



Motorway Simulation

Module tutorial



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1. GENERAL

1.1. Description

MOTORWAY SIMULATION software is an immersive 3D simulation based on virtual reality technology, i.e. it allows a person to be immersed in an artificial digitally created world.

Motorway Simulation is a software used for rehabilitation of the "motorway syndrome" - a disorder occurring when the left and right visual hemifields move at different speeds. This module provides a virtual driving situation: with a steering wheel, pedals (gas pedal, brake) and visual controls (rear-view mirrors).

1.2. Required accessories

VR headset and Xbox controller or VR headset and steering wheel and pedals kit.

1.3. Patient setup

RECOMMENDATION



It is strongly recommended to acquire the steering wheel / pedals kit (references on our website purchase guide) to place patients in triggering conditions.

It is common to reproduce their discomfort when driving with a steering wheel, it is much more difficult with the Xbox controller (which also allows for less features than the steering wheel).

The patient is seated, with hands on the steering wheel and feet on the pedals.

RECOMMENDATION

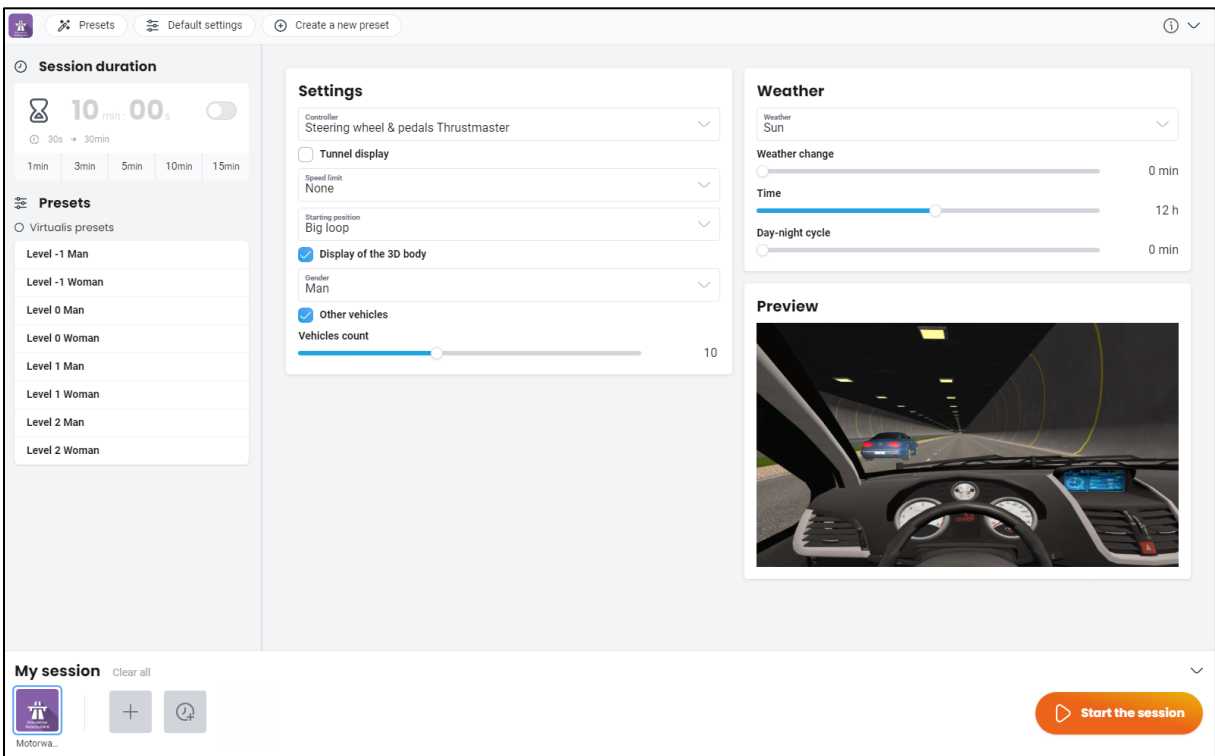


The psychological / phobic aspect that develops in these patients needs to be taken into account and requires to "put them back in the conditions" gradually.

