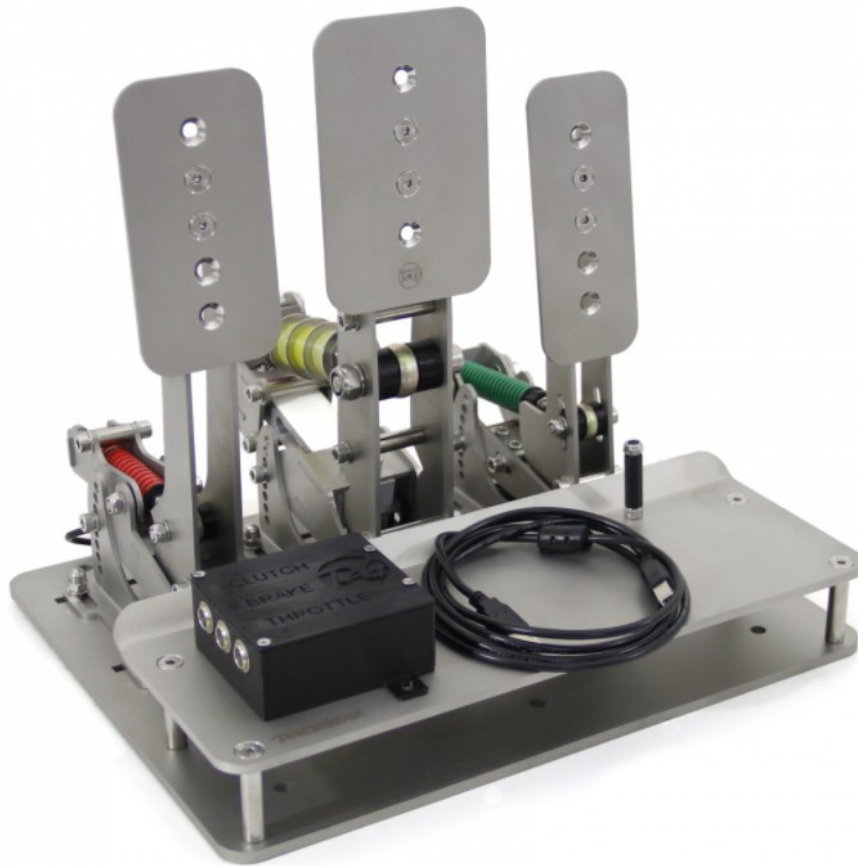# RaceGear Pedals

Manual

Introduction

Dear customer, let us introduce you manual for RaceGear SimRacing pedals. We strongly recommend reading this manual in order to get the maximum possible performance for your individual usage.

This manual contains the following sections:

1. Packing content
2. Adjustment tools (not included)
3. Initial setup
4. Pedals physical adjustment guide (WIP: with video links)
5. RaceGear configurator software guide
6. Drilling template
7. Troubleshooting

1. Packing content

- Bottom pedal plate (base) *****
- Top pedal plate (heel rest) *****
- Throttle pedal
- Brake pedal
- Clutch pedal *****
- Electronics box
- USB cable with ferrite core
- Soft stopper for the throttle pedal
- 3x soft elastomer springs (default mounted configuration for brake pedal)
  - Hardness Shore 75A marked on top with ●
- 2x medium elastomer spring
  - Hardness Shore 85A marked on top with ●●
- 1x hard elastomer spring
  - Hardness Shore 95A marked on top with ●●●
- Stainless steel fasteners for pedal plate (including M8 bolts for attaching to SimRacing rig) *****
- Stainless steel fasteners for attaching pedals to pedal plate

* The base pedal plate set or clutch pedal might be not included in your package as per the type of order you have made.

2. Adjustment tools (not included in the package)

- Allen key of size M8, M5 and M4 (forged ones are recommended for long-term use)
- Flat key of size 17mm and 10mm

