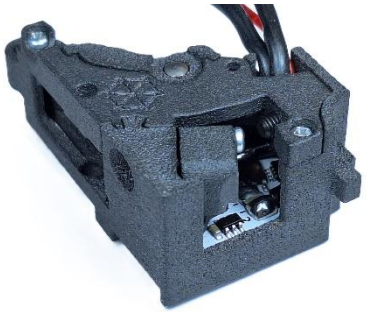
Perun for G28 and HK417 by VFC

User and installation manual



Perun for G28 and HK417 by VFC replaces mechanical contacts in your replica and provides lots of useful features. Optical and magnetic sensors allow to eliminate many moving parts that are prone to damage, thus increasing the reliability. Multiple trigger adjustment options, including integrated adjustable Clicker, allow you to set the trigger exactly to your preferences. Adaptive trigger control allows switching from a very short trigger travel to a long one even in the field, with almost any trigger, including stock ones.

Reading this manual will help you fully exploit this unit's potential and in case of encountering any problems, you can look for solutions to them here.

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e-mail: info@perunairsoft.pl

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1. Technical data

Recommended power sources

Perun for G28 and HK417 by VFC works with any power source that provides a voltage between 7 and 17 volts and can deliver enough current to ensure smooth cycling of the replica. Li-Po and Li-Ion batteries with a nominal voltage of 7.4, 11.1 or 14.8 volts are recommended. It is also advised to use batteries with possibly high „C" parameter and capacity. This is safer for the battery, as it should not be working on the edge of its capability. In this video, we are showing why:
https://www.youtube.com/watch?v=s8RKcIy810A

Capacity and the „C" parameter also influence the rate of fire of the replica:
https://www.youtube.com/watch?v=5hO25aPvHcU

Compatibility with high-ROF and high-power builds

Perun for G28 and HK417 by VFC can work with any replicas, including highly tuned.

Compatible gearboxes, gears, and triggers

Perun for G28 and HK417 by VFC works only with those replicas. It can use either stock VFC gearbox shell or Retro Arms CNC upgrade shell. Any gearset can be utilized, including DSG, TSG, short stroked, helical, non-helical, and with any ratio. Perun for G28 and HK417 by VFC requires stock trigger to work.

Electronic fuse

Perun for G28 and HK417 by VFC has an integrated electronic fuse, which will automatically cut the power off in case of a short circuit or when a gearbox jam is detected. The fuse does not wear out when it is activated.

Battery connector type

Perun for G28 and HK417 by VFC comes with an already soldered T-Plug connector (T-Deans).

Stand-by current consumption

Whenever the battery is connected and selector is set to "SAFE", the mosfet consumes 1 mA of current. While unnoticeable during normal play, it may deplete your battery completely and damage it, if you store the replica with battery connect for a week or more. Therefore, always remember to disconnect the battery after use.

Brushless motors

Perun for G28 and HK417 by VFC works with BLDC motors like Option No. 1 or Warhead. When using brushless motors, adhere to manufacturer's recommendations regarding active braking, RoF reduction and other settings.

Conformal coating

Perun for G28 and HK417 by VFC is covered with transparent conformal coating, that protects it from humidity and water. We recommend against cleaning the unit with any chemical agents, as they may remove the coating. If unit is covered in dirt or grease, it is best to gently remove it using paper wipe or a piece of cloth.

⚠ *During the coating process, we take great care that whole unit is properly covered and some excess coating sometimes inadvertently covers the first couple of centimeters of the insulation of the wires. Because our wires are more flexible than the coating, the coating present on them cracks, leaving marks. This is normal and does not affect the unit's functionality.*

2. Warranty and liability limitations

Warranty

We offer a 24-month warranty on this electronic trigger unit from the date of retail purchase. This warranty covers defects in materials or workmanship under normal use conditions. The warranty does not cover:

- Damage caused by improper installation, misuse, or neglect.
- Any alterations, modifications, or repairs made by unauthorized persons or third-party services.
- Damage resulting from the use of third-party components or accessories not approved by the manufacturer.
- Wear and tear due to regular use or external factors such as extreme conditions.
- Any incidental, consequential, or punitive damages, including damage to the airsoft replica or any other parts such as the gearbox, motor, or batteries, arising from improper use of the trigger unit.

Claims Process

To submit a warranty claim, contact our customer service team at info@perunairsoft.pl with a detailed description of the defect. If your claim is approved, we will repair or replace the unit at our discretion. This warranty does not cover shipping costs for returning the product. This warranty gives you specific legal rights, and you may have other rights which vary depending on your region.

Limitation of Liability

The manufacturer and its affiliates are not liable for any personal injury, damage, or loss of property arising from:

- Improper installation or use of this product.
- Failure to follow the instructions provided in this manual.
- Use of the product in a manner not intended or recommended by the manufacturer.

3. How does it work?

Perun for G28 and HK417 by VFC uses optical and magnetic sensors for the detection of sector gear, trigger, and selector plate positions.

Sector gear detection

Sector gear phototransistor (sensor) and IR LED diode work in pair as a reflective switch. When the sector gear is at the end of the gearbox cycle, it pushes a special cut-off lever, so that it no longer reflects IR from the diode the sensor. This indicates to the microcontroller, that a new cycle has started.

