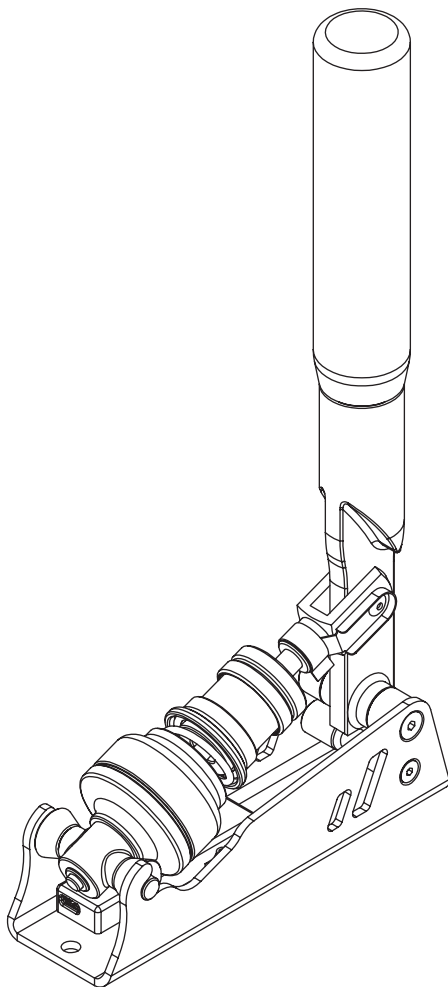


SIM LAB

INSTRUCTION MANUAL



XB1 LOADCELL HANDBRAKE

VERSION 1.5

Last updated: 03-12-2025

BEFORE YOU START:

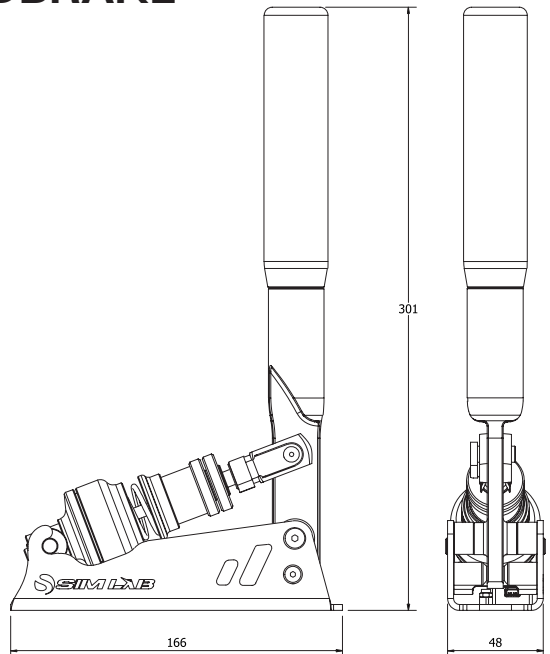
Thank you for your purchase. In this manual we will provide you with the means to get started using your new handbrake!

Introducing the SimLab XB1 Handbrake with Loadcell, designed to give you ultimate control over your drifts and U-turns. A loadcell that precisely measures the force applied, allows your muscle memory to be trained for exact application turn after turn. Adjustable preload and damper resistance allow tuning of the handbrake to replicate any car desired. For those who demand the very best, this handbrake is made of high-quality aluminum, providing you with unmatched durability and precision control.

XB1 LOADCELL HANDBRAKE

Features:

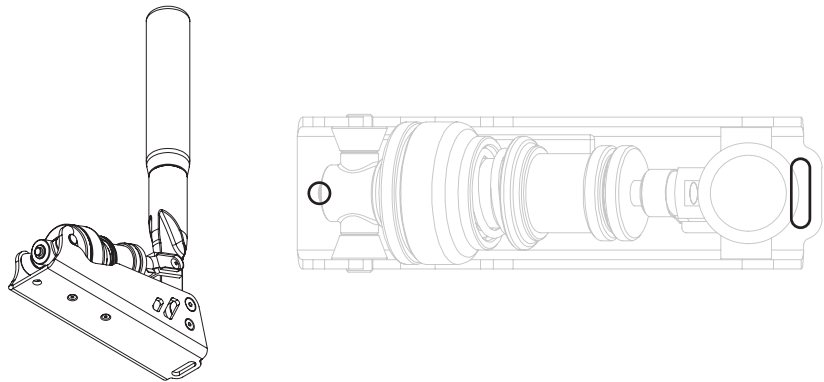
- Aluminium construction
- Proprietary 150 kg loadcell
- Multiple elastomer dampers included
- Adjustable preload
- RaceDirector support
- Supports aftermarket knobs



