INSTALLATION MANUAL

SCYLLA HPA - V2

Obsah

Scylla HPA - V2 optical parameters

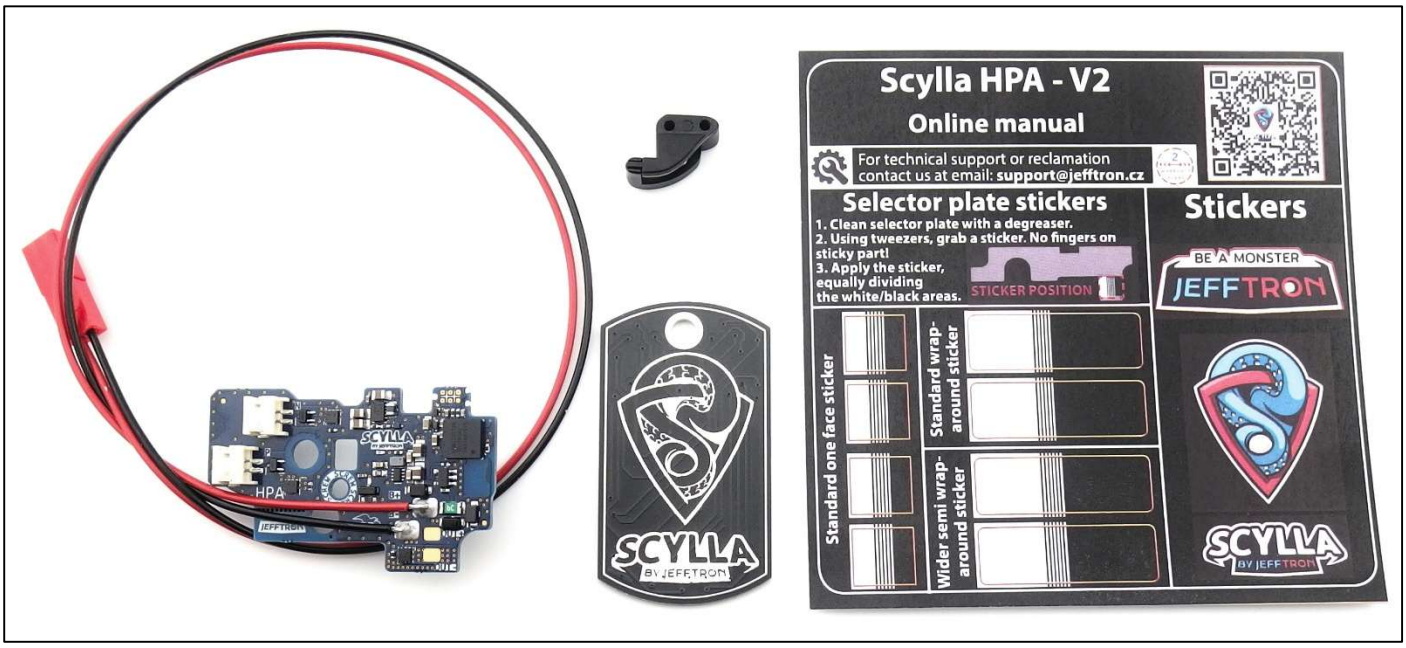
- Scylla HPA - V2 replaces the control unit with sensors and is compatible with the following HPA systems:
- PolarStar F2
- Polar star F1
- PolarStar JACK
- Wolverine Inferno Gen 2
- Other systems controlled by 5V electropneumatic solenoids (single and dual solenoid), both closed bolt and open bolt
- Device parameters are changed with a smartphone via application (Android and iOS).
- Device is fully integrated inside the gearbox instead of the original trigger contacts.
- Compatible with standard Version 2 Tokyo Marui style gearbox.
- Fully prewired with JST connector to fit tostock or pistol grip.
- Usable for battery with max. 13 volts (max. lipol 3S 11,1V).

Safety warning

- Installation of this device into the gearbox requires advanced technician skills!
- Please read the manual before installing your device to prevent any damage.
- Short circuit or incorrectly connected battery will cause immediate damage to the device which is not covered by the warranty. It can lead to fire or even battery explosion.
- Disconnect battery, when the gun is not in use! Otherwise, it will fully discharge the battery because the device drains small amount of current from the gun all the time.
- Do NOT connect battery when gun is pointing towards you, another person or an animal
- Do not modify, repair, put into any kind of liquids or thermal shock the Scylla.

Package contents

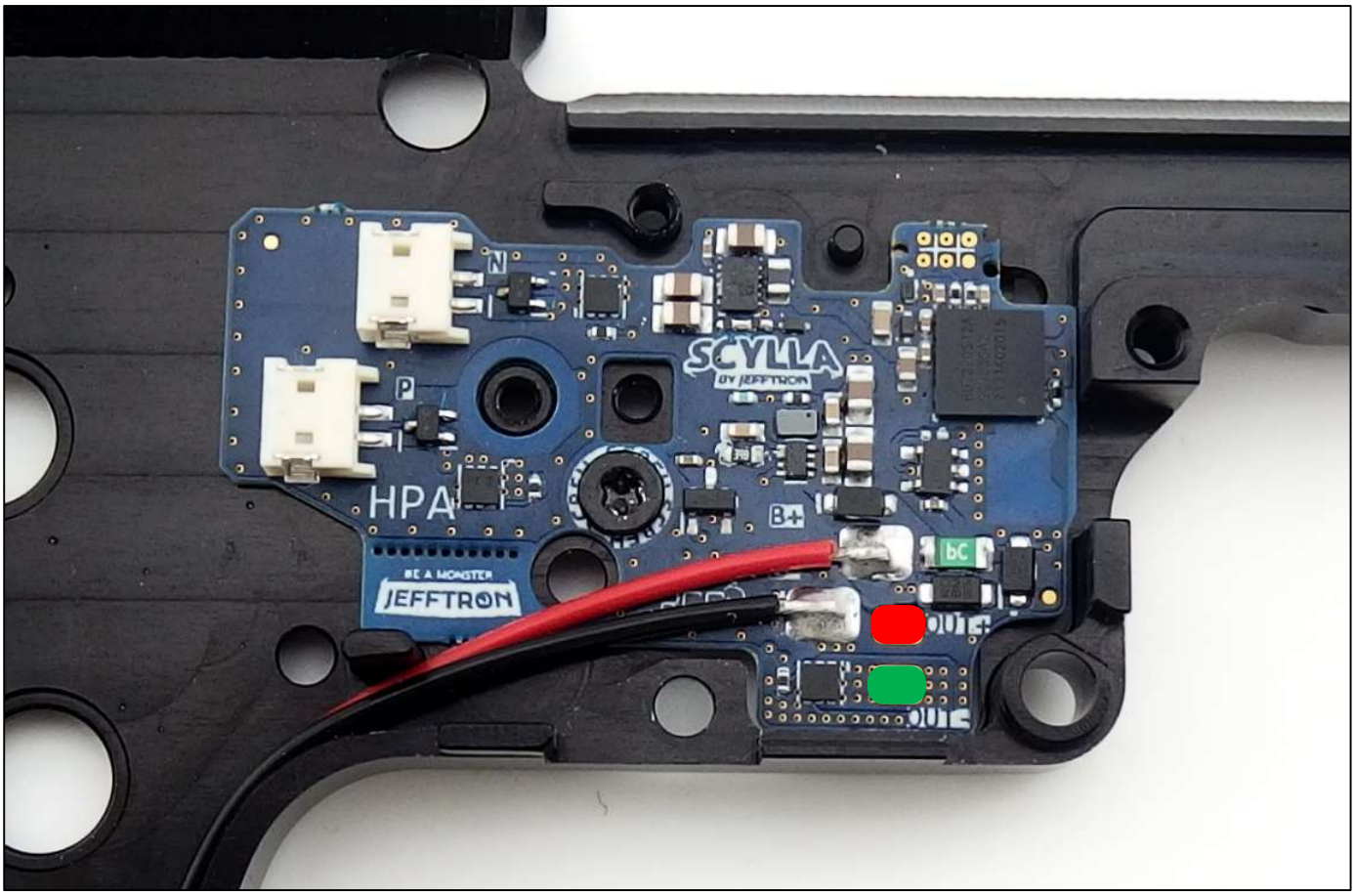
- Scylla HPA - V2 optical drop-in module with 330cm complete wiring with JST connector
- Screw to secure it in the gearbox
- Magnet trigger adapter
- Scylla dog tag keychain
- Sheet with selector plate stickers + Scylla sticker + QR code to this installation manual



Output pads

There are **2 pads** on the board of the Scylla - V2 for powering Maxx hop-up LED illumination or to power the electrical magazine.

- **Plus battery pole** is in the **red** square.
- **Negative pole** is in the **green** square, the power is fully driven through the Leviathan microprocessor.
- In the app use an interface „**External output**“ to activate a desired function.
- The wires can‘t touch other tabs and components on the Scylla - V2 board.

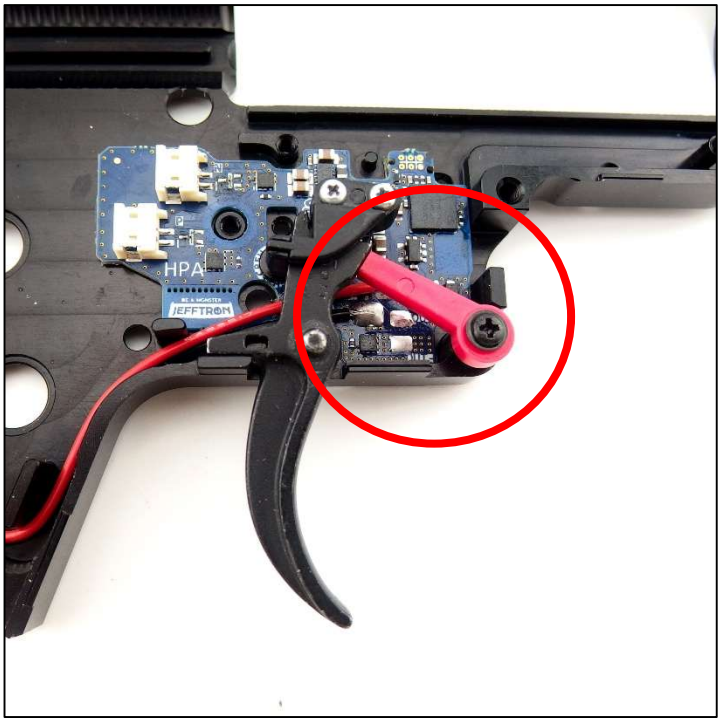


Preparation before installation the Scylla HPA - V2

Remove and open the gearbox according to the normal gun disassembly procedure.
Take out all the internals from the gearbox and clean the grease and oil.
Check the gearbox for edges. Grind for smooth surface to prevent Scylla damage.

Take out: cut off lever with its screw and spring.
Take out trigger contacts. They are not used with the Scylla.

You can choose: if you want, you can use this mechanical arm to block the trigger on the safe position.
But it is not necessary, because Scylla use **electronic safety** to block firing, when is trigger pulled on Safe position.



Remove other internals from the gearbox. The gearbox is prepared for installation.

Adapter with magnet installation

Scylla trigger sensor uses hall transistor, which detect magnetic field. For its right function it has to be installed magnet to the trigger which is compatible with stock and aftermarket triggers.

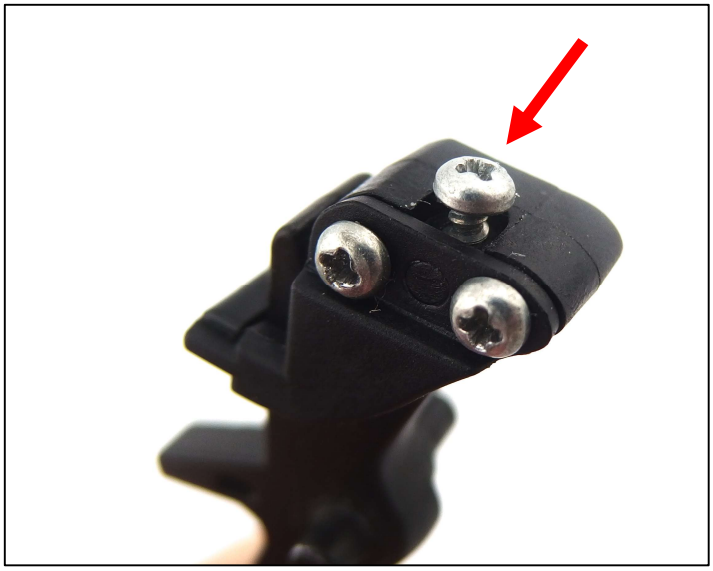
This adapter could not be used with Leviathan trigger, but you can buy compatible one here in the Jefftron eshop.

Put magnet into the round hole in the left adapter part

Place left trigger part on the top of the trigger like on the picture.