Selector sensor

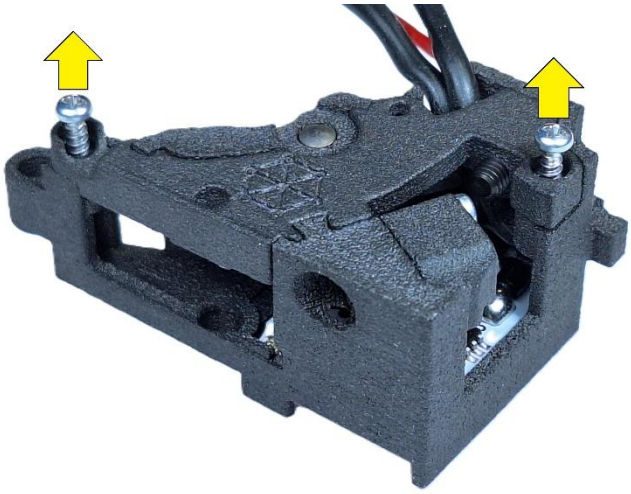
Similarly to sector gear sensor, two selector plate sensors work by emitting infrared radiation and detecting, how much of it is coming back to them due to reflection from the white selector plate. As the selector plate moves to the left and reflects light to one and then two sensors, it inform the microcontroller about selector position.

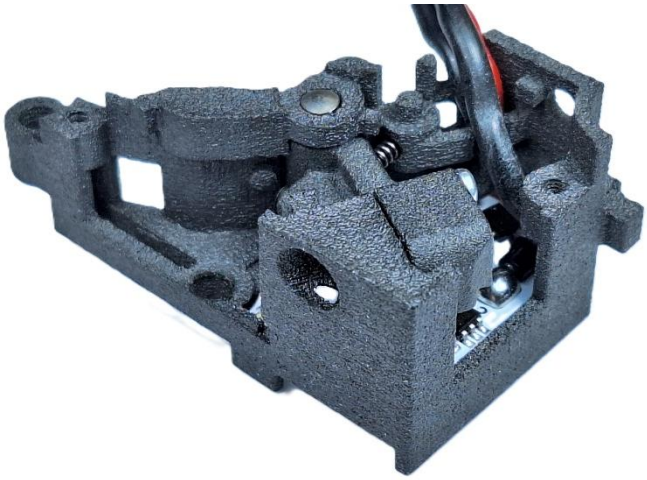
Trigger

Hall-effect sensors are monitoring magnetic field generated by a magnet installed at the end of a lever actuated by the trigger. These readings are then conveyed to the microcontroller of the unit, which depending on the sensitivity setting and trigger position, may trigger a shot. The magnetic sensors are also able to detect, whether an external magnetic object is present near to the replica and in such case, will activate external magnetic field alarm to prevent an unintended shot.

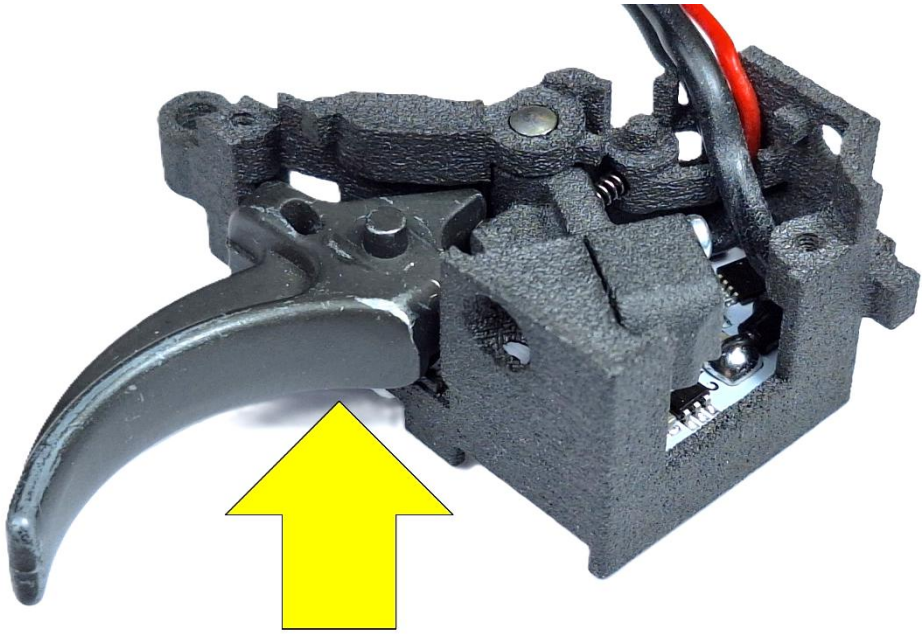
4. Installation

1. Start by removing the gearbox from the replica. Take the stock trigger assembly off the gearbox.
2. Open the housing by removing two screws shown on photo below and carefully and firmly taking out the top cover.





3. Install the trigger. You may or may not also install the trigger spring, that depends wholly on your preferences regarding the trigger feel.