3. Initial setup
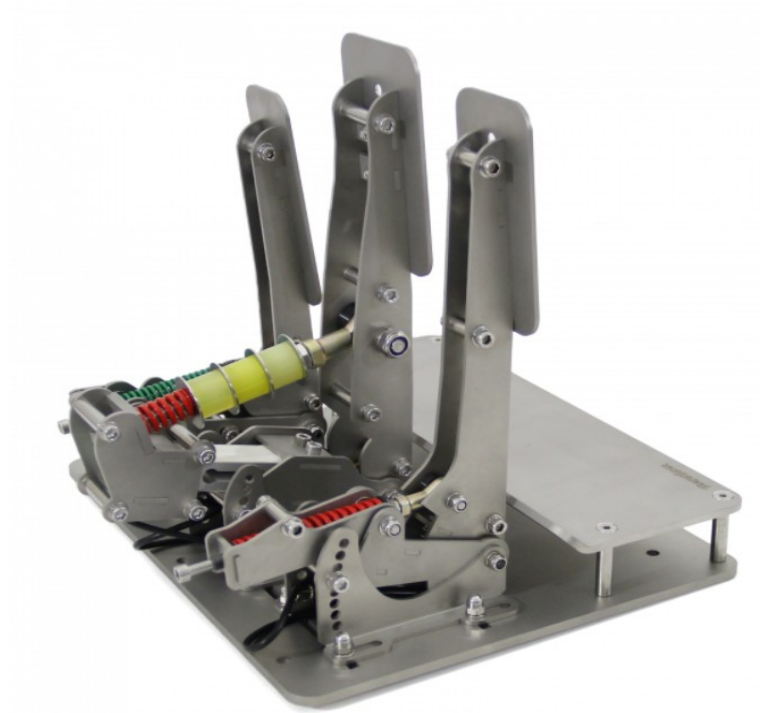
1. **Assembly of the base pedal plate**

   - Required fasteners: 4x M6 round connector, 8x M6 countersunk screw
   - Assembly bottom base plate with top heel rest as per picture above

2. **Attachment of pedals to base pedal plate**

   - Required fasteners: 12x M6 Allen screw, 12x M6 spacer, 12x M6 acorn decorative nut
   - Notes:
     - M6 spacer belong under the M6 acorn decorative nut from the top
     - Pedal bases should not touch each other on top of the base pedal plate
     - Position of each pedal is based on customer individual needs
     - Pedal's front part **cannot** touch heel rest when fully released
     - Example of correctly attached pedals to base pedal plate visible on the picture above

3. **Electronic box and cables assembly**

   - Connect throttle, brake, and clutch to the electronics box as per marked holes on top of the electronics box
     - Note: **Do not** mix particular pedal cables with different holes
   - Position the electronics box at least 30cm from any **not-shielded** high-voltage devices or

cables

- o Examples of high-voltage devices: Simucube1 power source, strong amplifier, etc.
- o Example of high-voltage cable: Multiple sockets (3+) extension cord cable for your rig

- **Grounding** - Electronics box attached cable (grounding cable) with M6 eyelet (1) has to be attached to your SimRacing base pedal plate (2-7), tips&pictures below

  - o M6 eyelet (8) has to be attached directly to RaceGear pedal plate optional positions 1-7
  - o Optionally, M6 eyelet (1) can be connected to any conductive metal part of your SimRacing rig shared with the RaceGear pedals
  - o Remember, to tide the M6 eyelet (1) properly
  - o By this step will be eliminated any kind of real EMI issues, more information below (https://en.wikipedia.org/wiki/Electromagnetic_interference)
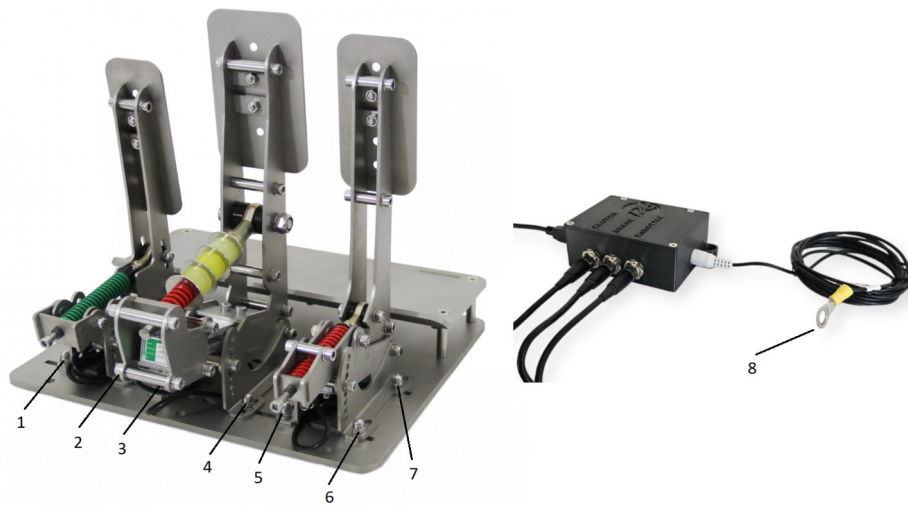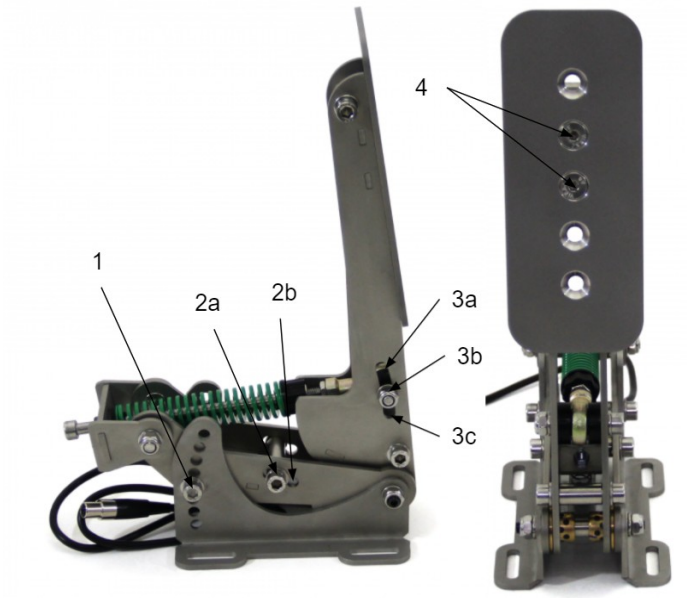

