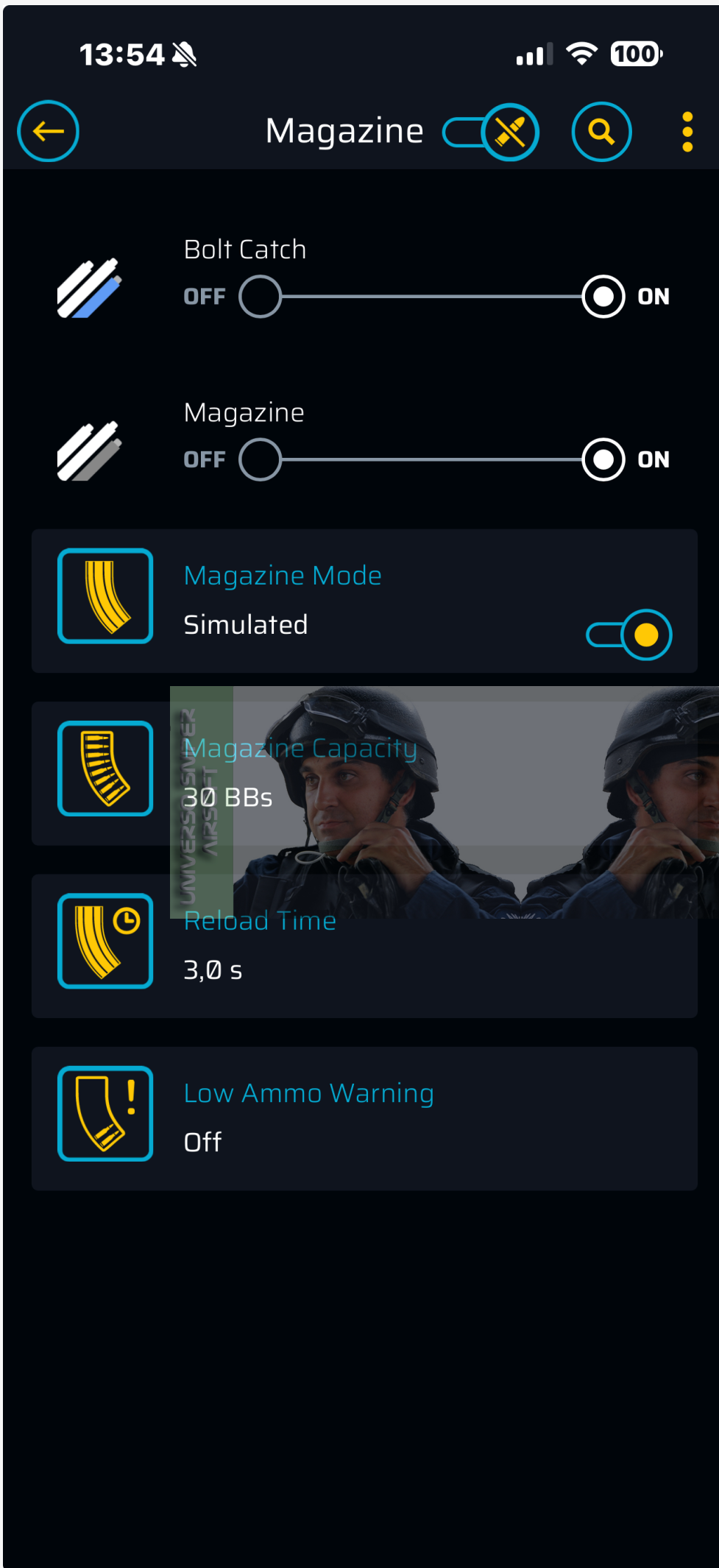


OUT



IN





Quick access menu

Pre-Cocking

- ✔ **Note**
In order for **Manual** mode to work correctly, it must first be adjusted with GCS.

There is no longer any need to turn on the **Switch Mode via Selector** parameter for pre-cocking in GCS to be able to use this function. To turn on Pre-Cocking Mode, you only need to:

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 fire selector within 2 s. You will hear 1 low vibration.
3. Now each fire selector switch means the next option:
 - 1 low vibration – pre-cocking **Off**
 - 2 low vibrations – pre-cocking **Auto**
 - 3 low vibrations – pre-cocking **Manual**
4. Release the trigger to save the selected mode.