Installation

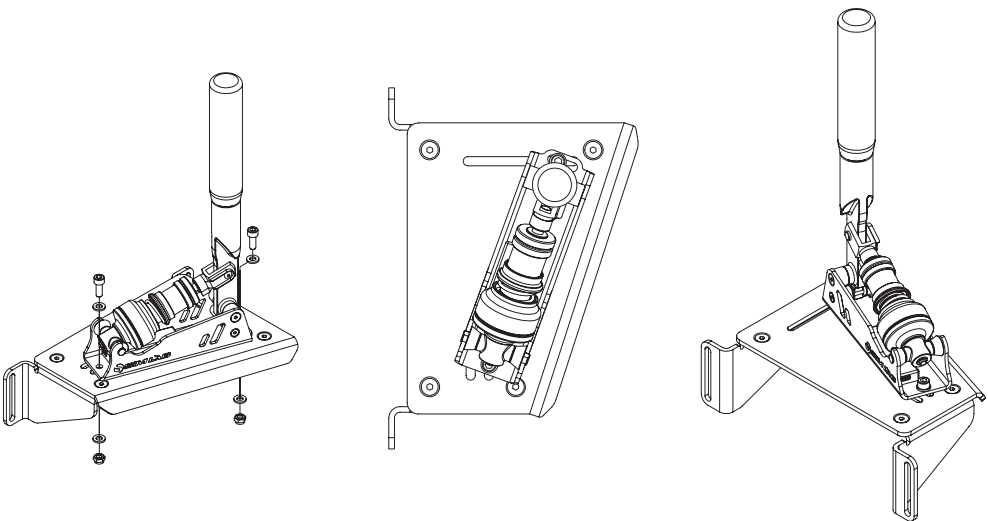
Depending on your setup, the XB1 Loadcell Handbrake can be used all by itself or in combination with a sequential/h-pattern shifter.

Used by itself it can be placed directly on the side mount of your rig, using the hole and slot as indicated below. The slot offers 6 degrees of rotation.



Using the handbrake mount purchased seperately, the handbrake can be mounted to the side of a shifter. The mount is compatible with our existing shifter mounting bracket and allows for roughly 20 degrees of outward rotation.

Please visit www.sim-lab.eu/hb-mounting-bracket for more information.



Configuration

Depending on your preference, we have included three elastomers in different hardness (Shore A) ratings for you to try. The medium one is pre installed.

You can choose between these three elastomers:

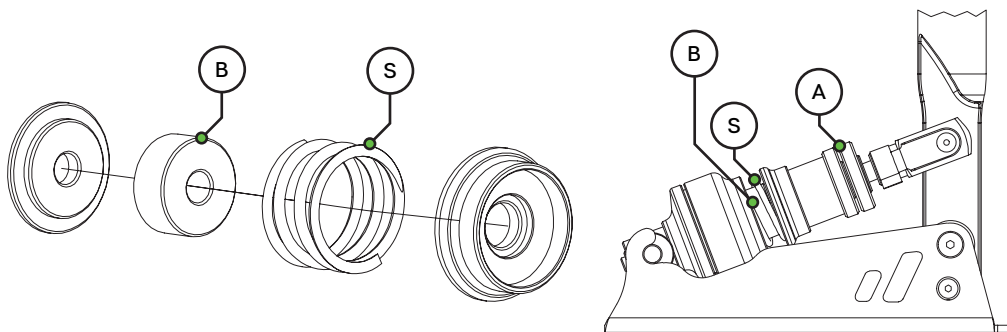
- Soft - 50A
- Medium - 60A
- Hard - 70A

Even the hard, is still relatively soft, if you compared this with a hard elastomer for pedals for example. We have tested harder elastomers but found we prefer the range of motion this gives you while still giving you the opportunity for good control in how much force you apply.

By default, we include a preload spring solution. You can adjust tension on this to decrease the preload distance.