Gently screw 2 screws on the right adapter part to assemble magnet adapter over the trigger

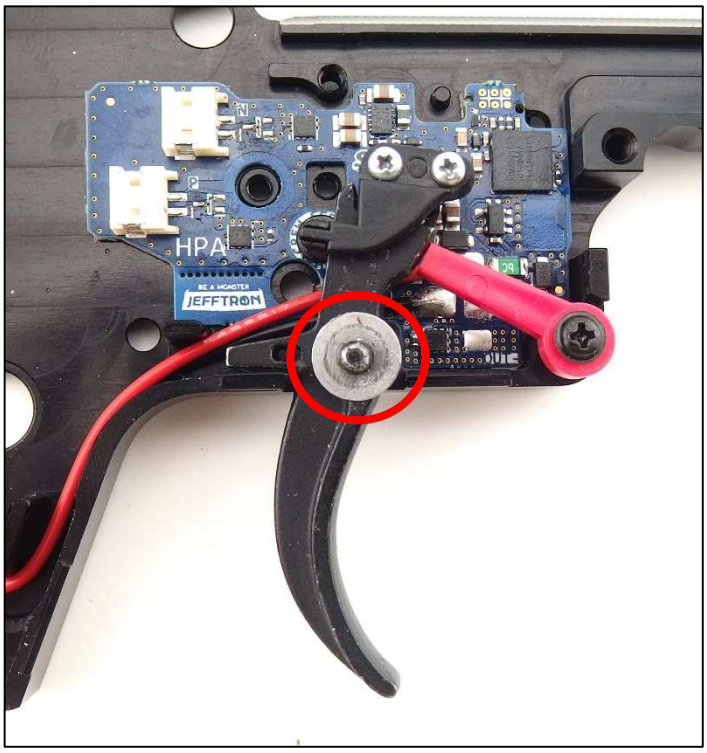
Top 3rd screw on the adapter has function securing adapter on various trigger types.
Gently tighten the screw to make adapter fit into the trigger



Test if **trigger** with adapter has **smooth travel** inside the gearbox.

If not then:

1) Add 0,2 – 0,5mm high shim to the right side of trigger axis. You can use shims for the gears.

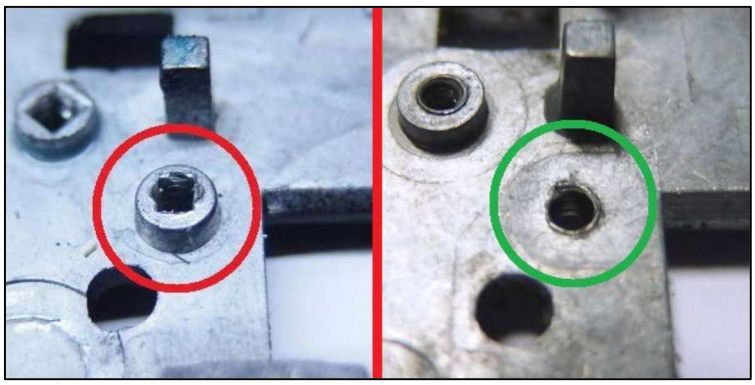


2) If the first step did not help, then you have to grind this edge on the right side of the gearbox.

Gearbox shell modification

- Gearbox modifications are necessary to fit the Scylla without damaging it.
- Some modifications are only for specific gearbox manufacturer.
- It is not compatible with proprietary gearboxes such as Ares, Arcturus, S&T etc.

If your gearbox has high screw mounting, cut it off to flat surface.

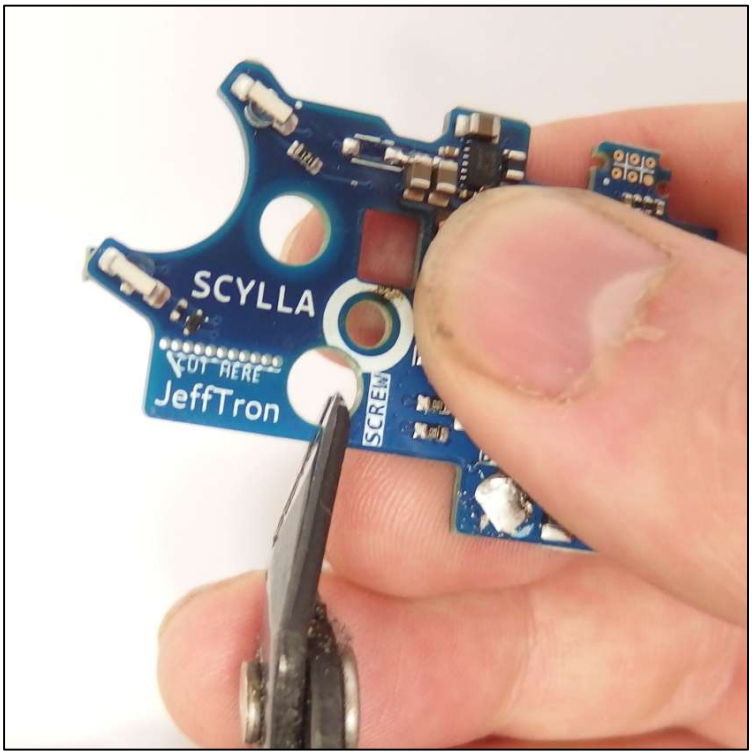


Scylla cut board for the Krytac or G&G G2 gearbox

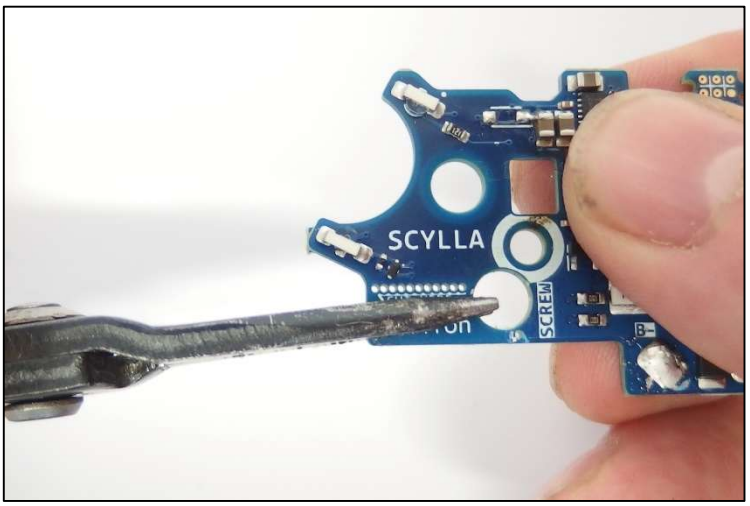
- You do not have to modify the gearbox V2 from the Krytac company or gearbox G2 from G&G company.
- Simply cut the Scylla board on marked area shown on the pictures below.

Use splitters to cut the thinnest board section under the bottom hole (arrow).

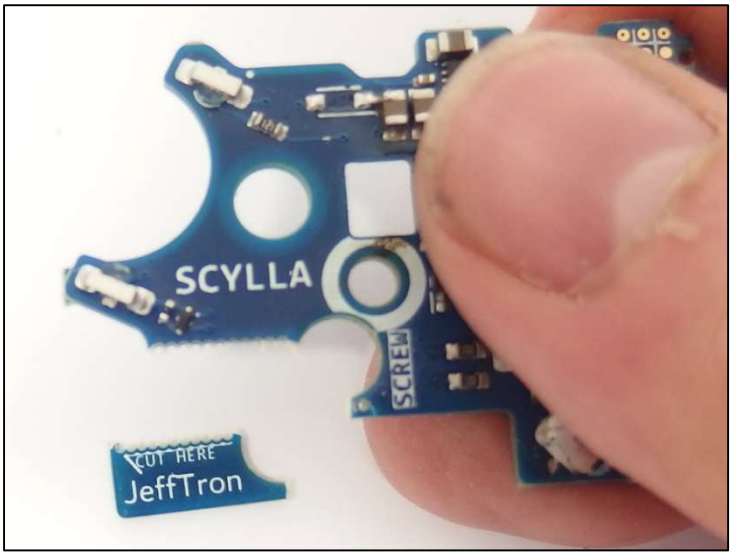
WARNING: do not cut the wiring!



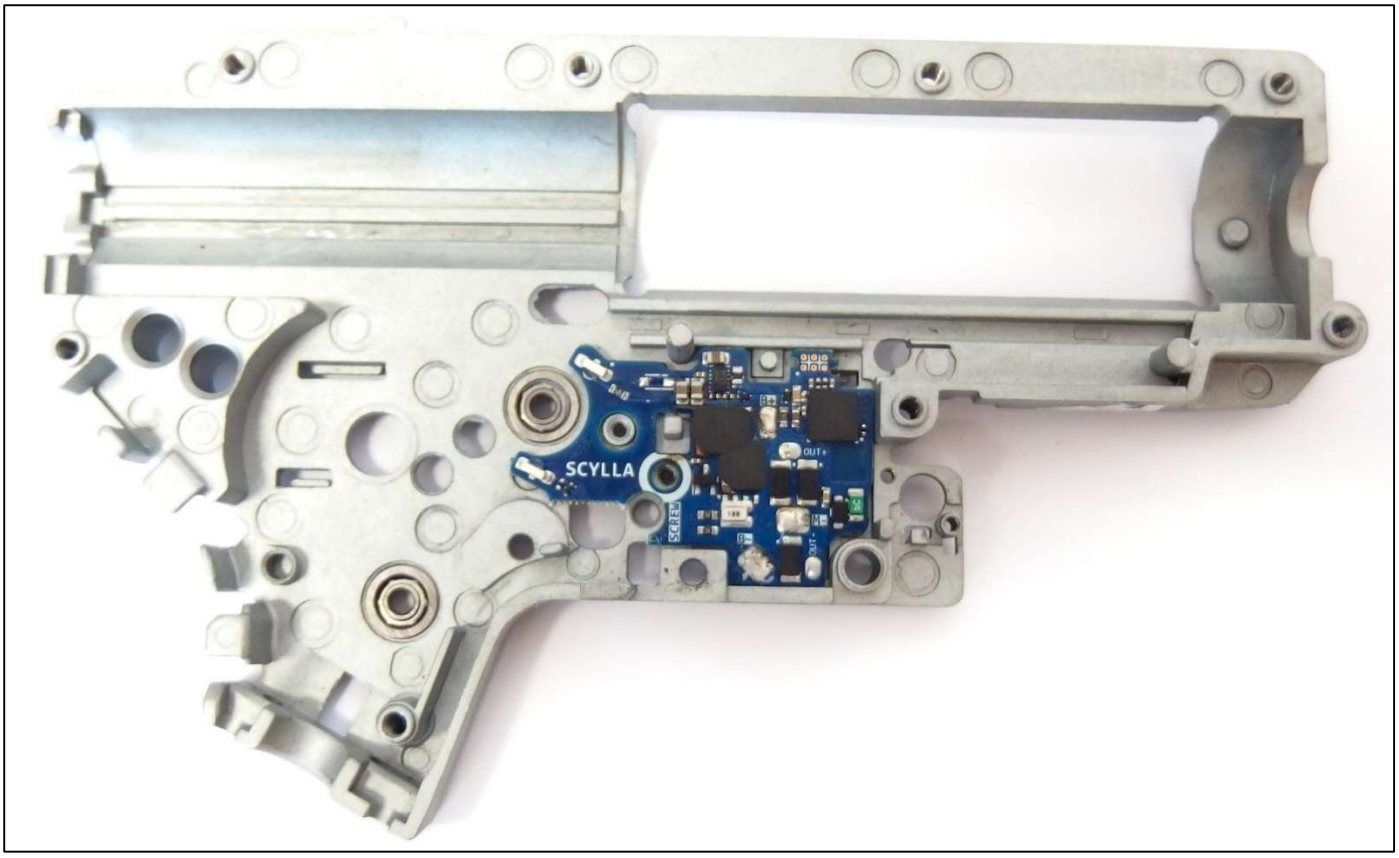
Put pliers near the drilled line and move the board up and down until it breaks of from the rest of the Scylla.



Separated board for instalation into the Krytac gearbox V2 and G&G G2.



Now Scylla sits perfectly inside the G&G gearbox G2.



Selector plate sticker installation

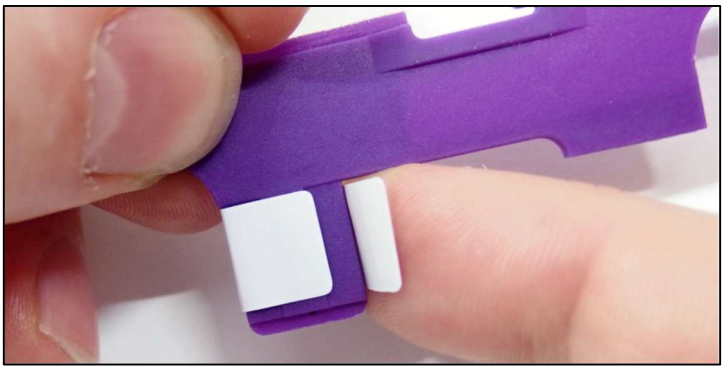
Wide sticker has a wider semi section. Grab a narrow sticker by tweezers.

