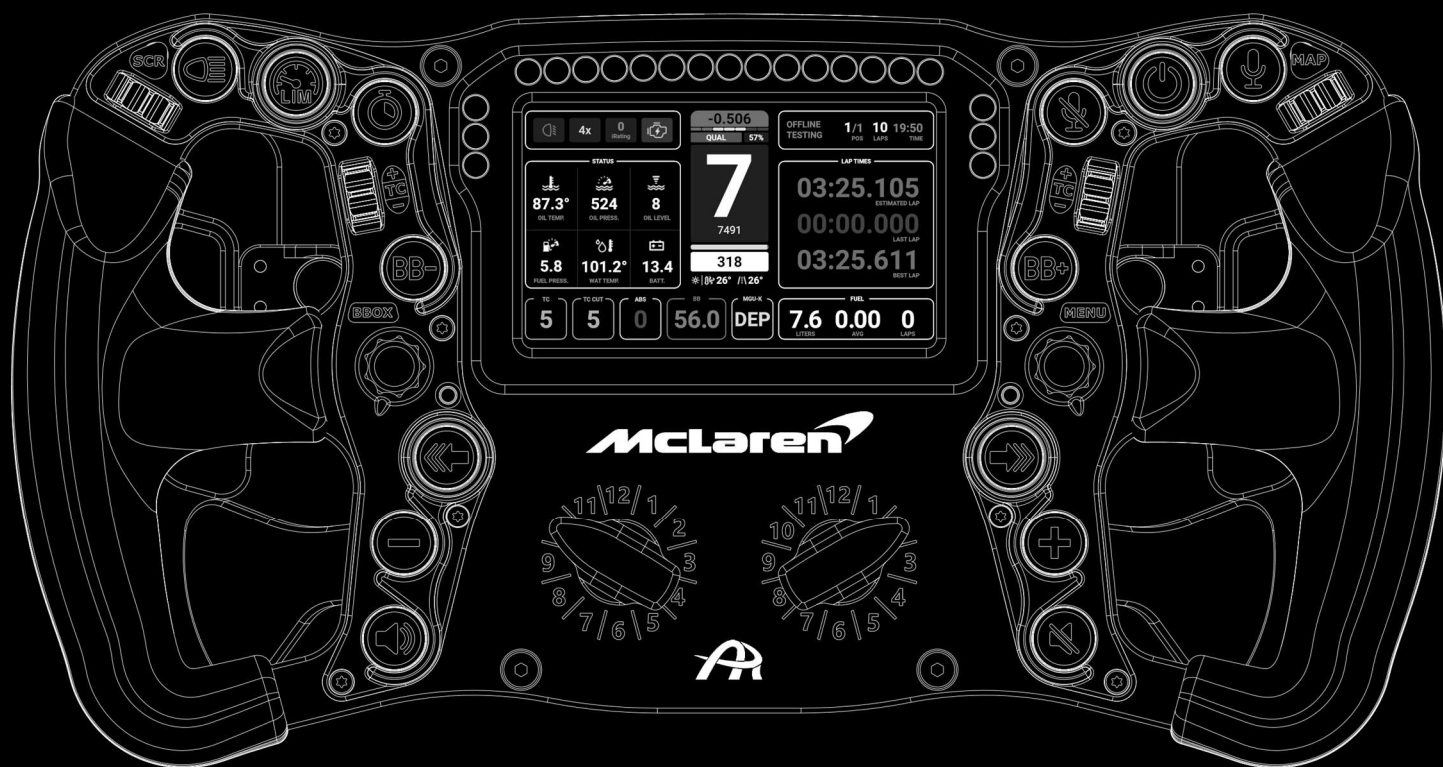




# McLaren Artura GT4 | SPORT | PRO | ULTIMATE

USB steering wheels for racing simulators  
product manual  
V1.0



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## 1. Safety Information

Thank you for purchasing the Ascher Racing McLaren Artura steering wheel. Please read the manual carefully before installing and using the product.

### 1.1. Intended Use

The steering wheel is designed to be used in a competitive sim racing environment for indoor use only and connects directly to your PC mainboard via USB.

Please note the following general safety aspects:

- The device must not be exposed to rain or humidity to avoid the risk of fire and electric shock.
- Do not operate or store the device outside of room temperature, 15°C to 35°C
- We strongly advise you not to drive a vehicle immediately after driving a racing simulation.
- This product is not intended for children under the age of 15 years.
- Contains small pieces – danger of swallowing!
- Extended periods of driving a simulation may cause health risks. Take a break of 5 minutes every 20 minutes and do not exceed 2 hours of total driving time per day.
- Keep hair, clothing and jewelry away from the product when in use.
- Only one person may use the product at any given time. Keep other persons away from the product when in use.
- Do not disassemble the product beyond what is described in this product manual.
- Make sure the steering wheel is mounted securely to your wheel base and screws are tightened properly before use.
- Do not leave the device exposed to a heat source or in a high-temperature location, such as in the sun in an unattended vehicle. To prevent the possibility of damage, remove the device from the vehicle or store it out of direct sunlight.

## 2. Declaration of Conformity

It's in conformity with the essential requirements and other relevant requirements of the Radio Equipment Directive (RED) (2014/53/EU).

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesirable operation.

Any changes or modifications not expressly approved by KW automotive GmbH could void the user's authority to operate the equipment.

### 3. McLaren Licensing

The Ascher Racing McLaren Artura steering wheel series is manufactured under license from *McLaren Automotive Limited*. The "McLaren" name and logo are registered trademarks of McLaren.

### 4. Box Contents

The box contains the following components and accessories:

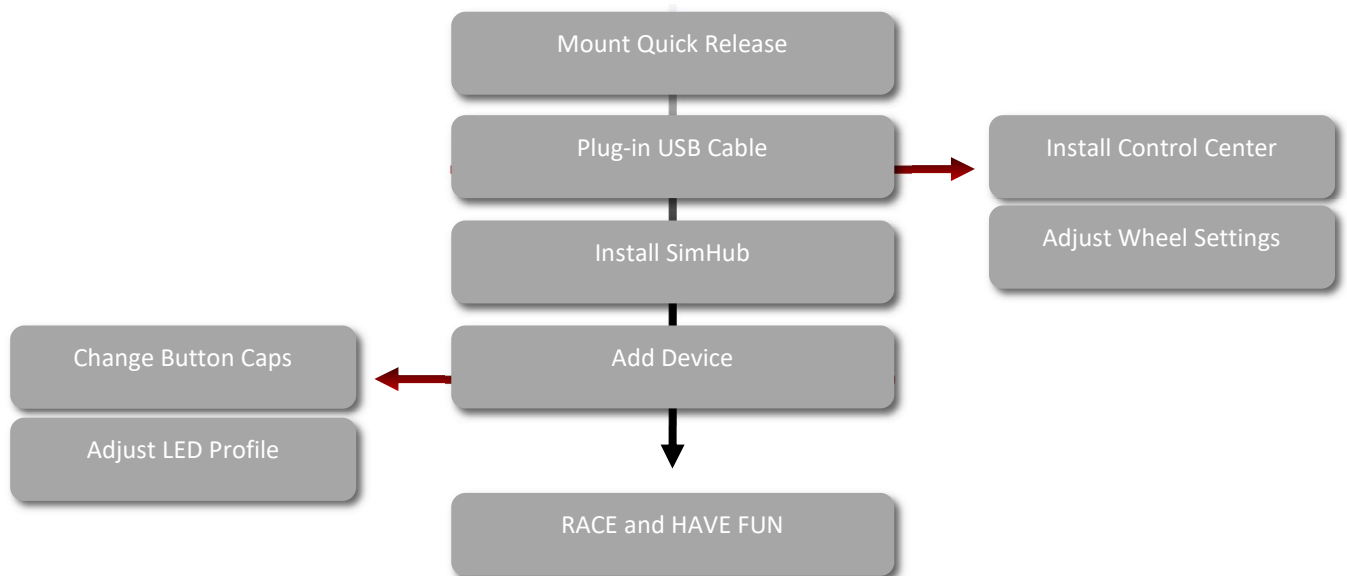
- Artura GT4 | SPORT | PRO | ULTIMATE steering wheel
- cables:
  - coiled connection cable
  - USB-C cable for Asetek QR internal connection
  - active USB extension
- screws and washers for Quick Release mounting
- additional button caps with various symbols
- all required tools to swap button caps, knobs, mount QR...:
  - 2 x button cap removing tool
  - Allen keys: 0.9, 1.5, 2.5, 4.0 mm
  - Torx key: TX8, TX20
  - coiled cable connector nut removing tool
- label sheet

Artura GT4 | SPORT:

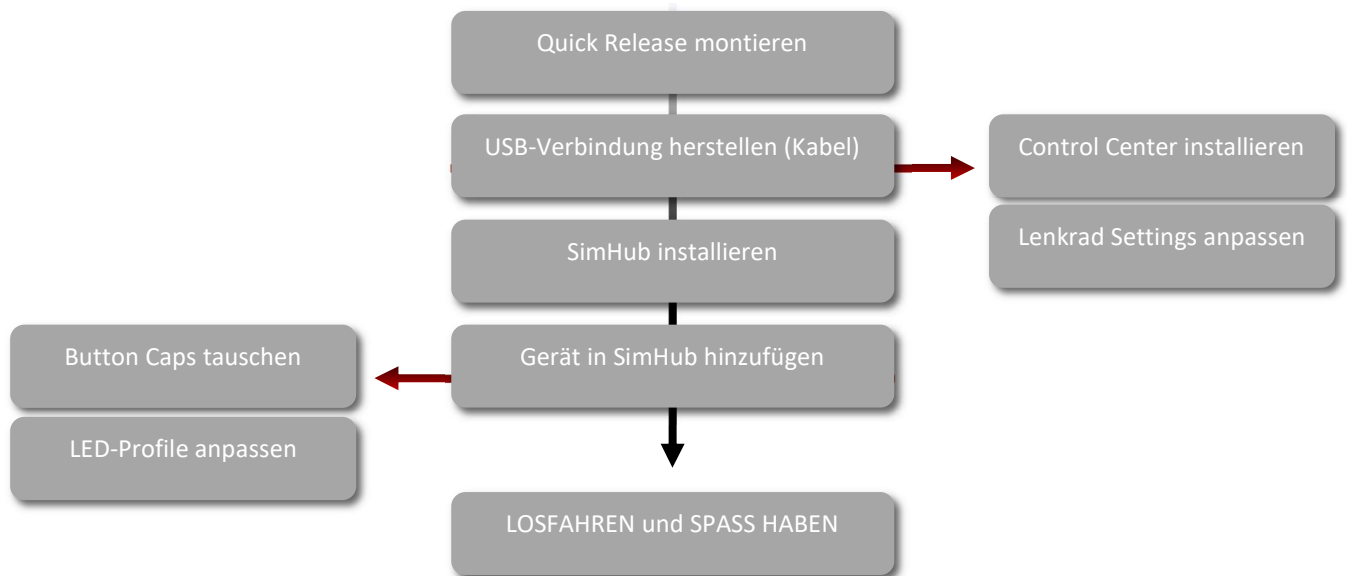
- screws and washers for (optional) clutch paddles mounting