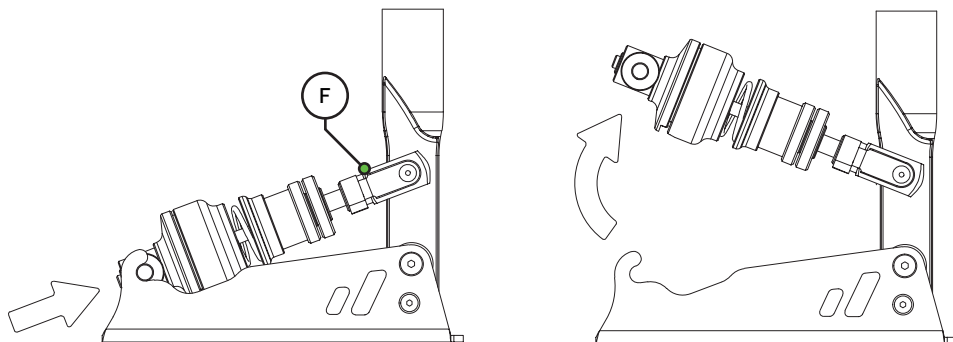
If you want very little or no preload at all, we have got that covered as well. With the preload buffer (B) in place (inside the preload spring), you can take up the preload entirely by turning the adjustment knob (A). After fitting, make sure all preload has been taken up by the buffer. You need make sure the adjustment knob (A) is turned enough that the preload buffer (B) can't go anywhere anymore and has taken up all preload in the stack.

If you decide on not running any preload at all, you might just as well remove the preload spring entirely. In fact, we recommend this so there is no unneeded tension on the brake stack without the need for it.



On the next pages we will show you how easy it is to disconnect the brakestack to add the preload buffer (B) and/or change elastomers.

First, make sure you loosen the blue adjustment and locking knobs and thread them all the way up to the clevis fork (F). This will reduce tension on the spring and will make it easy to swing out the entire brake stack. Slightly push in the direction of the brake stack and rotate upwards. The entire brake stack should be free of its captive position.

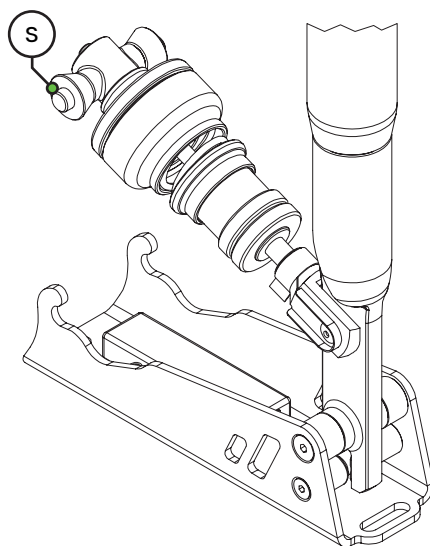


Now you can simply slide the parts off of the shaft until you reach the part you want to replace.

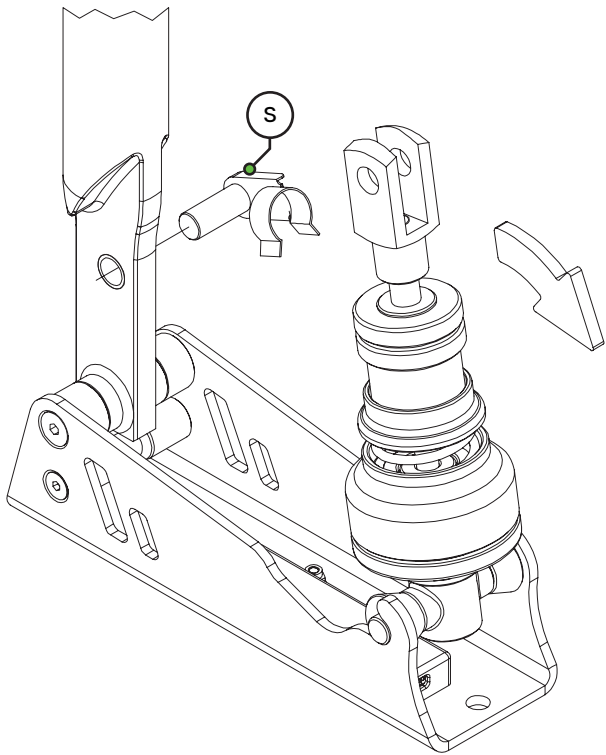
When re-assembling, make sure all parts lock together smoothly. (See page 7 for more information on how parts should be ordered and oriented.)

Don't pinch the loadcell cable and make sure the cable exits through the cable port on the bottom of the loadcell base.

