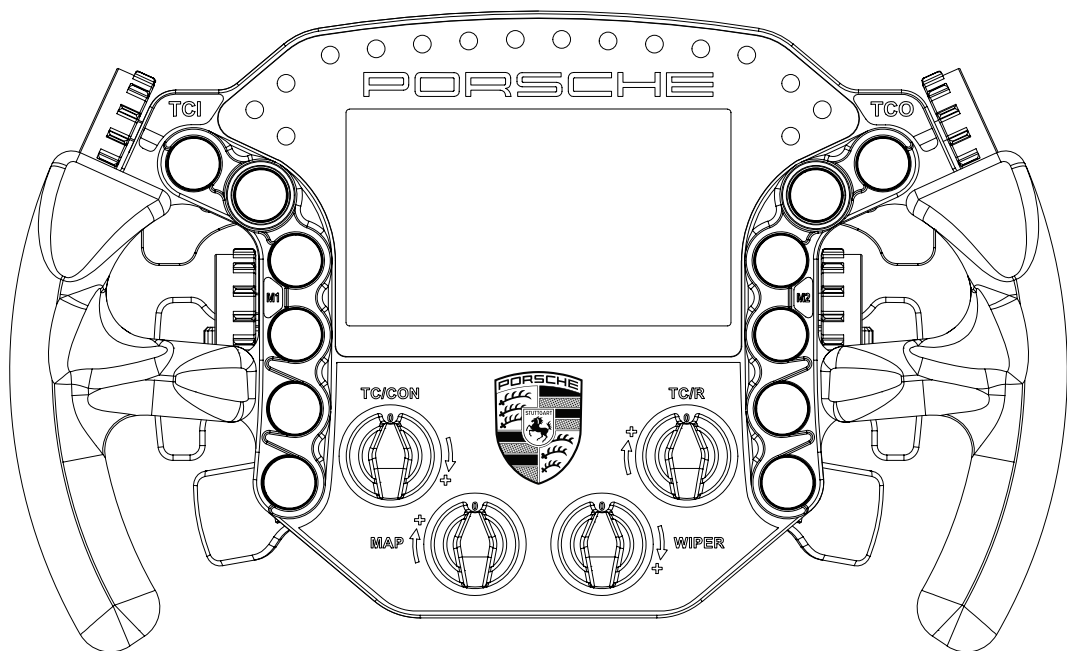# INSTRUCTION MANUAL

PORSCHE 911 RSR
SIM RACING STEERING WHEEL
## VERSION 1.3
Last updated: 20-07-2023

BEFORE YOU START:

Thank you for your purchase. In this manual we will provide you with the means to get started using your new steering wheel!

Porsche 911 RSR Sim Racing Steering Wheel

Features:
Full billet anodized aluminium construction
80 telemetry controllable RGB LEDs
Motorsports grade electronics
High resolution 5" LCD
Adjustable clutches
Porsche licensed
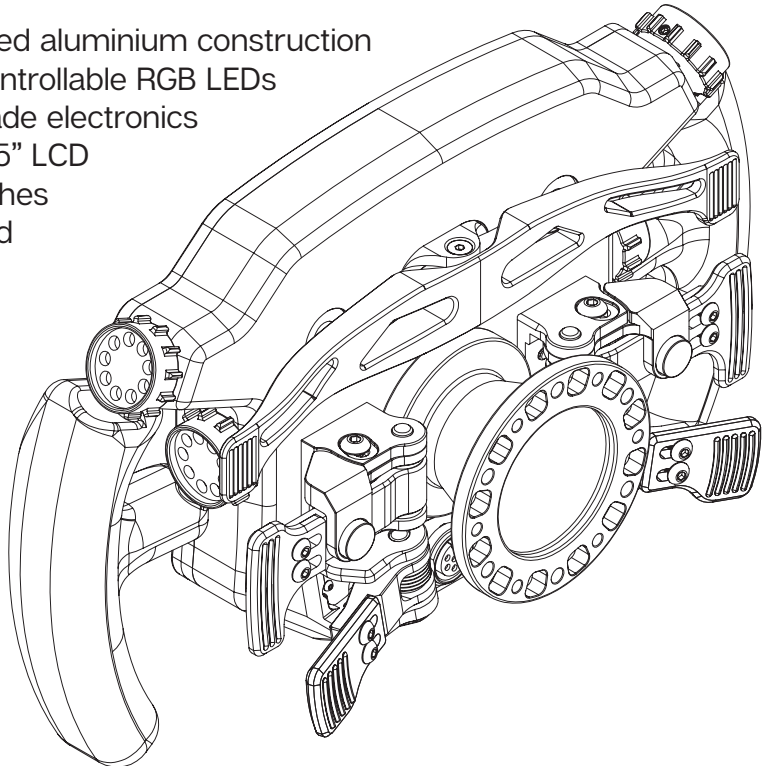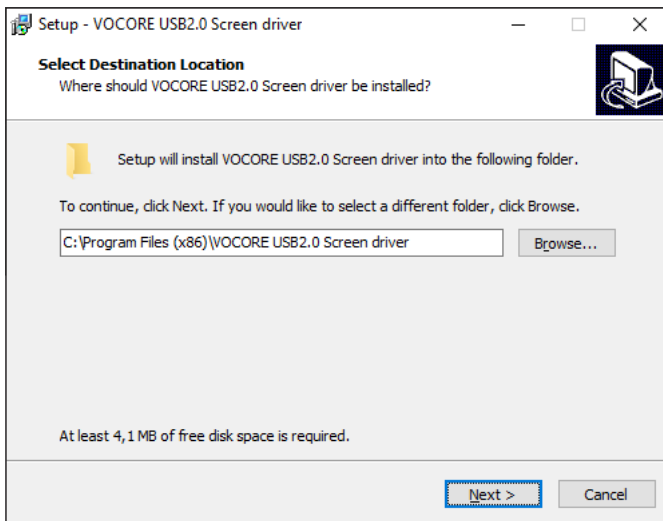
Installing drivers

Display drivers
To enable the display part of the steering wheel, specific drivers are needed. These drivers can be downloaded from the product page.
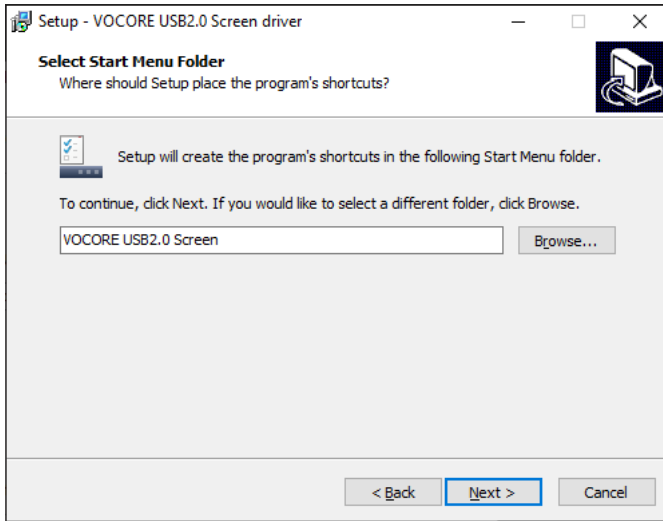
[Vocore drivers download](#):