## 5. Quick Start

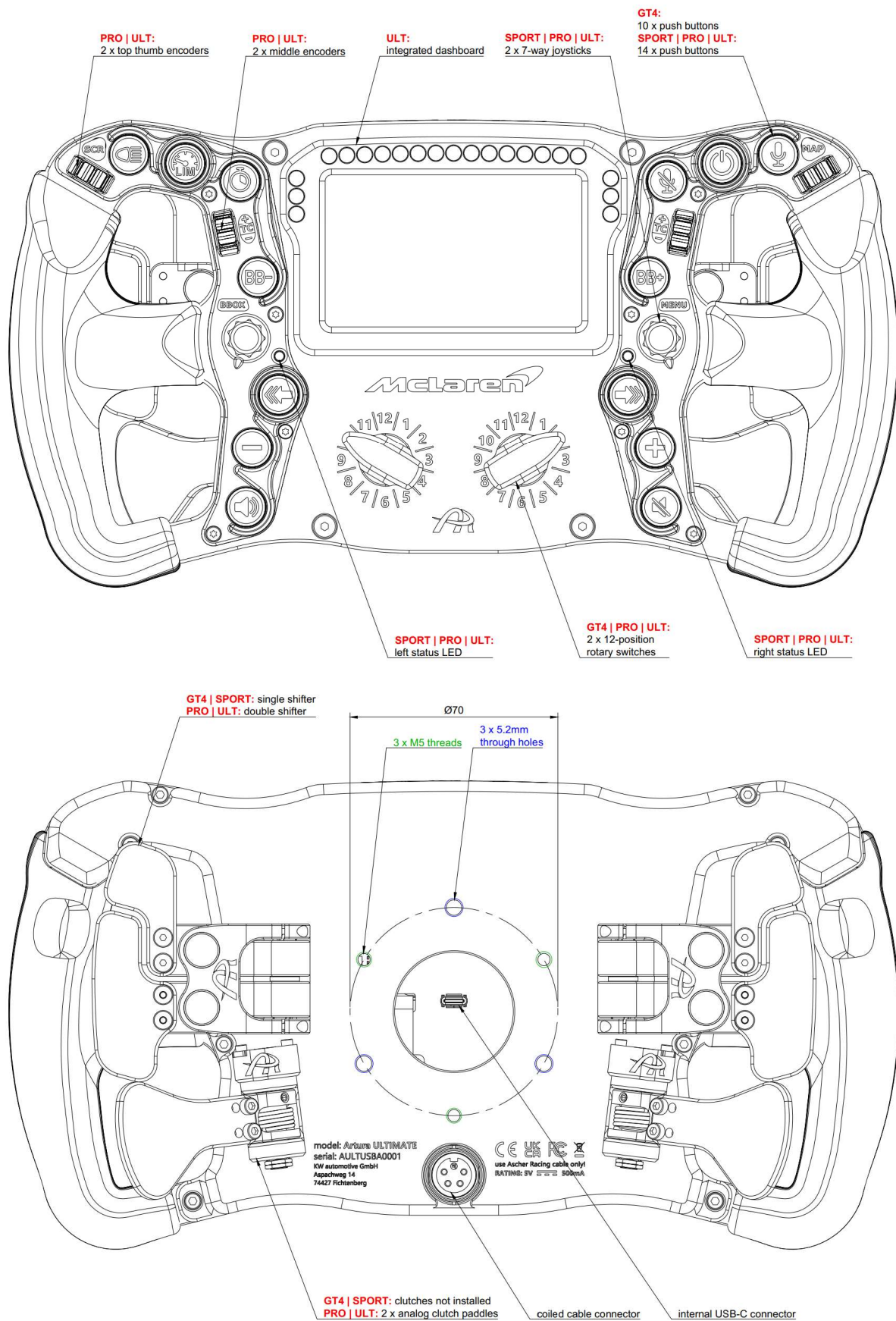
ENGLISH:



DEUTSCH:



## 6. Product Overview



## 7. USB Connection Methods

There are two possible USB connections for the Artura USB series:

1. coiled cable connector
2. internal USB-C connection

The coiled cable is the standard connection method and required for firmware updates as described in chapter 14. For Quick Releases with internal USB pass-through connection (e.g. Asetek) the alternative USB-C connector in the center of the rear side of the steering wheel can be used.

**Both connection methods can be used simultaneously without risking any damage to the host or the wheel. When both cables are connected, the wheel electronics will automatically switch to the coiled cable.**

In case of connection issues, for example due to a worn slip-ring in the wheel base, the coiled cable can be used as a fallback option any time without the need to disconnect the USB-C cable or remove cables inside the wheel base.

Due to the highly optimized electronics and firmware regarding low power consumption, there's no need for actively powered USB hubs or any other form of power injection. The wheel can be connected as a standard USB2.0 High Speed device and works flawlessly even with limited power sources such as a slip-ring connection.

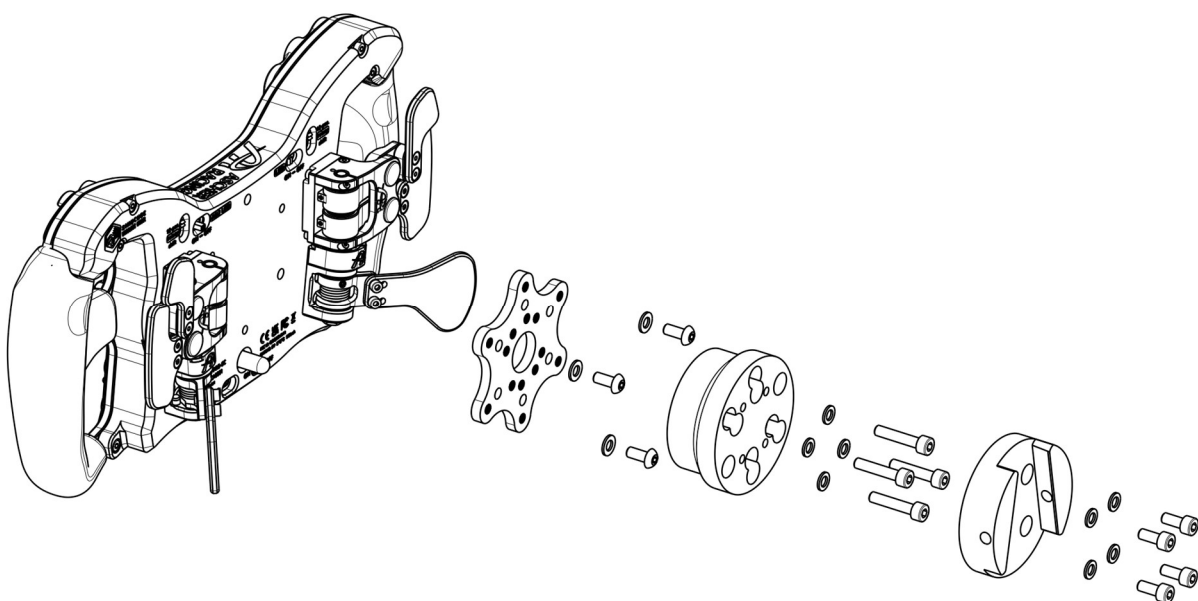
## 8. Quick Release Mounting Options

The steering wheel is equipped with a standard 70mm bolt pattern with alternating M5 threads and through holes as shown in 6 Product Overview.

This offers a secure 3 bolt QR attachment for both outside as well as inside mounting, depending on the QR design (through holes, threaded blind holes etc.).

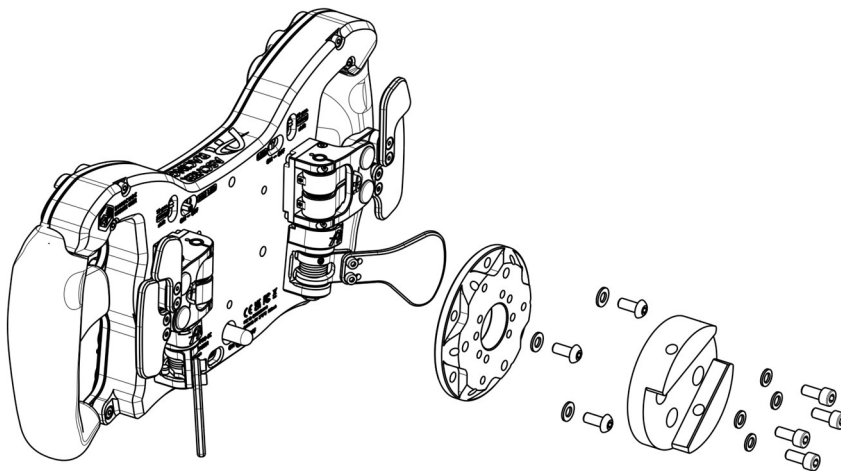
There are several possible mounting options for all common QRs shown below. Adapters or QRs are not part of the scope of supply and have to be purchased separately.

### 8.1. SC2 SQR WHEEL SIDE – Simucube Adapter





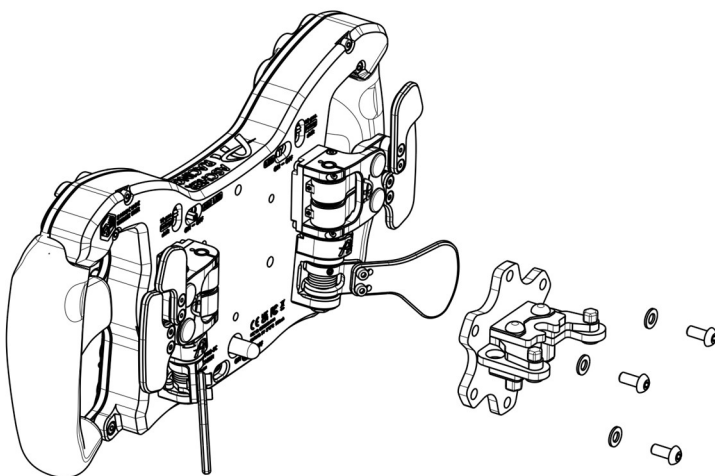
## 8.2. SC2 SQR WHEEL SIDE – Ascher Racing SQR Adapter



## 8.3. 70mm Bolt Pattern Quick Release – Outside Mounting

Standard 70mm bolt pattern Quick Releases with non-threaded through holes can be mounted directly from the outside to the M5 threaded holes on the rear side without opening the steering wheel.

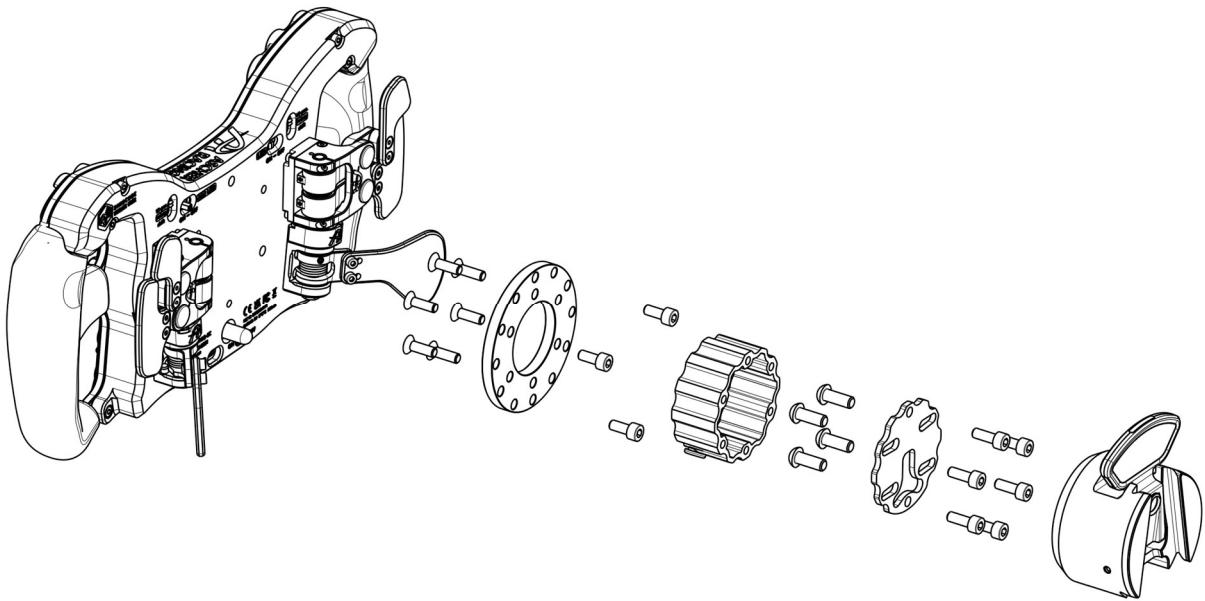
Q1R:



## 8.4. Asetek QR – internal USB connection

With an Asetek wheel base and QR, it's possible to use the wheel's internal USB-C connection directly, thus removing the coiled cable and driving wirelessly. The Asetek QR needs to be equipped with the USB-C type PCB (alternative version with USB-C connector instead of soldered cable), which is available at <https://ascher-racing.com/int/shop>.

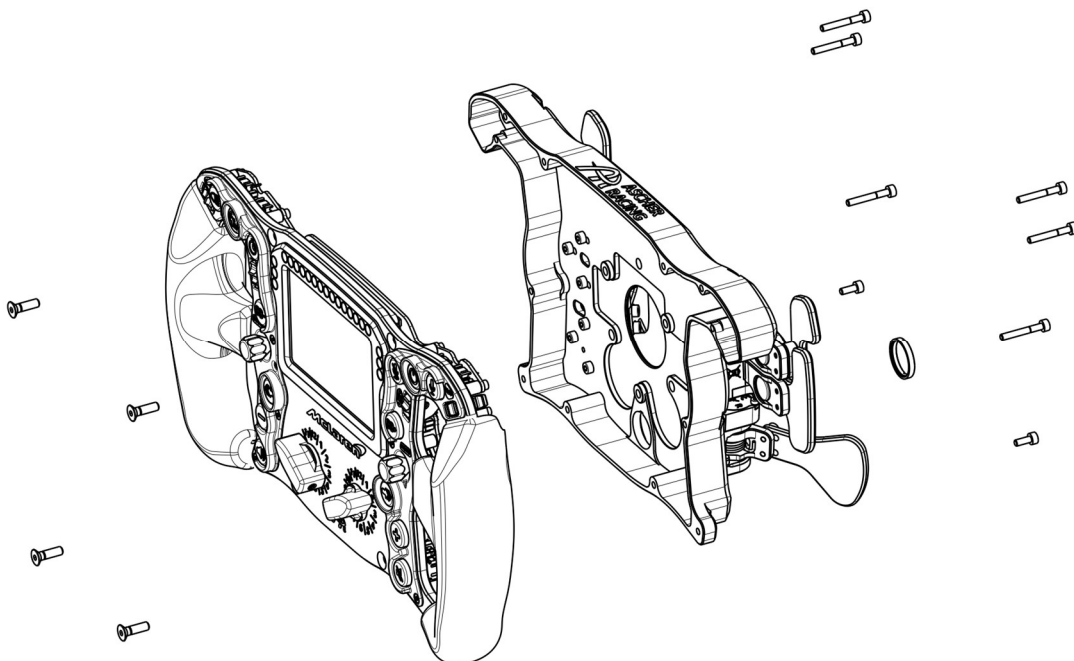
Connect the short USB-C to USB-C cable to both QR and wheel, twist it a few times for best cable management and assemble as shown in the picture below.