It all really assembles one way properly but it is worth it to take the time to make sure nothing gets damaged in the process while changing parts.



Depending on the spring you installed, the previous description can be hard to do. To counter that you can also choose to loosen the ‘Spring Pin’ (S) and rotate the entire brake stack away from the handbrake in the following way. Again, make sure you loosen the blue adjustment and locking knobs and thread them all the way up to the clevis fork (F).

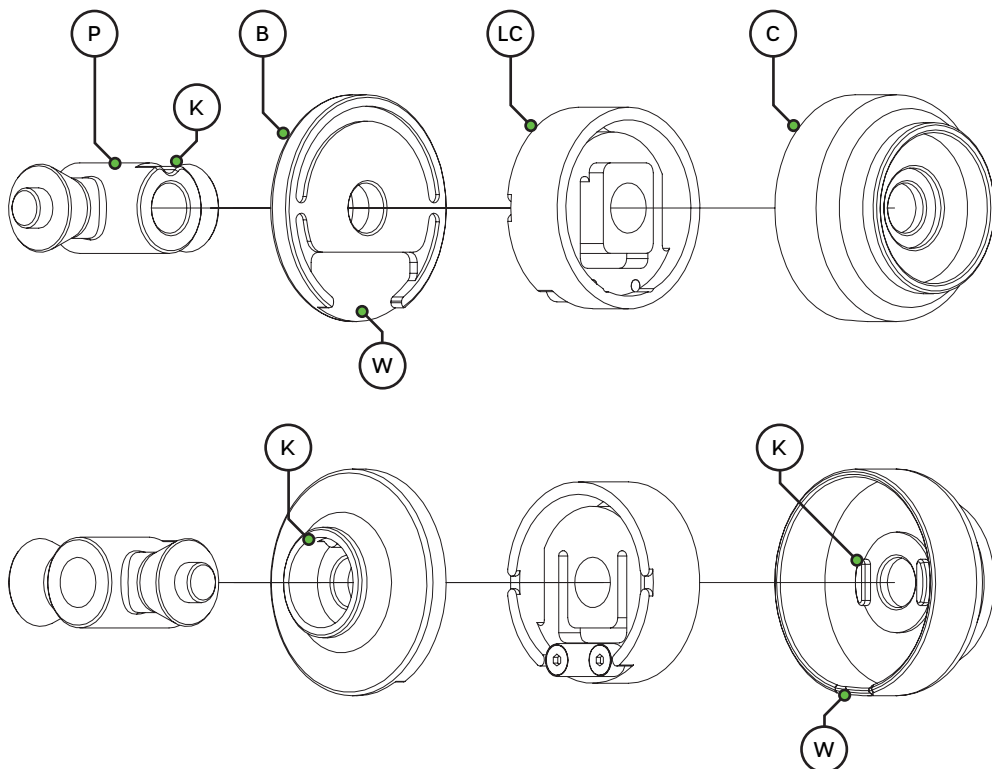


Now you have two ways of getting access to elastomers and preload spring.

We encourage you to experiment with these as long as you remember to be careful during this process. The loadcell is truly the heart of this device and damage to it or its cable need to be avoided at all times.

In case you can't recall how the main parts of the brake stack go together, please review the next page.

The important features to note which need to align with each other are the cable window (W) and a key (K) in some places.