No fingers on sticky part!

Clean selector plate by a degreaser.

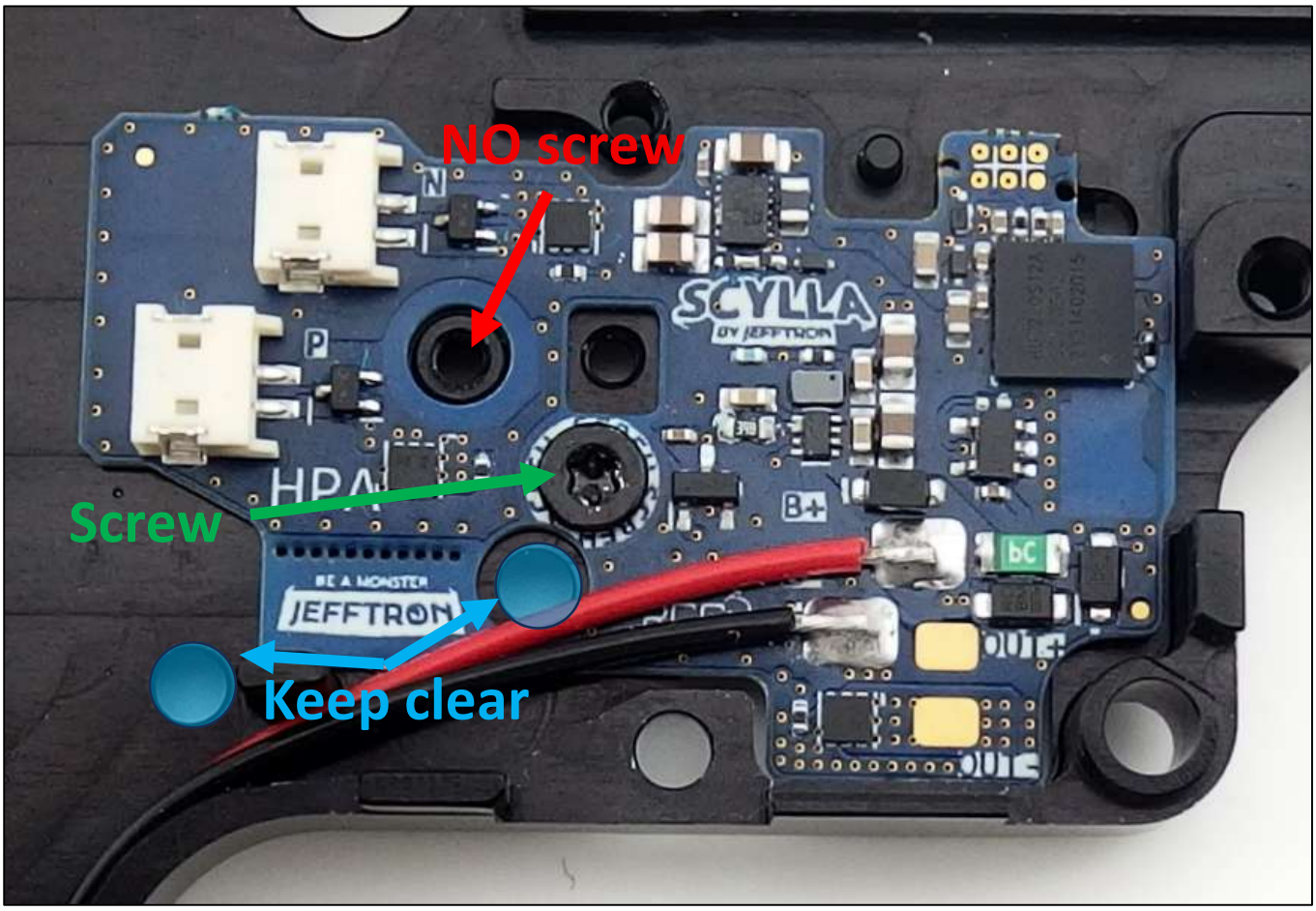
Apply the sticker, equally dividing the white/black areas.

Bend the sticker around the selector plate.



Placed sticker on the selector plate.

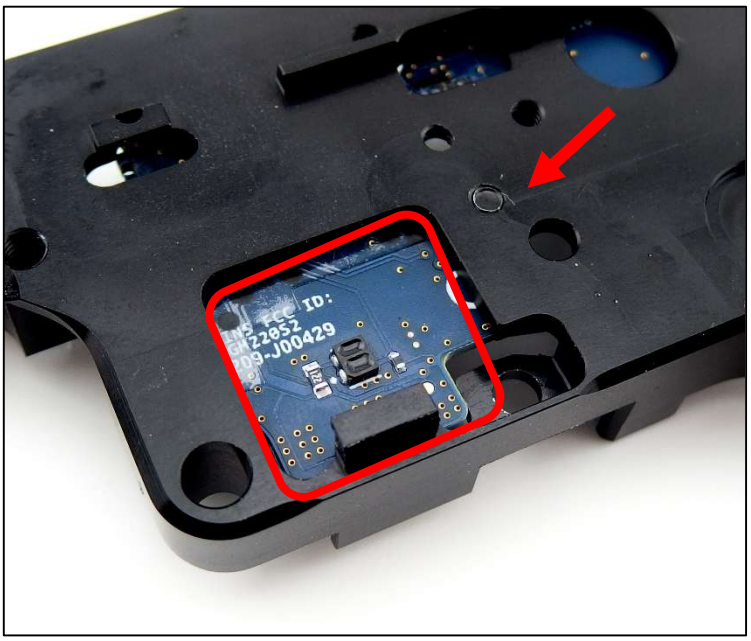
Insertion procedure of Scylla - V2 into the gearbox



Insert the Scylla HPA - V2 instead of the original contacts:

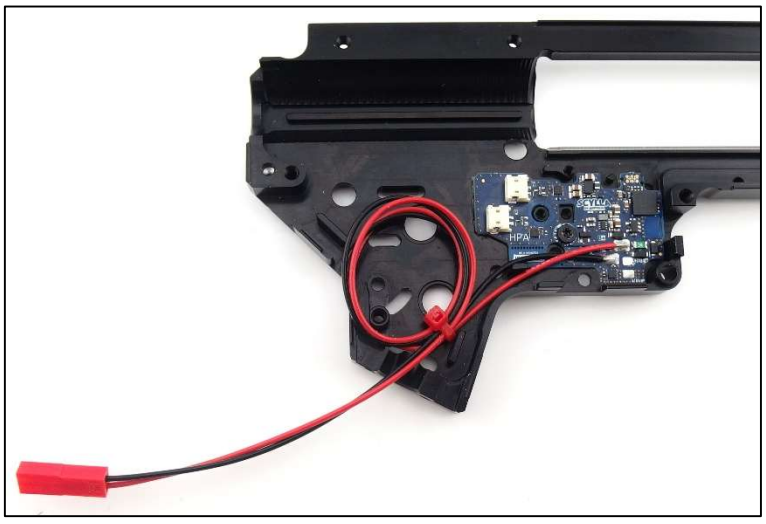
- Check if it is laid flat on the gearbox and **blue areas** are **not covered** by board or wires.
- Use a **screw** from package or original one and screw the device to gearbox (**green arrow**).
- **Do not** place the **screw** in a place for the cut off lever (**red** arrow), the gearbox stump is too high.

Make sure the **screw** does **NOT stick outside** of the gearbox. If it does, grind it.
Check if there are **NOT any parts in contact** with the gearbox around the red area.



Wires:
You can place wires to stock same way as in AEG. If you have long stock - place wires straight back in the gearbox.

Or you can round them with zip tie and lead to the pistol grip



Place spring on the trigger and **insert the trigger** with a build in magnet adapter into the gearbox

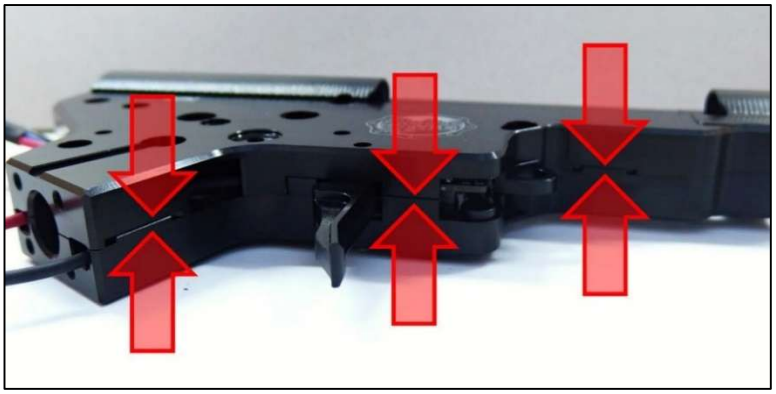
Connect solenoids into the Scylla HPA – V2 ports:

TOP is **NOZZLE**

BOTTOM is **POPPET**

If you have **single solenoid system**, please connect only **POPPET**.

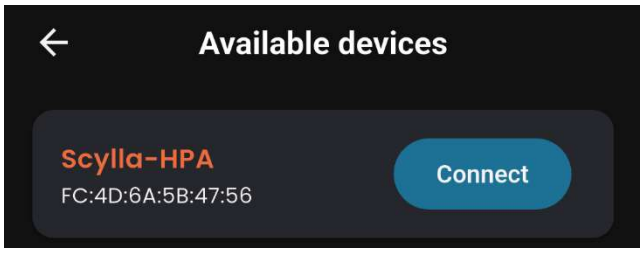
Insert the remaining parts into the gearbox. Put together the gearbox shell. **Check if it fits perfectly together.**



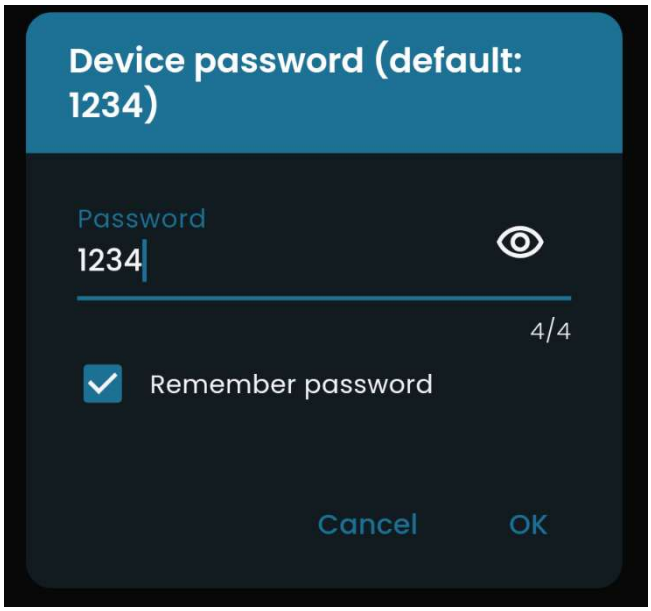
Sensors configuration and testing

Install a „**Leviathan & Scylla by JeffTron**“ app from the App store (iOS) or Google play (Android) into your smartphone.
Or use link https://www.jefftron.net/application (QR code).

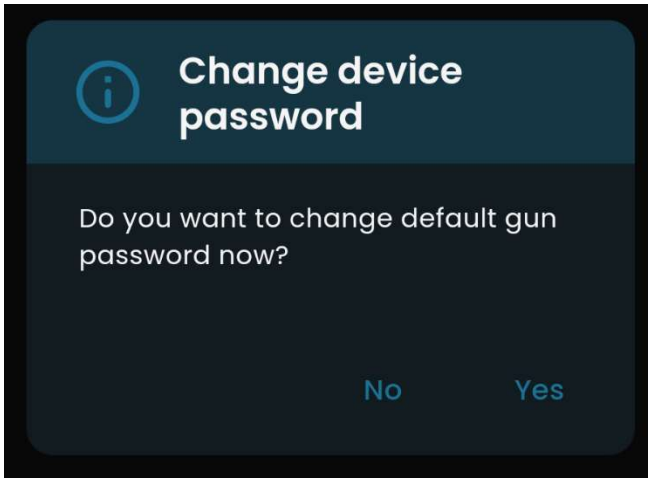
Connect the battery to the Scylla and pair it with your smartphone.