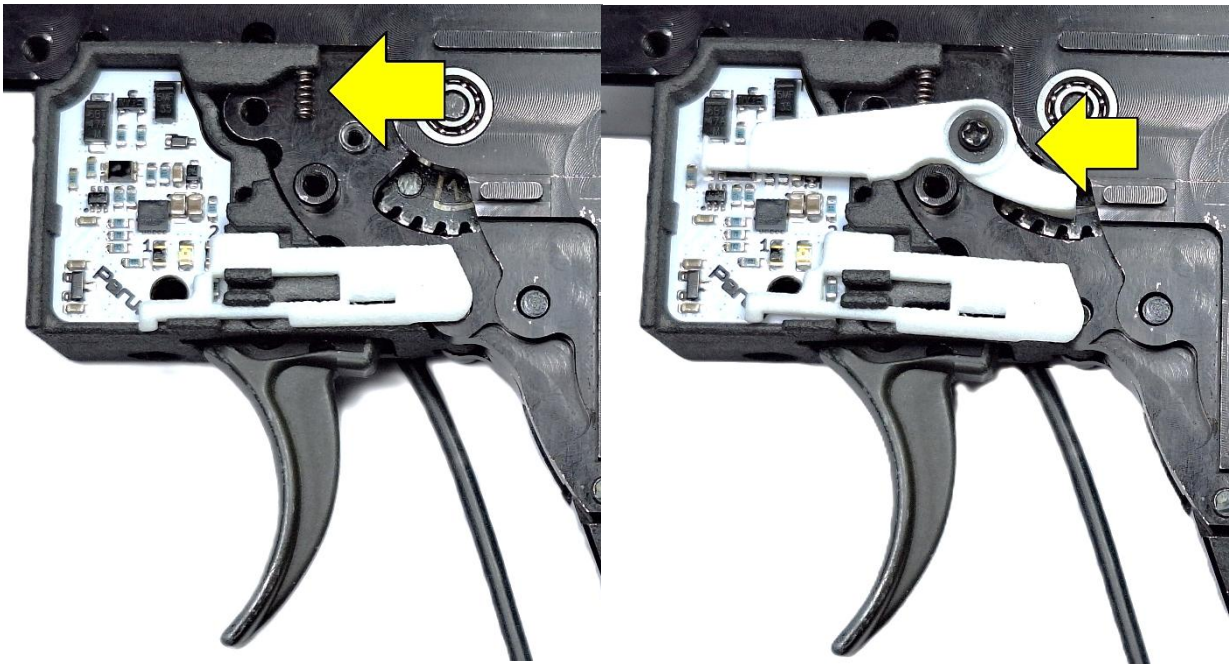


4. Close the top cover put the screws back in place.

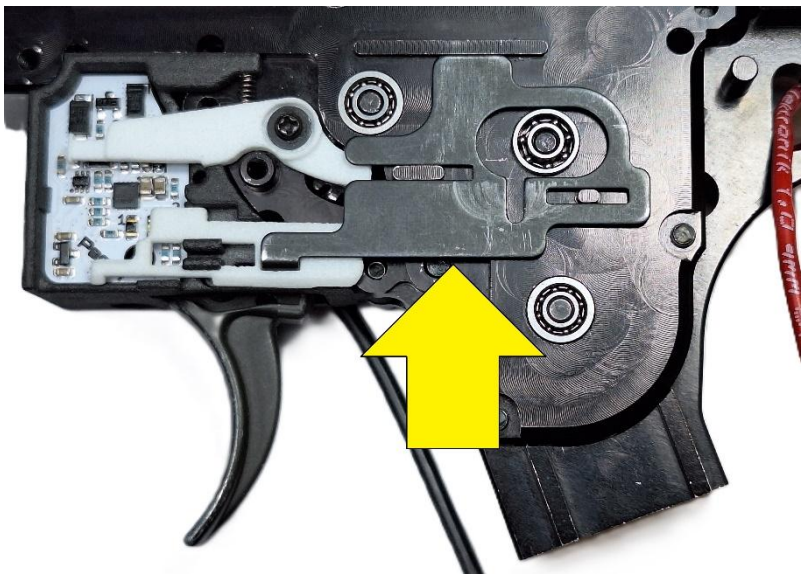
⚠ ***Trigger overtravel adjustment*** *is only possible up to this point during installation. We recommend going to relevant section in the "Trigger feel adjustment" chapter to take a look at what this is about and set it now, so that you don't have to unmount the housing from the gearbox later, which might be relatively time-consuming.*

5. Mount the Perun trigger assembly on the gearbox. Channel the wires as shown on picture below. In stock VFC gearbox, thin red wire can be channeled together with the thick black wire all the way to the back of the gearbox. In Retro Arms design, the trough is too thin to allow that, so the thin red wire has to be gently squeezed between the gearbox wall and the receiver, when gearbox is being inserted into the receiver.

6. Install the cut-off lever (white part). First put the spring in place, as shown on photo to the left, then put the lever in place and fasten it with the screw.