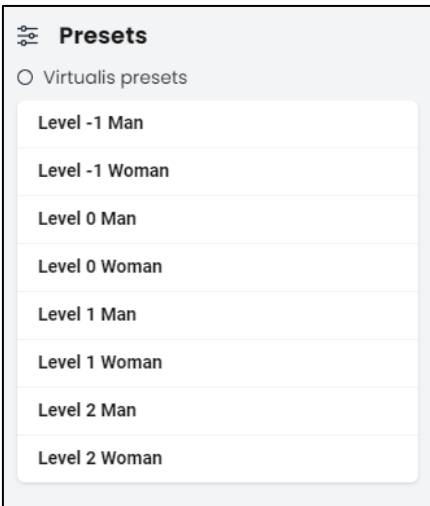


2. Settings

2.1. Session settings



2.1.1. Presets





When starting the **Motorway Simulation** software, you reach a home page from which you can find four protocols for men and women with difficulty levels ranging from level 1 to level 2.



RECOMMENDATION

It is recommended to start with a low difficulty level in order to measure the patient's tolerance to the stimulation and the proposed VR environment.

For each proposed protocol, the different options are already set. Just validate the selected protocol to start the application.

2.1.2. Settings

Settings

Controller
Xbox Controller & Keyboard

☒ Tunnel display

Scrolling speed
0

Speed limit
None

Starting position
Big loop

☒ Display of the 3D body

Gender
Woman

☒ Other vehicles

Vehicles count
10

These are the initial settings. Most of them can be changed at all times using the Xbox controller (remote control), the keyboard shortcuts or on-screen controls.

Controller:



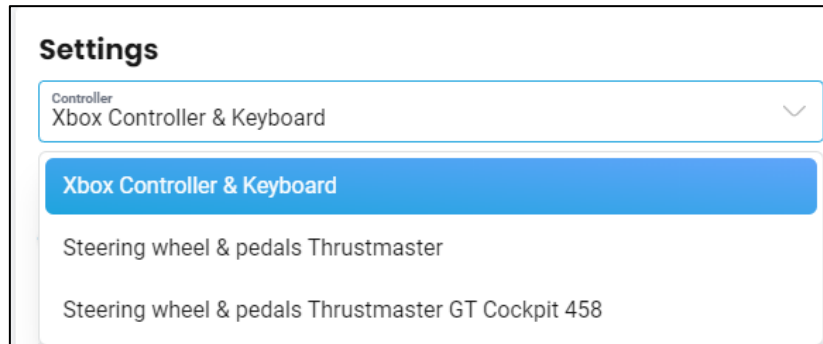
WARNING

The steering wheel shall be the same as the one configured in the administration settings.



The selection is made directly from a drop-down menu, select:

- **Thrustmaster GT cockpit 458** for Ferrari 458 steering wheel.
- **Thrustmaster** for other references.



Tunnel display:



The tunnel can be displayed or not by activating or not the check box.

If this option is enabled, the car will travel through tunnels.

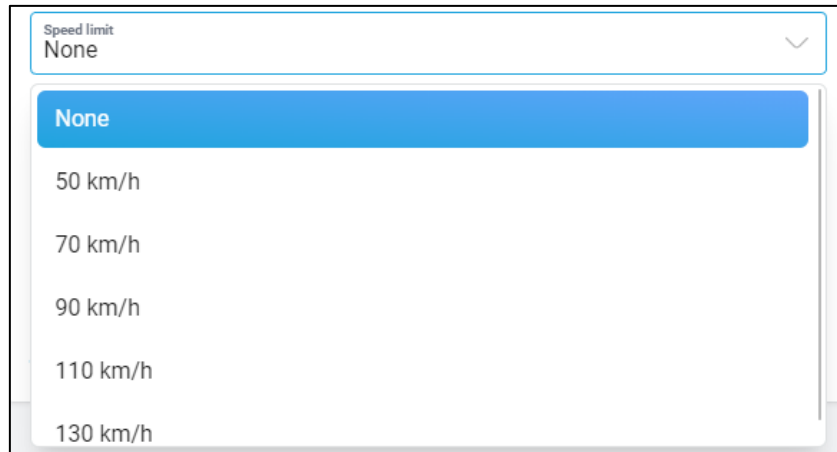
Enabling it unlocks the **scrolling speed**.