- Connect USB cable with a ferrite core to the electronics box and PC

Your initial setup is finished and RaceGear pedals should be detected by windows automatically
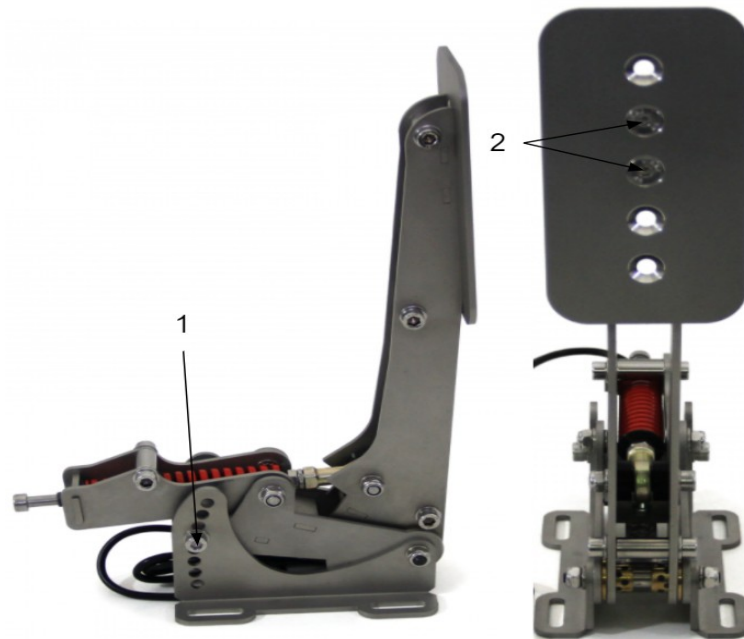
4. Pedals physical adjustment guide

Throttle pedal physical adjustments
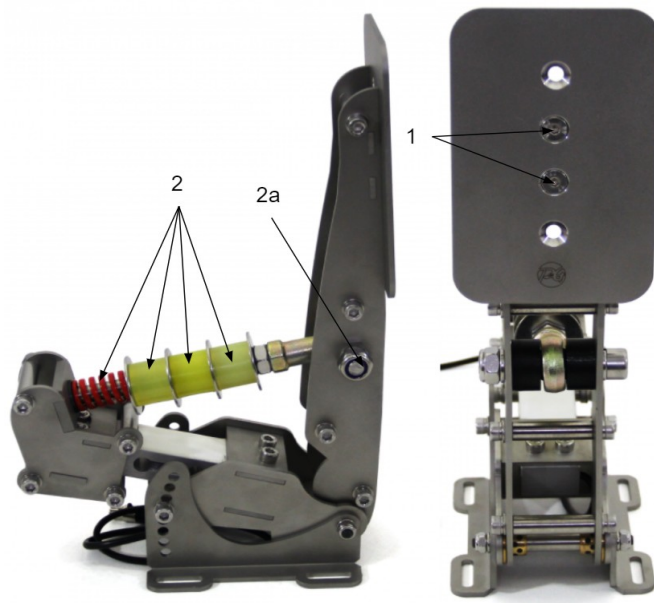

1) Full pedal angle adjustment, 7 positions, tool: M5 allen key

   - Unscrew allen bolt from both sides, set needed angle, screw allen bolts back

2) Pedal travel length adjustment, 4 positions, tool: M5 allen key

   - Unscrew allen bolt from both sides, set needed travel length, screw allen bolts back