Installation
To install the display drivers, run the downloaded package and specify the location where to install the drivers:
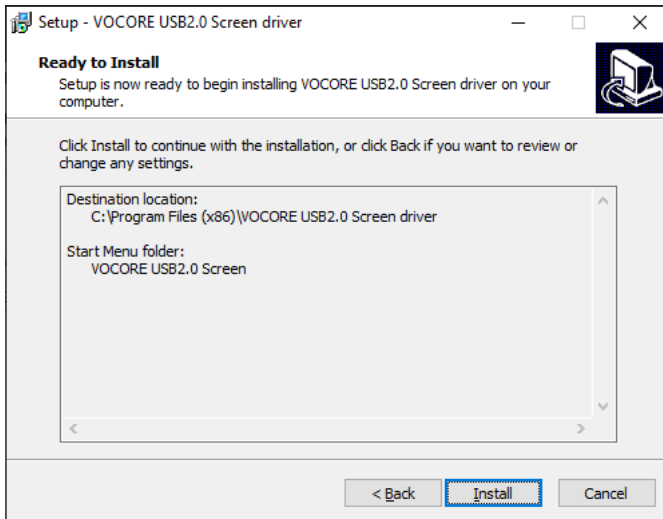

Press 'Next'.

Specify the name of the start menu folder:

Press 'Next'.
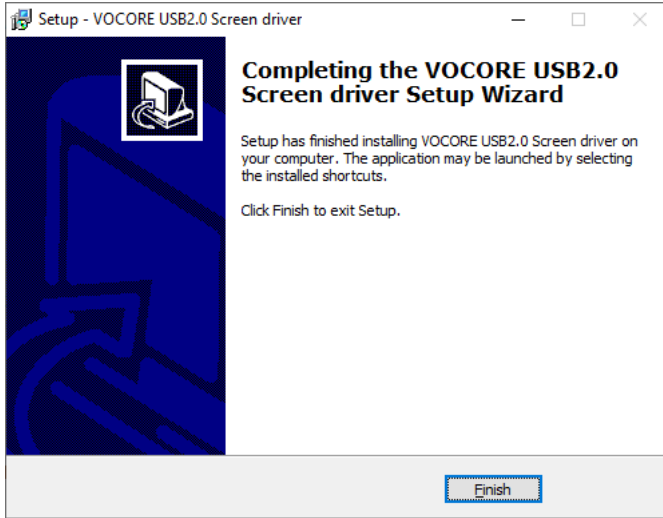
Review the settings before installation:

Press 'Install'.

The drivers will install now. Sometimes this can take longer than expected. This usually means a system restore point is being made and should not hinder installation.

If it does, unplug the USB cable to the wheel in case it is connected and try again. Make sure you have administrator rights on your system.

Press 'Finish'.

RaceDirector installation

To control the dash, RaceDirector can be used. This is a simple but effective piece of software, purpose built for our own hardware.

Download the lastest version of RaceDirector from:
http://www.grid-engineering.com/srd-setup

Please review the manual found at:
http://grid-engineering.com/srd-manual

For more advanced users, SimHub can also be used, but this manual will focus on our own software.
Download the lastest version of SimHub from *https://simhubdash.com*

Installation
Unzip the downloaded file 'RaceDirector.zip' and extract the folder to a location of your choice, run the installer to start the installation.

If you encounter a Windows Defender/Smart Control screen warning you of only software of trusted sources, please press 'Run anyway'. This warning will dissapear when more and more people startbusing RaceDirector and the software has been proven safe for use.
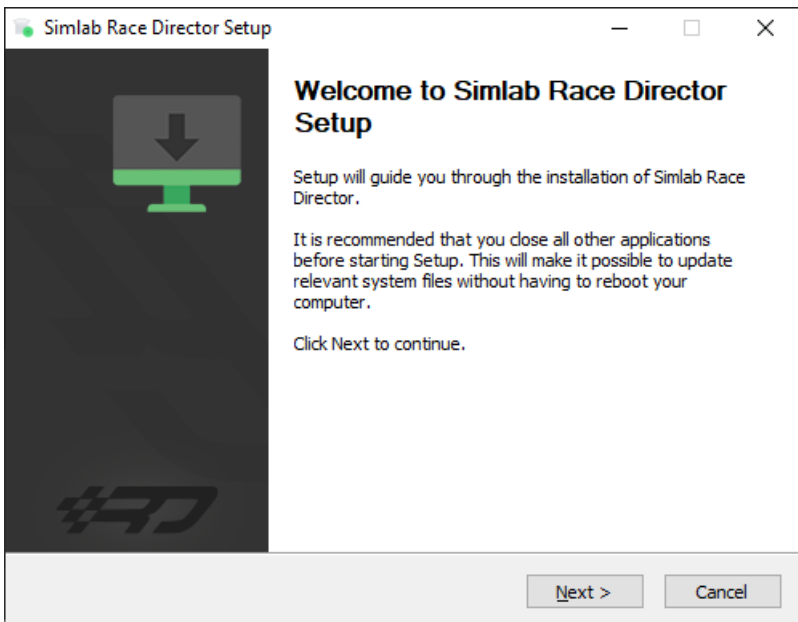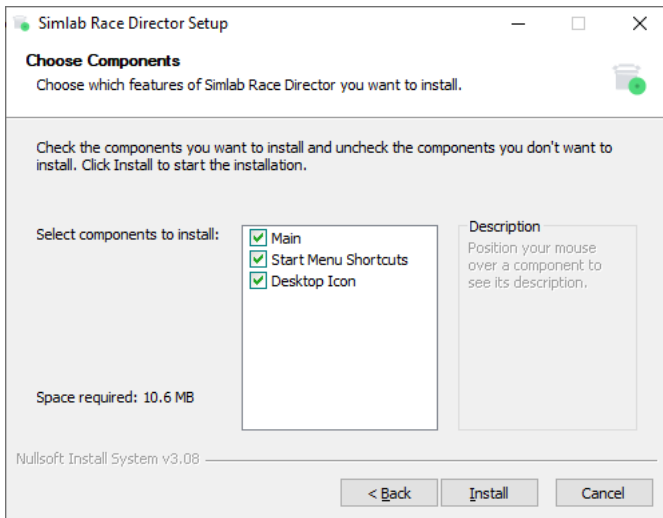

Press 'Next'.