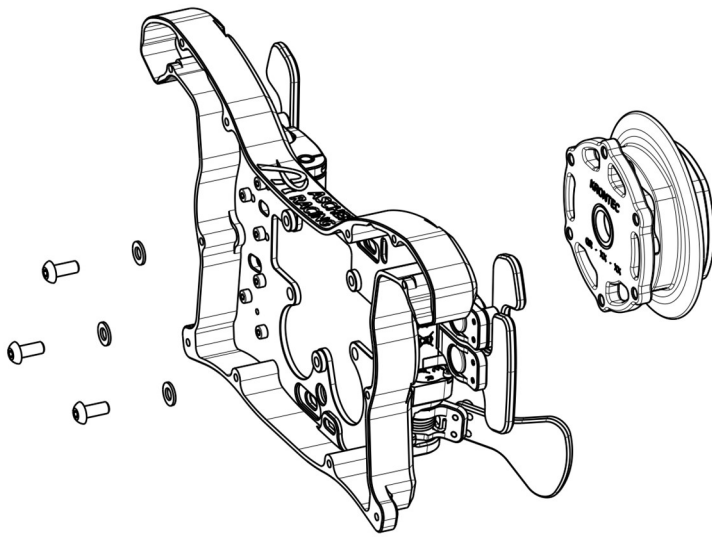
### 8.5. How to Open the Steering Wheel

QRs with either M5 threaded blind holes or other features preventing from conventional mounting can be attached from the inside of the wheel casing. Open the steering wheel as follows:

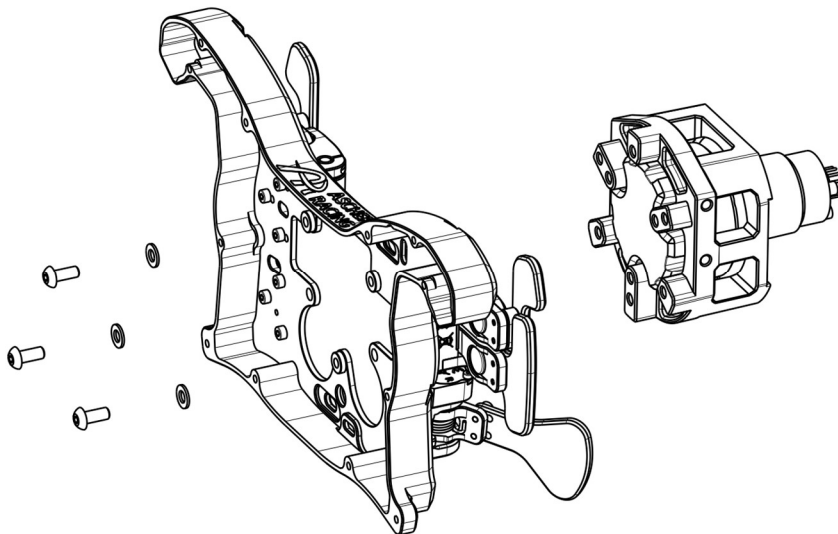
1. remove coiled cable connector nut (tool included)
2. remove all (4 pcs) black countersunk M4 screws on the frontplate (Torx key: TX20)
3. remove all (8 pcs) M3 screws on the rear side (Allen key: 2.5mm)
4. unplug paddle shifters / clutch paddles to fully separate the rear casing
5. mount Quick Release as shown below
6. make sure not to squeeze any cables (frontplate and casing must touch without force)
7. assemble in reverse order



## 8.6. M5 Threaded QRs



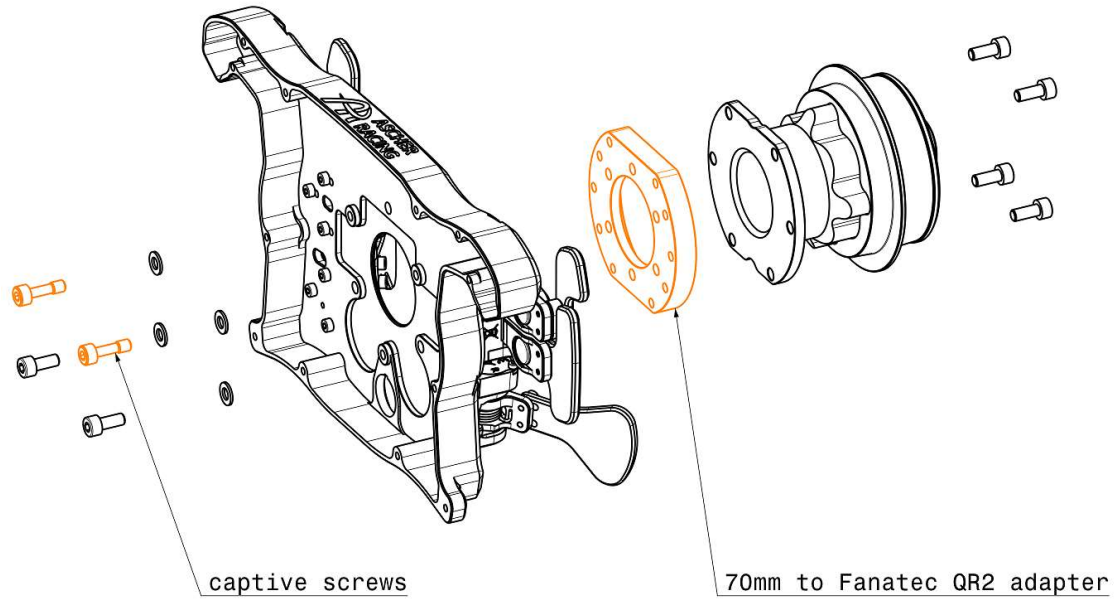
## 8.7. Fanatec Podium Hub



### 8.8. Fanatec QR2

Fanatec QR2 Quick Release models have a non-standard bolt pattern and require **additional hardware**:

- QR2 to 70mm bolt pattern adapter (e.g. SIM RACING MACHINES)
- captive screws to bypass M5 threads of the wheel casing (see shop, accessories)

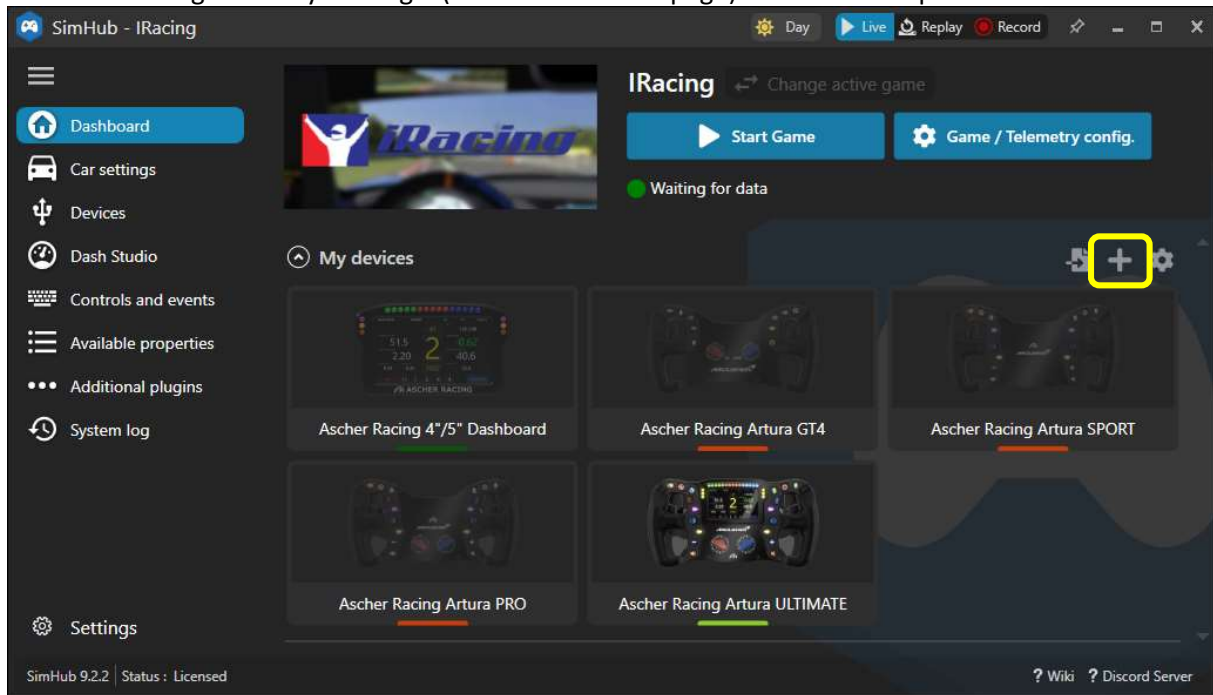


## 9. SimHub

### 9.1. Installation

Download the latest version of SimHub from the official website and follow the installer step by step:  
<https://www.simhubdash.com/download-2/>

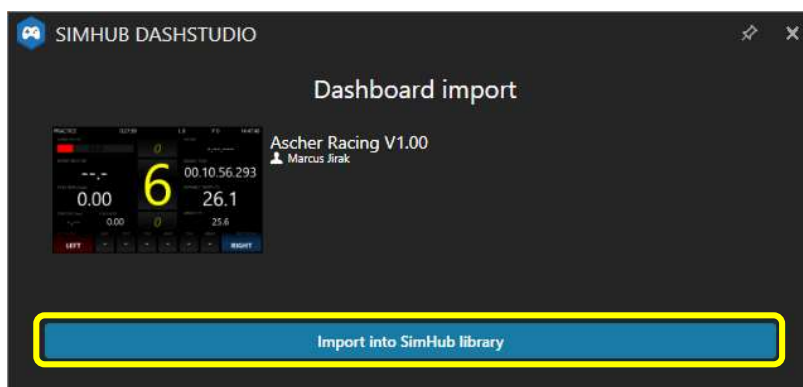
Add the steering wheel by clicking + (on the Dashboard page) and select the product from the list.



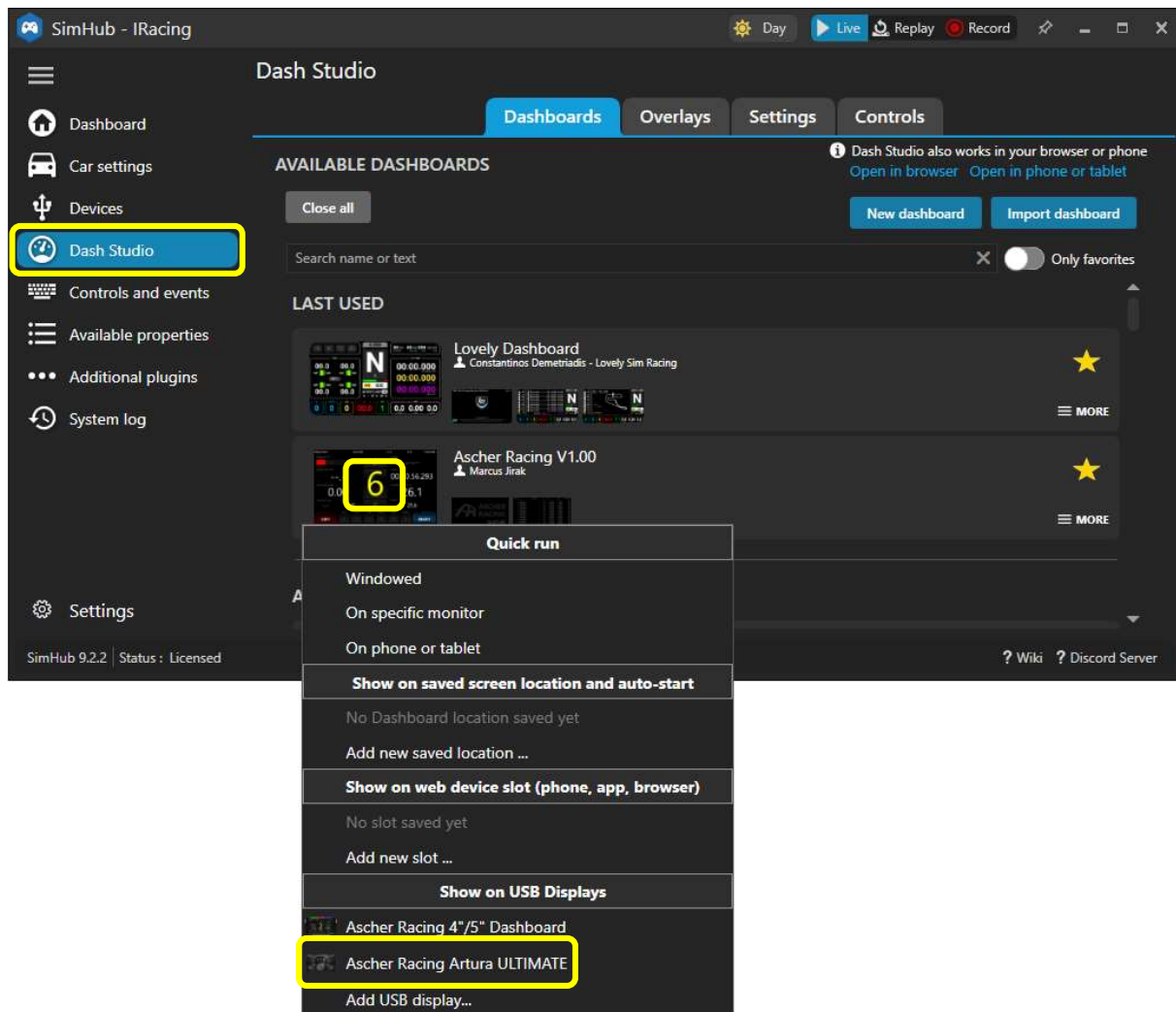
### 9.2. Artura ULTIMATE Dashboard

Download the latest Ascher Racing Dashboard from the support page and double click to install it:

Ascher Racing V1.00.simhubdash  
<https://ascher-racing.com/int/downloads?open=wheels>



To run the dashboard, go to *Dash Studio*, click *Start* and select the *Ascher Racing Artura ULTIMATE*:



For **iRacing** in particular, it's highly recommended to install the **iRacing Extra Properties Plugin** by **Romain Rob** in order to utilize the full functionality of the dashboard.

Download both files

RSC.iRacingExtraProperties.dll

RSC.iRacingExtraProperties.pdb

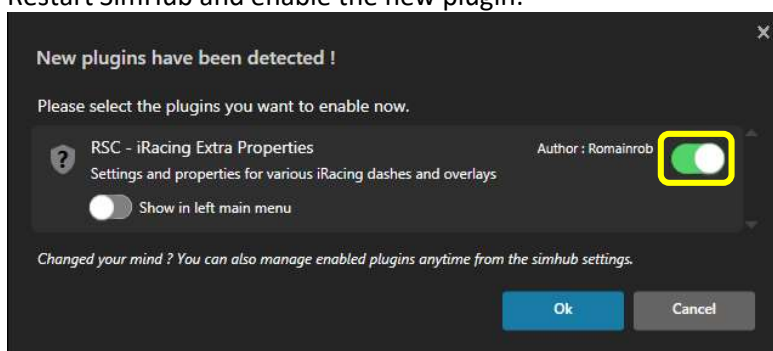
from Romain Rob's Google Drive

[https://drive.google.com/drive/folders/1AiLWHviD4j-DzgRrjJU1AFhJ\\_xmass](https://drive.google.com/drive/folders/1AiLWHviD4j-DzgRrjJU1AFhJ_xmass)

and save them to the SimHub installation folder, e.g.:

C:\Program Files (x86)\SimHub

Restart SimHub and enable the new plugin:





### 9.3. LED Illumination

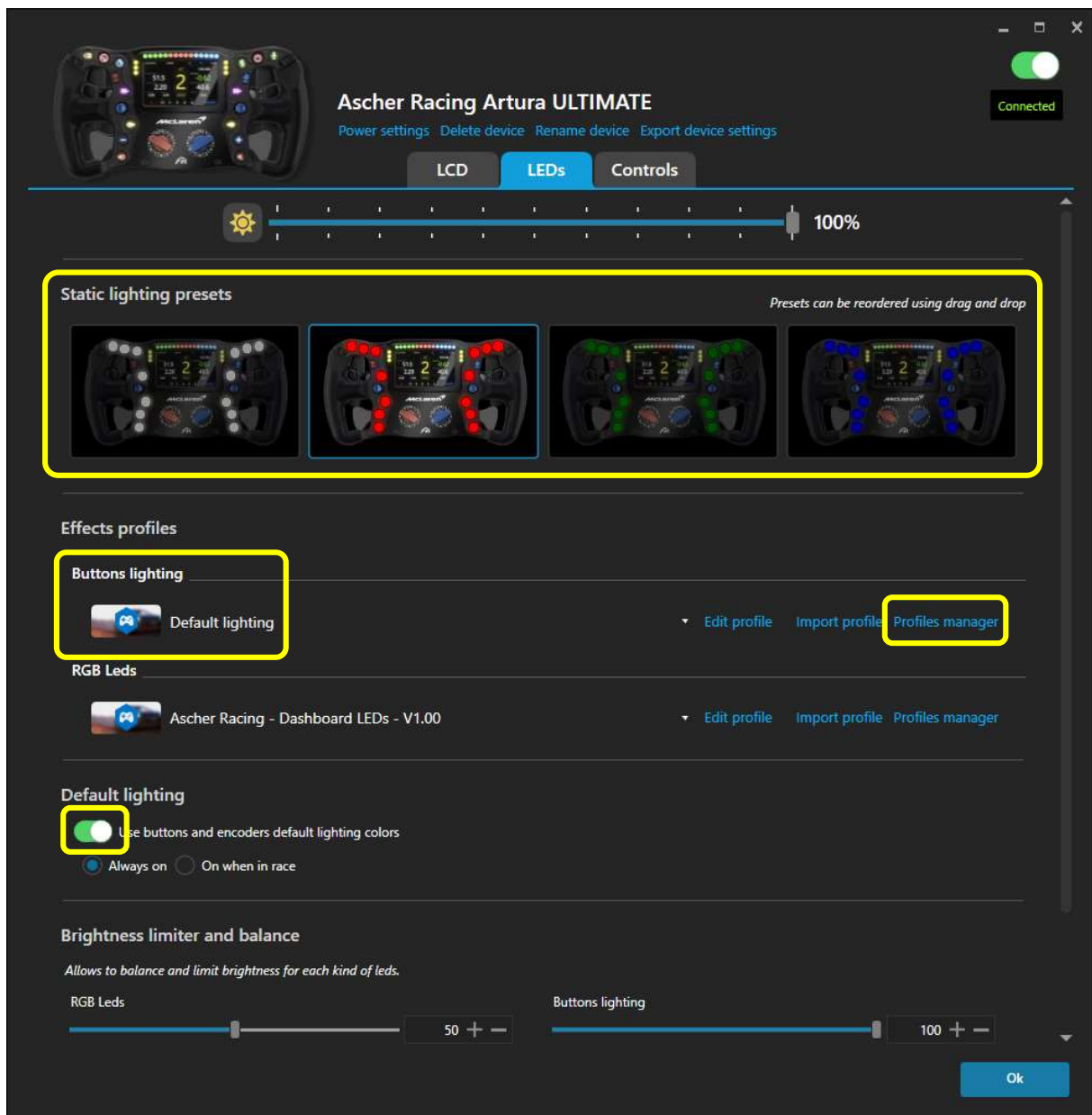
LEDs for push buttons and dashboard can be controlled without limitation. Over 16M possible colors, either static lighting, animated effects or fully controlled by live game telemetry data.

Official Ascher Racing LED profiles are used by default – check the support page for any profile updates.

### 9.4. Default Lighting

In order to use static LED colors without any effects, animations or telemetry control, enable *Default lighting* and create a *new (empty)* LED profile (any LED effects within the profile will override the default, static lighting):

Buttons lighting > Profiles manager > NEW PROFILE > OK > LOAD



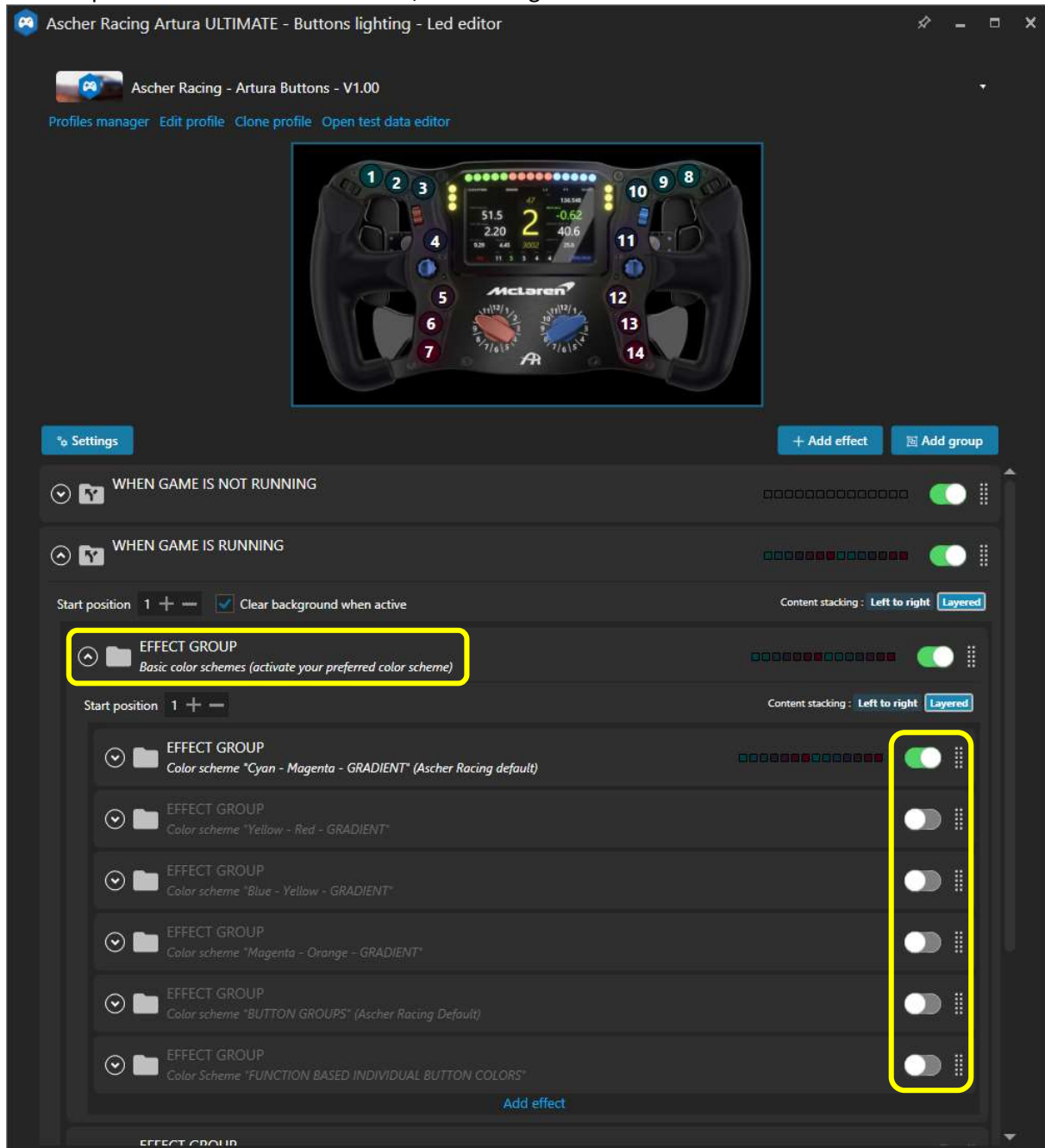
## 9.5. Ascher Racing Artura Button LED Profile

The official Ascher Racing Artura Button LED Profile is set as default once the Device has been added in SimHub. The profile is designed to work with all Artura models without any modifications. The Artura GT4 has two blank LEDs in position 6 and 7 in order to match the sequence of LEDs of the other models of the steering wheel series. This way, no modifications are required for the GT4 wheel and all 3<sup>rd</sup> party LED profiles can be used without changes.

The basic concept of the official Ascher Racing Button illumination is a color scheme as the base layer and push button/ telemetry-based effects on top. The base colors are dimmed on purpose so that certain effects or alerts are much brighter in comparison.

## 9.6. Color Scheme

Select a pre-defined basic color scheme, edit color gradients or individual LEDs if desired:





Background colors are dimmed intentionally so that non-dimmed effects on above layers are visually more prominent.