   - 2a position is longest pedal travel, 2b position is shortest pedal travel

   - Same procedure is applied for changing soft stopper

   - **Important note: The throttle pedal has to be always recalibrated in the configurator after travel length adjustment**

3) Pedal resistance/ hardness adjustment, tools: M5 allen key and M10 flat key

   - Loosen a bit M10 nut to make ball bearing axle movable, change position, tighten the M10 nut back

   - 3a position is the hardest pedal, 3b position is softer pedal, 3c position is the softest pedal, can be adjusted all the way from 3a to 3c position according to user preferences

4) Pedal plate height adjustment, tools: M5 allen key and M10 flat key

   - Unscrew M6 nuts from back of the pedal plate, take out two countersunk screws, choose needed pedal height, put back two countersunk screws and tighten the M6 nuts back

   - Pedal plate has to be **always** attached by two countersunk screws!

Clutch pedal physical adjustments

1) Full pedal angle adjustment, 7 positions, tool: M5 allen key

   - Unscrew allen bolt from both sides, set needed angle, screw allen bolts back

2) Pedal plate height adjustment, tools: M5 allen key and M10 flat key

   - Unscrew M6 nuts from back of the pedal plate, take out two countersunk screws, choose needed pedal height, put back two countersunk screws and tighten the M6 nuts back

   - Pedal plate has to be **always** attached by two countersunk screws!

Brake pedal physical adjustments

1) Pedal plate height adjustment, tools: M5 allen key and M10 flat key

   I.   Unscrew M6 nuts from the back of the pedal plate, take out two countersunk screws, choose the needed pedal height, put back two countersunk screws and tighten the M6 nuts back

   II. Pedal plate has to be **always** attached by two countersunk screws!

2) Full pedal angle adjustment, 7 positions, tool: M5 allen key

   I.   Unscrew allen bolt from both sides, set needed angle, screw allen bolts back

3) Brake pedal physical hardness setting, tools: M8 allen key and 17mm flat key

   - Unscrew M10 (2a) nut completely from M10 middle axle ball-bearing axle and push out M10 axle (bolt), take out the whole axle attached to ball-bearing including M10 spacers in the direction towards the pedal plate

   - Set preferred physical hardness of the brake pedal by putting on mail axle with a ball-bearing particular set of elastomers, spacers, and spring as per combinations described below

   - Put back the axle set with chosen hardness combination including M10 spacers, **warning**: M10 spacers have to be put back in the original orientation

   - Put back in M10 middle axle (bolt), tighten the M10 nut back enough so M10 spacers around the ball bearing are not moving

   - **Important note: The brake pedal has to be always recalibrated in the configurator after travel length adjustment**

4) Recommended brake pedal hardness combinations from softest to hardest

   I.   Blue spring * + 3x ultrasoft elastomer * + 2x thick washer *, highest maximum value (17) -8000 points

   II. Red spring + 3x ultrasoft elastomer * + 2x thick washer *, highest maximum value (17) -6000 points

   III. Red spring + 2x ultrasoft * + 1x soft elastomer, 1x thick washer *, highest maximum value (17) -4000 points

   IV. Red spring + 1x ultrasoft * + 1x soft + 1x medium elastomer, 1x thin washer *, highest

maximum value (17) -2000 points

V. Red spring + 3x soft elastomer, highest maximum value (17) 6000 points

VI. Red spring + 2x soft + 1x medium elastomer, highest maximum value (17) 7000 points

VII. Red spring + 1x soft + 2x medium elastomer, highest maximum value (17) 9000 points

VIII. Red spring + 1x soft, 1x medium, 1x hard elastomer, highest maximum value (17) 11000 points

IX. Red spring + 3x medium elastomer, highest maximum value (17) 19000 points

X. Red spring + 2x medium, 1x hard elastomer, highest maximum value (17) 22000 points

XI. Red spring + 1x medium, 2x hard elastomer, highest maximum value (17) 25000 points

XII. Red spring + 3x hard elastomer, highest maximum value (17) 32000 points

* Ultrasoft white elastomers (65A) and blue spring are included only in performance kits