De-cocking

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.

- ⚠ **Caution**
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.

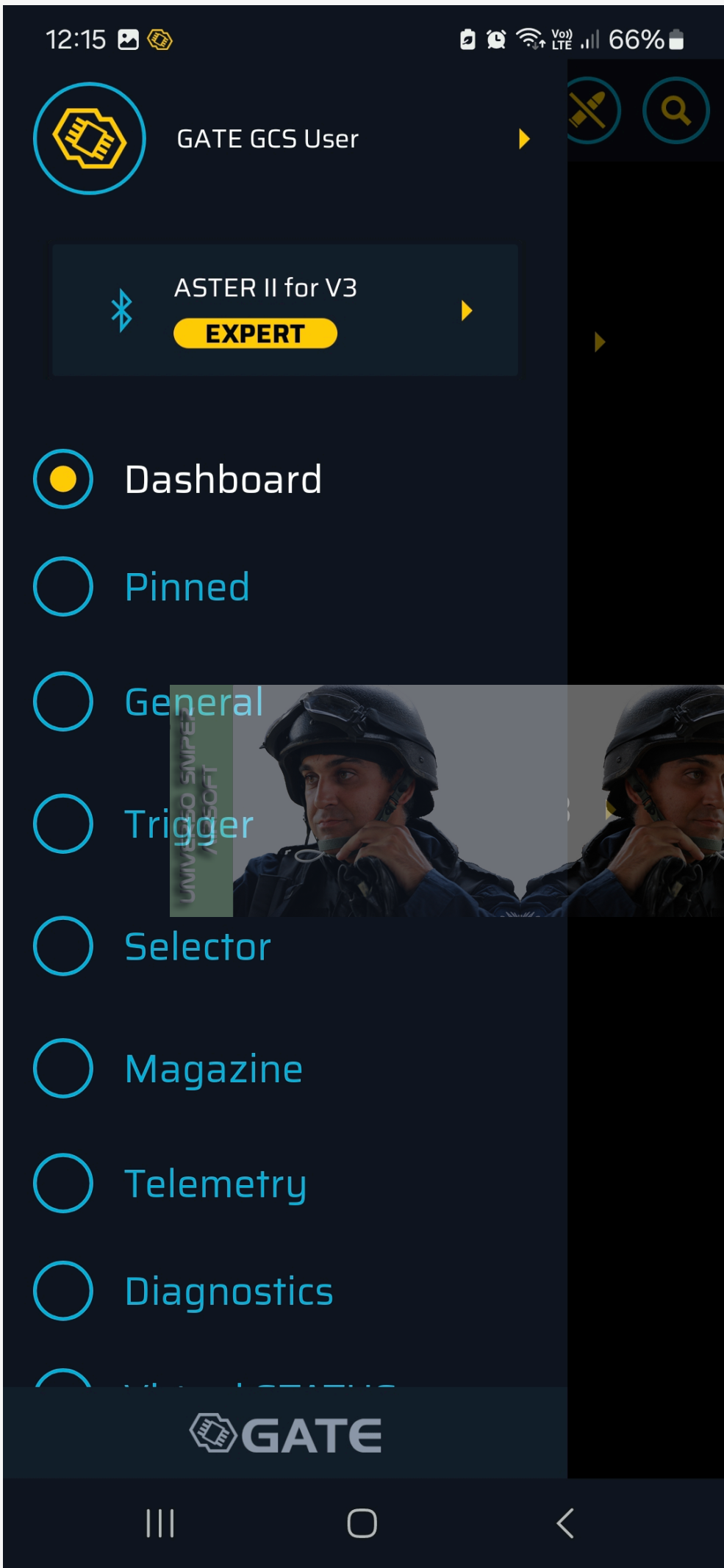
Restoring Factory Settings in the GCS App

- ✔ **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 when the ASTER II Bluetooth® is connected to the GCS app. Follow the steps below:

1. Launch the GCS app and connect the selected ASTER II Bluetooth® device to it.





12:15

66%



GATE GCS User



ASTER II for V3

EXPERT



Dashboard



Pinned



General



Trigger



Selector



Magazine



Telemetry



Diagnostics



GATE

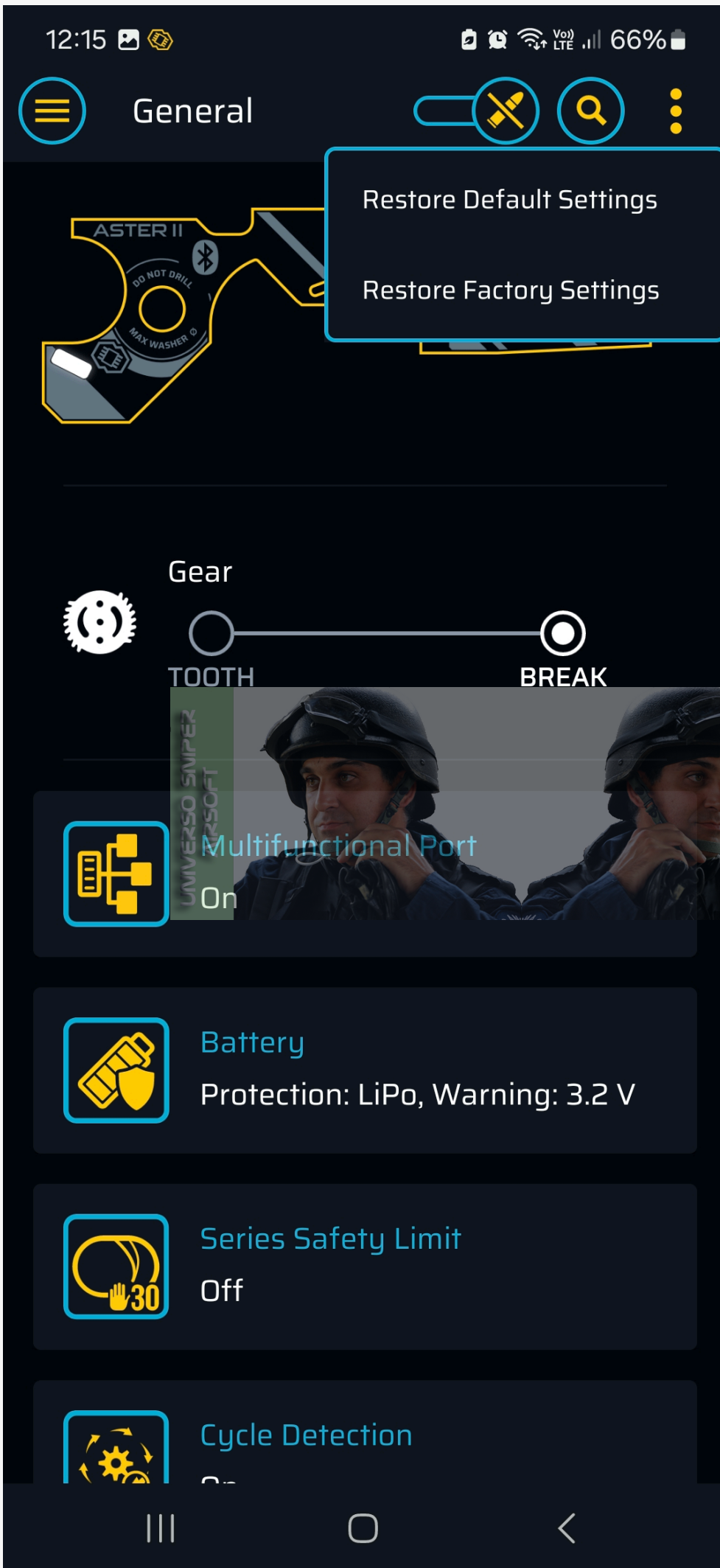


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3. Open the menu in the upper right corner and select **Restore factory settings**.



Restoring Factory Settings without the GCS App

1. Disconnect the battery
2. Pull and do not release the trigger
3. While the trigger is pulled, connect the battery (ignore the warning vibration)
4. Hold the trigger for 10 seconds until you hear 2 vibrations confirming the reset
5. Release the trigger

✔ Informacja

The trigger must be pulled throughout the entire operation – from connecting the battery to sounding the vibration.