7. Insert original metal selector plate into the white selector part.

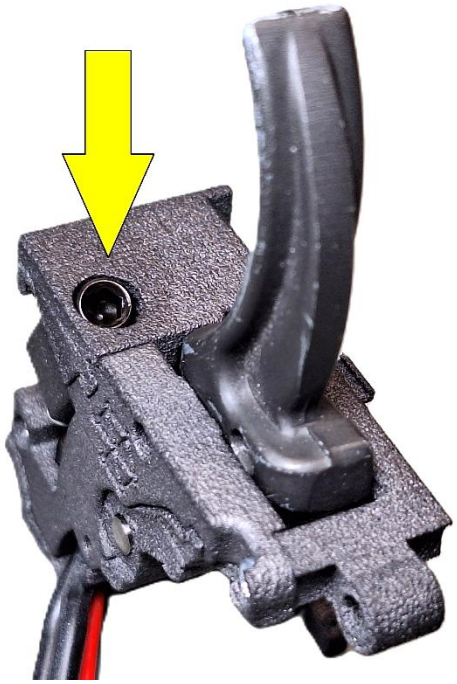


8. At this point you can insert the gearbox into receiver and assemble the replica, but we recommend on adjusting the trigger feel. It can only be done while the gearbox is outside of the replica. Instruction on how to do it is available below. Do not forget to also perform selector calibration before connecting the motor for final assembly, details of which are also described in further chapters of this manual.

5. Trigger feel adjustment

Trigger break force

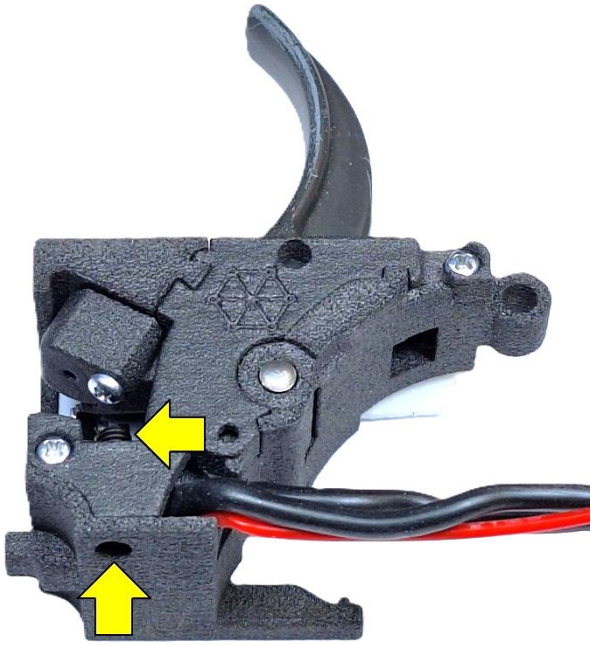
Turning the screw to the right increases trigger hardness, turning it to the left decreases it. The hardest setting is achieved right when the adjustment screw starts pushing trigger lever away from its normal resting position. Screw should not be turned to the right any more at this point, as this will not increase the hardness of the trigger, but will reduce trigger sensitivity to a level where it might become not functional.



Overtravel

Overtravel is the distance that trigger can travel after the break. Turning the screw to the right decreases overtravel, turning it to the left allows for more movement.

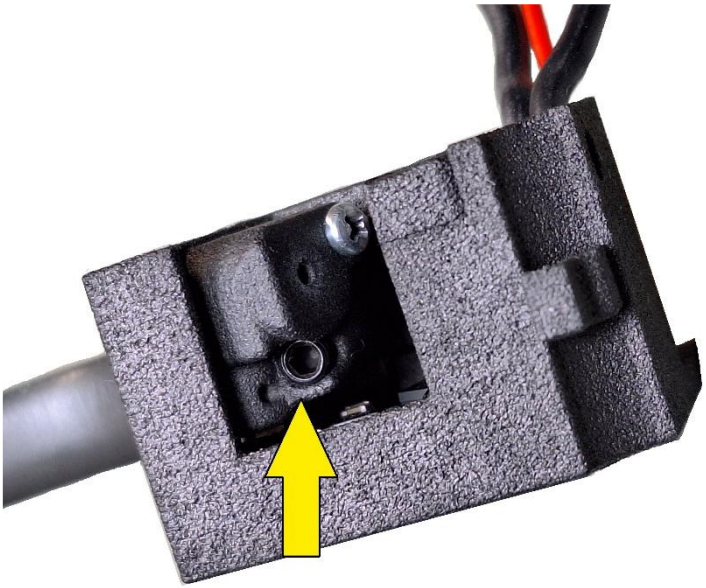
⚠ *If the overtravel will be limited too much, unit might not register all trigger pulls correctly.*



Pretravel

Pretravel is the distance that trigger can travel before the break. Turning the screw to the right decreases pretravel, turning it to the left allows for more movement.

⚠ *If the pretravel adjustment screw will be turned too far, magnet responsible from the break will move away from the metal screw, which will reduce the break force! If you want to reduce pretravel to none, while keeping strongest possible break force, turn the screw until it touches the trigger and puts a just a little force on it that takes out any play between trigger parts, but does not move the magnet away from the metal screw that it is normally attached to.*



6. Selector calibration

There are two modes for the selector plate detection – **default** and **calibrated**. **Default is the factory setting**. It is recommended to perform selector calibration in all cases. After successful calibration, selector will be in the **calibrated** mode. **After each unsuccessful calibration selector will return to default mode.**

To perform the selector calibration, assemble the replica. Calibration should only be done now, after installation, once all the components are in place, except for the motor which should be disconnected.