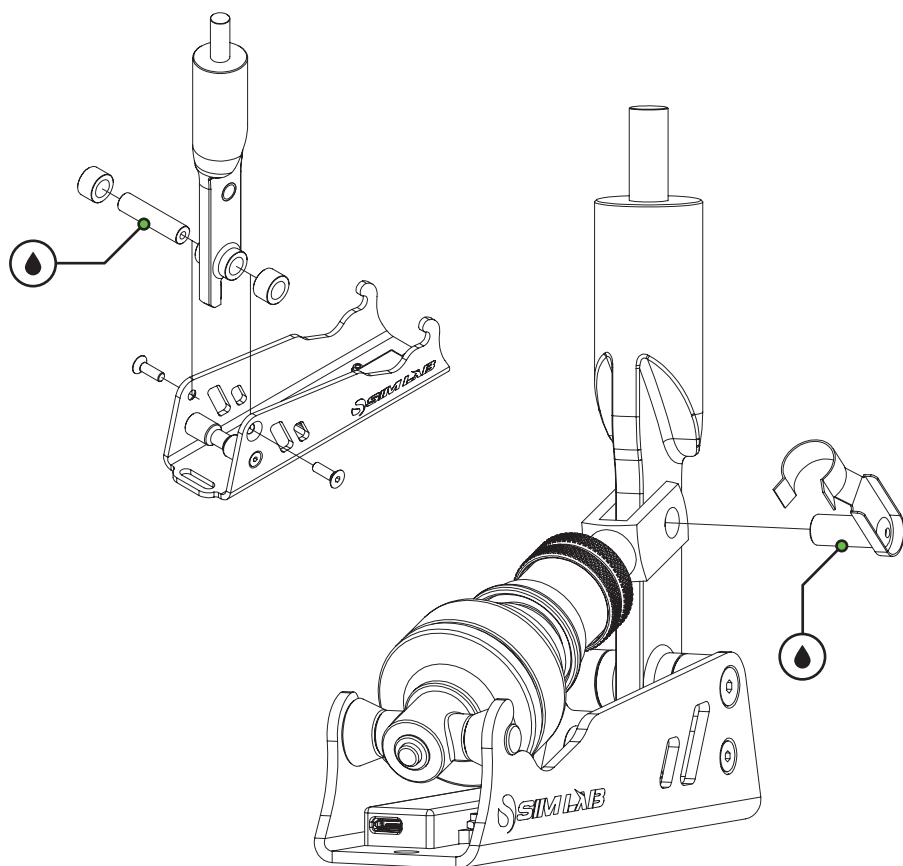
This diagram illustrates the exploded view of a mechanical assembly, likely a pump or motor component. The assembly is shown in a perspective view, with components arranged along a central horizontal axis. The parts include a long shaft with a flange at one end, two large bearings, a smaller bearing, a seal, a spring, a diaphragm, a housing, and a motor or actuator assembly at the end. The components are shown in a disassembled state, allowing for a clear view of their relative positions and how they fit together.

Maintenance

Although the handbrake set has bronze bushings where needed, some cleaning and lubrication will benefit performance and condition of your handbrake.

As for lubrication (💧), we generally recommend WD-40 Specialist White Lithium Grease to lubricate moving parts. Indicated are the spring bolt, attaching the brake stack to the lever and the pivot for the lever. The pivot for the lever is nothing more than a threaded spacer. Remove the two bolts holding it in place and slide the entire lever upwards. Make sure you keep the spacer rings close while you apply lubrication to the spacer and re-assemble all parts again.

This doesn't take much time and effort at all but goes a long way into enjoying your handbrake for many hours on the virtual track to come.



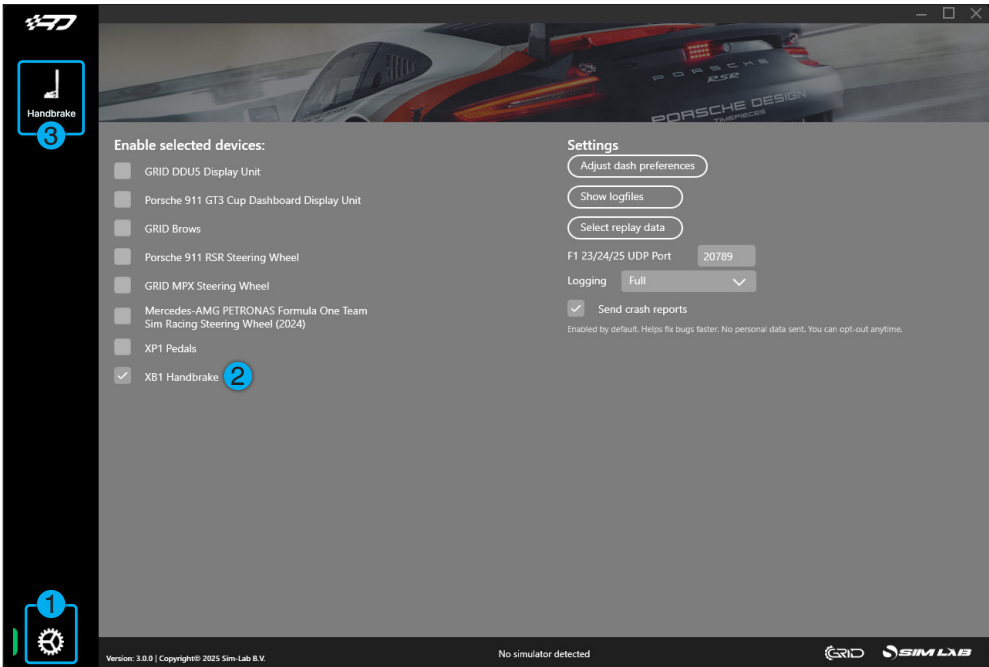
RaceDirector

Download and install the latest version of RaceDirector from www.sim-lab.eu/srd-setup

For explanation on how to install and use RaceDirector, please read the manual. This can be found here: www.sim-lab.eu/srd-manual

We will now go over the very basics to get going using RaceDirector to get you on track asap. We really urge you to go through the manual for a more in depth explanation of the possibilities RaceDirector has to offer.