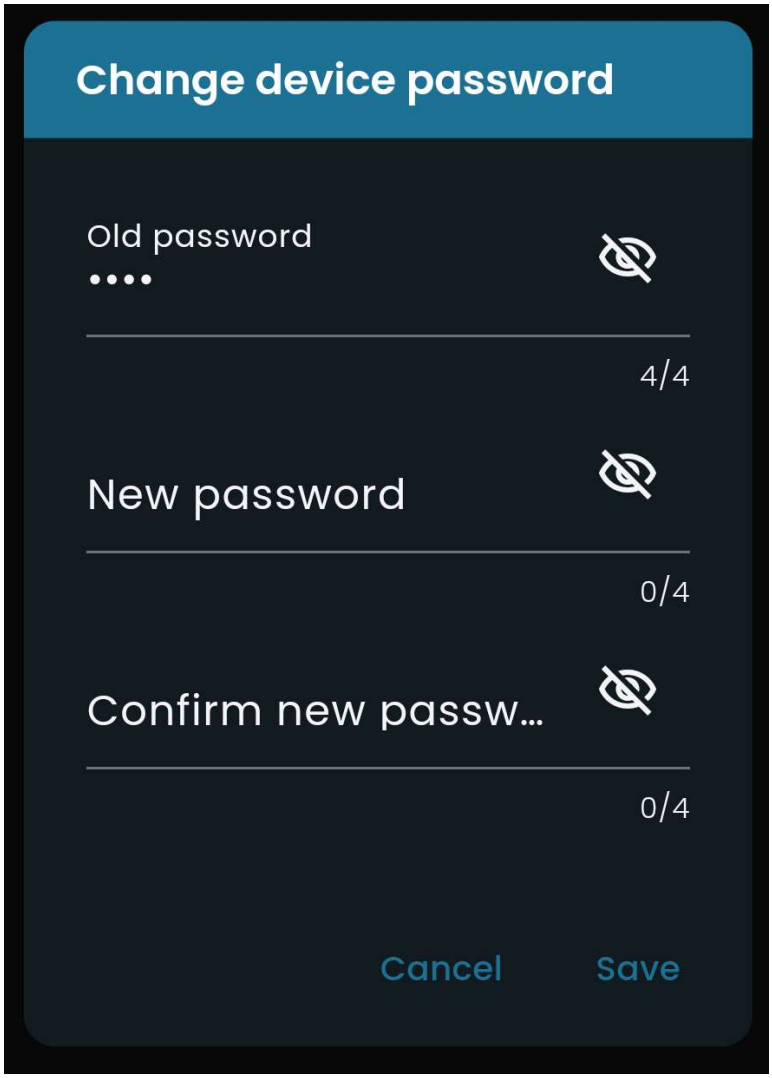
Use a default password „**1234**“.
You can save it by checking the box “Remember password.



Change the password to your own 4 digit one.



Confirm new password and push Save.
Do not tell the password to anybody!

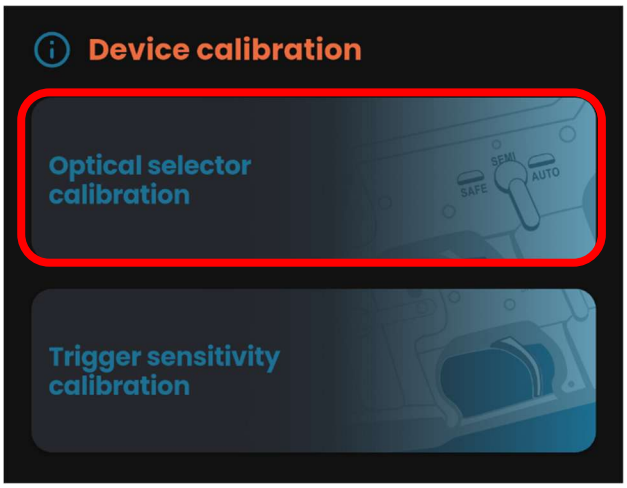


Password reset

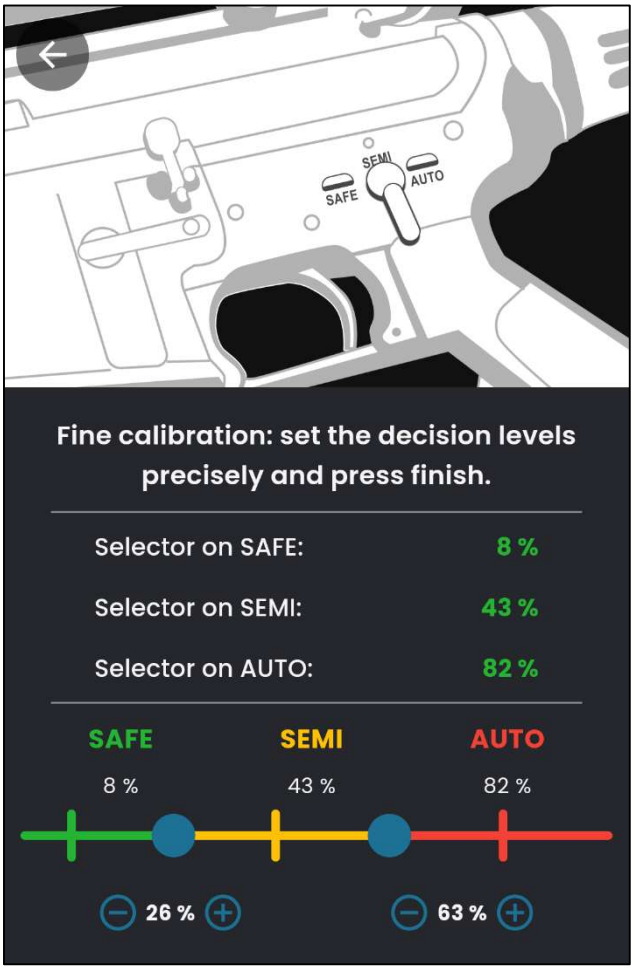
If you **forgot your password -** restore it:
Move selector to **SAFE** position then connect and **disconnect 4x the battery** in a short time period – motor will play melody for successful **password reset**
See a video making this procedure:
https://youtube.com/shorts/v03sZ4yFpxE?si=ysgit3k-4S9bSEHA

Optical selector calibration

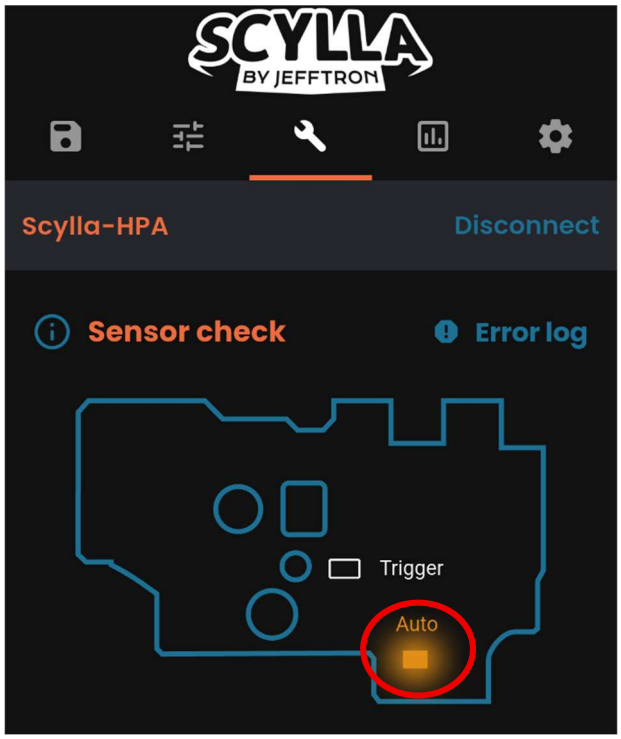
Optical calibration process is for setting your selector on gun (safe, semi, auto)
At the end, every selector position has to be green. You can change decision points in the **fine calibration**



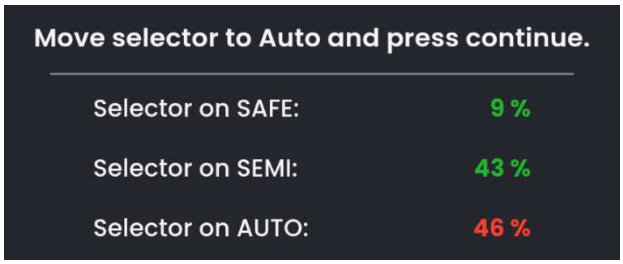
Follow instructions in the calibration:
Move the selector plate to **Safe**, its value should be in range **6% - 30%** and press continue.
Move the selector to **Semi (range 40%-70%)** and press continue.
Move selector to **Auto (range 80%-99%)** and press finish.



Try the correct responses in the „**Sensor check**“ function.



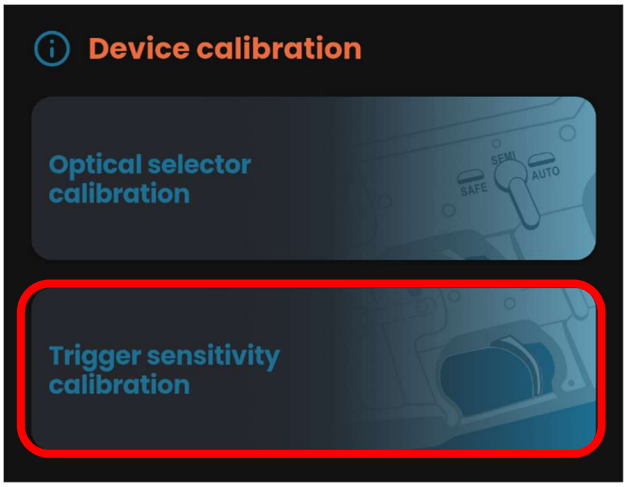
If any selector position ends in red, its value is too close to another one, so the position will not be set right.



This could be caused by **wrong sticker position** or dirt on selector plate or sensor.

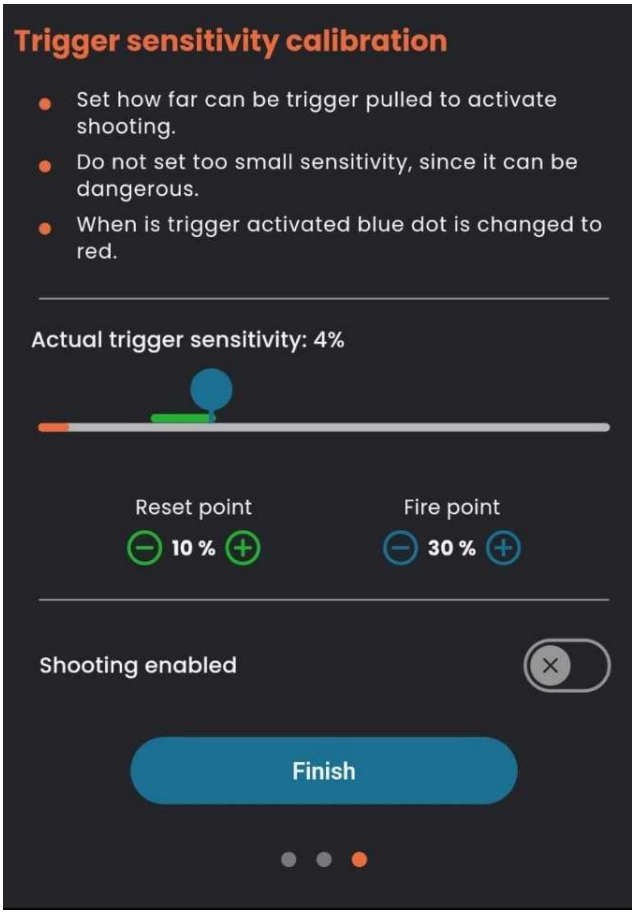
It is also possible **you didn‘t change selector position** during calibration process.

Trigger sensitivity calibration



Set how far can be trigger pulled to activate shooting.

Follow instructions in the calibration. Make sure no BBs are in the gun!



Set how far can be trigger pulled to activate shooting.
Do not set too small sensitivity, since it can be dangerous.
When is **trigger activated** blue dot is changed to red.
Reset point has to be overcome to make shot again.
„**Shooting enabled**“ button makes gun to shot, now you can test actual trigger response.