1) Enter Sensor Check Mode

Plug the battery in, while the motor is disconnected. You will enter the sensor check mode, which will be signaled by slowly blinking yellow light.

2) Start Calibration

Pull and hold the trigger. The LED should turn solid violet while the trigger is held.
After a few seconds, the LED will start blinking white – calibration has started.

3) SAFE Position Calibration

Set the selector to SAFE. Hold the trigger until the LED turns green, then release.
The LED should now blink blue rapidly.

4) SEMI Position Calibration

Set the selector to SEMI. Hold the trigger until the LED turns green, then release.
If all went well, the LED should now blink red rapidly.

⚠ *If instead of seeing green LED and then red, you immediately see red and then it returns to blinking yellow, it means that system didn't detect a change between SAFE and SEMI and you are back in the sensor check mode. Refer to Unsuccessful Calibration below.*

5) AUTO Position Calibration

Set the selector to AUTO. Hold the trigger until the LED turns green, then release.
If you see a red LED, go to Unsuccessful Calibration.
The LED should now blink blue rapidly.

⚠ *If instead of seeing green LED and then blue, you immediately see red and then it returns to blinking yellow, it means that system didn't detect a change between AUTO and SEMI and you are back in the sensor check mode. Refer to Unsuccessful Calibration below.*

6) Final SEMI Confirmation

Set the selector back to SEMI. Hold the trigger until the LED turns green, then release.
Red LED? See Unsuccessful Calibration.

7) Verify Calibration

Stay in sensor check mode.
Switch through the selector positions and check if the LED colors match:
SAFE → White
SEMI → Blue
AUTO → Red

Unsuccessful calibration

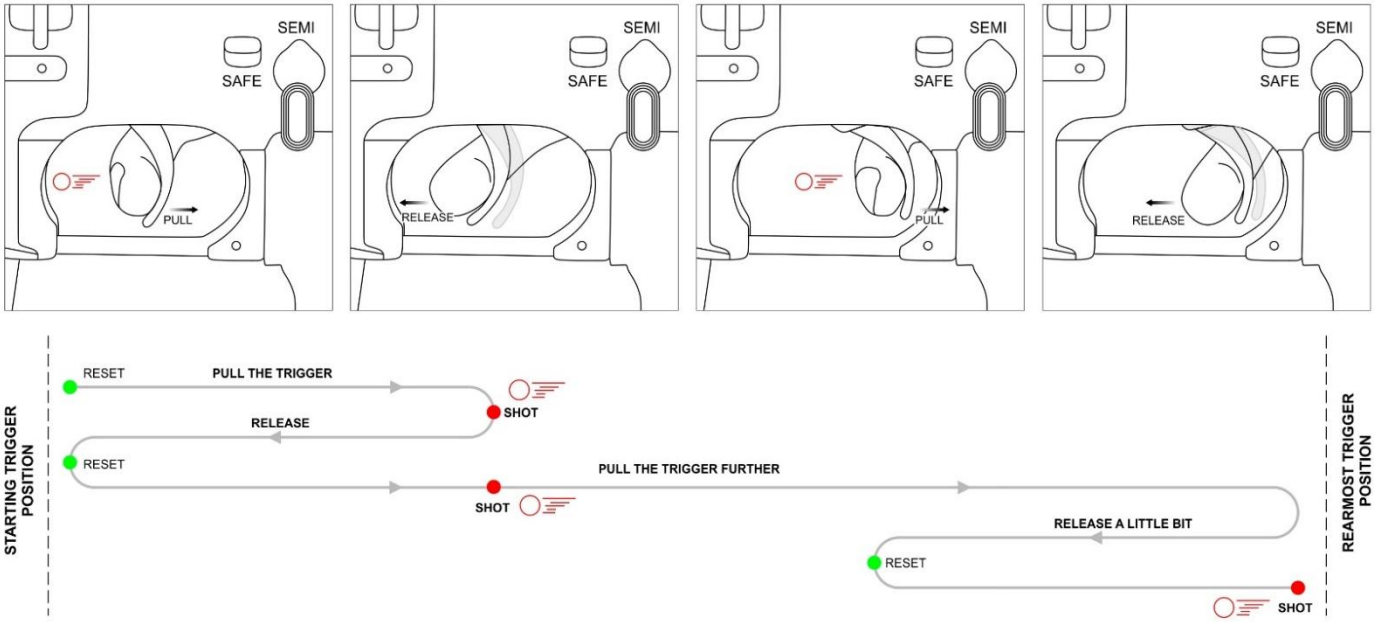
If the calibration was unsuccessful, this could be due to following problems:

1. Problems with the selector system. Make sure that all parts are in place and mesh correctly.
2. Failure of selector sensors. If selector sensors do not react at all to any movement of the selector plate (no white, blue or red signals in sensor check), they are most probably damaged and you should contact Perun.
3. Damage to the selector plate.

7. Adaptive trigger control

Each time the battery is connected, Perun senses the trigger resting position and uses it as a reference (therefore, make sure to never pull the trigger during startup). Depending on the current trigger sensitivity setting, Perun will automatically fire after the trigger has traveled a long enough distance. This allows very short trigger pulls with no trigger modification needed whatsoever and the trigger sensitivity changes possible even in the field.