Restoring Default Settings in the GCS App

✔ Note

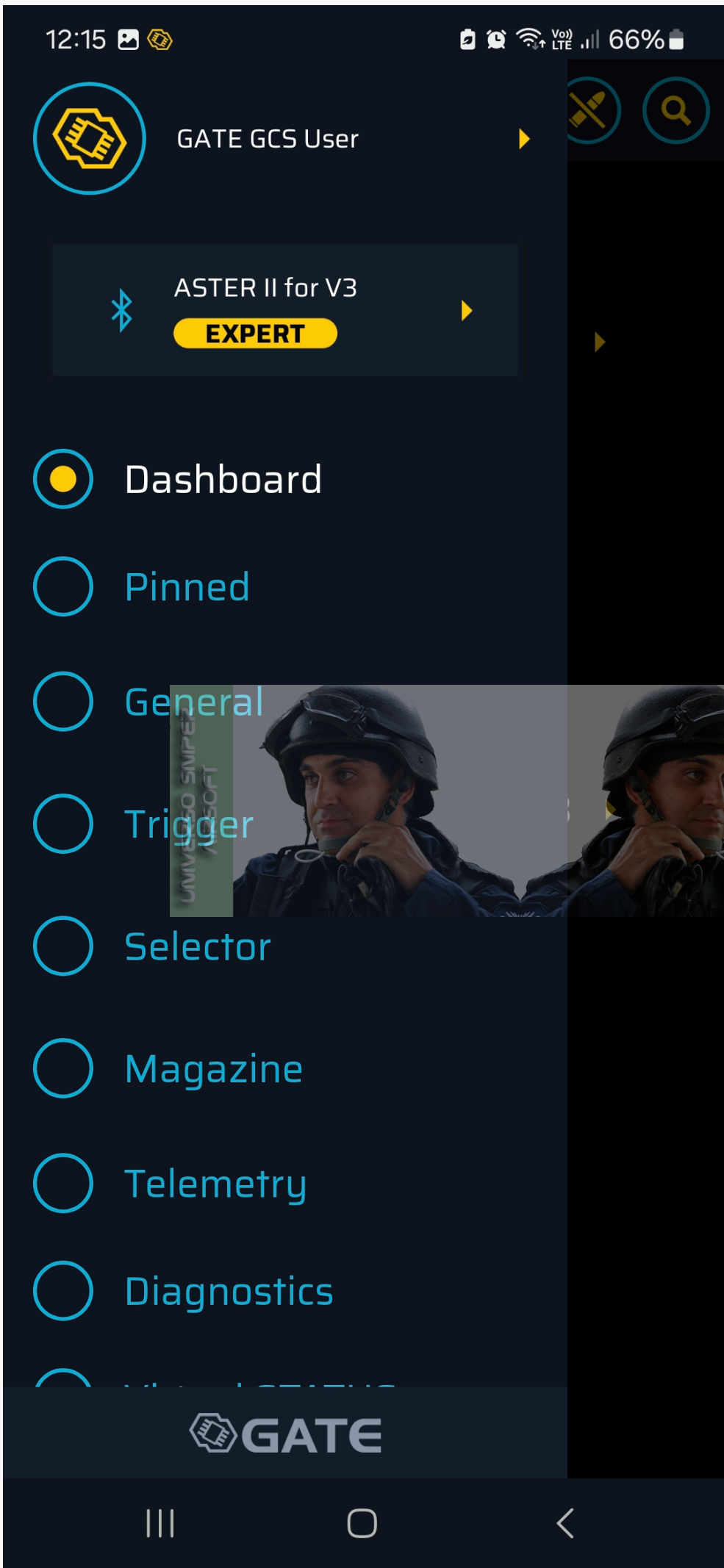
Restoring the default settings results in resetting your personal settings. This action **does not** erase adaptations, calibration of the trigger sensor and fire selector or statistical data.