Scrolling speed:

Modulated using the cursor.

Value: 0 to 4.

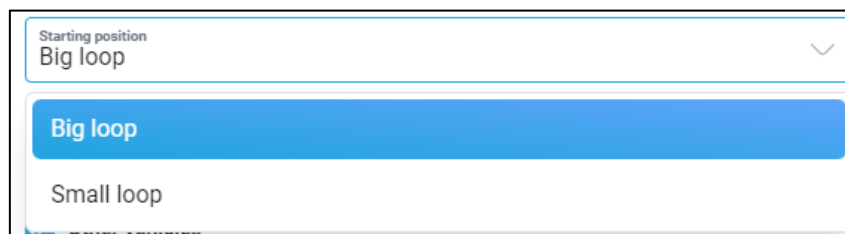
Speed limit:



A screenshot of a web interface showing a 'Speed limit' drop-down menu. The menu is open, displaying a list of options: 'None' (highlighted in blue), '50 km/h', '70 km/h', '90 km/h', '110 km/h', and '130 km/h'. The 'Speed limit' label and a downward arrow are visible at the top of the menu.

Several speed limits available in the drop-down list: none, 50 km/h, 70 km/h, 90 km/h, 110 km/h and 130 km/h.

Starting position:



A screenshot of a web interface showing a 'Starting position' drop-down menu. The menu is open, displaying two options: 'Big loop' (highlighted in blue) and 'Small loop'. The 'Starting position' label and a downward arrow are visible at the top of the menu.

2 routes are available. This parameter is used to position the vehicle on one of the two circuits to start the session. The type of loop is selected from the drop-down list.

Display 3D body:



A screenshot of a web interface showing a checkbox labeled 'Display of the 3D body' which is checked. Below it is a 'Gender' drop-down menu with 'Woman' selected. The 'Gender' label and a downward arrow are visible at the top of the menu.

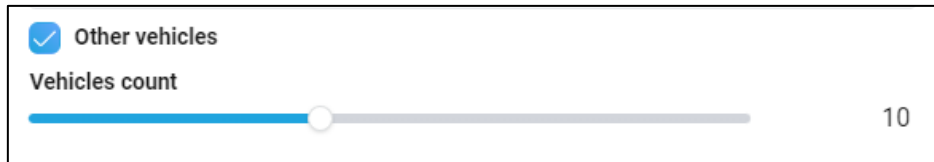
This parameter can be enabled or disabled using the checkbox.

If this option is enabled, the body's **gender** can be chosen.

Gender:

Selection is made from a drop-down menu.

Other vehicles:



Activates the presence of other vehicles. None of them appear in the left-hand overtaking lane.

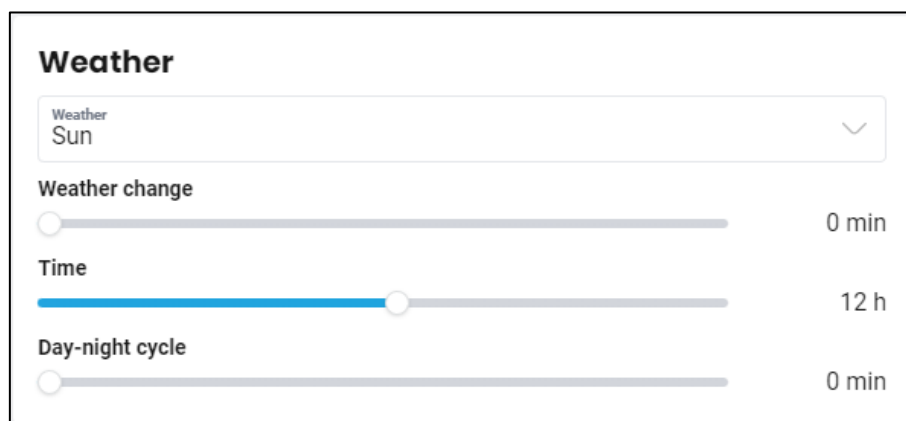
If the option is checked, the **vehicle count** can be set using the slider.

Vehicles count:

The number of cars on the road is set using the slider.