When using a trigger with regulation, only the overtravel limiter should be used. Pre-travel regulation can make the trigger pull necessary to fire a shot longer, than it would have been when left in the standard forward position. When in normal semiautomatic mode, the Perun Hybrid uses a progressive trigger activation method. This means that the trigger threshold and reset points are mobile and move together with the trigger, as shown on the sketch below:



This results in two things:

1. If high trigger sensitivity is set, in most cases (depending on the trigger model) you should be able to pull the trigger all the way back and shoot by only slightly releasing it from the rearmost position and pulling it again. It also allows to easily “spam” in the semiautomatic mode because you only need to quickly pull the trigger, not necessarily having to make sure it is fully released. This might be a point of interest, particularly for speedsoft players.
2. For players looking for more realism, what might be important is that the trigger must always be reset (released) a certain distance before another shot can be taken, which is noticeable at lower sensitivities. This emulates how triggers in real firearms work and provides a greater degree of control.

Adaptive trigger control checks how far the trigger can mechanically travel after each battery connection. Because of that**, trigger pull for the first shot will always be shorter, when trigger sensitivity levels between 6 and 1 are set**. The second stage in 2-stage trigger will also be activated faster during the first pull.

The progressive method does not work when burst, auto, DMR mode, binary trigger or 2-stage trigger are enabled.

8. Features and programming

To enter the programming mode:
For "SEMI" – keep the selector on "SEMI" for a couple of seconds, then go to "AUTO" and back, twice, fast! ("SEMI" → "AUTO" → "SEMI" → "AUTO" → "SEMI")
Successful entry into the programming mode for "SEMI" will be confirmed by **one sound signal and a blue LED light.**
For "AUTO" – keep the selector on "AUTO" for a couple of seconds, then go to "SEMI" and back, twice, fast! ("AUTO" → "SEMI" → "AUTO" → "SEMI" → "AUTO")
Successful entry into the programming mode for "AUTO" will be confirmed by **three sound signals and red LED light.**

Switching the selector between "AUTO" and "SEMI" and back allows to move between the modes. Pulling the trigger allows to enable, disable, or set levels for the modes.

⚠ *Programming is only possible within 5 minutes after connecting the battery or after the last time the programming mode was active!*

Full feature description

All the settings are set independently for "SEMI" and "AUTO" selector positions, except for Li-Po alarm and Master reset, which work for both selector positions.

Function and LED color	Description
Firing mode Green	Choose firing modes for each selector position: safe, semi, burst, auto and binary. No sound signal, steady green light – safe 1 short single signal and blink – semi 3 short signals and blinks - burst 1 long signal and blink – auto 2 long signals and blinks – binary (semi, but shots are fired when the trigger is both pulled and released) ***Tip:*** *When in binary trigger mode, hold the trigger for 2 seconds to cancel the second shot.*
Burst count Green and white blinking alternately	Define number of shots in a burst. 2-5 short signals and blinks – 2-5 round burst
AB Blue	Active brake (AB) stops the motor after the shot, preventing the spring from remaining in a compressed state and eliminates double shots on semi in replicas with high rate of fire ("overspin"). 5 levels of braking strength are available – from 1 (weakest braking) to 5 (the strongest). Braking can be also completely disabled. It is advised not to use braking or use it on the lowest level, if stronger braking is not necessary, as it negatively impacts the service life of motor brushes and causes increased heating. ***Tip:*** *Switch to semi, fire a single shot, and hold the trigger after the shot. This will cause a second single shot with strongest AB setting to be fired after 3 seconds, making sure the spring remains uncompressed. It is advised to do that when you finish shooting.* ⚠ *In Perun for G28 and HK417 by VFC, active brake is independent of precocking settings.* No sound signal while LED glows blue means, that the active brake is disabled. 1 to 5 signals indicate braking levels from 1 (the weakest) to 5 (the strongest).

Function and LED color	Description
Precocking  Yellow	When shooting on semi, precocking keeps the piston in the rear position, ready for the shot. This decreases the time between pulling the trigger and the actual shot, increasing realism, and giving advantage in CQB fights. Correct precocking level must be set individually to each replica and according to user preferences. Precocking power is automatically adjusted to battery voltage and semi or automatic shots. ***Tip:*** *To release the spring after using precocking, switch to semi, fire a single shot, and hold the trigger after the shot. This will cause a second single shot with the strongest active brake setting to be fired after 3 seconds, making sure the spring remains uncompressed. It is advised to do that when you finish shooting.* No sound signal while LED glows yellow means, that the precocking is disabled. 1 to 8 signals indicate precocking levels from 1 (the weakest) to 8 (the strongest).
Two-stage trigger  Violet and green blinking alternately	The two-stage trigger allows firing in one mode after pulling the trigger slightly, and another when the trigger is pulled further. Following modes are possible: semi → burst semi → auto burst → auto Burst count is set to 3 by default, but if burst of 2, 4 or 5 will be set in the “Firing mode”, such burst count will become active in the Two-stage trigger accordingly. ⚠ *Works best when screw responsible for the trigger break (clicking) is fully rectracted. It is hard to use this mode with integrated Clicker active.* ⚠ *Does not work with the binary trigger. When the two-stage trigger is enabled, the binary trigger is automatically disabled.* No sound signal while the LED blinks purple and green alternately means, that the two-stage trigger is disabled. When it is enabled, sound signals resembling the active setting can be heard.
Trigger sensitivity  Violet and yellow blinking alternately	This parameter decides how sensitive is the trigger. 8 levels are available, which result with a shot after the lower tip of the trigger travels roughly: 1 – 6 mm 2 – 5 mm 3 – 4 mm 4 – 3 mm 5 – 2 mm 6 – 1 mm 7 – 0.5 mm 8 – 0.25 mm ⚠ *Those are approximate values and may vary depending on parts used and mechanical trigger adjustment.* 1 to 8 signals while the LED blinks violet and yellow alternately indicate sensitivity levels from 1 (the lowest) to 8 (the highest).