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

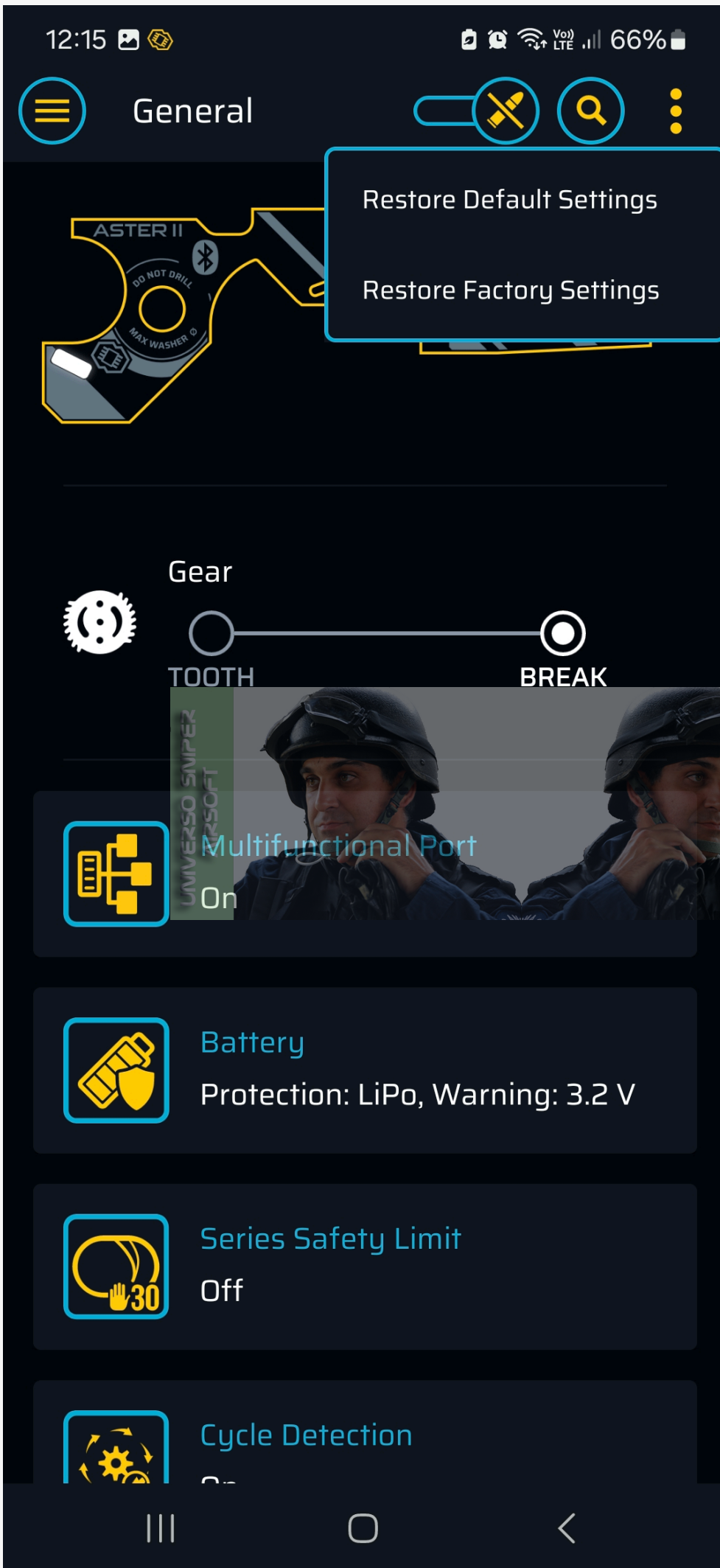


1. Launch the GCS app and connect the selected ASTER II Bluetooth® device to it.





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 → Mid → High.

Vibrations after Connecting the Battery

ASTER 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 ASTER 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 	Two cells detected
3 short high frequency 	Three cells detected
4 short high, 1 long low frequency 	The voltage is too high
3 short low frequency 	Lack of trigger or selector calibration
4 short low frequency 	Trigger error: after connecting the battery, ASTER detected a trigger position where a shot may be fired