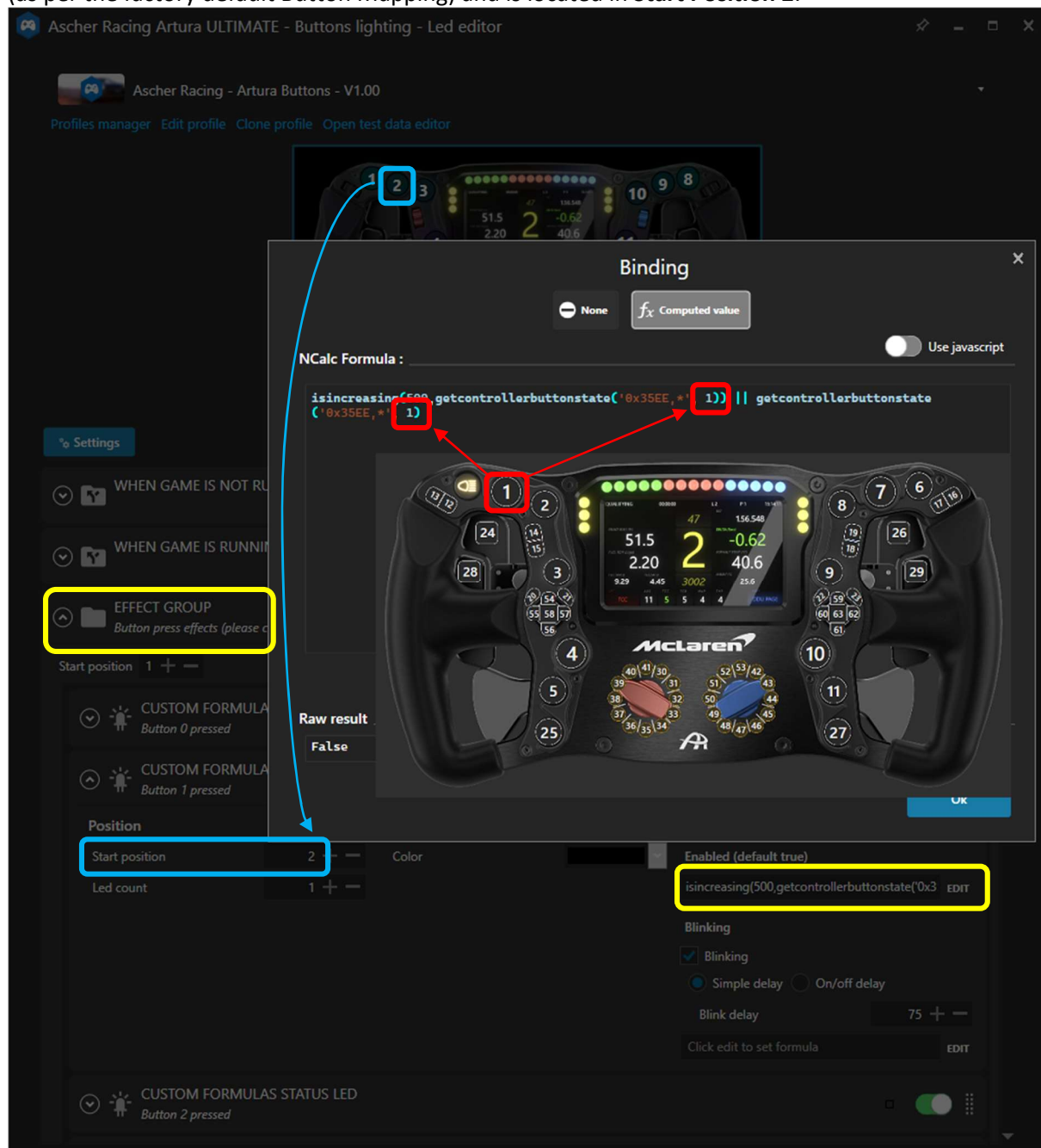
### 9.7. Button Press Effects

The default behavior of LED push button effects is quick blinking for 0.5s when pressed shortly or permanently. It can be adjusted for each individual button in the *EFFECT GROUP > Button press effects*.

However, **both LED position as well as button-ID need to be set-up correctly:**

- Start position: LED position according to the number in the wheel preview
- Button-ID: button number according to the Button Mapping (see chapter 10.1)

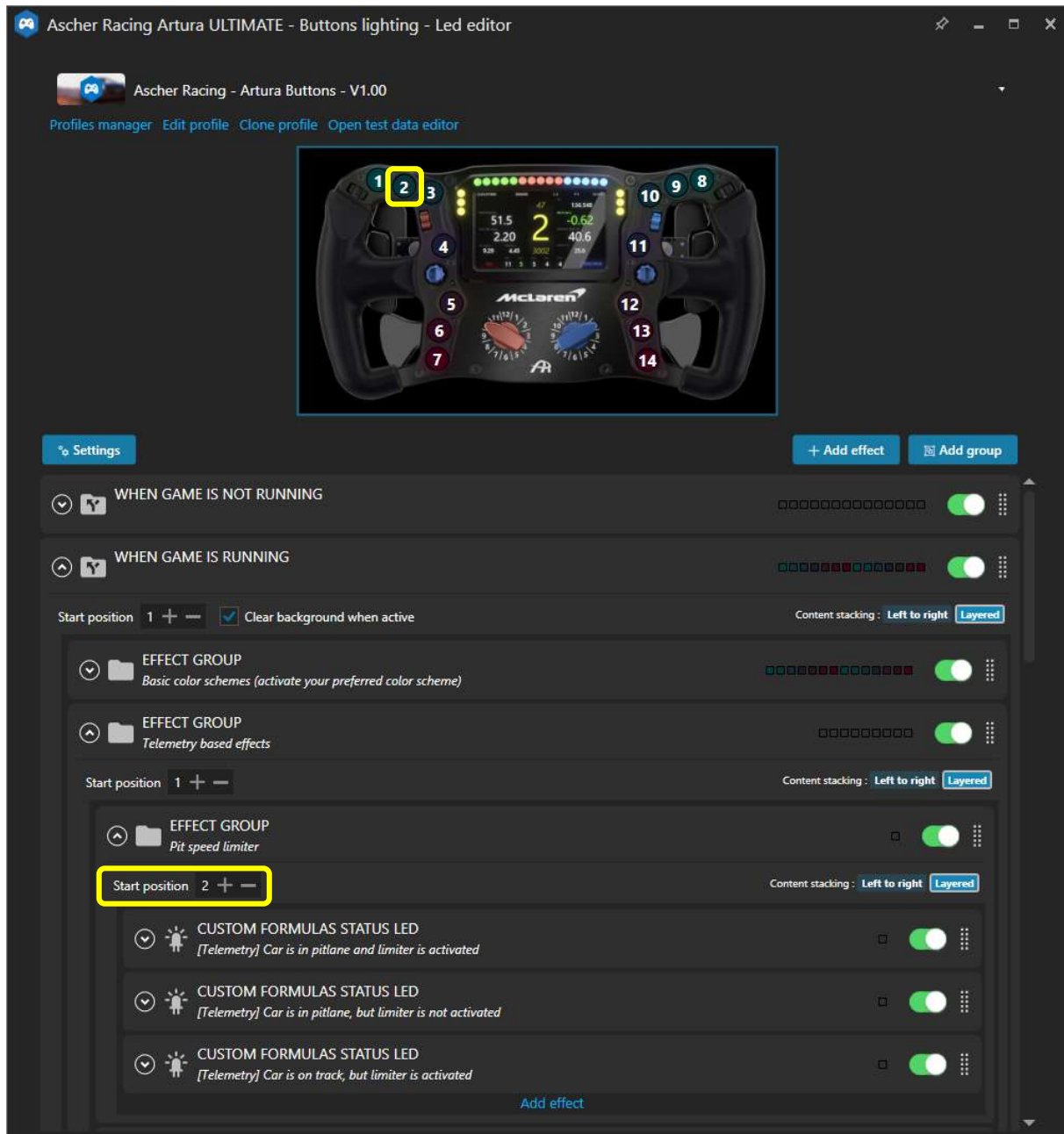
The following screenshot shows the setup example for the second button which is using **button-ID #1** (as per the factory default Button Mapping) and is located in **Start Position 2**.



## 9.8. Telemetry Based Effects

In addition to the basic color scheme, several buttons are controlled by the game telemetry as a layer on top. For example, the Pit Speed Limiter button will change its color depending on the status of the limiter and if the car is in the pit-lane.

**If the button cap is moved to another position, Start position has to be adjusted accordingly.**



## 9.9. Artura ULTIMATE Dashboard LEDs

The LEDs surrounding the integrated Dashboard are controlled by a separate LED profile, the Ascher Racing default is applied automatically.

The general concept for the Dash LEDs is similar to the buttons, where most effects are dimmed by default to create necessary headroom for alerts and shift flashes. Vertical LEDs on the left and right

side are used for race specific messages such as flags or spotter messages and for car system messages. TC, ABS, Pit-Limiter effects can be individually switched off or tweaked if necessary.

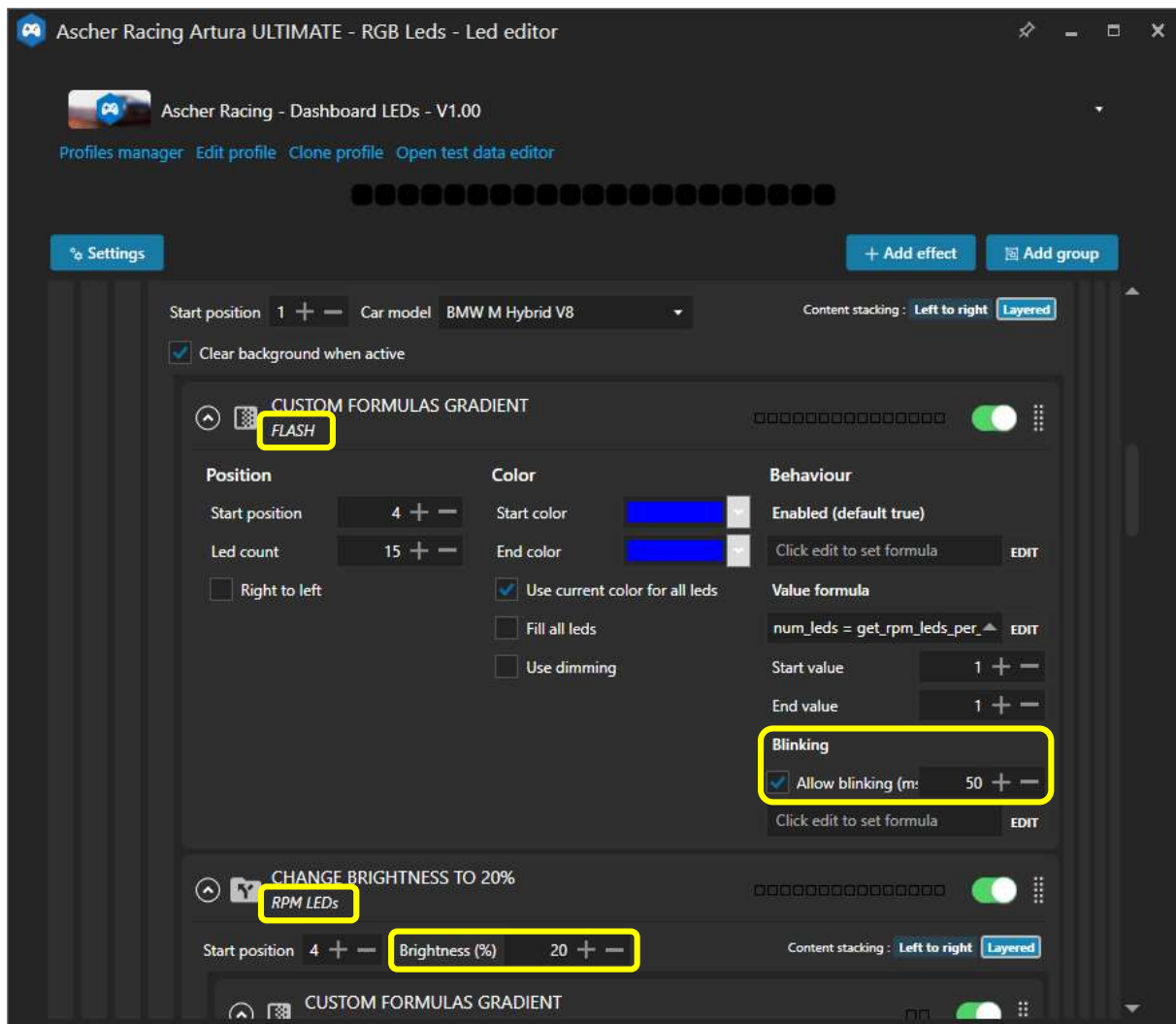
### 9.10. RPM LEDs

The horizontal LEDs are used to display the engine RPMs and to visualize the shift flash. Next to the standard RPM animation are many car specific LED animations.

Colors, numbers and the general behavior are designed to replicate the real car's LEDs. However, the engine **RPMs are optimized for perfect power transmission instead of mimicking the real car's LEDs**. Due to this, LEDs may be out of sync compared to the in-game car but offer the advantage of faster lap times.