Function and LED color	Description
ROF reduction White	This function allows to lower the rate of automatic fire. 5 reduction levels are available: 1 – 6% 2 – 12% 3 – 18% 4 – 24% 5 – 30% ⚠ *Those are approximate values and may vary depending on replica configuration.* ⚠ *Semi-automatic shots and the first shot in burst are always fired without any power reduction to retain good trigger response.* No sound signal while LED glows white means, that the ROF reduction is disabled. 1 to 5 signals indicate reduction levels from 1 (the smallest) to 5 (the greatest).
DMR mode Purple	DMR Mode allows only semiautomatic shots and limits their frequency as well. Its main use is for high power DMR-styled replicas on fields, which demand such limitations. 0.25s, 0.5s, 1s, 2s and 3s intervals are available. No sound signal while the LED glows purple means, that the DMR mode is disabled. 1 to 5 signals indicate interval levels from 1 (the shortest) to 5 (the longest).
Li-Po and Li-Ion alarm Teal	Li-Po and Li-Ion alarm informs the user that battery voltage has fallen below 3.7V per cell, at which the battery should not be further used and must be recharged. Unit automatically detects number of cells in the battery and determines safe voltage range. The need for battery replacement is signaled by short sound signals every 30s. Disable this function if you are using batteries other than Li-Po or Li-Ion. No sound signal while the LED glows white means, that the alarm is disabled. 1 signal indicates activation of the alarm.
DSG Green and blue blinking alternately	This function must be enabled when dual sector gear is used, to provide proper cycle control. No sound signal while LED glows green and blue alternately means, that DSG is disabled. 1 signal indicates activation of the DSG mode.
Master reset Red	Master reset returns the unit to the factory settings. To reset, pull and hold the trigger for 2 seconds or simply wait 10 seconds while the LED glows red and until the reset takes place without using the trigger. A long sound signal confirms return to factory settings.

9. Factory settings

New units and units where master reset was activated will have modes set in a following way:

- Firing mode – semi on “SEMI” and auto on “AUTO”
- Burst – 3 rounds
- AB – level 3
- Precocking – disabled
- Two-stage trigger – disabled
- Trigger sensitivity – level 4
- ROF reduction – disabled
- DMR Mode – disabled
- Li-Po and Li-Ion alarm – enabled
- DSG - disabled

10. Diagnostic system

Perun for G28 and HK417 by VFC has a diagnostic system that will help you find the source, should you encounter a problem. After the battery is connected, the unit undergoes a start-up check, to make sure replica is ready to work. Successful completion of this check is indicated by a short green blink of the LED.

Problem and LED color	Description
Disconnected motor/Diagnostic mode Yellow, blinking	This not only provides information about the disconnection of the motor, but it is also a diagnostic mode for the trigger, selector, and sector gear sensors, if motor is purposefully disconnected before plugging the battery in. With the motor disconnected, engaging the sensors will cause the LED to glow purple (trigger), white, blue and red (selector), or green (sector gear) for a moment. This can be used for troubleshooting. If replica is not shooting and yellow blinking error is being signaled, check the motor and all its connections. Reconnecting the motor will restore normal function. ⚠ *Motor check only takes place at start-up and while attempting to fire. A disconnection while the replica is powered, but idle, will not be signaled!*
Fuse activation Red, continuous or blinking	Activation of the fuse with a distinction between a short circuit (continuous red) and gearbox jam (blinking red). In some situations, this distinction may not be correct, for instance, a gearbox jam may be incorrectly read as a short circuit and vice versa. Electronic fuse might as well be activated by parts combination, which draws too much current (e.g., high speed motor and gears). The unit will start functioning normally after the battery is reconnected unless there still is a short circuit that will be detected at the next start-up.
Gearbox cycle detection failure Yellow and green blinking alternately	The gear sensor did not detect gearbox cycle, although the motor did apparently spin and is connected. If you are getting unwanted burst on semi, check whether the gears or the sensors are not damaged and whether the sensors are properly engaged by the gears.
Unit temperature is too high Yellow and white blinking alternately	Too high temperature of the unit (electronic board) was detected. It will not function again until it cools down, after which it will operate normally.
Battery with too low voltage is connected Yellow and teal blinking alternately	Battery with voltage below 7 V is connected. Change the battery to one with voltage between 7 V and 17 V.
Battery with too high voltage is connected Red and teal blinking alternately	⚠ **Battery with voltage over 17 V is connected. The battery must be immediately disconnected, as it can cause permanent damage!** Change the battery to one with voltage between 7 V and 17 V.