Specify the location where to install the software:
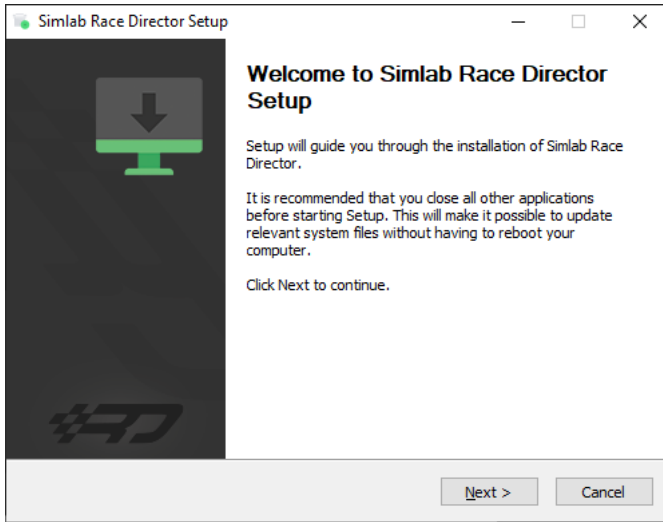
Press 'Next'.

Make sure all options are checked:

Press 'Install'.

RaceDirector will be installed:
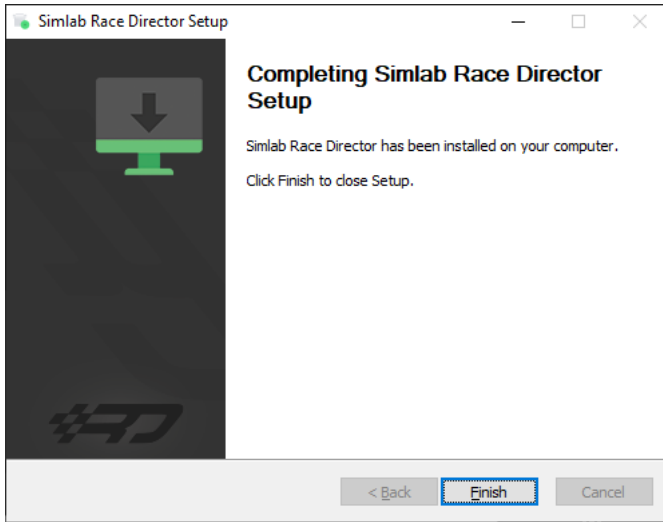
Press 'Finish'.

Initial calibration

Before using the wheel, we recommend to walk through calibration of all paddles found on the back of the wheel.

To make this an easier and more visual experience, let's open the Windows Game Controller program.

The quickest way to do this is to press the windows-key, type 'Game Controller' and hit 'enter' on your keyboard. This will open the Windows Game Controller program.
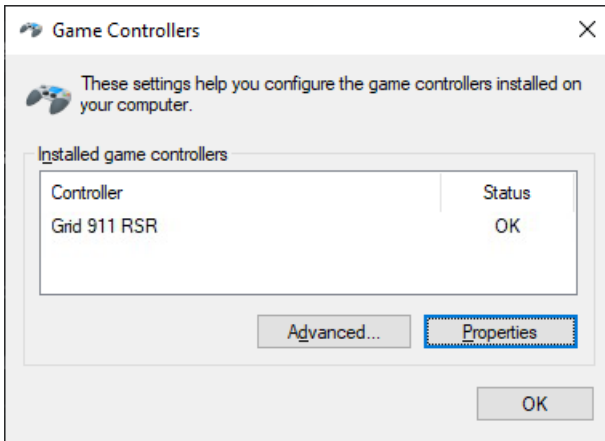
Select 'GRID 911 RSR' from the list and press 'Properties' to access the properties window.
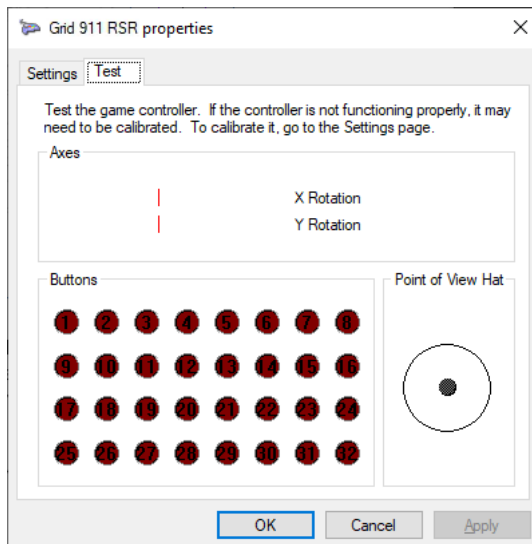
Calibration Mode

The calibration is a very straightforward process, but first we need to enter the Calibration Mode on the wheel itself. To activate the wheels' calibration mode, **Press and Hold** the ADJUST (A) button and CALIBRATION MODE (CM) button at the same time. Keep doing so for at least **5 seconds**, until you see BUTTON 1 flashing in the calibration program. On the wheel itself, the far-left LED will start flashing (red). Release both buttons when the wheel successfully entered Calibration Mode.
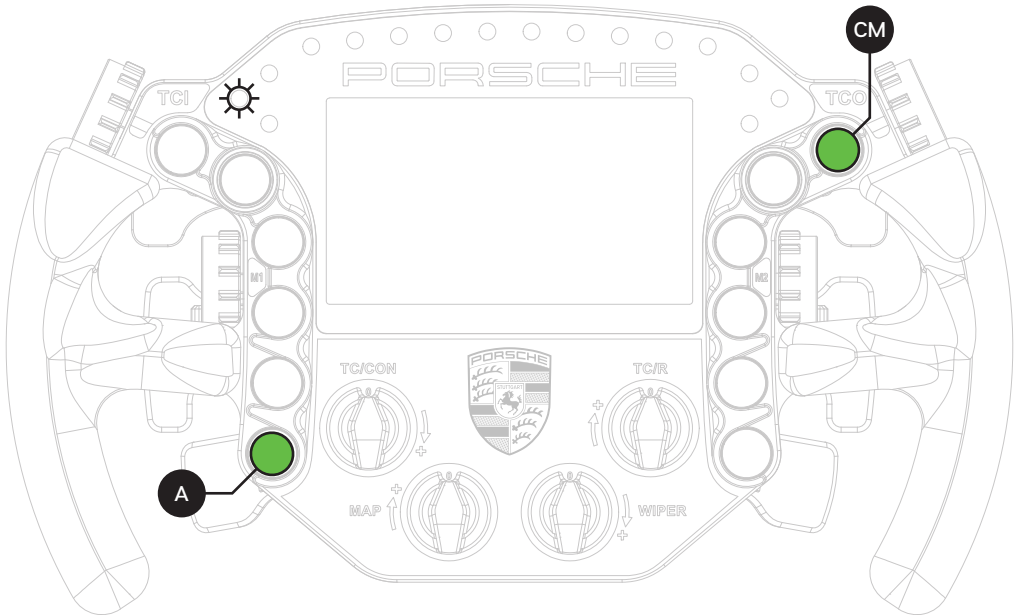

Calibration

Calibration is easy to do. Simply press and hold for about a second, release and you're done. After this has been done with both clutches and mono-arm, the wheels' firmware has registered the minimum and maximum values for travel. Press the Adjust (A) button a single time to exit the Calibration Mode.