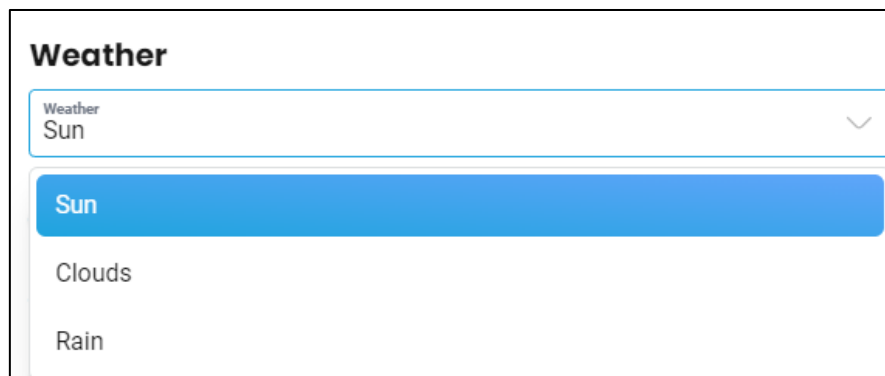
Value: 0 to 25.

2.1.3. Weather



Weather:

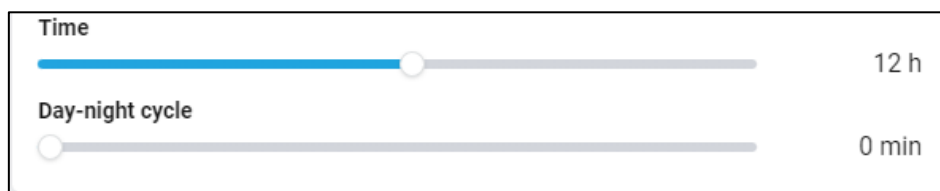
Weather conditions are available in the drop-downlist.



Weather change:

Allows you to define how long weather conditions stay unchanged before switching to a different type of weather.

Value: 0 to 20 minutes.

Time:

By moving the cursor, the practitioner can set the time of day and therefore the corresponding brightness.

Value: 0 to 23 h.

Day - night cycle:

The day – night cycle can be modified using a slider.

Value: 0 to 60 minutes.

Preview:

A preview is available before starting the session.

3. Module

3.1. Session

Once the presets have been selected, click on "**Start the session**" in the bottom right corner of the screen.



In the top left of the screen:

The operator can change the weather, time of day, number of vehicles on the circuit and their speed. He can also choose to display tunnels and modulate their speed.

In the bottom left of the screen, additional settings are available:

- **Show user settings:** if the box is checked, the **Steering Wheel Settings** panel appears in the bottom right corner of the screen.

Once the patient has been set up and the virtual environment has been generated, the practitioner can modify the position of the environment in relation to the virtual avatar to reproduce real conditions as



accurately as possible, according to the patient's sensations and physical position in relation to the steering wheel.

Thus, the practitioner can modify the **size of the steering wheel** (from 0.00 to 5.00), its **height** (-2.00 to 2.00) and its **depth** (0.00 to 4.00) (distance to the patient's avatar).

- **Sound intensity:**

Sound can be adjusted using a slider.