Problem and LED color	Description
An external magnetic field was detected  Red and violet blinking alternately	External magnetic field (originating not from the trigger magnet) was detected by the trigger sensors. The unit will be blocked until the source of the magnetic field is not removed.
Main transistor or driver damage  Red and yellow blinking alternately	The main transistor or driver is damaged. Contact us at info@perunairsoft.pl
Battery voltage sensing malfunction  Red and white blinking alternately	The battery detection system is malfunctioning. Contact us at info@perunairsoft.pl
Trigger sensor errors  White and green blinking alternately  Violet and green blinking alternately  Blue and green blinking alternately	If any of those errors appears, try disconnecting and connecting the battery again. If that does not help or it does help sometimes, but error still shows up from time to time, contact us at info@perunairsoft.pl

Other known problems:

Problem	Cause	Solution
Replica fires a 2-round burst in semi-auto mode.	Motor and battery are too strong for the main spring, which causes an overspin.	Enable AB or precocking.
	Too high precocking level	Set precocking to a lower level.
	Cut-off mechanism malfunction.	Check the cut-off lever.
Replica does not shoot; the unit does not emit any light or sound.	Incompatible T-Deans battery connector.	T-deans plugs and sockets from various manufacturers may sometimes not work together reliably. Although the plug may seem to fit the socket nicely, the conductive surfaces may not contact each other, cutting the power off. In that case try with another battery, most preferably with a T-deans socket made by different manufacturer.

Battery and/or the motor heat up very much.	**The battery has too low capacity (mAh) and/or "C" parameter.**	**Use a battery with higher capacity and/or "C" parameter.**
	The motor is too weak.	Use a stronger motor, possibly with neodymium magnets.
	Increased motor load caused by an excessive friction, for example caused by: - improper shimming, - motor positioned askew in the pistol grip.	Remove the cause of the friction.
	The motor/gear ratio/spring combination draws too much current (for instance – high speed motor, high speed gears and M120 spring).	Change the replica configuration by using a softer spring, gears with higher ratio (lower speed, higher torque) or motor with higher TPA number (or lower revolution speed).
When trying to shoot, replica remains silent or shortly vibrates, after which green LED appears and one beep is heard	A gearbox jam or a short-circuit is present but because of low battery power or bad connection with the battery, the unit resets due to voltage drop instead of the electronic fuse properly activating.	Remove the reason of the gearbox jam or short-circuit.
	The build is too power demanding for the battery use and the unit resets due to voltage drop.	Use a higher-powered battery.
External magnetic field error appears, despite no external magnet being close to the replica	Trigger was being held at startup.	Reconnect the battery and do not hold the trigger during the startup.
When RoF reduction is enabled, electronic fuse activates, or the replica just does not shoot	The RoF reduction is too great, and the motor is not able to cycle the gearbox.	Reduce RoF reduction or disable it completely.
Motor beeps from time to time	Li-Po alarm has activated.	Replace the battery (if you're not using a Li-Po or Li-Ion, disable the Li-Po alarm).
Safe mode doesn't work	Selector position detection error caused by lack of black paint on the inner selector wall or it being too thin.	Put a black sticker or tape on the receiver's inner wall directly in front of the sensors, or paint this area black, even if it does already looks black.
	The selector plate itself is too reflective.	Paint the edges of the plate black, stick black stickers on them, or replace the plate.

In case of any technical questions, please contact us at: info@perunairsoft.pl

11. Sensor check

You can easily check the sensor readings by disconnecting the motor. When Perun for G28 and HK417 by VFC is connected to the battery, but disconnected from the motor, it informs about this by yellow, flashing light. If during that flashing a properly working and connected sensor will be engaged, the unit will signal that by changing the LED color for a moment. After you enter the sensor check mode, it will be active for 5 minutes, after which the unit will shut down. To restart it, simply reconnect the battery.

⚠ *To enter this mode, the motor must be disconnected first, only then connect the battery!*

LED color	Sensor
Disconnected motor / Sensor check  Yellow, blinking	None of the sensors detects any change at this moment.
Selector switched to “AUTO”  Red	This should happen after the selector is switched to “AUTO”.
Selector switched to “SEMI”  Blue	This should happen after the selector is switched to “SEMI”.
Selector switched to “SAFE”  White	This should happen after the selector is switched to “SAFE”.
Trigger  Purple	Trigger pull detected.
Sector gear  Green	Sector gear movement detected.

Checking the trigger and selector sensor can be done by simply pulling the trigger or switching the selector between “SAFE”, “SEMI” and “AUTO” positions. This can be done without disassembling the whole replica.

To check the sector gear sensor, it is best to open the gearbox and remove everything out of it except for the sector gear (make sure to keep the shimming the same as in assembled replica, it can influence whether the sensor would work or not) and attach Perun to the gearbox. Then spin the sector gear by hand and see, whether the color of the light changes to green.