While the Windows Game Controller program is still running, it is worthwhile to check all buttons and encoders are working.

All buttons have one input, the front encoders have two (clockwise and anti-clockwise). The thumb encoders also have an additional push functionality. As for now this windows program only shows you 32 button inputs on screen, don't worry, the wheel works fine. We hope this will be expanded with future windows-updates.
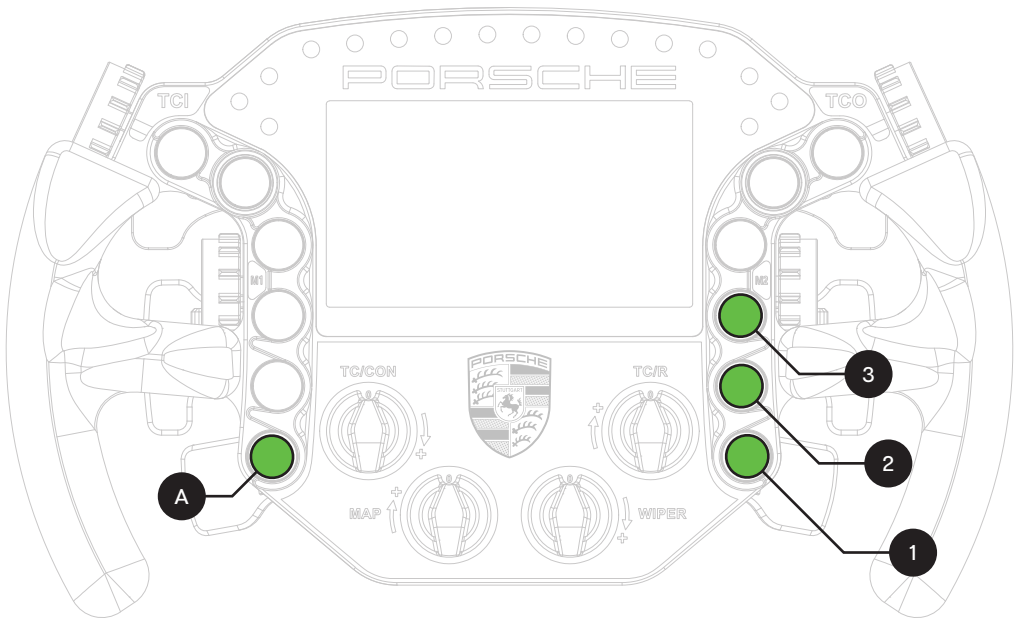
Clutch modes and bite-point adjustment

To make the most out of the dual clutches installed, they need to be set-up to your liking and intended use.

Mode selection
We offer multiple modes for different uses. This can be changed on the fly on the wheel itself. The three modes are:

- Dual-clutch: The 2 clutch paddles are working as 1 analog input. Left-side is the adjustable bite-point clutch and the right-side clutch is the master. Bite-point adjustment available *ONLY* in this mode.
- Analog: The 2 clutch paddles are working as 2 separate analog inputs.
- Switch: The 2 clutch paddles are working as a momentary switch.

To switch modes, **Press and Hold** the ADJUST (A) button and **Press** the mode of your choice. (1) Dual-Clutch, (2) Analog, (3) Switch. Release both buttons after you have made a selection.
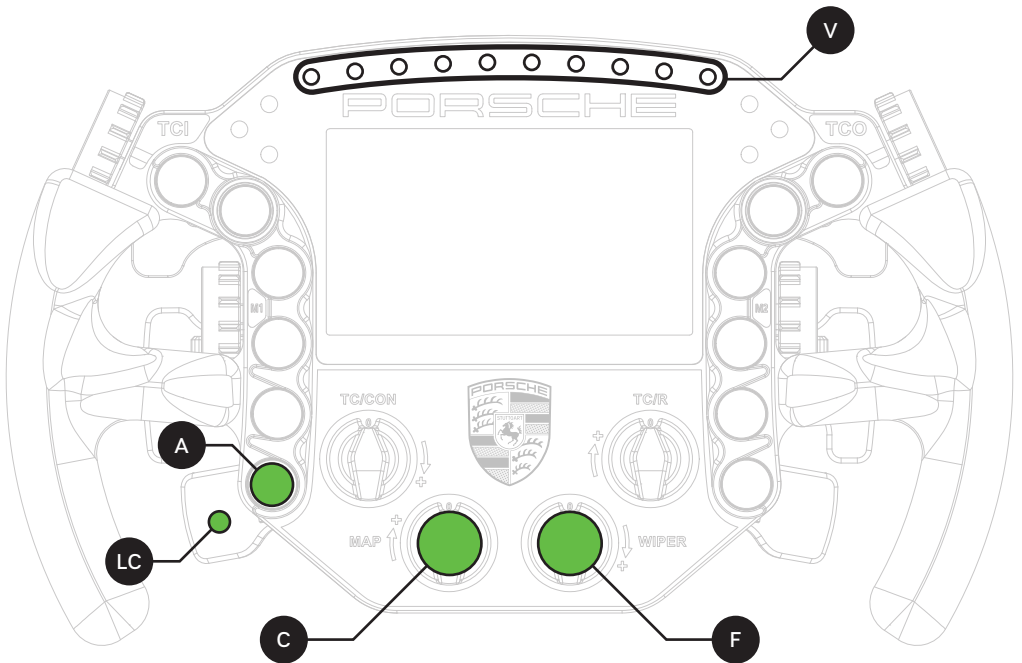
Bite-point adjustment

Bite-point adjustment is available only in the DUAL-CLUTCH mode. If you are not in this mode, please see the previous page how to switch to this mode. Also, it is important that both paddles are calibrated before adjusting their behavior. Please see Page 10 before following the steps on this page, if you have not calibrated your clutch paddles already.

To adjust the bite-point, **Press and Hold** the ADJUST (A) button. Next, start by dialing in the bite-point roughly by using the Coarse (C) adjustment knob, tweak using the Fine (F) adjustment knob.

The Coarse (C) adjustment adjusts in roughly 10% increments, while Fine (F) roughly does 1% of adjustment. This way you can really dial in your clutches without compromise.