5. RaceGear configurator software guide

Detailed configurator pedals settings description
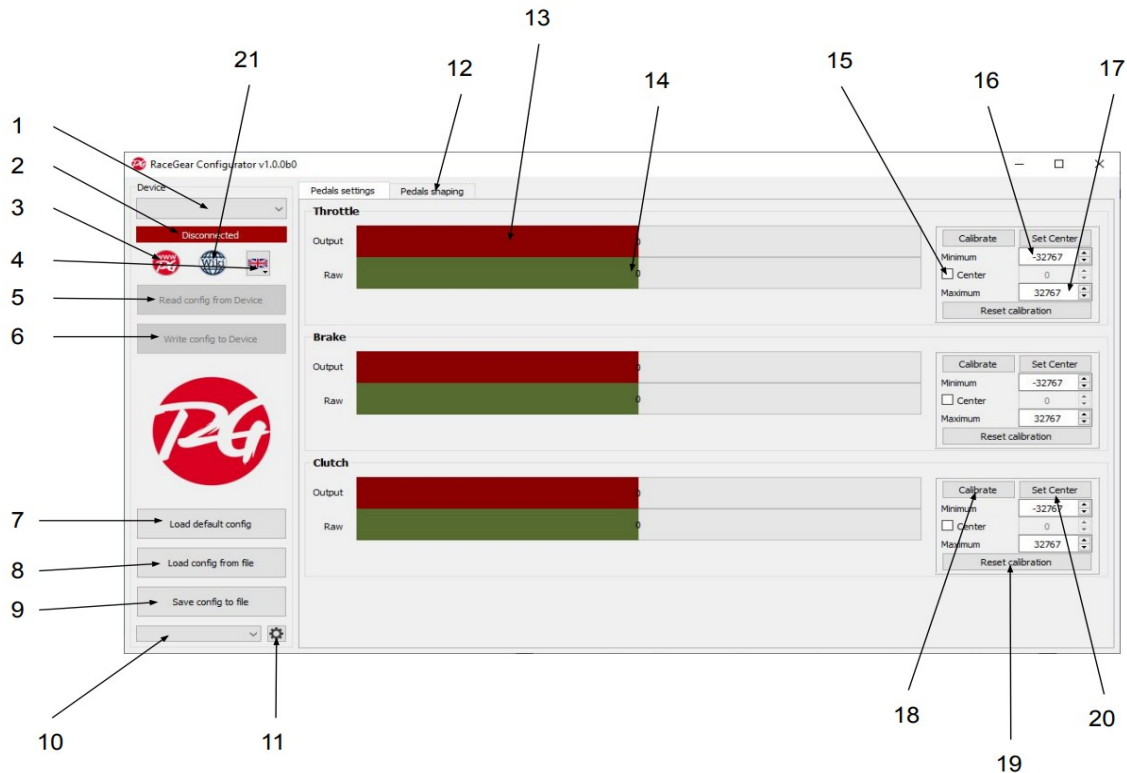
1) Selected electronics box (device), there might more devices in the future as hand-brake with its own electronics box

2) Status of connected device

3) Redirect button to RaceGear website

4) Button for choosing a language (8 languages available)

5) Button for manual activation of current config in the device

6) Button for manual save of set config to the device

7) Button for loading of default device config including default values

8) Button for the manual load of the config from the file

9) Button for manual save of the set config to the file

10) Dropdown menu to choose particular saved config

11) Button for advanced configurator setting (detailed description below)

12) Button for pedals shaping setting (detailed description below)

13) Output data axle(red), virtual axle active in the operational system, and every SimRacing game used

14) Raw data axle(green), hardware input data from the physical pedals over the electronics box

15) Checkbox for activating possible manual setting of the center

16) Adjustable value for maximum output data axle, the initial value of the virtual axle active in the

operational system

17) Adjustable value for minimum output data axle, final value of the virtual axle active in the operational system

18) Button for automaticall pre-calibration

19) Button for reset of the calibration to default minimum and maximum values

20) Button for activating possible manual setting of the center

21) Redirect button to GitHub website

Software procedure guide

NOTE: Every RaceGear pedal set after delivery is pre-calibrated and for the standard usage is NOT needed to proceed with the calibration. Required is only test if output axle (13) working from 0% to 100%

1. USB cable with ferrite core is already plugged to the electronics and your PC as per initial setup

2. Download RaceGear configurator software from our website as per the link below

   - Download link: https://www.racegear.eu/downloads
   - Filename: Calibration software RaceGear V1.0

3. Install RaceGear configurator to your operation system

4. Start RaceGear configurator, note: following steps use button marks "(x)" referring to detailed configurator pedals settings description below

5. Throttle calibration

   I. Leave throttle pedal unpressed and click calibrate button (18)

   II. Push throttle pedal a few times in full range and stop the automatical pre-calibration by clicking again calibrate button (18)