A telemetry analysis has been made in iRacing for optimum engine RPMs **per car and for each individual gear**. The following adjustments can be made to suit personal preferences:

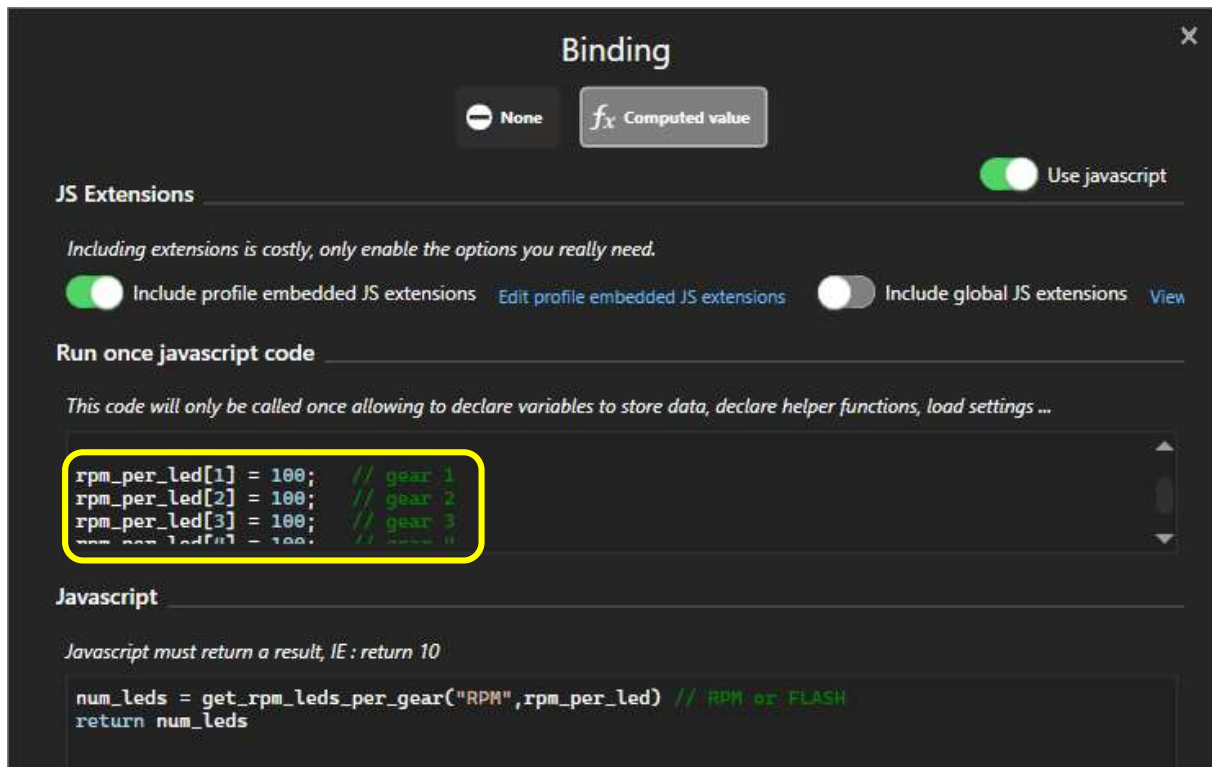
- brightness of RPM LEDs and FLASH LEDs
- flash permanent or blinking
- flash blinking speed
- how fast the RPM band fills (adjustable per individual gear)



In order to adjust the speed of how quick the RPM band fills for each individual gear, the `rpm_per_led` value can be adjusted for each individual car and gear. The variable describes how many engine RPMs each LED represents. Therefore, higher values result in a slower RPM band with a default value of `rpm_per_LED[i] = 50`.

Those values need to be copy/pasted to all colors of the RPM band of a car:

```
RPM LEDs > Red Lights Left > Value formula  
RPM LEDs > Red Lights Right > Value formula  
RPM LEDs > Green Lights Left > Value formula  
...
```



### 9.11. Lovely Dashboard

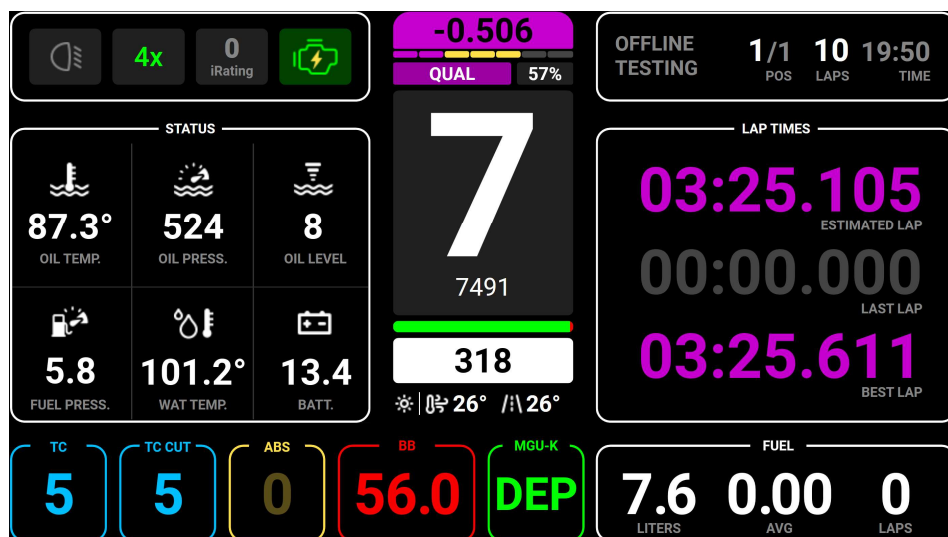
SimHub offers the possibility to use any dashboard, from one of the default dashboards, a DIY dash built with the integrated Dash Studio, up to highly optimized 3<sup>rd</sup> party dashboards. For the latter, the Lovely Dashboard by Constantinos Demetriadis is a highly recommended option and offers unmatched design language combined with a feature packed ecosystem and constantly evolving capacities such as comprehensive track data information.

All of this including official Ascher Racing Artura wheel support to complement the feature set of both wheels and dash to create a seamless customer experience.

Find the latest Lovely Dashboard and installation instructions on the official website:

<https://github.com/cdemetriadis/lovely-dashboard>

OFFICIAL LOVELY PARTNER



The installation and configuration process are simple and straight forward:

1. Download and install the Roboto Font Family. Unzip Archive, right click and install font:  
<https://fonts.google.com/specimen/Roboto>
2. Download and install the Lovely Dashboard:  
<https://github.com/cdemetriadis/lovely-dashboard/releases>
3. Setup SimHub Action Triggers to control the Lovely Dashboard UI  
<https://github.com/cdemetriadis/lovely-dashboard/blob/main/docs/actions.md>
4. Optionally, extend and personalize the Lovely Dashboard by using the Settings File:  
<https://github.com/cdemetriadis/lovely-dashboard/blob/main/docs/settings.md>

## 9.12. Daniel Newman Racing LED Profiles

As alternative next to the official Ascher Racing Artura LED profiles, there are official 3<sup>rd</sup> party LED profiles with official Ascher Racing Artura support.

Daniel Newman Racing LED profiles offer a sophisticated feature set and work in true harmony with the Lovely Dashboard. They can be set-up easily via configuration files/ online configurator and are constantly maintained and improved.



More information, instructions and LED profiles can be found on the official website:

<https://danielnewmanracing.com>

## 10. Ascher Racing Control Center

The Control Center software is used to change the behavior of the steering wheel such as button mapping, settings, modes, clutch curves etc.

Download the latest version from the website support section, unzip the file and start the software.

<https://ascher-racing.com/int/support>

Connect the steering wheel and click the gear icon to adjust settings.

### 10.1. Button Mapping

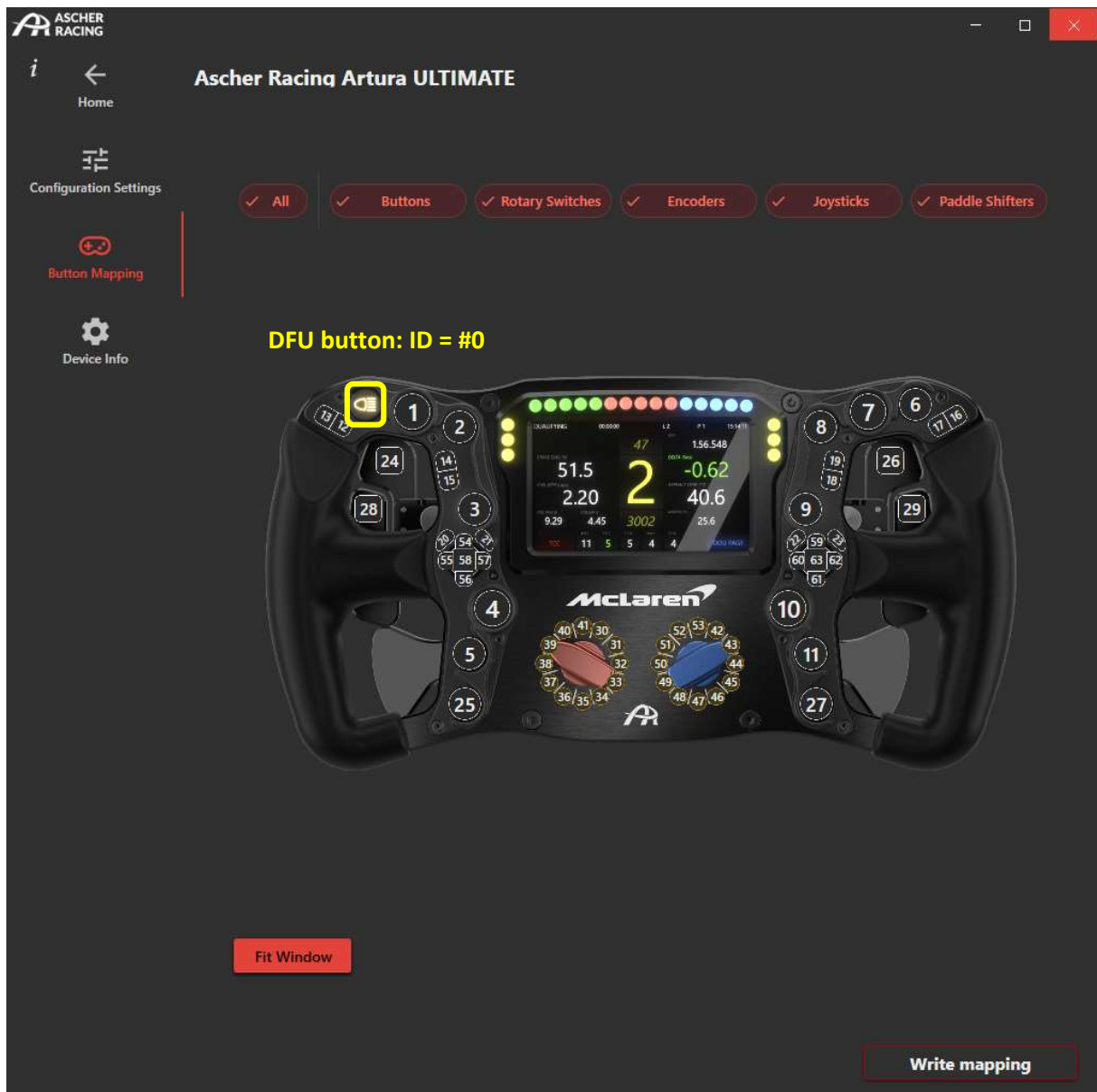
The output of all buttons can be assigned freely, numbers can be used multiple times to achieve many different scenarios. The assigned number is the button-ID that shows up in-game / SimHub when a button is pressed.

The only exceptions are the fixed ID (#0) of the top left DFU (Device Firmware Upgrade) button and the single-use of rotary switch modifier buttons (BTN 3 | 9) or (BTN 4 | 10) in case the modifier mode is activated (see chapter 10.3).

Possible scenarios for custom button mappings are:

- up- and downshift on both left and right double shifter
- multiple buttons for the same function (e.g. DRS on both secondary shifter paddles)
- independent encoder direction (turn in any direction for the same output)
- use different encoders for the same adjustments, accessibility in any situation
- quickly remap buttons without changing in-game configurations/ SimHub profiles
- simplify inputs for special environments, exhibitions (e.g. push any button to START)
- replicate button profiles from other wheels
- customize rotary switch numbers (e.g. to reduce positions)
- mirror functions of left and right joystick





## 10.2. Configuration Settings

ASCHER RACING

i

Home

Configuration Settings

Button Mapping

Device Info

### Ascher Racing Artura ULTIMATE

#### Analog Axis Mode

Gas & Brake

Dual Clutch (master right)

Dual Clutch (master left)

Bite-Point

-

45.0

+

Left Clutch

Linearity Mode

Progressive / Degressive

S-Curve

Custom Curve

Linearity Setting

Deadzone High

2.0

Deadzone Low

2.0

Right Clutch

Linearity Mode

Progressive / Degressive

S-Curve

Custom Curve

Deadzone High

2.0

Deadzone Low

2.0

Profile

1

2

3

4

5

Output for Clutch Input

0% : - 0 +

10% : - 10 +

20% : - 20 +

30% : - 30 +

40% : - 40 +

50% : - 50 +

60% : - 60 +

70% : - 70 +

80% : - 80 +

90% : - 90 +

100% : - 100 +

Write configuration



### 10.3. Analog Axis Mode

Both analog axes (clutch paddles) can be used as two individual axes, for example as Gas & Brake paddle.