To make it easier to adjust and know the (exact) percentage of the bite-point, there is visual feedback (V) on the wheel itself. The RPM LEDs will show red (10% per LED) while using the Coarse adjustment knob, green (1% per LED) while using the Fine adjustment knob. You should also be able to see the changes update live, following the steps on Page 9.

RaceDirector configuration

The very first time launching RaceDirector, you will probably be greeted with an empty screen and booting might also take a bit longer than you would expect.

Don't worry, this is normal, some additional files might be downloaded/updated. To keep things visually clear and clutter free, we only want to show the options you actually need.
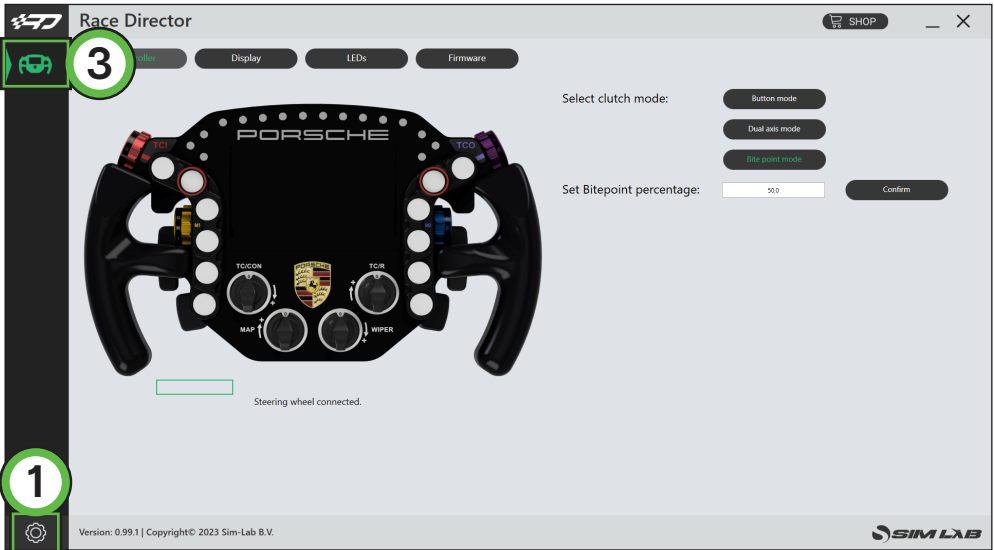
Press the 'Gear' (1) symbol to enter the settings page. To keep the interface clutter free, the device(s) you own need to be activated.

In this case we tick the box for the 'Porsche 911 GT3 Cup Display Unit' (2).

The 'device icon' (3) is activated now and once we press it, the device page will be shown.
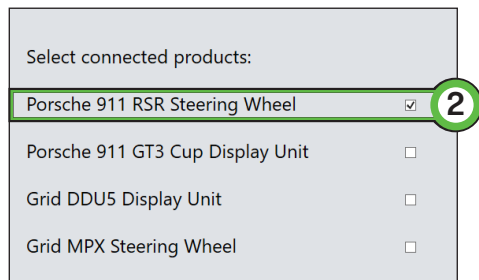
Device pages

We will go over each device page in order, explaining their contents per page.

Controller (A)
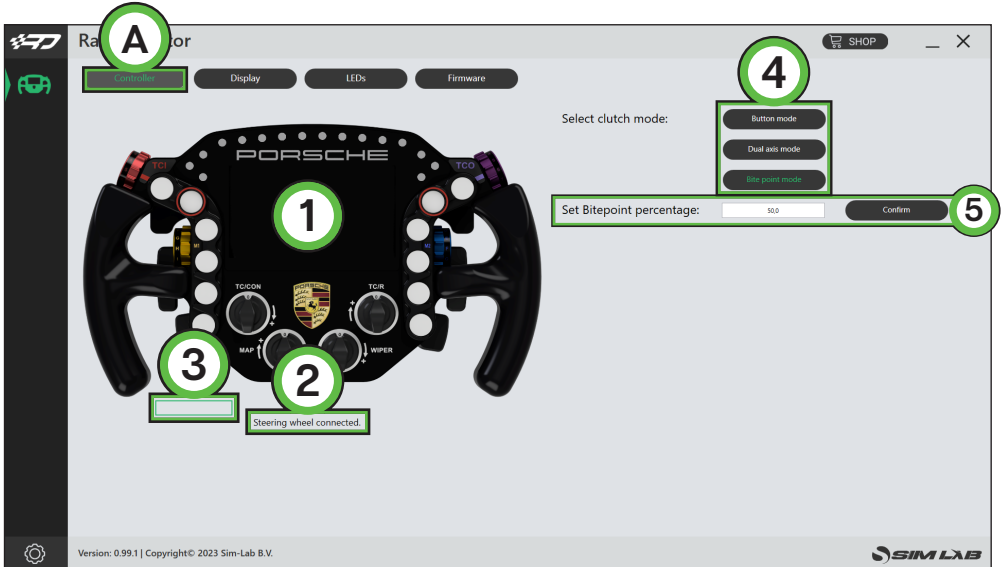
This device page focusses more on the mechanical part of controlling the hardware. Seeing the options mentioned, it is probably clear this page has more to do with wheels than dashes for example.
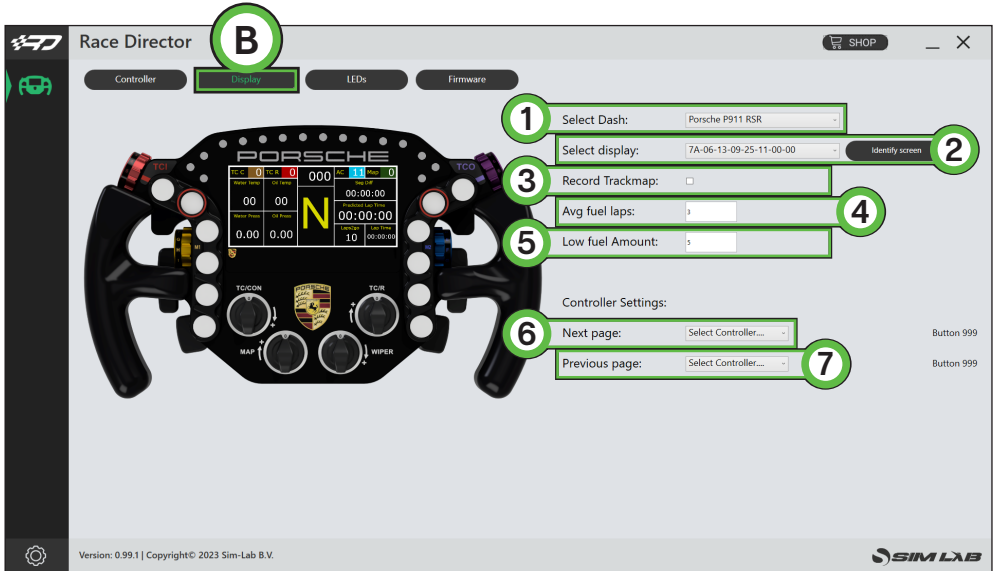

On the left is the 'Visual Representation' (1) of the wheel, included is a 'Status indicator' (2) and the 'Clutch indicator(s)' (3) which show the clutch input. The clutch indicator will be a single or double one, or hidden, depending on your clutch settings.