- **Position on the circuit:**

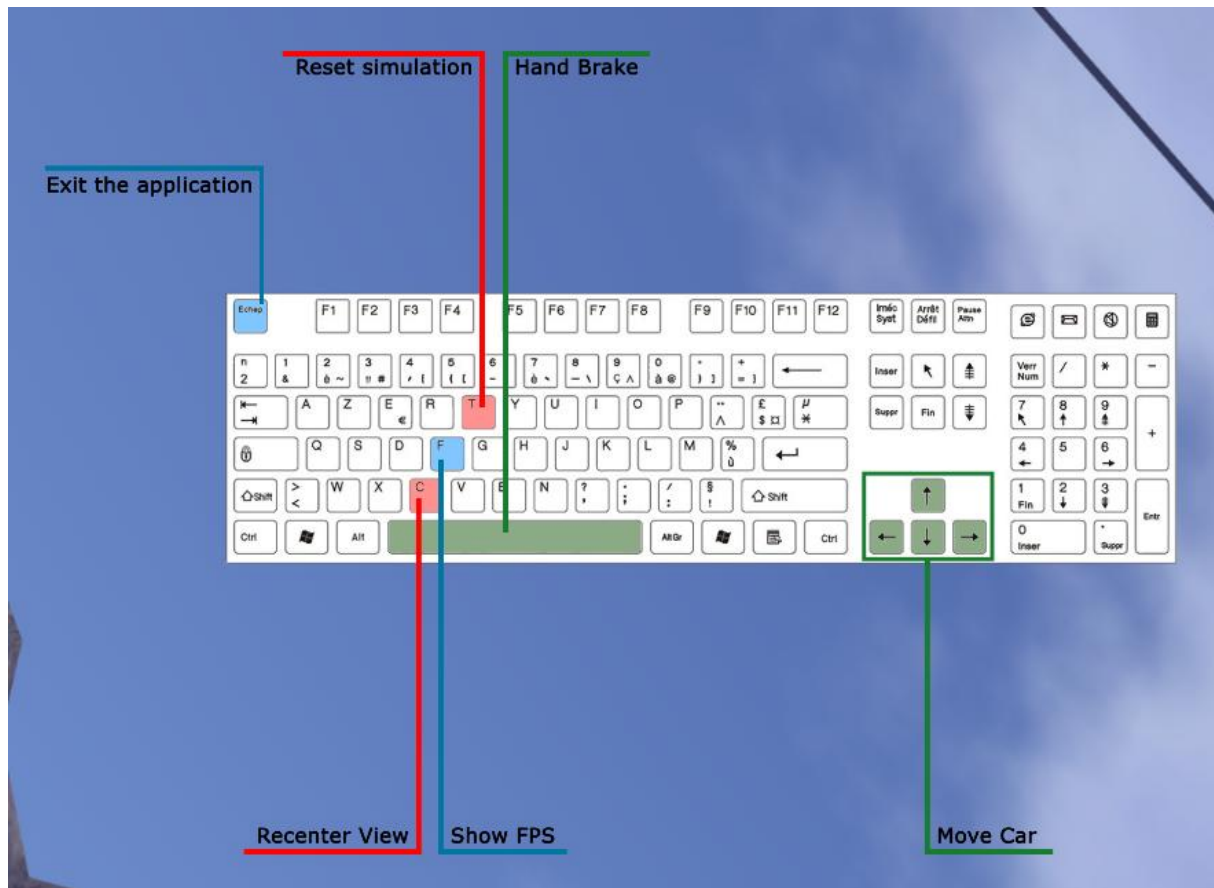
Schematic representation of the vehicle's location on the track in real time. Allows the practitioner to indicate to the patient if they need to change direction and leave the traffic lane to join another circuit.

You can **zoom in on the mini-map** using the mouse wheel and **move around the zoomed-in mini-map** using the left click (click and drag the map while holding down the mouse button).

3.2. Shortcuts

During the session, the shortcut list is found by clicking on the Xbox controller icon in the upper right corner of the screen.