In Dual Clutch mode, both axes are combined to a single output. The momentarily greater value of both clutch paddles defines the output. In this mode, one clutch paddle is defined as Master whereas the other one represents the Slave paddle.

The Slave is scaled down so that its physical maximum outputs the *Bite Point* value. This way, the precise Bite Point can be reached easily by pulling the slave clutch to its end-stop position. Furthermore, the sensitivity is increased since 100% physical movement is mapped to e.g. 50% output.

### 10.4. Clutch Settings

The Dead zones of each analog paddle can be defined on both end-stops. A small amount of approx. 2.0% is recommended to guarantee a perfectly stable signal of 0% in the resting position and 100% when pulled completely.

The linearity of each clutch paddle can be defined individually in order to change the relation between physical input and electronic output. There are 10 pre-defined linearity settings to quickly generate a progressive/ degressive or S-curve behavior.

A degressive curve can be very useful for the slave clutch in order to highly increase the sensitivity around the bite point. In contrast, a progressive behavior for the master clutch will increase the speed when the paddle is released during a race start.

S-curves can be very useful to change the feeling of gas and brake paddles if more or less precision is required at the maximum travel positions.

Custom clutch curves offer additional freedom to setup linearity curves without any limitations by changing individual data points. This way, it's possible to achieve even greater sensitivity at a specific output range to fine tune the absolute perfect standing race starts. This way, it's possible to map the physical 100% – 10% range of the clutch to an electronic output of 100% – 90%, hence increasing the sensitivity tenfold while the remaining 10% – 0% physical range is mapped to 90% – 0% output. Spinning tires vs. engine RPMs plummeting can be fine-tuned with unmatched precision.

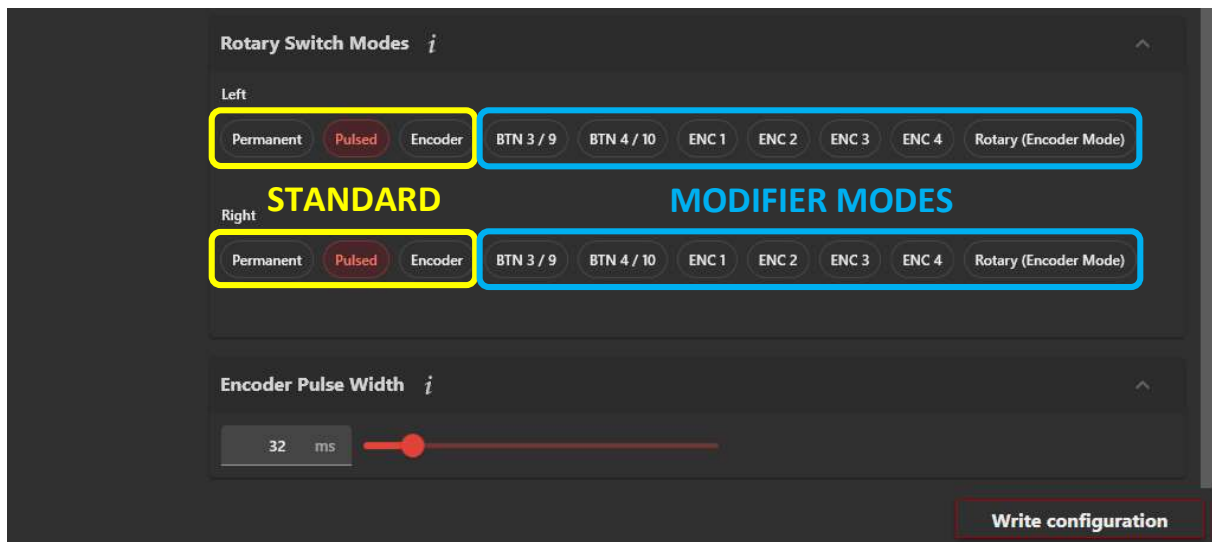
A total of 5 custom curve profiles can be saved for each left and right clutch paddle to quickly swap between different cars or testing purposes.

### 10.5. Encoder Pulse Width

The *Encoder Pulse Width* defines the duration of encoder pulses – how long the button is pressed for each detent. Short pulses allow for overall faster adjustments (e.g. reduce pit stop fuel level by 50 clicks) but might be too short to be recognized by the simulation. If an encoder is turned very quickly (a new detent is registered while the previous pulse is still active), the turning rate is limited by the pulse width. New pulses will be generated at the maximum rate that the encoder pulse width allows.

### 10.6. Rotary Switch Modes

Both Left and Right 12-Position Rotary Switches can be used in many different modes to suit all possible scenarios.



## STANDARD MODES:

- Permanent** Continuous output of the rotary switch position. The button output of the current position 1 - 12 is permanently ON. This can cause issues in several games, e.g. when trying to assign buttons.  
 The in-game settings need to be set to *rotary mode*, NOT encoder; e.g. in iRacing when calibrating inputs: Use rotary knob (analog or digital)
- Pulsed** Similar to *Permanent*, but the output is triggered momentarily once the position changed. The duration of this pulse is defined by the *Encoder Pulse Width*. This avoids issues from the *permanent mode* but causes settings not to be applied automatically when entering the car.  
 The in-game settings need to be set to *rotary mode*, NOT encoder; e.g. in iRacing when calibrating inputs: Use rotary knob (analog or digital)
- Encoder** Only 2 outputs - depending on the rotation direction (clockwise/ anti-clockwise).  
 Useful for increase/ decrease functions instead of absolute positions. E.g. turn the knob clockwise to increase the Traction Control setting by 1 click.

## MODIFIER MODES:

Modifier Modes (or Shift Modes) use the rotary switch as a selector to modify the output of other switches. It multiplies the functionality of certain switches/ buttons in a way where they can be used to control 12 different functions.

The graphic below shows which switches/ buttons are modified in their respective setting.

- BTN 3 / 9** Buttons #3 and #9 are modified. To alter the physical button pair which will be modified, change the Button Mapping. Whichever buttons are defined as ID #3 & #9 will be modified in this mode. The button IDs must be unique, which means that only one physical button can be mapped as #3 and #9.

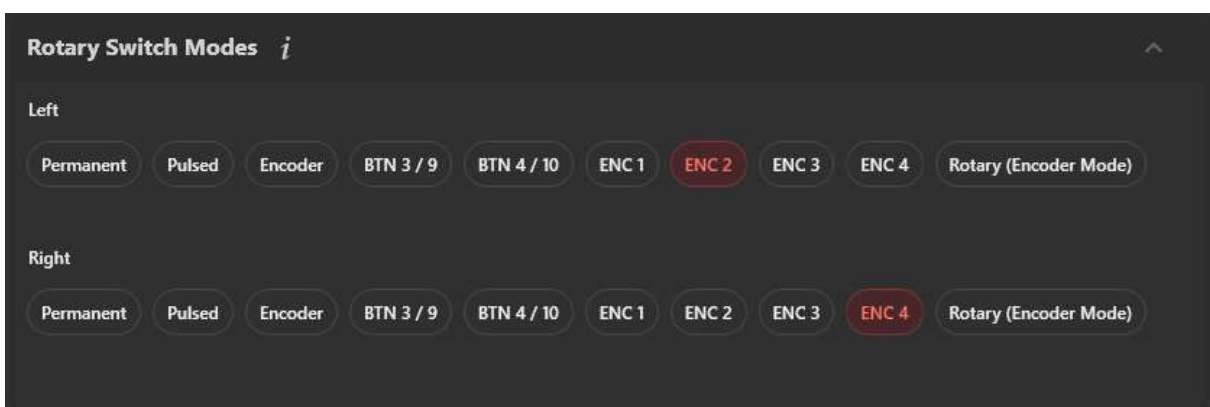
**BTN 4 / 10** The very same logic as *BTN 3 / 9* but the corresponding buttons IDs are #4 / #10.

**ENC 1 - 4** Thumb Encoders are modified in this mode. Refer to the graphic below regarding the assignment.

**Rotary (Encoder Mode)** The other Rotary Switch will be modified and has to be set to Encoder Mode. E.g. use the blue rotary as encoder and modify its output based on the position of the red 12-pos. Rotary Switch.



For example, set the *Rotary Switch Modes* as shown below in order to modify the output of the **red thumb encoder** with the position of the **red 12- pos. rotary** and to modify the output of the **blue thumb encoder** with the position of the **blue 12-pos. rotary**.



The following functions serve as an example of how the modified encoders could be configured in-game.

Red 12-pos.	Red Thumb Enc.	Blue 12-pos.	Blue Thumb Enc.
1	BRK BIAS	1	BRT BTN
2	TCC	2	BRT REV
3	TCR	3	BRT LCD
4	ABS	4	DDU PAGE
5	ENG	5	GAME VOL
6	MGU-K	6	SPOT VOL
7	DEPLOY	7	CHAT VOL
8	DIFF ENTRY	8	RADIO CH.
9	DIFF MID	9	CAMERA
10	DIFF EXIT	10	STRAT 5   6
11	FRONT ARB	11	STRAT 3   4
12	REAR ARB	12	STRAT 1   2

The official Ascher Racing Dashboard will display the text if the Modifier Mode is active. This way, all 24 mapped functions don't need to be memorized and the currently selected function is displayed. For Standard Rotary Switch Modes, the position numbers will be shown in the dashboard instead of text.

In order to change the text output, the following formula can be adjusted:

Edit Dashboard > Base Screen > Bottom > Rotary Left > value > Text

The screenshot displays the configuration interface for the Ascher Racing Dashboard. The main window is titled 'Text Binding' and shows a 'JS Extensions' section with a 'Use javascript' toggle. Below this, there's a 'Run once javascript code' section with a code editor. The code defines a `rotary\_text` object and a function to return the output for the 'Rotary Left' widget. The 'Screen hierarchy' panel on the right shows the structure of the dashboard, with 'Bottom' > 'Rotary Left' > 'value (Text)' highlighted. The 'Properties' panel at the bottom right shows the settings for the selected text widget, including 'Text' set to 'LEFT'.

**Text Binding Panel:**

- JS Extensions:** Use javascript (checked)
- Run once javascript code:**

```
const rotary_text = {}
// ENTER TEXT HERE (will be shown when rotary MODIFIER mode is active)
rotary_text[0] = "BRK BIAS"; // Pos 1
rotary_text[1] = "TCC"; // Pos 2
rotary_text[2] = "TCR"; // Pos 3
```
- JavaScript:**

```
JavaScript must return a result, IE: return 10
rotary_output = get_rotary_left_output(rotary_text)
return rotary_output
```
- Result format:** Raw result (INIT), Formatted result (INIT)

**Screen Hierarchy Panel:**

- Base
  - Session Time (in Pitlane)
  - Pop-Up Overlays
  - Bottom Right (Widget)
  - Header
  - Center Box
  - Hybrid Box
  - Brake Bias Box
  - Laptime Box
  - Fuel Box
  - Track State Box
  - Bottom
    - Rotary Left
      - Title (Text)
      - value (Text)
  - Background Gradient (Linear gradient)
  - ABS Box
  - TCC Box

**Properties Panel:**

- Opacity: 100
- Rotation: 0
- Text**
  - HorizontalAlignment: Center
  - VerticalAlignment: Center
  - Font: Segoe UI
  - FontSize: 25
  - FontStyle: Normal
  - FontWeight: Bold
  - Text: LEFT

## 11. On-Wheel Settings

Several settings can be changed directly on the wheel without the need for additional software. The following picture shows the corresponding buttons and on-wheel functions.