The right side of the screen contains some options, at his moment they all have to do with the clutches. Although clutch options can be controlled hardware wise through the wheel entirely, we also offer the possibility to configure the clutch through software as well. The various 'Clutch modes' (4) can be selected as would be done on the wheel.

One option which is easier done through software than on the actual wheel is precisely dialing a bitepoint for the clutch in 'Bite point mode'. In the input field next to 'Set bitepoint percentage' (5) you are able to specify a bitepoint from 0-100% and this is even possbile in the tenths. Let's just say you you want to enter a percentage of 45.6% in there, you are able to.

Display (B)
Almost all of the options found here speak for themselves, though for the sake of being complete, we will go over them on by one.

– 'Select dash' (1)

> This allows you to select a standard dash for a given car. We do not support all cars in every sim. The chosen dash will also be visually shown on left on the visual representation of the hardware.

– 'Select display' (2)

> This will make sure the chosen dash is rendered on the correct screen. When you are not sure which display to select, press 'Identify screen' (8) to help identifying which display is which. If a single vocore screen has been connected, this will be automatically selected.

– 'Record trackmap' (3)

> This will allow you to record a trackmap of the track you are driving. This will be used by dashes which have a GPS page where you can track the positions of drivers on track. When no data has been recorded, the track will be rendered as a simple sphere. Stop short of start/ finish on track, tick the tickbox and drive a lap in the middle of the track with a constant speed. After start/finish the record function is automatically disabled, the track will display as recorded on the appropriate pages.

– 'AVG fuel laps' (4)

> This value determines how many laps are used to calculate average fuel usage. The average is reset every time you enter the pits to keep the average a fair number.

– 'Low fuel amount' (5)

> This number (in liters) will be used for the dash to know when to acticate the 'Low Fuel' alarm or warning.

– 'Next page' (6)

> Cycle to the next page of the loaded dash. Select a controller of your choice, press 'Select button' and you have about 10 seconds to press the appropriate button you want to use.

– 'Previous page' (7)

> Cycle to the previous page of the loaded dash, works like described above.

Note: when the page controls are configured, they won't affect a dashboard *unless* a sim is running.

LEDs (C)
This will be explained in two parts, first we will go over the options found on the right side of the screen.
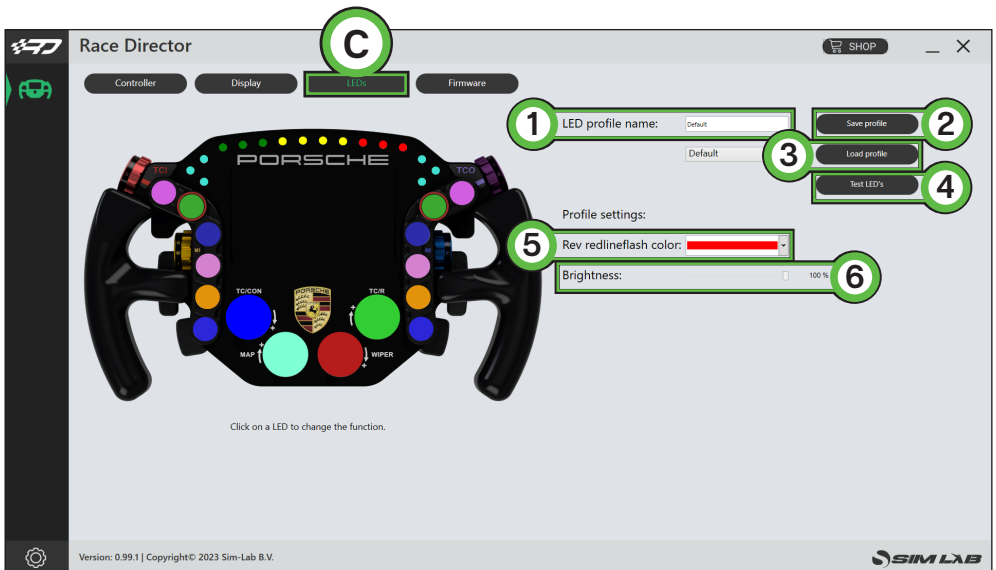
- 'LED profile name' (1)

      This serves two purposes in one. Firstly the name of the loaded profile is noted to verify that the profile has been loaded. Secondly the name is used when saving the profile.

- 'Save profile' (2)

      When you want to save an excisting profile, press this button. You will be warned that the profile is an excisting profile, thus overwriting it will change it from the default settings. Alternatively, once the profile name (see above) has been changed, that name will be used as a new profile.

- 'Load profile' (3)

      This loads the selected profile in the drop down menu.

- 'Test LEDs' (4)

      This opens up a pop-up window where you use test input to see what the LEDs do using the currently loaded profile.

- 'Redline flash color' (5)

      You can pick the color when you reach the redline or optimal shift point. Right now this is preset at a standard 95%. (beta)

- Brightness' (6)

      This slider changes the brightness for all LEDs on the wheel.