   III. Modify minimum value (16) by +500 and maximum value (17) by -500

   IV. Write config to device (6) and test functionality

6. Clutch calibration

   I. Leave clutch pedal unpressed and click calibrate button (18)

   II. Push clutch pedal a few times in full range and stop the automatical pre-calibration by clicking again calibrate button (18)

   III. Modify minimum value (16) by +500 and maximum value (17) by -500

   IV. Write config to device (6) and test functionality

   V. Additionally, maximum value (17) can be set lower in order to make clutch travel shorter

7. Brake calibration

   I. Leave brake pedal unpressed and click calibrate button (18)

   II. Push brake pedal few times in your personal preferred full range (due to possible maximum pressure of 120kg to loadcell sensor it will be very rare for a user to use full range since beginning usage of RaceGear loadcell pedals) and stop pre-calibration by clicking again calibrate button (18)

   III. Modify minimum value (16) by +1000 and set maximum value (17) to 1000 as starting

point, note: maximum value (17) set to 1000 represents approximately 55kg needed pressure to get in-game 100%, this value is evaluated by RaceGear as a universal starting point for majority average adult users

IV. Write config to device (6) and test functionality

V. Additionally, maximum value (17) will be always very individual, every user likes different travel lengths with different needed pressure to break, the recommendation is to start with maximum value (17) on 1000, test drive, and see how brakes are working in the particular car, simple advice would be: if you not braking enough lower the maximum value (17), if you brake too much increase the maximum value (17), a step above is to play with physical combinations of elastomers and springs

VI. Finally procedure and advice for brake calibration are described based on the default physical set of three soft elastomers installed on the brake pedal, the highest maximum values for each combination of elastomers and steel spring can be found in section 6. Pedals physical adjustment guide

Notes

– **RaceGear configurator software is compatible with Windows operating system, compatibility with Mac or Linux operating system is not guaranteed**

– **Don't forget to write config to device (6) after each wave of setting changes to see the newly set output axle (13)!**

– **Each combination of physical elastomers on the brake pedal has its highly recommended highest maximum value in order to not damage elastomers**

– Keep in mind write config to device (6) means writing the config to the actual electronics box

– For saving the settings (profile) locally to your computer has to be always used save config to file (9)

– Its highly recommended to save config to file (9) in case of your satisfying settings to be able easily to go back if a new setting does not work as expected

– Every RaceGear pedal set comes with initial pre-calibration, to proceed with the procedure above is recommended first load default config (7)

– Just for adjustments is not needed to load default config (7)

– Calibration value minimum (16) and maximum (17) adjustments mentioned above are recommended for basic correct use

– Always double check correct expected function of the pedals by testing in the configurator

– Calibration values can be modified individually based on the particular user needs as for example extending of dead zones from either edge for the output axle (13), limiting travel of clutch, or setting brake threshold pressure lock

  • To increase minimum (16) dead zone always increase the value by +x

  • To increase maximum (17) dead zone always decrease the value by -x

Detailed configurator pedals shaping description
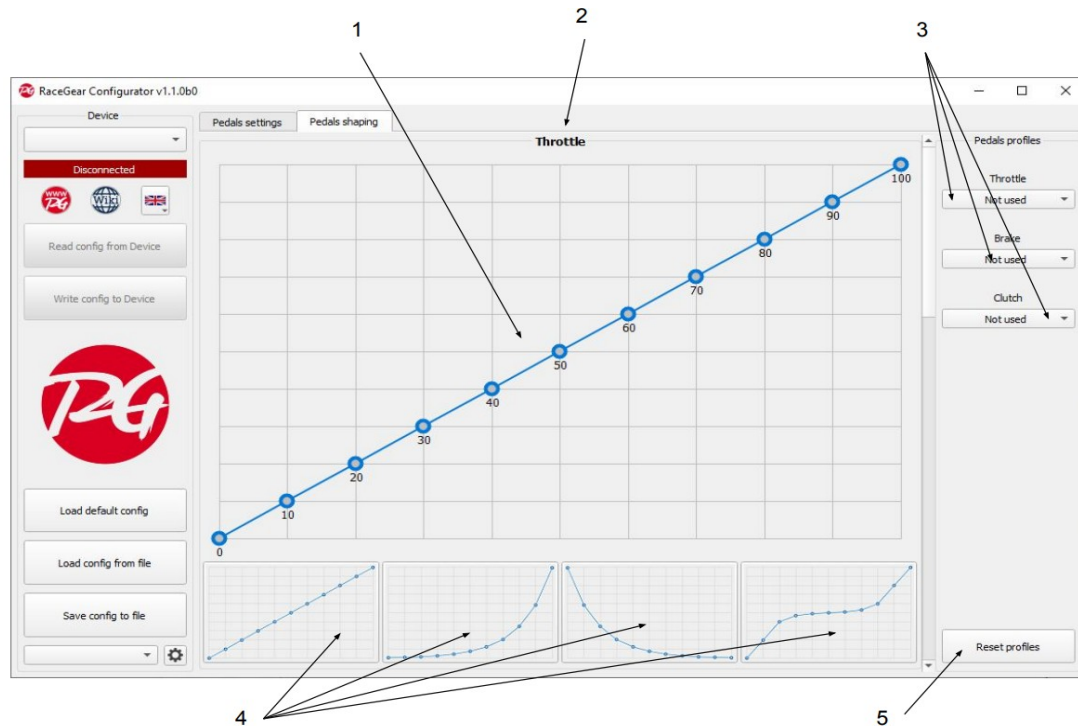