Diagnostic Trouble Codes

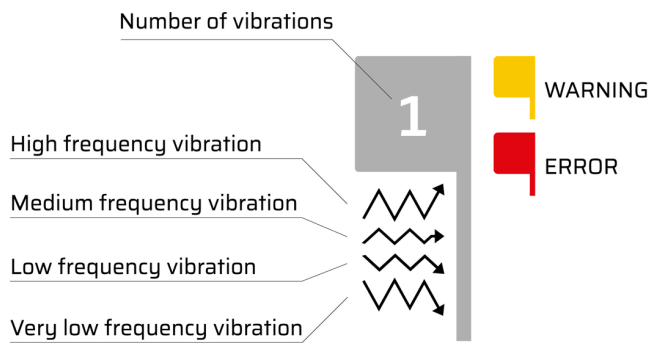
Diagnostic Trouble Codes (DTC) enable detecting basic malfunctions and problems with your replica or ASTER II Bluetooth®. You are notified of the main errors by vibrations. DTCs can be read and cleared in the DTC menu in GCS.



Note

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

Diagnostic Trouble Codes – ASTER II Bluetooth® V3 gearbox drop-in ETU mosfet AEG



No errors

No errors detected. Enjoy airsofting

3

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
3. Inadequate battery type for the current AEG configuration
4. 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
4. We recommend using a battery with a Deans-T connector; if you need to use an adaptor, check the quality
5. Use standard or high-torque 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:

1. The number of cells is different from the number set in GCS
2. Discharged battery

What to do:

1. Set the same number of cells in GCS as in the battery
2. Charge the battery

5

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

Over Voltage Protection for an HPA replica (OVP_HPA)

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 – use maximum two cells

1

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

Overload (OVL)

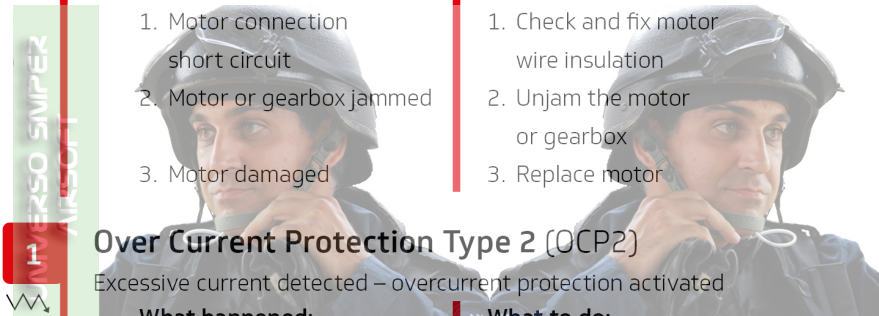
Too high load. The load limit was exceeded

What happened:

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

What to do:

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



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HERSO SMIPER VISOR

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:

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

What to do:

1. Wait until the temperature increases

4

Gear Not Detected (GEAR)

ETU did not detect any movement of the sector gear

What happened:

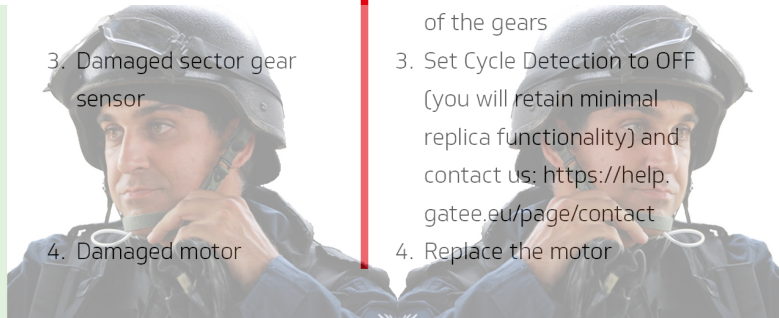
1. Dirty sector gear sensor
2. Jammed sector gear
3. Damaged sector gear sensor
4. Damaged motor

What to do:

1. Clean sector gear sensor; inspect the sensor using GCS; alternatively set Cycle detection to OFF
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. Replace the motor



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4

Motor Disconnected (MOTOR DISC)

ETU did not detect the motor

What happened:

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

What to do:

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



1

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



3

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



1

Selector Error (SEL-ERR)

Selector Error



What happened:

1. Badly calibrated selector
2. Outside light reaching selector sensor
3. 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

1

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)