First time shooting

1. Connect the battery and hose with air.

2. Put the gun into SAFE - nothing will happen on trigger pull

3. Put the gun into SEMI and it will fire once.

4. Put the gun into AUTO and the gun will go on auto fire.

5. If everything works as described, congratulations for the correct installation the Scylla. If not, check what is written in the error log and last pages in this manual

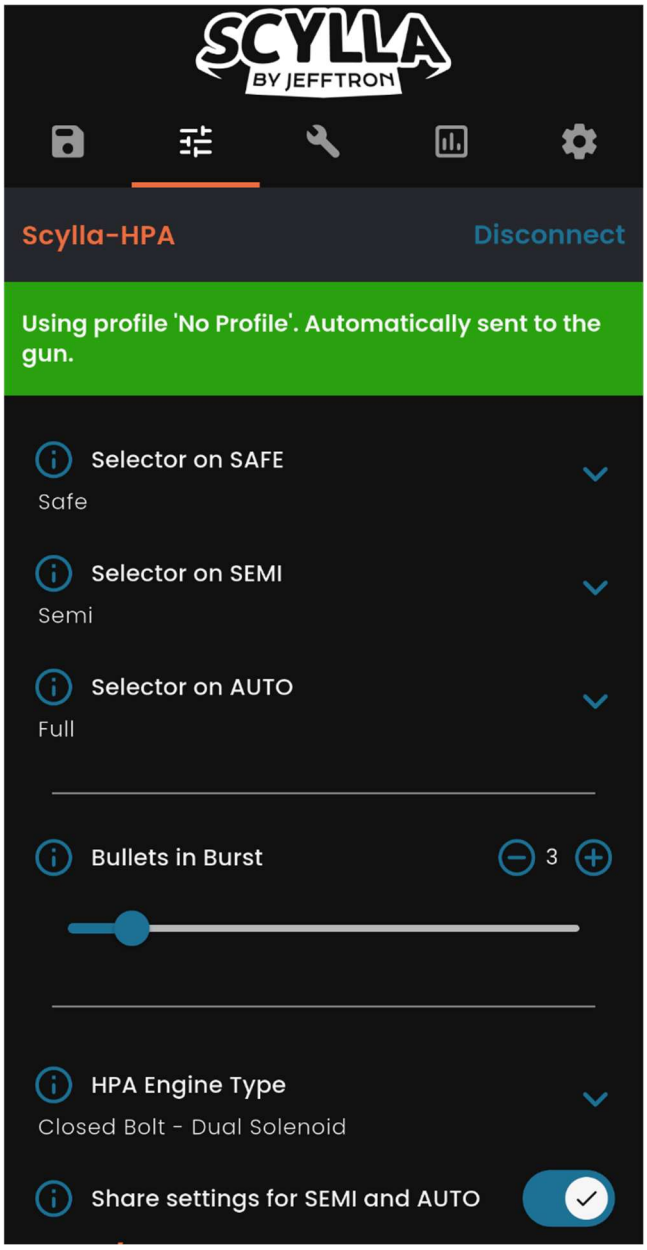
6. Pair your phone with Scylla and update firmware to the newest version.

Keep your app and firmware always up to date!

WARNING: Disconnect the battery, when the gun is not in use! Scylla drains a small amount of current from the battery at all time, so it will over discharge the battery.

Application

Firing mode



Safe: No responding to the trigger pull.
Semi: It fires a single shot per trigger pull.
Binary trigger: Fire semi when a trigger is pulled and semi again when it is released in less than 3s.
Burst: Gun shot a burst per trigger pull.
Burst/Full: A short trigger pull fires a burst, a long trigger pull makes auto fire.
Full: Gun makes auto fire until trigger is released.

Burst

It enables you to shoot a set number of BBs on one trigger pull. It will always complete the burst.

HPA Engine Type

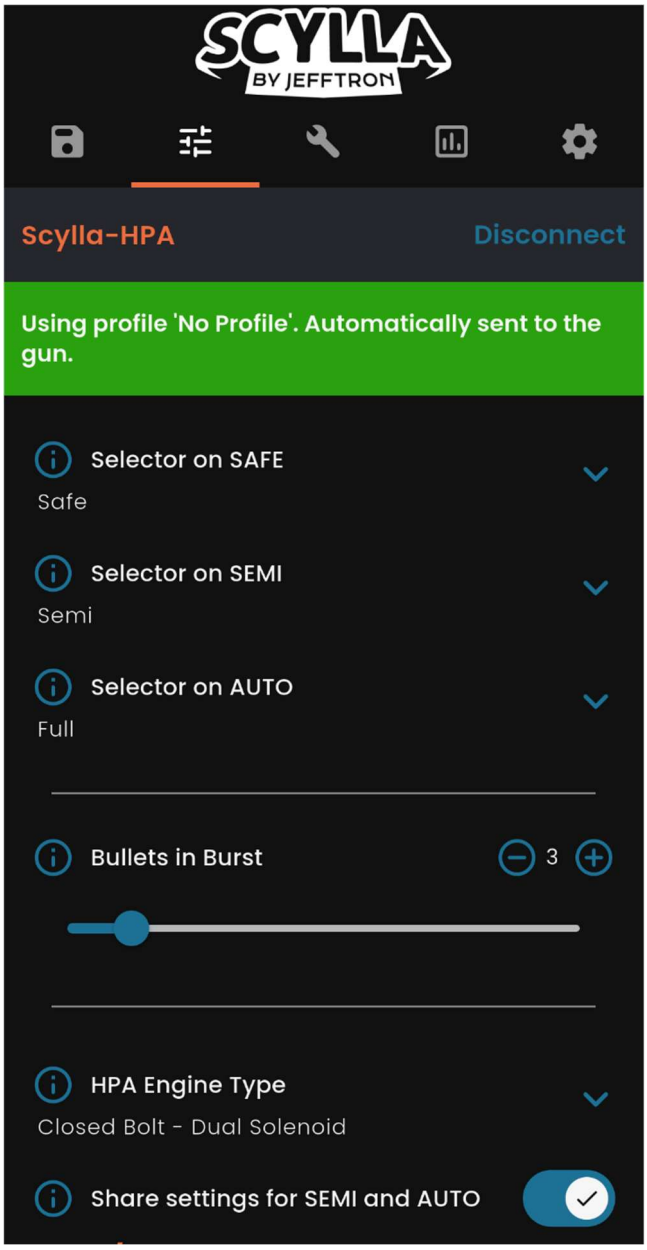
Defines the type of HPA system (solenoid count and

bolt mode). Affects available parameters and system behavior

Single solenoid: loading and firing are performed in a single step.

Open bolt (dual solenoid): the BB is loaded into the chamber first, then the shot is fired.

Closed bolt (dual solenoid): the shot is fired first, then the BB is loaded into the chamber.



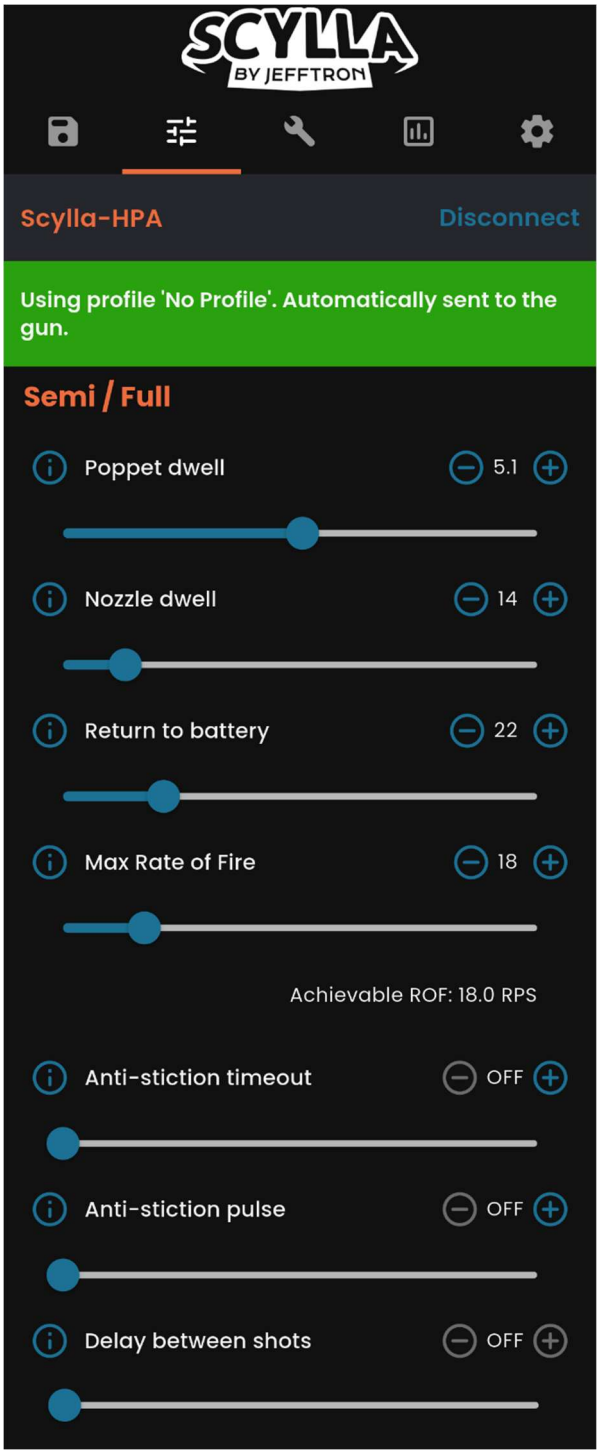
Share settings for SEMI and AUTO

When enabled, the same parameter settings apply to both fire modes. When disabled, different parameters can be set for selector on SEMI and AUTO.

Solenoid settings

Poppet dwell

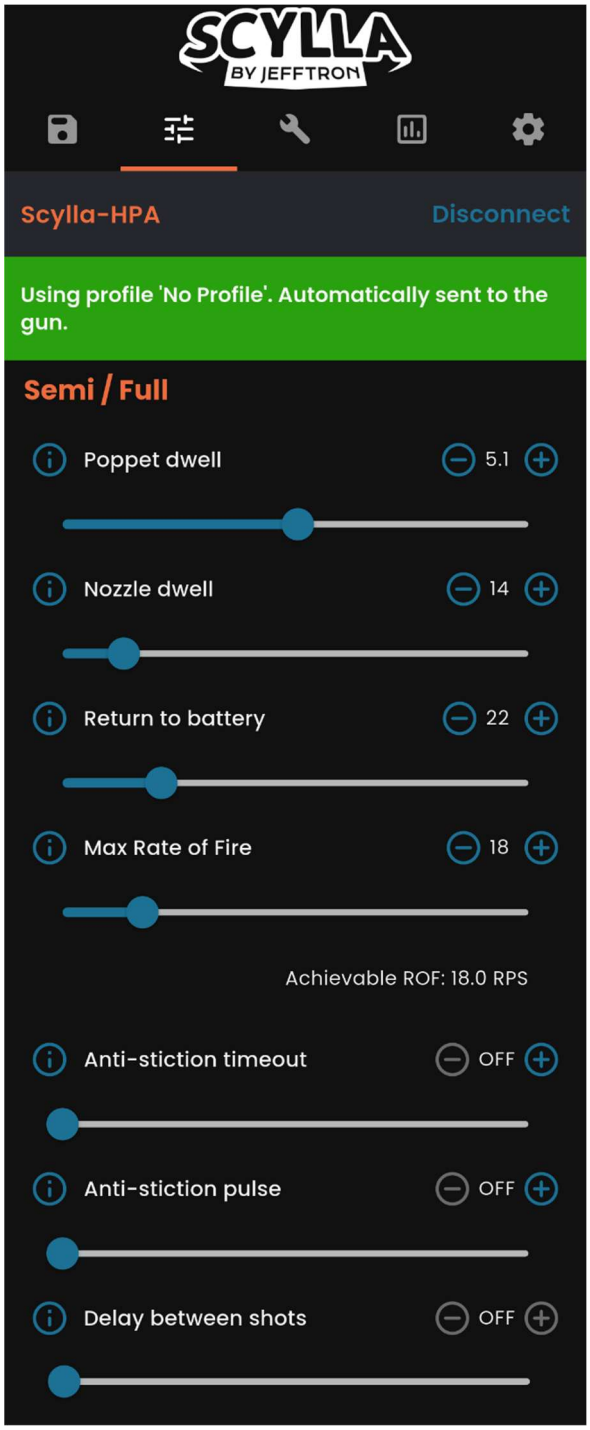
determines how long the valve supplying air to the BB remains open. This parameter allows you to set the optimal amount of air for each shot based on barrel length, BB weight, air pressure, and desired performance.
In single solenoid systems, this parameter defines the duration of the entire system cycle.
The parameter is adjusted in 0.1 ms increments. For example, FCU DP25 = 5.1 ms.



Nozzle dwell

determines how long the valve for loading the BB is active. This parameter allows you to set the time required to feed the BB from the magazine into the

chamber. The parameter is adjusted in 1 ms increments. For example, FCU DN14 = 14 ms.