### Bite-Point Setting

- ENTER: press *Right Joystick* button for 1s
- change 1.0%: turn *Left Joystick*
- change 0.1%: turn *Right Joystick*
- EXIT: press *Right Joystick* button for 1s

### Clutch Calibration

- press both *Calibrate Clutch* buttons for 1s (*left* buttons for *left* clutch and vice versa)
- pull and release clutch while status LED is on
- LED blinks after 3s: range is calibrated

### Analog Axis Mode

- ENTER: press both *Analog Axis Mode* buttons for 1s
- both status LEDs turn on
- press *Change Mode* button:
  - 1 x Gas & Brake
  - 2 x Dual Clutch (master right)
  - 3 x Dual Clutch (master left)
  - 0 / >3 x do not change mode
- EXIT: press both *Analog Axis Mode* buttons for 1s

### Reset to Factory Default

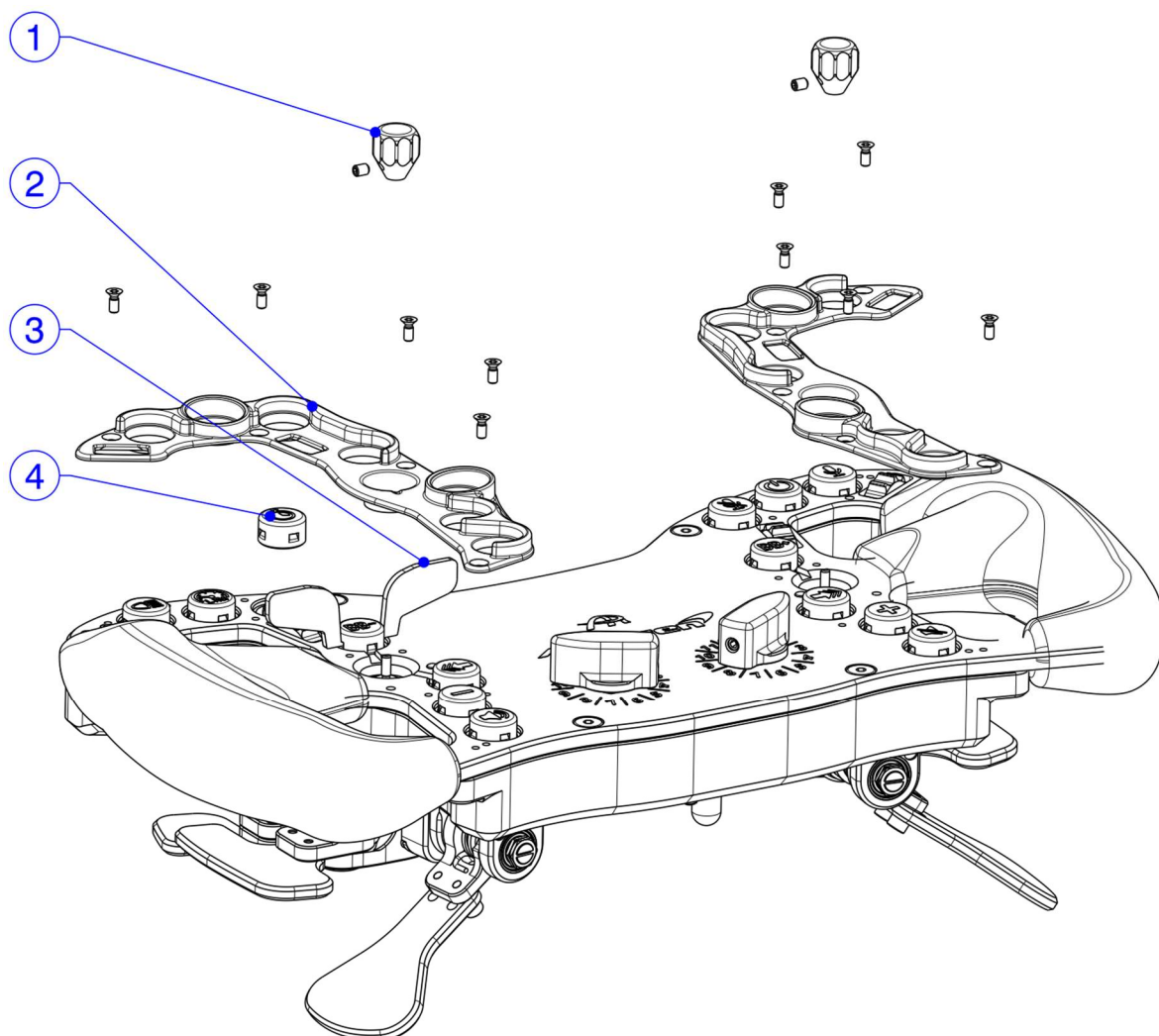
- press & hold *Factory Reset* button while connecting device to PC

## 12. How to Change Button Caps

The button caps can be swapped easily without the need for extensive disassembly or opening of the steering wheel. To replace a symbol or change its position, the button cap can be pulled out of its carrier base and a new cap can be pushed in.

**To avoid scratches, either put paper between the removing tool and frontplate, or apply tape to the removing tool to protect the surface.**

1. unmount joystick knob (Allen key: 1.5mm)
  - hold knob with fingers when loosening or tightening the grub screw
  - this avoids any force applied to the joystick shaft and prevents damage/ bending
2. remove the surrounding button cover (Torx key: TX8)
  - unmount all black TX screws and remove the cover
  - pull-out notches can now be accessed for easy removal
3. insert both *button cap removing tools* into notches
4. pull-out the cap
5. push-in a new cap (pay attention to the symbol orientation)
6. mount cover (max. screw torque 0.3 Nm/ 2.6 lbs → easy hand-tight)
7. mount joystick knob (hold knob with fingers)





## 13. Upgrade Shifters and Clutch Paddles

Both Ascher Racing Gen6 single and double paddle shifters are interchangeable. The Artura GT4 and SPORT can be upgraded from the default single shifter to the double shifter and clutch paddles.

1. open the steering wheel as shown in chapter 8.5
2. unmount paddle shifters (Allen key: 2.5mm)
3. unplug shifter connection cables on both sides
4. guide new shifter connection cable through the casing
5. connect the cable with the shifter
6. mount paddle shifters (torque: 1.8 Nm)
7. adjust the shifter mode switch on the main PCB to DOUBLE
8. assemble steering wheel as shown in chapter 8.5

Plug-in the clutch paddle cables to the labeled 3-pin connectors next to the paddle shifters and calibrate them once as described in chapter 11.

## 14. Firmware Update

The firmware version of the wheel is shown in the *Control Center* under *Device Info*. Updates are available via the Ascher Racing support page:

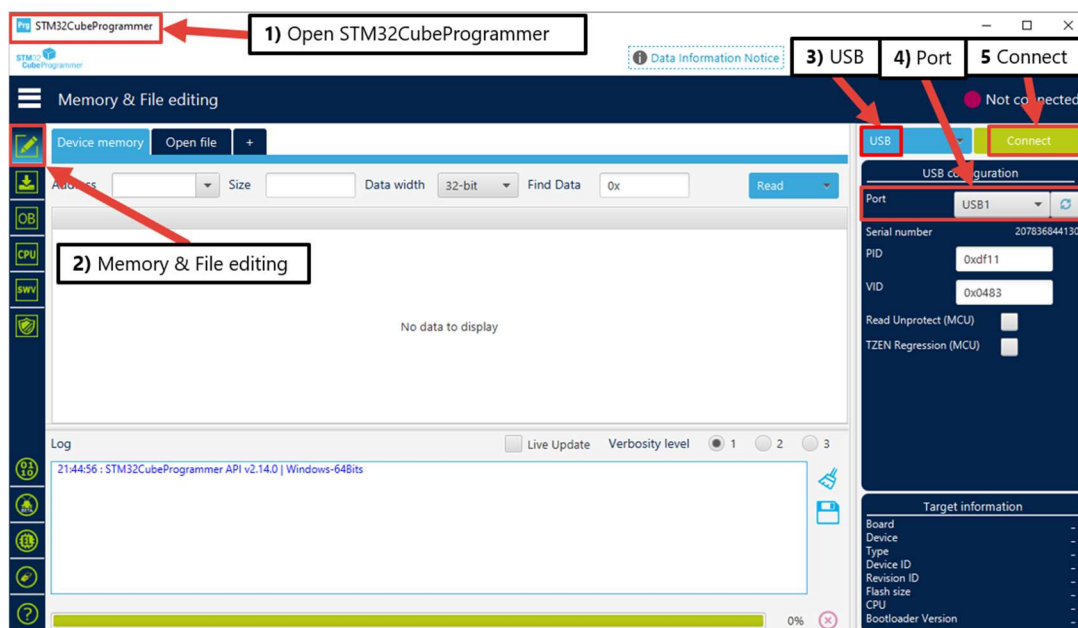
<https://ascher-racing.com/int/support>

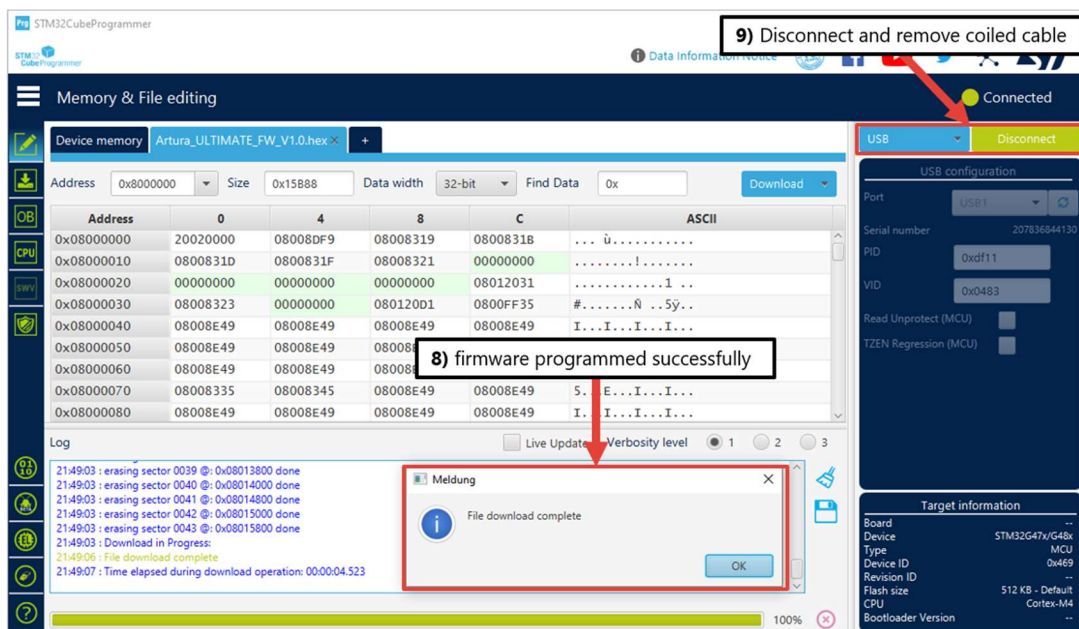
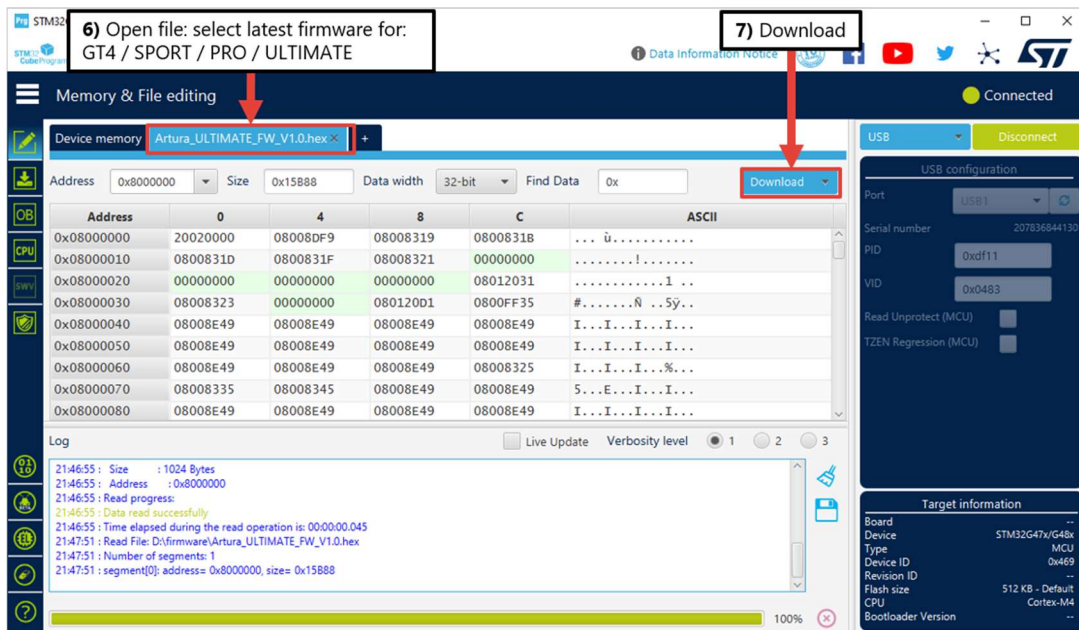
In order to flash a new firmware to the wheel, the STM32 Cube Programmer is required:

<https://www.st.com/en/development-tools/stm32cubeprog.html>

Enter DFU Mode (Device Firmware Update) by pressing and holding the *Firmware Update* button on the wheel while connecting the device to the PC via coiled cable.

Follow steps as shown below to flash a new firmware to the wheel.







## 15. Steering Wheel Dimensions