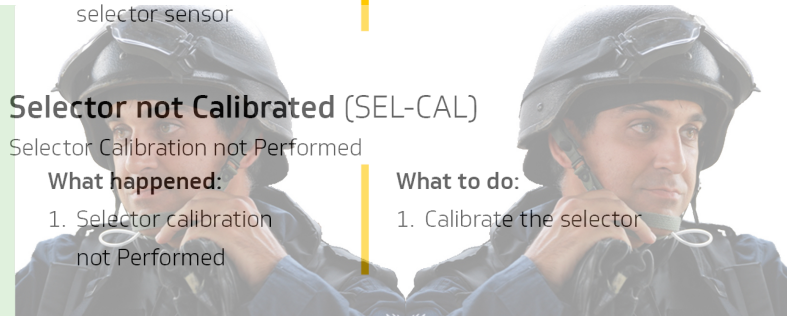
Selector Calibration not Performed

What happened:

1. Selector calibration not Performed

What to do:

1. Calibrate the selector



4

Trigger Error (TRIG-ERR)

A pulled trigger detected when connecting the battery



What happened:

1. Trigger pulled while connecting the battery
2. Trigger sensitivity set too high
3. Dirty trigger sensors
4. Badly calibrated trigger
5. Trigger sensor covered by wires

What to do:

1. Release the trigger
2. Using GCS set a lower trigger sensitivity
3. Clean the trigger sensors
4. Check the routing of the wires inside the gearbox
5. Perform trigger calibration

1

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

3

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
4. 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>

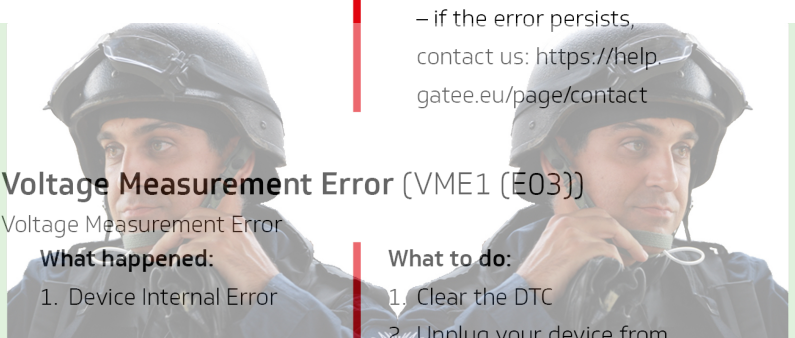
Current Sensor Error (CSE (E05))

Current Sensor Error

What happened:

What to do:

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1. Device Internal Error

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
2. 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
4. 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

What to do:

1. Restore factory settings
2. Install the newest firmware
3. Clear the DTC
4. 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>

Endless Loop (FEL)

Incorrect ETU operation – Information about activation of protection against entering an endless ETU reset loop

What happened:

1. Firmware update not

What to do:

1. Clear the DTC

uploaded correctly or
firmware not working
properly or corrupted ETU
memory

2. Restore factory settings
3. Unplug your device
from the battery
4. Connect your device to
the battery and wait 10 s
5. Check the DTC again
– if the error persists,
downgrade the firmware
to the previous version
6. Check the DTC again – if the
error persists, contact us

Technical Specifications

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

Supply Voltage Range	3.75–12.9 VDC
Rated Current	30 A
Current Consumption	20 mA
Low Power Mode	130 μ A
Connectivity	Bluetooth® 5.2 Low Energy
Dimensions (Length x Width x Thickness)	43.8 mm x 28.7 mm x 5.5 mm
Finished Product Weight	23.4 g
Operating Temperature Range	min. -15° 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.

Intellectual Property

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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.



Certificates and Regulations

Bluetooth® Trademark Attribution

The Bluetooth® by both, the word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by GATE Enterprise sp. z o.o. sp. k. is subject to licensing. Other trademarks and trade names are those of their respective owners.



Product Compliance

Declaration of Conformity

GATE Enterprise sp. z o.o. sp. k. hereby declare under our sole responsibility that GATE ASTER 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:

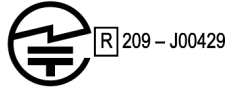
1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesirable operation. Any changes or modifications not expressly approved by Silicon Labs could void the user's authority to operate the equipment

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。



This device contains
FCC ID: QOQ-BGM220S2
IC: 5123A-BGM220S2

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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