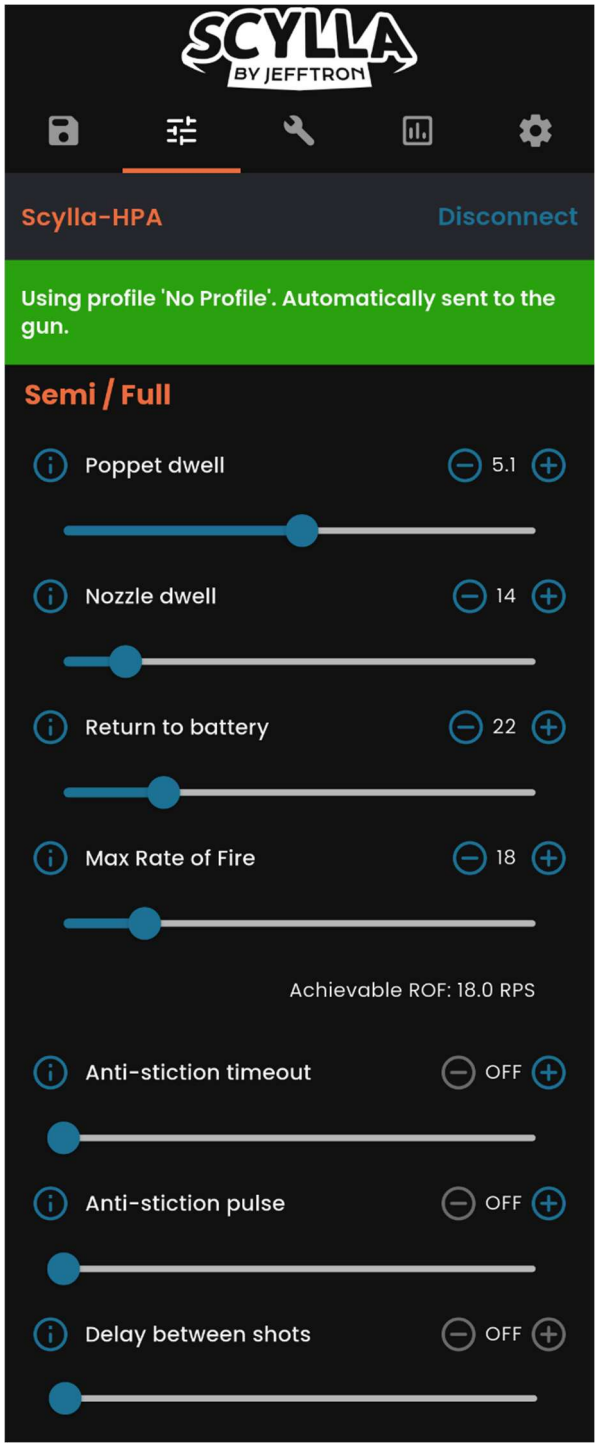
Return to battery

defines the delay between **nozzle dwell** and **poppet dwell**. It represents the pause between loading the BB into the chamber and firing the shot.
The parameter is adjusted in 1 ms increments. For example, FCU DR22 = 22 ms.

Max Rate of fire

This parameter defines the **maximum rate of fire**. In **single solenoid** engines, it directly sets the rate of fire.In **dual solenoid** engines, it sets the maximum rate of fire. The resulting rate of fire is shown in "**Achievable ROF**" and is limited by the timing of

other parameters: **poppet dwell**, **nozzle dwell**, and **return to battery delay**.

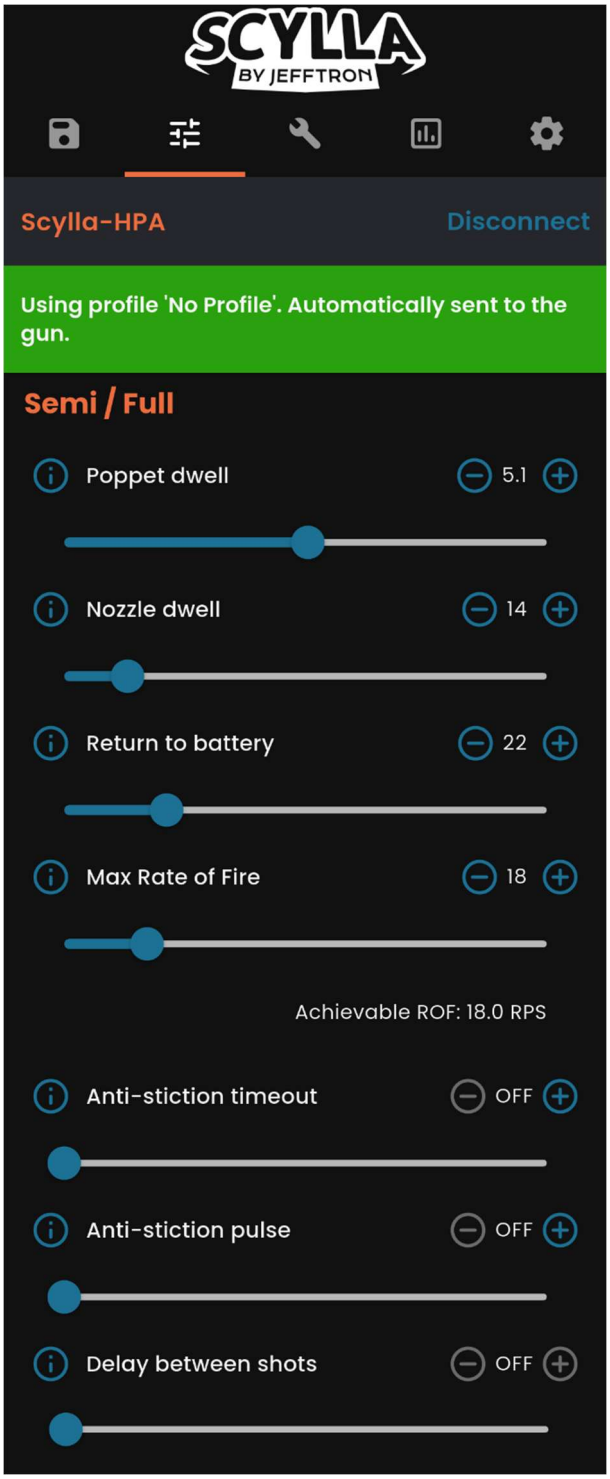


Anti-stiction timeout

It is directly **linked to the anti-stiction pulse** parameter. This parameter defines the period of inactivity after which the **poppet dwell** is increased for the first shot. It is primarily used in colder conditions, where low temperatures can cause the system to stiffen and reduce performance on the first shot. The parameter is adjusted in 10-second increments. A value of 1 means that after 10 seconds of inactivity (no shots), the **poppet dwell** for the next shot will be increased by the value set in the **anti-stiction pulse** parameter.

Anti-stiction pulse

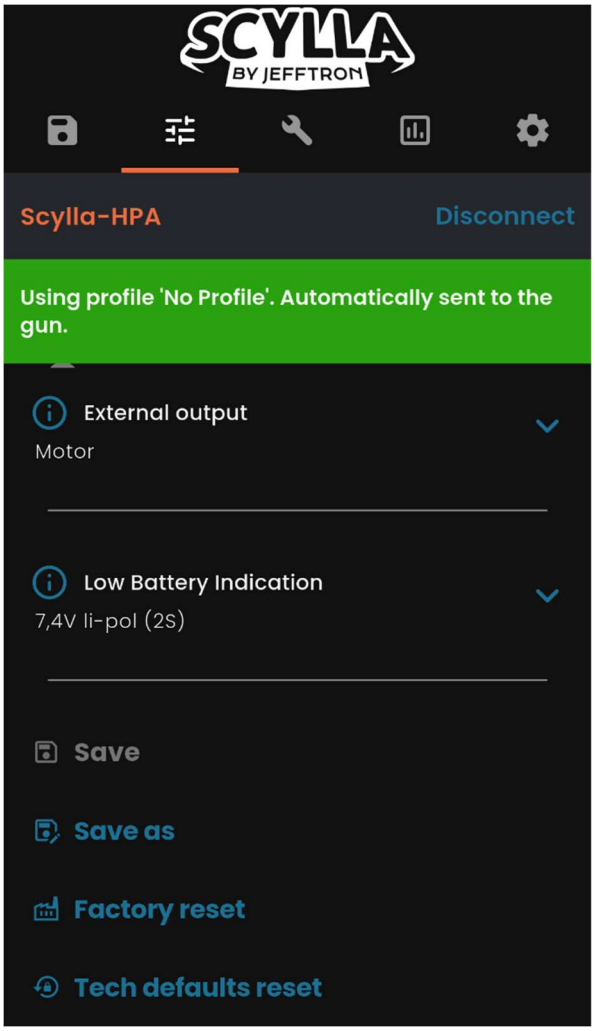
this parameter is directly linked to the **anti-stiction timeout** parameter. Its value determines how much the **poppet dwell** parameter is increased after a period of inactivity (no shots), as defined by the **anti-stiction timeout** parameter.
The parameter is adjusted in 0.1 ms increments. If the **poppet dwell** is set to 5.1 ms and this parameter is set to 3.1 ms, the first shot will be fired with a **poppet dwell** of 8.2 ms.



Delay between shots

It is for simulation the delay from gun reload or recoil.During delay gun can‘t shoot. After delay gun vibrates shortly to notify the gun is ready for shooting.

External output



Used for connecting custom accessories, such as a BB illumination system in the hop-up chamber.
The output provides battery voltage.

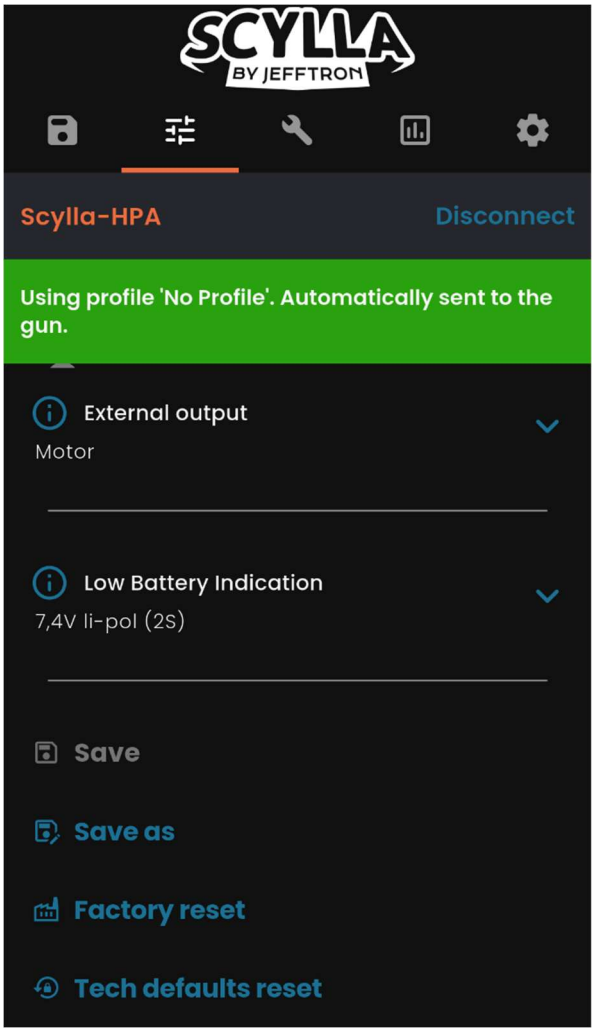
- **Off**: the output terminal is disabled
- **Motor**: the output terminal is ON during firing
- **Motor + Xs**: the output terminal is ON during firing and remains active for the set time delay
- **Always On**: the output terminal is always active

Low Battery Indication

It is used for only Li-pol batteries 2S and 3S.
You can see actual level or % of the battery in statistics.
WARNING: Scylla drains small amount of current from the battery all the time!

Save or Save as

You can save these parameters under custom name into your app and then load them in profiles.



Factory reset

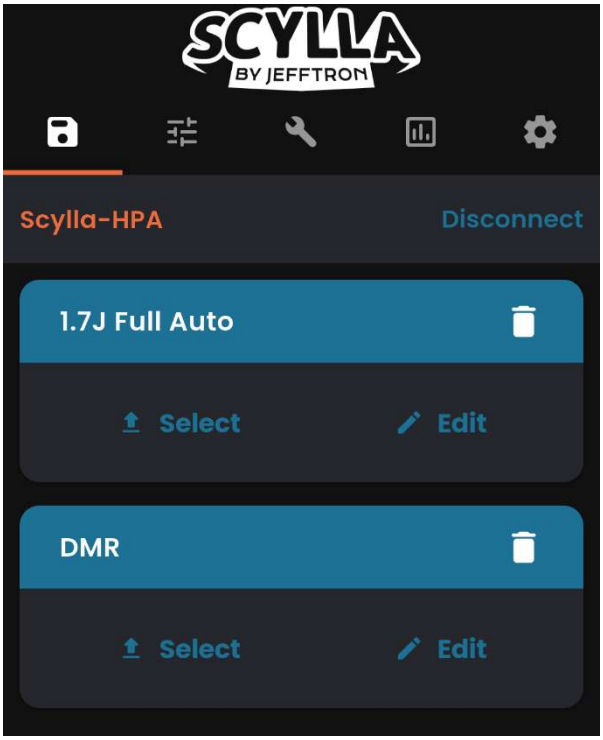
It restores parameters to factory state (password is unchanged).

Tech default reset

Resets saved settings when the time stamp was made in technical lock.