1) Particular adjustable pedal axle shaping via curve
2) Particular pedal marking – throttle, brake, and the clutch has their own shaping of the pedal axle
3) Dropdown menu to synchronize particular axles shaping
4) Pre-set pedal curves shaping
5) Button for resetting pedals profiles

Pedals shaping TIPS

– Throttle pedal shaping is very much based on individual preferences and each driver should find his best setting

• Example of usage, for cars with aggressive progress of power, is possible to use second pre-set shaping (from left) to get initially in the corner exit lower power to wheels

• Linear progress of curve is recommended in case of often switching cars

– Clutch pedal shaping should be set based on particularly needed usage

• For standard usage of the clutch is recommended to not change pedal shaping

• As the second type of usage is possible to modify clutch pedal curve to workaround double-clutch as per example visible in fourth pre-set shaping (from left), meaning the middle flat part of the curve represent the bite point of the clutch during a standing start for a particular car

– Brake pedal shaping usage types

• Common usage is linear shaping

- Customized brake pedal shaping is mostly used for the setting of brake pressure threshold lock (especially used in iRacing Simracing game), in other words, simply limit the braking curve (pressure) limit to a particular maximum percentage during braking
  - ➢ Its important to first calibrate the brake in the game in linear shaping with max of 100%
  - ➢ After linear shaping is set to 100% in the game, set the needed limit in the configurator (eg.80%) via pedal shaping brake curve and your brake pressure will never goes over 80% in game afterwards
  - ➢ **Never** do the procedure in opposite way as the game always takes xx%(eg.80%) as 100%

Detailed configurator advanced setting description
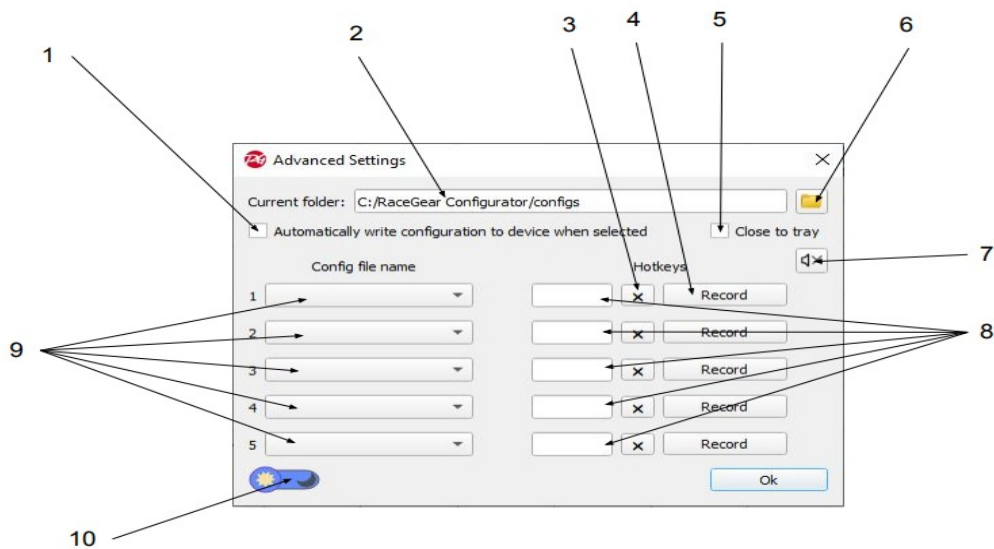