When we take a look at the visual representation of our hardware though, comparing it to the prevous page (Display) some colors have been added.
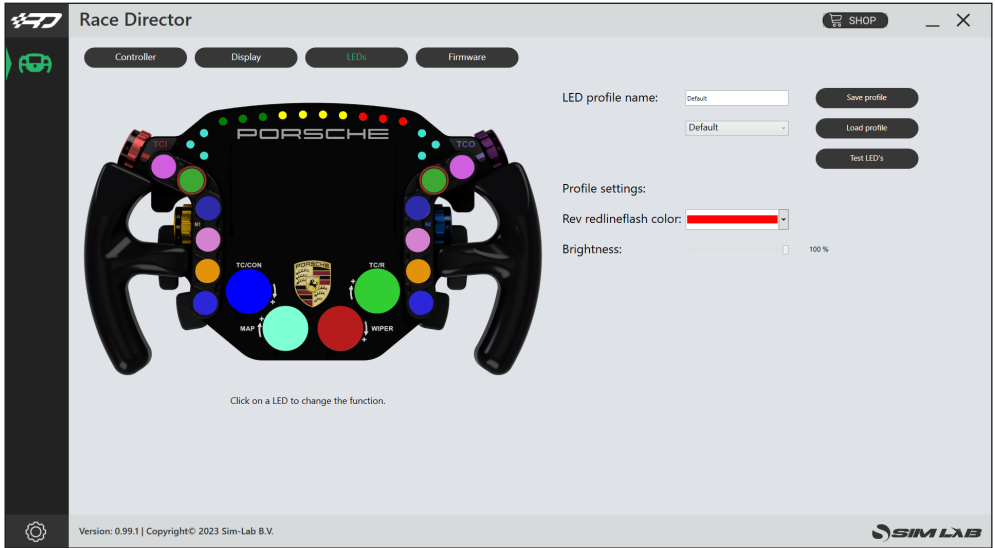
Clicking on any LED/color brings up the LED setup window. We're looking at this horizontally. From left to right the function number (1), the function (2), the function input/option (3), color (4) and state (5) (default is static).
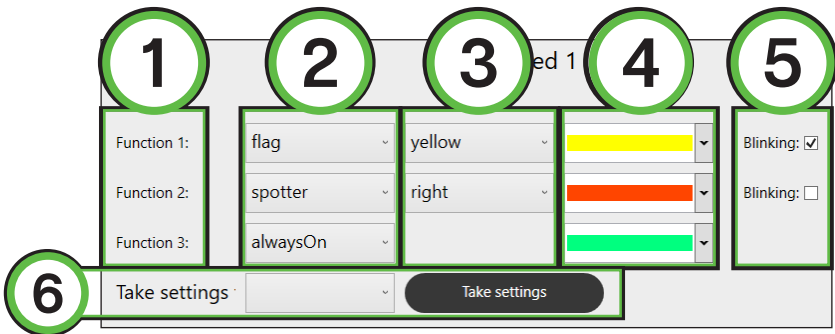
There is also the possibility to 'Take settings' (6) from an LED you configured earlier.

Here are some basic rules:
- Each LED can have up to 3 functions with different behaviors.
- Functions are stacked where Function 3 is lowest and Function 1 is highest in priority.
- Any LED with an 'alwaysOn' behavior should be used with 'Function 3' in case of multiple functions on one LED.
- The visual representation of the wheel prefers to show functions which feature an 'alwaysOn'. If it doesn't find an 'alwaysOn', it will display the first non-black color.

You can see very quickly how the settings behave, just by looking at an existing profile. One thing to note is that it is good to know what is expected of you with some functions. After providing that information, we will go through some examples:

- alwaysOn

> This function is always active, unless another function temporarily overrides it.

- carWarning

> This is currently only a low fuel warning. This will be expanded later.

- drs

> This has multiple options which you can divide over multiple LEDs are all use in a single one. Upcoming, available and on are the three stages of this function.

- flag

> This function will be executed while a flag is waved.

- pitLimit

> This function will be executed while the pit limiter is active.

- revBar

> This function is your typical way of controlling RPM LEDs. A percentage is given per LED.

- spotter

> Depending on your sim you can light up LEDs depending on the position of an opponent.

Following are some examples to show the functions and how they stack up. Although we intend for Race Director to offer a basic feature set, this is still quite complete and allows you to setup your wheel or dash to your liking.

One thing to keep in mind, the 'alwaysOn' function is intended for use with buttons and encoders. Therefore this option has been omitted from dashboard LED options.

Example #1

This one is easy. This LED will always show a static, green LED. It really doesn't matter in which function you place the 'alwaysOn' in this case, as there are no other function fighting for priority.

Example #2

As shown above, the 'alwaysOn' moved to 'Function 2'. While the spotter is active, 'Function 1' will be shown.

When 'Function 1' is not shown, 'Function 2' will be shown.

Example #3

Set Led 1				
Function 1:	flag	yellow	[yellow bar]	Blinking: ☑
Function 2:	spotter	right	[orange bar]	Blinking: ☐
Function 3:	alwaysOn		[green bar]	
Take settings		Take settings		

A bit more complex than the last one but when you break it down, it makes sense as a prioritised stack. Here we go:

While the flag is being waved/shown, 'Function 1' is shown, even if a car is next to you at that moment, as 'Function 1' takes priority over 'Function 2'.

If the flag is not being waved/sown anymore and while there is a car next to you on the right side, 'Function 2' will be shown.

In the case that neither 'Function 2' or 'Function 1' are shown, the 'alwaysOn' from 'Function 3' is shown.

We did it this way to be able to prioritise flags over other sorts of input.

Clear from the last example is that we're looking at a stack of prioritised functions. Essentially, each functions does what it says it does. If for example you have an 'alwaysOn' in 'Function 1', you can fill up Function 2 and 3 however you like, these will be never be shown due to the top priority given to the 'alwaysOn' function.

Firmware (D)

On this page you can see the current firmware loaded on the wheel. If it is needed to updated, this is done through this page.
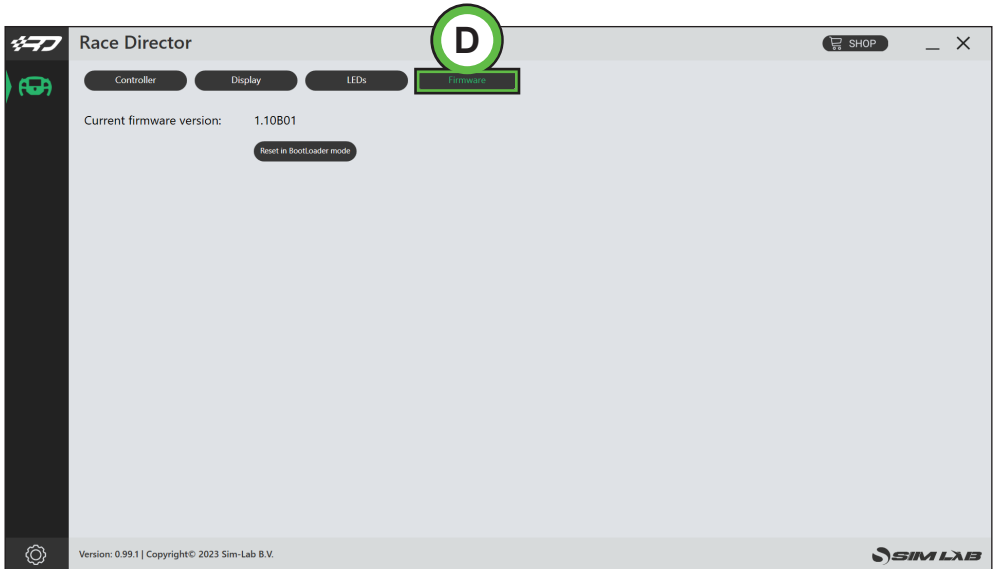
Press 'Reset in BootLoader mode' (1). This will reboot your wheel in this case. When it has rebooted, an explorer window will pop up, like the wheel has temporarily turned into a large USB drive.
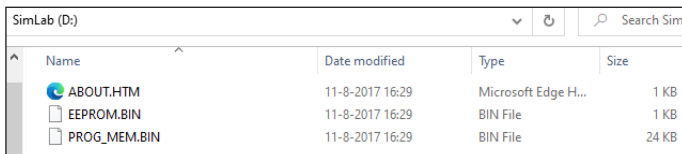
Download the latest firmware (hex file) from either our Discord or the GRID Engineering website. Simply drag the downloaded hex file into the window like above. The file will transfered to wheel, installed and the wheel will reboot. The explorer window will be closed automatically.