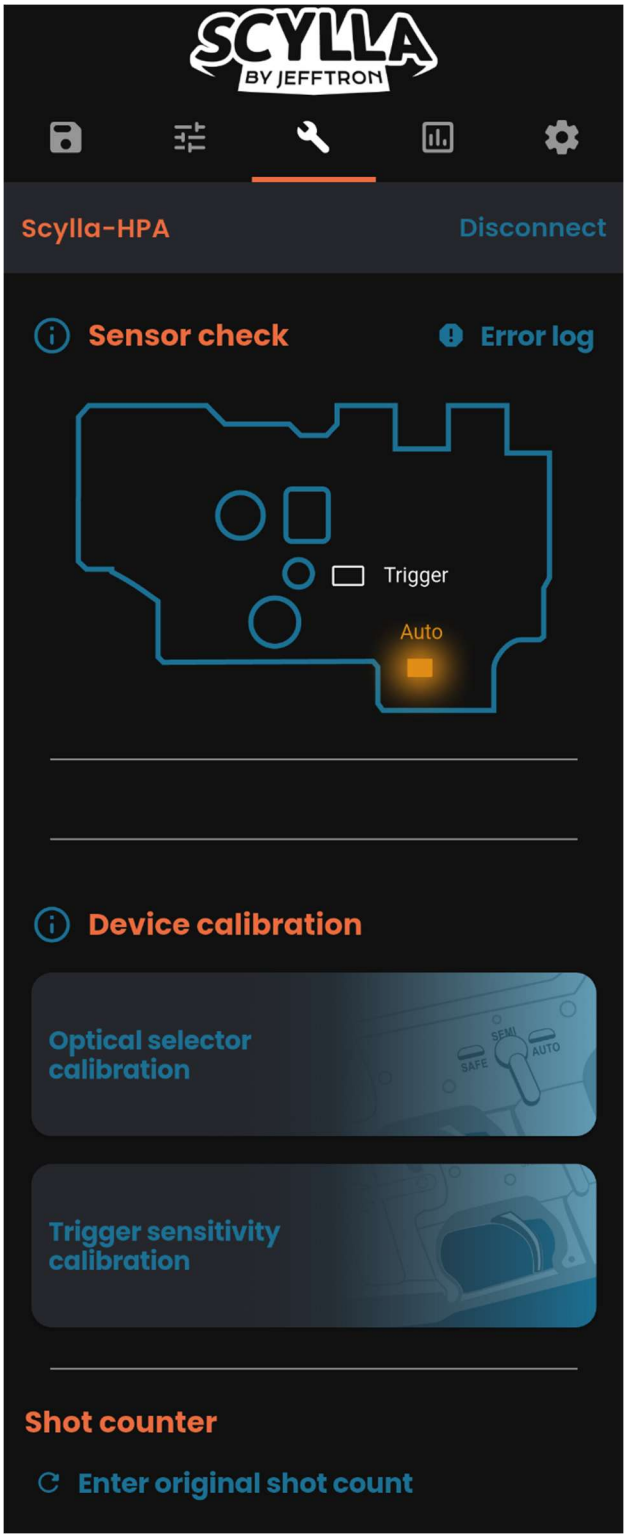
Profiles

You can save a profile here.
„**Select**“ will upload settings to a device.
“**Edit**” will change these settings



Sensor check

Shows how the sensors respond. Black color is OFF, yellow is ON. If sensor doesn't work as it should, please recalibrate it on this app page. Selector on “**Safe**“ is detected as **OFF**.



Device calibration

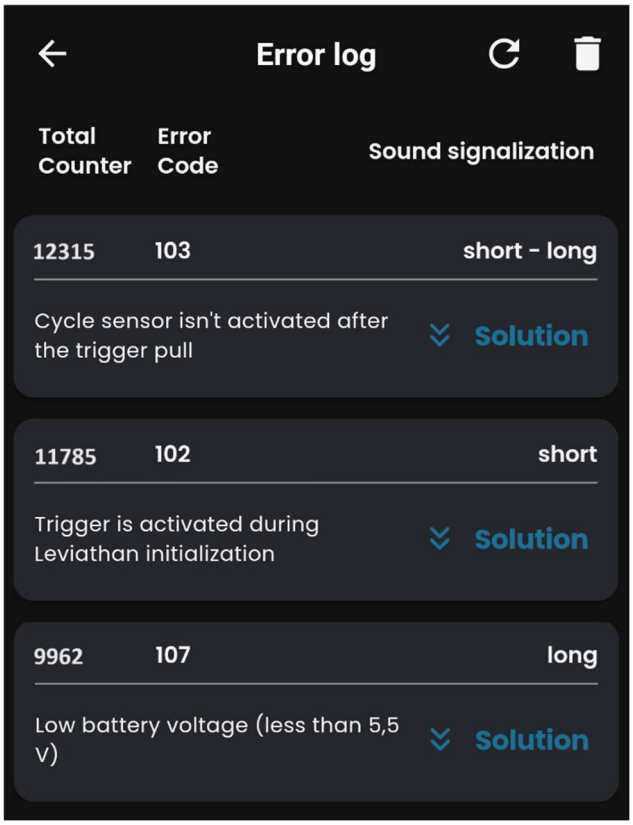
It was described on previous pages.

Shot counter

If you were using your HPA system for some time, then enter original shot counter from your previous system in digits

Error log

shows the errors made during the device life. A total shot counter value is saved when an error happens. “**Solution**” shows a possible solution.
Bin at the top corner will reset all errors.

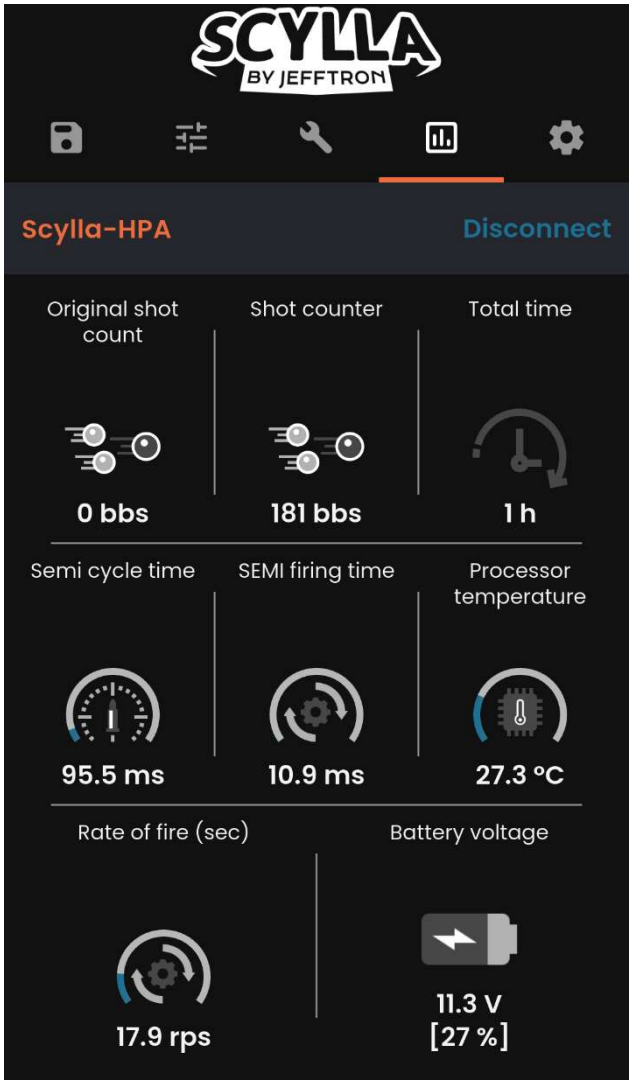


Statistics

Original shot count: shot value made in previous system, you write it through “**enter original shot counter** ” in sensor check screen

Shot counter: counts every shot during a lifetime.

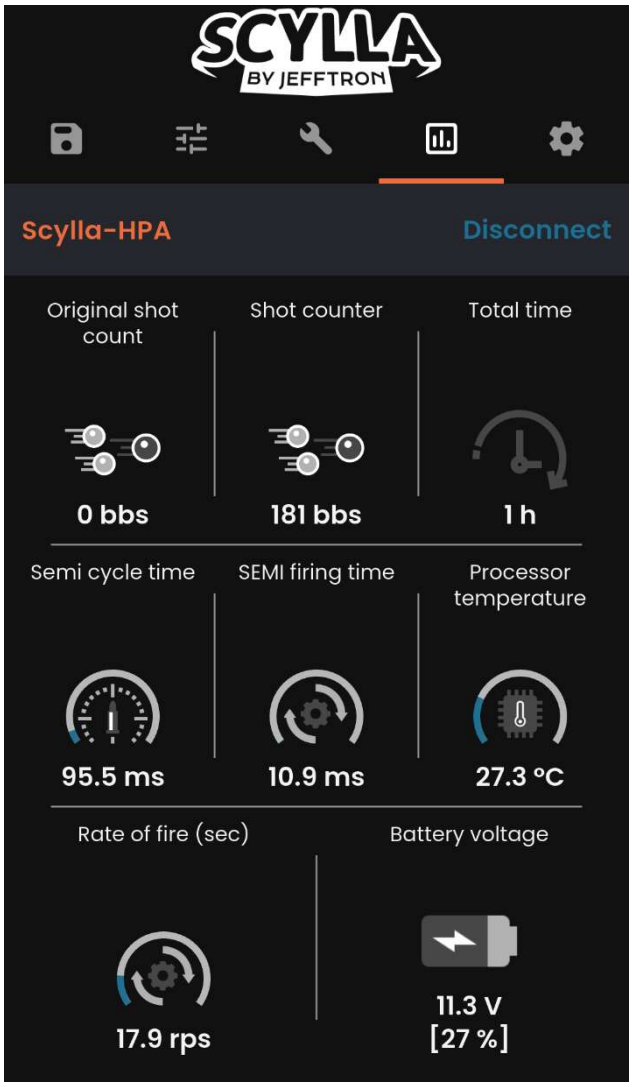
Total time: how long is the battery connected during a lifetime.



Semi/auto cycle time: Time between trigger pull and ready for next shot. On semi or on auto.

Semi/auto firing time: Time of a bb shot. On semi or on auto.

Processor temperature: Actual processor temperature, the cut-off temperature is 75 °C.



Rate of fire: Gun rate of fire per second.

Battery voltage: It shows actual voltage value. When is used lipo monitoring, it shows battery capacity percentage.

Technical lock

- A specialized add-on designed to prevent unauthorized use or accidental changements.

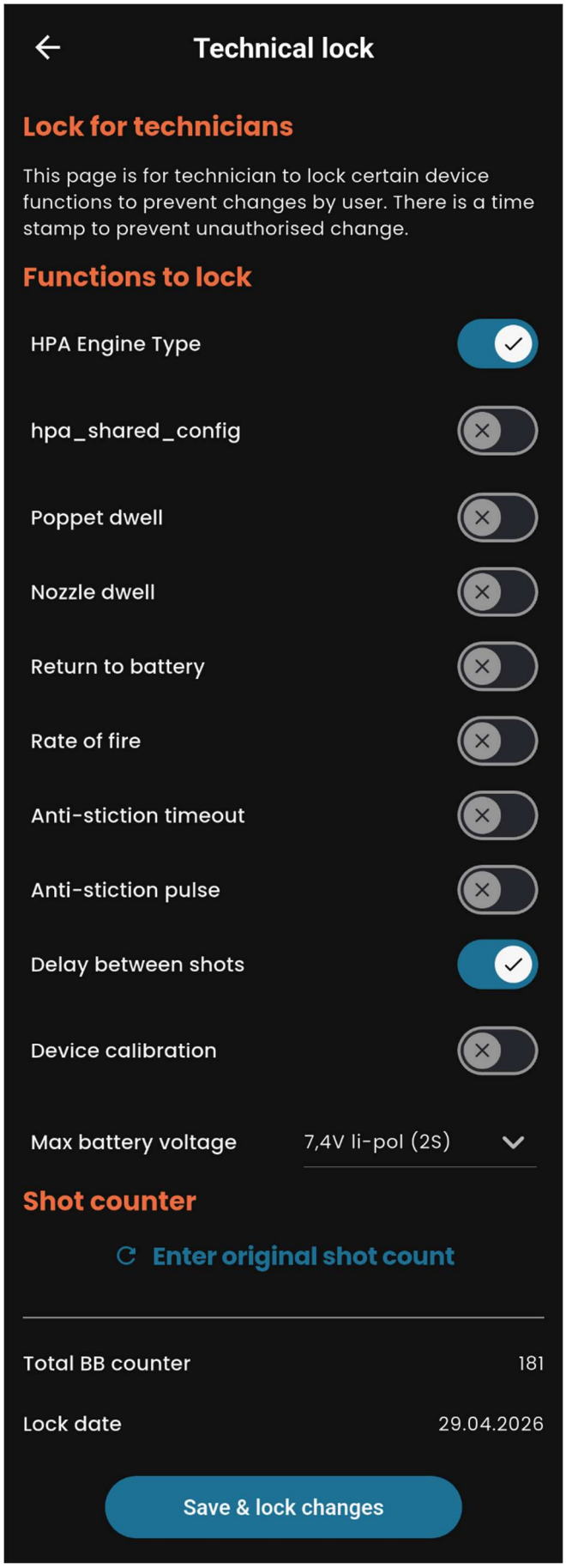
- Perfect for custom builds, high-end rentals, and field techs needing absolute control over AEG operation.

- Lock selected features to prevent changes by user in the main shooting menu.