1) Check the box for activating automaticall write of selected configuration to the device
2) Set a folder for all the created configurations
3) Button for delete of assigned keyboard bind
4) Button for the set of keyboard binding for a particular configuration
5) Check the box for activating configurator close to tray
6) Button for the setting of configurations folder
7) Button for turning on/off notification sound after switching of the profile, after activation no need to jump out of the game
8) Visible assigned keyboard bindings to particular configuration
9) Dropdown menu for setting of particular configuration from source folder with all saved configurations
10) Button to switch configurator between light and dark design

Final words regarding the software

– Play with the settings of pedals to get maximum performance and feeling out of them, there is a huge amount of the combinations from software and hardware point of view

– Maximum values on the brake will be tuned in the next version of the software to show kilogram units to exactly reflect particular usage of 120kg weighting sensor (loadcell) installed in RaceGear brake pedal

– Any kind of feedback is always apricated same as any ideas for improvements or needs of our dear customers!

6. Base pedal plate drilling template
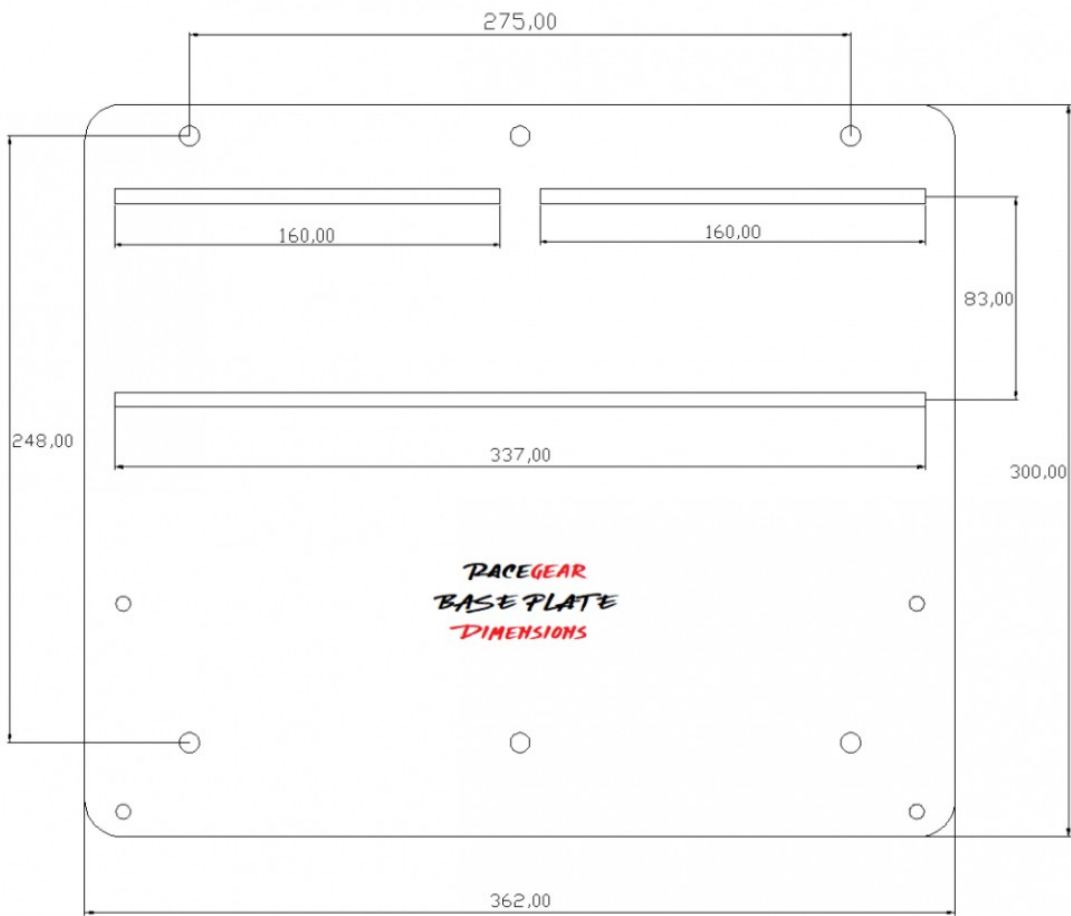
7. Troubleshooting

In case of any issues or questions, please contact us directly via the contacts below, we will be always happy to assist you!

Website with contact form: https://www.racegear.eu/en/content/6-contacts

Facebook Messenger: https://www.facebook.com/RaceGearEU

Mobile phone: +420 727 955 926

Thank you for choosing RaceGear Pedals and wish you great fun and fastest laps in world of SimRacing