3.2.1. Keyboard

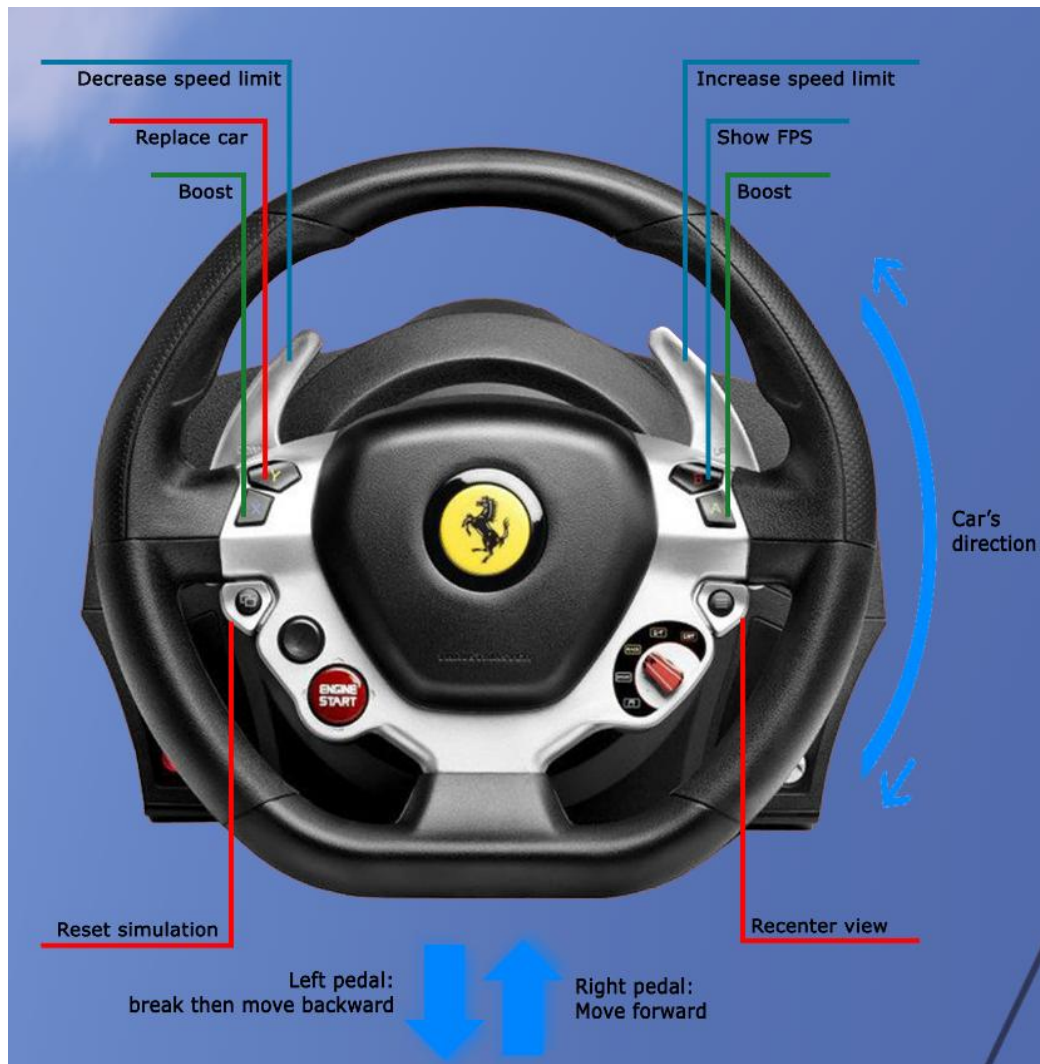


3.2.2. Xbox controller

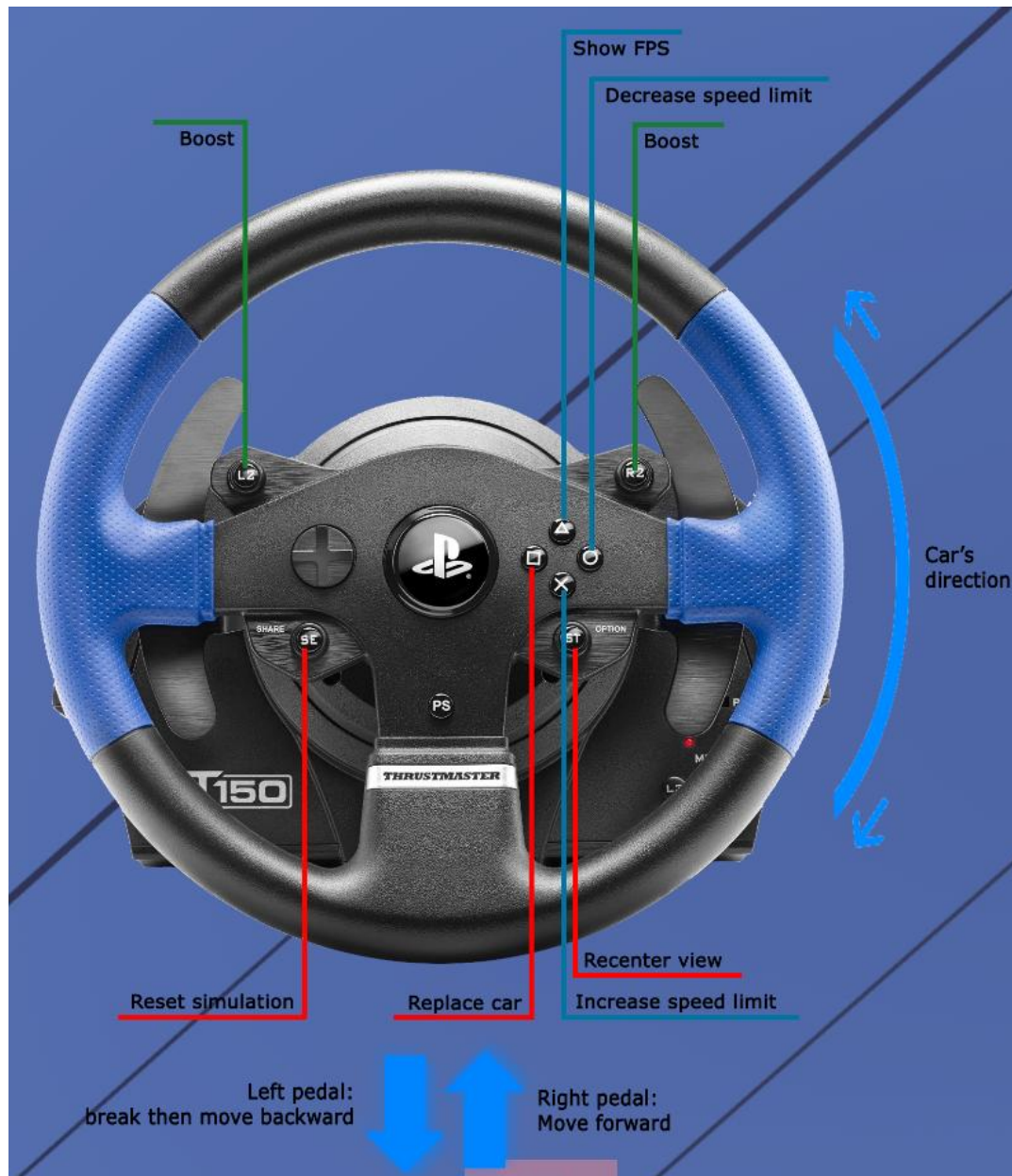


3.2.3. Thrustmaster steering wheels

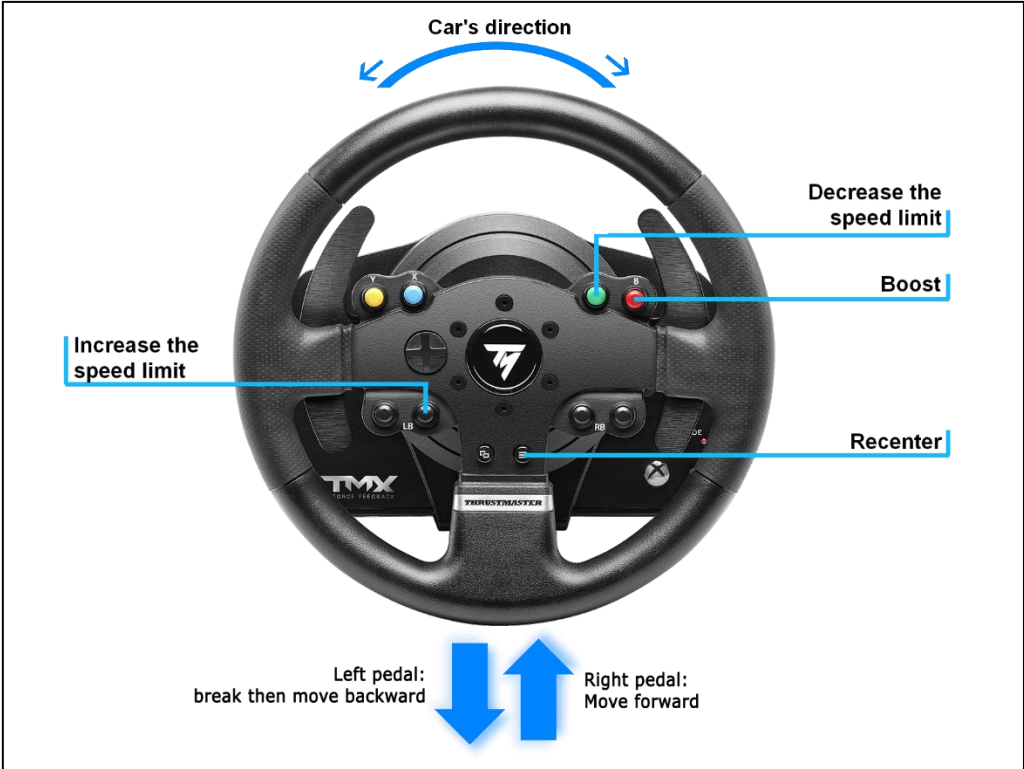
3.2.3.1. GT cockpit 458 / Ferrari 458



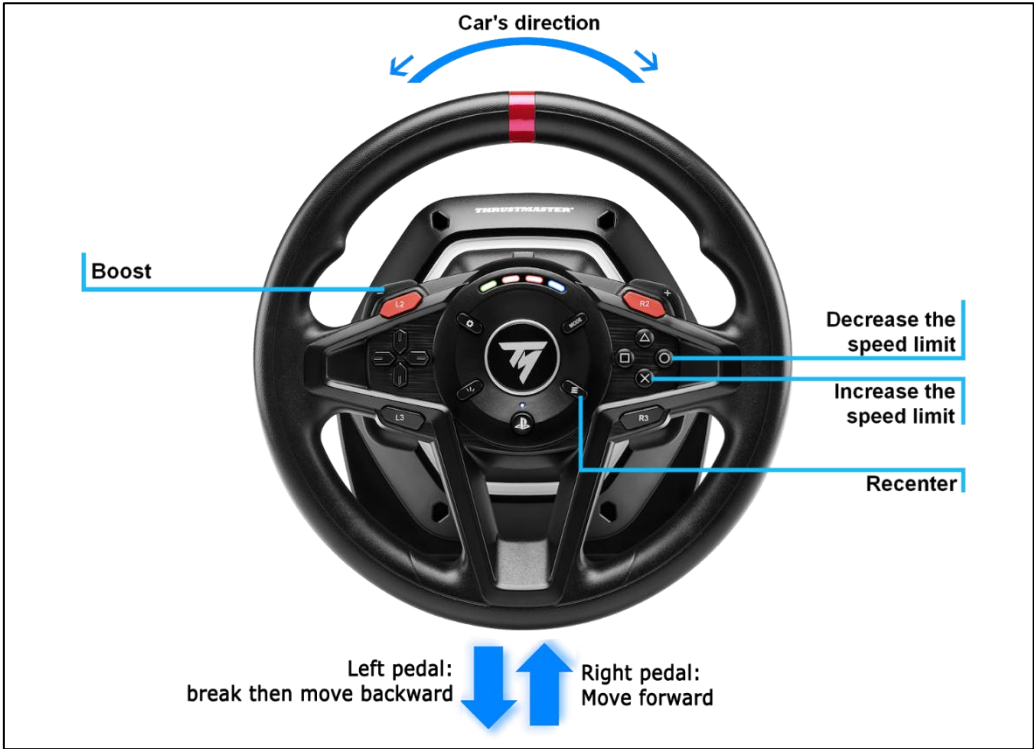
3.2.3.2. T150



3.2.3.3. TMX



3.2.3.4. T128





3.3. Results

Once the session is over, you can view the results.

3.3.1. Summarized results

No summarized results are displayed at the end of the session.

3.3.2. Graphs and report

To find the detailed results and to generate a report, click on the histogram icon.

Session details
12/05/2025 10:20

Motorway Simulation

Parameters Results Notes

Name	Initial value	Final value
Controller	Steering wheel & pedals Thrustmaster	Steering wheel & pedals Thrustmaster
Tunnel display	✗	✗
Scrolling speed	0.00	0.00
Speed limit	None	None
Starting position	Big loop	Big loop
Display of the 3D body	✓	✓
Gender	Man	Man
Other vehicles	✓	✓
Vehicles count	10.00	10.00
Weather	Sun	Sun
Weather change	0.00 min	0.00 min
Time	12.00 h	12.00 h
Day-night cycle	0.00 min	0.00 min

Start session with initial values

Start session with final values