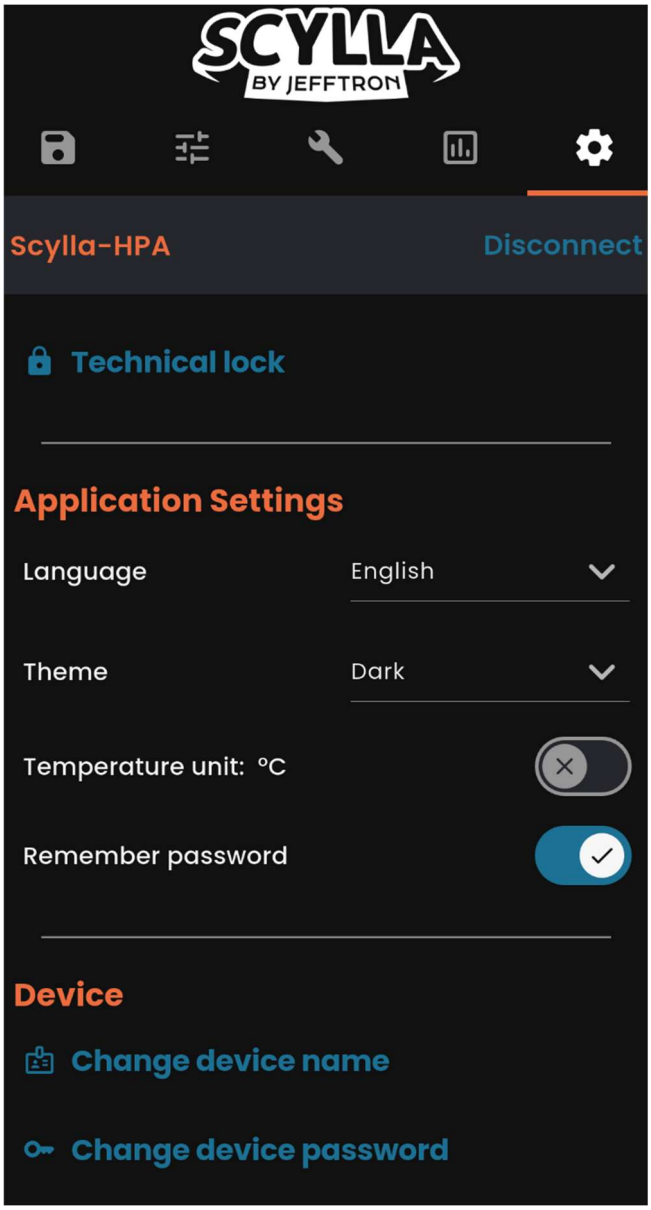
- Set a maximum voltage limit 7,4V or 11,1V

- Locked configurations are saved and can be restored by the user.

- A time stamp and current BB counter is created when the lock is applied.



Settings



Language: Text translation in the app to different languages. Tacticool language is made up for fun.

Theme: Choose white or black app interface.

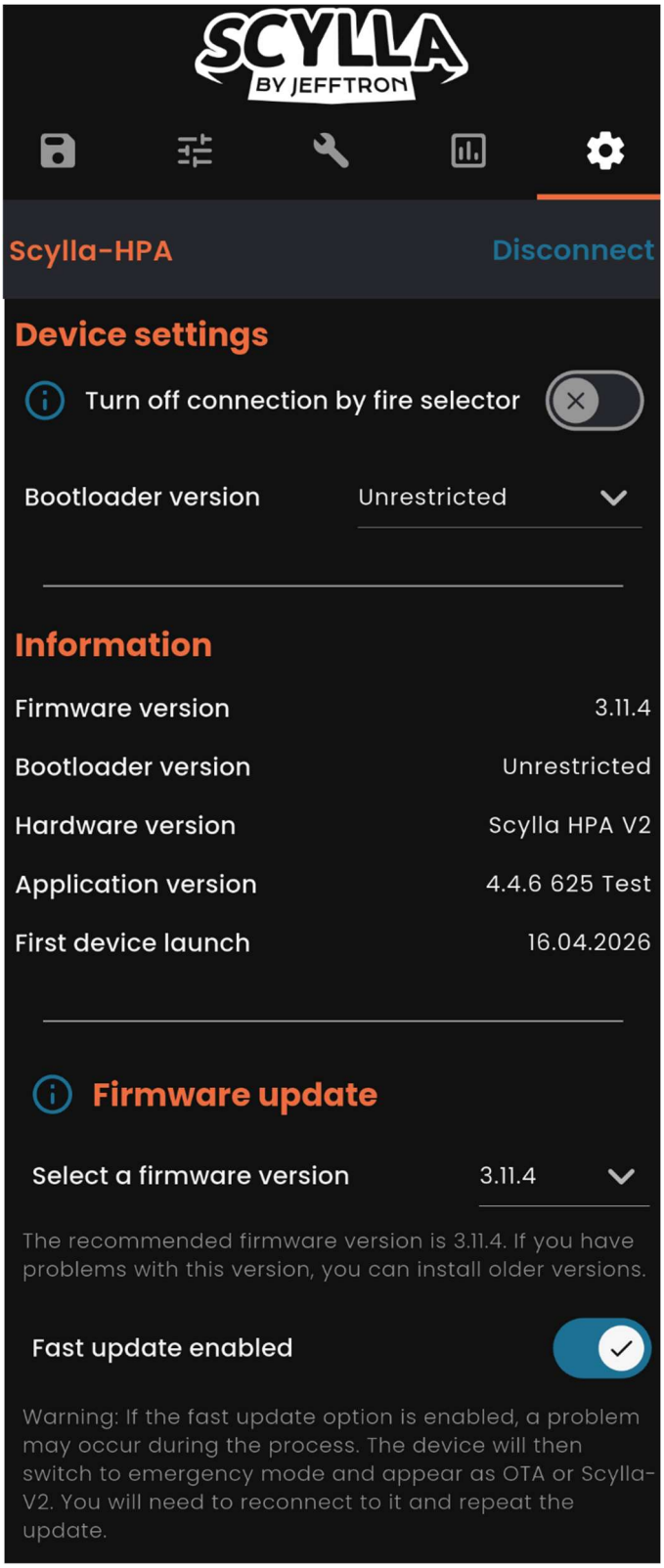
Temperature: Set mosfet and processor temperature unit from °C to °F.

Remember password: Sets automatic login to the “Leviathan by Jefftron” app.

Change device name: Is visible on the devices list (max. length is 16 characters). Scylla disconnects from the application after the name is saved.

Change device password:
Write to the first-row old password and to the other

two new passwords (4 digits) and tap the SAVE button.

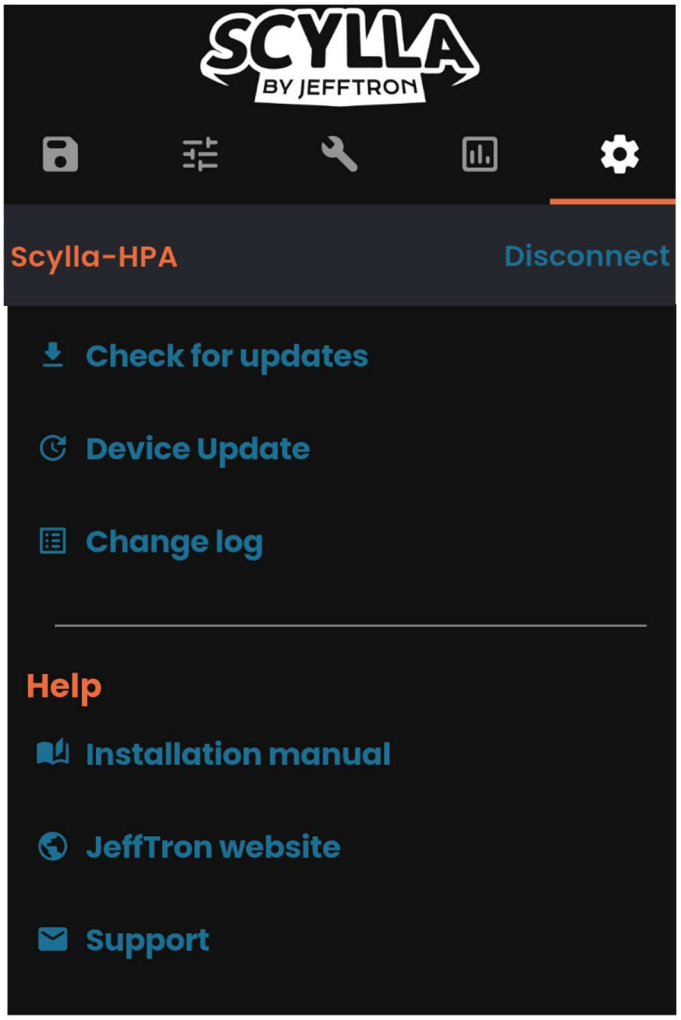


Turn off connection by fire selector: If it is ON, then wireless connection will be turned OFF/ON by fast change selector from **Safe to Auto and back**. It is good for gun security.

Information: Information about app and firmware version. Bootloader and hardware versions are constant. First device launch is date of first app connection with scylla.

Select a firmware version: If the newest firmware version doesn‘t work right, you can downgrade it to the previous version any time.

Check for updates: If your phone lost connection, use this function to see the actual firmware version.



Device update: Fixes bugs and adds new features. It takes approximately 1 minute to finish. After that will pop up a successful message + vibration.

Installation manual: Link to the latest manual in .pdf.

JeffTron website: Link to the eshop **www.jefftron.net**

Support: If you have any questions or problems, please contact us via email: **support@jefftron.cz**

Post firing codes

If any problem occur during firing, it will be signaled by in app message with the error log record:

1 Long beep - Battery volt. is less than 5.5 volts (107)

3 Long beeps - High processor temperature (108)

1 Vibration after shot - Battery voltage is low. If the battery drops much further, the gun will vibrate instead firing. Now it is a good time to change your battery for new one.

1 Vibration instead of fire - Battery is discharged. The gun vibrates on every trigger pull. change your battery for new one. **WARNING:** the battery is still slowly discharging.

1 Vibration after some time - When is „delay between shot“ activated, it vibrates after the time ends. It is a notification the gun is ready for shooting (sound signalization disables it)

Decreasing melody = Wireless connection is OFF

Increasing melody = Wireless connection is ON

Troubleshooting

ISSUE: Weapon doesn‘t react at all after battery connection.
SOLUTION: Check if the battery is properly connected and charged.

ISSUE: Weapon doesn‘t make shots after trigger pull (start-up vibration was made).
SOLUTION: Damaged or misplaced magnet for trigger, check it‘s proper function.

ISSUE: Selector is set to semi but act like on SAFE or AUTO (or any other combination).
SOLUTION: Check the right sticker position on the selector plate or clear dirt on this sensor, check its proper function through „Sensor check“ in the app and use „Optical selector calibration“ to set it again.

ISSUE: Selector plate has moved during shooting
SOLUTION: You have changed by mistake fire selector during shooting or it was changed
by vibrations from shooting. Check and change if necessary the right sticker position on the selector

plate, and use „Optical selector calibration“ to set it again.

ISSUE: Trigger is pressed during battery connection (Error 102).
SOLUTION: Release the trigger and try again. Check for right trigger microswitch function.

ISSUE: Battery voltage is too high (Error 105).
SOLUTION: Change battery with less voltage than 13.0 volts.

ISSUE: Battery voltage is too low (Error 107).
SOLUTION: Change or charge battery to have more voltage than 5.5 volts.

ISSUE: High temperature on processor (Error 108).
SOLUTION: check for short circuits on Scylla through the gearbox or damaged parts.

ISSUE: Nonfunctional application (Error 200).
SOLUTION: Program error in the Scylla. Make update firmware to the newest version.

ISSUE: Gun suddenly stopped firing.
SOLUTION: Protection could be activated - check error log. Check battery charge. Check solenoid and connectors to them.

ISSUE: The Scylla is not visible in the device list in the application.
SOLUTION: Click to refresh button in the app. Check if battery is charged and connected
into the Scylla. Enable wireless and location in your phone. Restart mobile app.

ISSUE: You programmed the Scylla, now it doesn‘t do what you wanted.
SOLUTION: Best way is to do **FACTORY RESET** and start again.

ISSUE: The gun does something strange or nothing.
SOLUTION: STOP! Release trigger, disconnect battery and search for the problem before something will be irreversibly damaged! Contact us at email **support@jefftron.cz**.

MANUFACTURER

Ing. Filip Němec

Zahradní 599, 538 03 Heřmanův Městec

ID: 87936062, TAX ID: CZ8503013475

Made in Czech Republic

www.JeffTron.net

Warranty does not cover:
water immersion, defects or damage from accident, misuse, opposite battery polarity, abuse, damaged wires, wrong installation, bad handling, any modification by user, unusual physical, electrical or electromechanical stress.

Exclusion of liability: Manufacturer Ing. Filip Němec is not liable for any damages, injuries or accidents of any kind resulting from the use of this product in the airsoft gun.

CE RoHS

For technical support or reclamation use email:
support@jefftron.cz

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