Note:
do NOT upload firmware you have NOT received from GRID,
Sim-Lab or GRID by Sim-Lab official sources. You risk bricking your device.

Changing the LEDs' functions.

To change the LED effects you need to know their numbering to identify them on the wheel. The following schematic shows the LED numbering for the available inputs and RPM LEDs. The buttons and encoder knob LEDs consist of four very small but powerful LEDs.
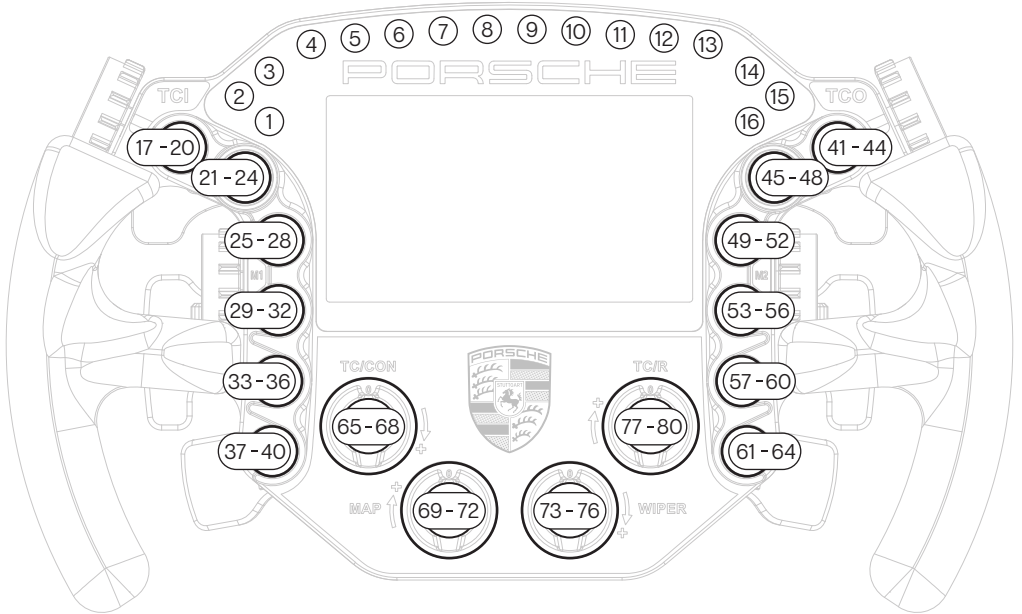
There should be enough info in the provided default LED profiles to be able to adjust LED settings to your liking. To start building your own profile, we suggest to copy an existing one and change where needed. The advantage is you always have a backup of the default profile to fall back to.

We do recommend to read the RaceDirector manual for detailed information on functions, settings and basic rules for the LED settings.

Power Injection Box installation

The connection between your new wheel and PC is handled through the Power Injection Box (A2). This will transfer signals and power to the wheel.

Installation is very straightforward. We recommend to have the connector for the coiled cable (A4) oriented upwards. The bottom of the PIB is where your DC power adapter (A5) and USB-A cable (A3) are connected.
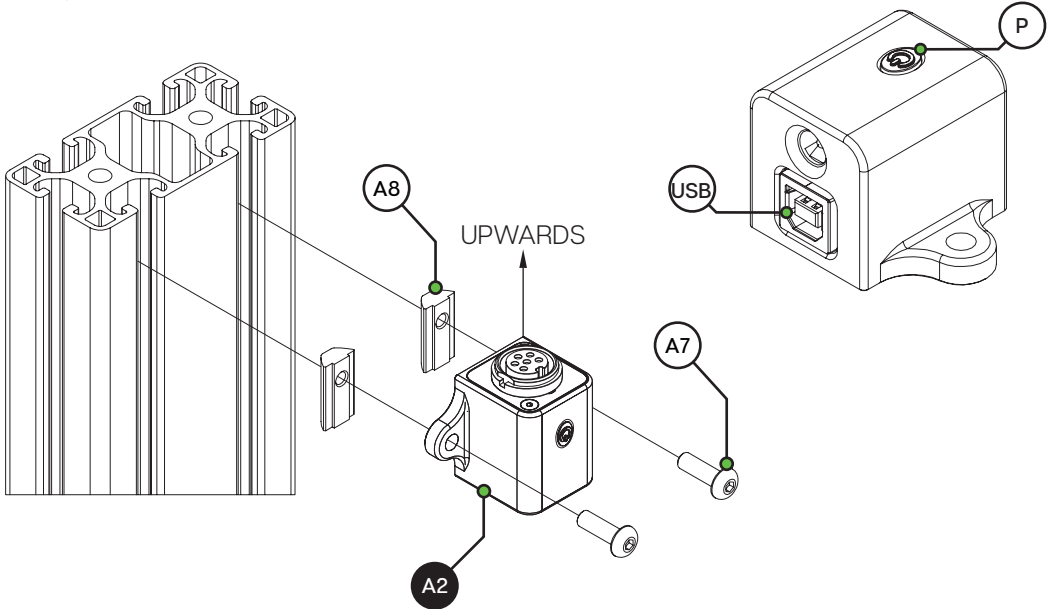
Connect all cables to and from the power injection box before plugging in the power supply. This ensures there are no grounding issues when plugging in cables while the device is powered. The current version of the power injection box has an on/off power button (P), you might need to press this if your wheel isn't recognized immediately. Also this makes it easier for you to turn off power for the wheel, just press the power button (P) once.

Secure all cables in such a way they can't be tripped on or accidentally pulled from their sockets.

When experiencing intermittent signal loss, we recommend using a powered USB hub.

ONLY connect approved 'GRID' sim racing steering wheels or risk DAMAGE to your steering wheel or PC!

Bill of materials

IN THE BOX			
#	**Part**	**QTY**	**Note**
A1	Porsche 911 RSR Sim Racing Steering Wheel	1	
A2	Power Injector Box	1	Interface between wheel and PC.
A3	USB-A Cable	1	
A4	USB Coiled Cable	1	
A5	DC power adapter	1	
A6	Label package	1	
A7	Bolt M5 X 16 DIN 7380	2	
A8	Slot-Nut M5	2	

More information

If you still have some questions regarding assembly of this product or about the manual itself, please refer to our support department. They can be reached at:

support@sim-lab.eu

Alternatively, we now have Discord servers where you can hang out or ask for help.

www.sim-lab.eu/discord / www.gridbysimlab.com/discord

**Product page on the
GRID Engineering website:**