First we need to activate the product, this is done on the 'Settings' (1) page.

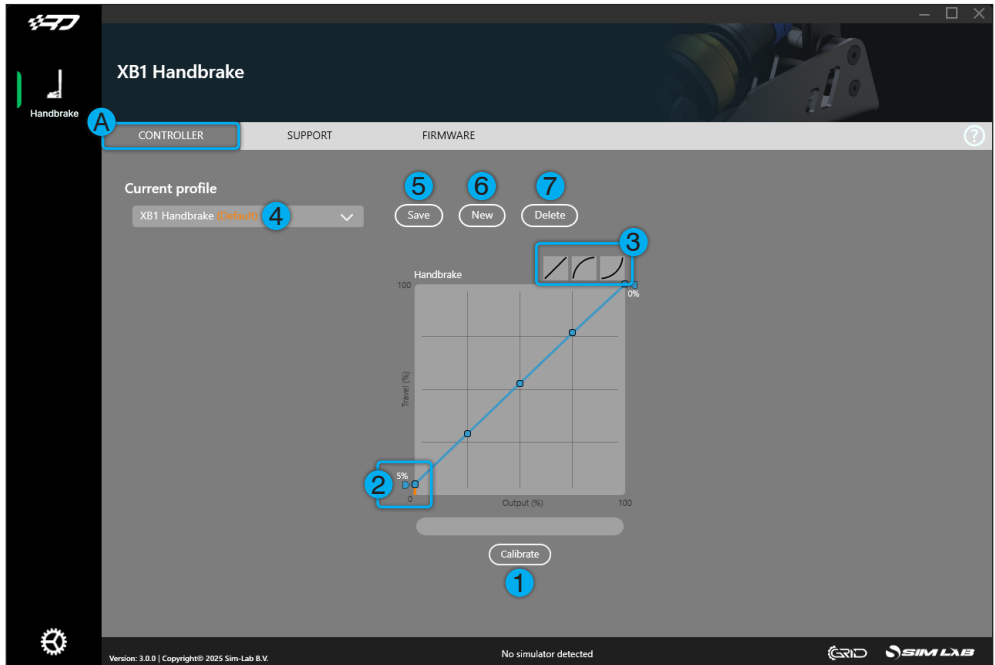


Tick the 'Activate' tickbox next to 'XB1 Handbrake' (2) and its icon (3) should appear on the left side of the screen. Selecting the icon (3) will take us to its device pages.

Device pages

CONTROLLER (A)

The device page for the pedals allow you to calibrate (1), adjust the graph and adjust deadzones (2).



Calibration

- Press 'Calibrate' (1) for the device to enter calibration mode.
- Press the pedal to the maximum travel or force, press 'Finish calibration' when done.
- We recommend to dial some deadzone (2) on both sides of the spectrum. This way when you're not touching a pedal, it can't provide an unwanted input.

From RaceDirector V2.4.0 onwards , we are showing a % while calibrating the handbrake. This makes it easier to re-calibrate a little under or over 100% brake force. Let's say you calibrated your handbrake to your liking. During driving you find that you'd like a bit more, or a bit less input. Now when you press 'Calibrate' you can simply only push to 96%, or to 105%. Let's say you went for the 105%, so you need to pull a bit harder. This can be adjusted again, but keep in mind, the % shown is a 0-100% of the calibrated value in memory. So if you want to reduce brake force, always choose a value smaller than a 100%.

Graph

This is where most of the device page for this product type revolves around. The curve in the graph can be adjusted to your liking by manipulating 5 points. The first and last point are controlled by adjusting the deadzones (2). The middle five can be manipulated by clicking and dragging to really dial in your input.

- 'Profile name' (4):

The currently loaded profile, or create a new profile by changing the name.
- 'Save' (5):

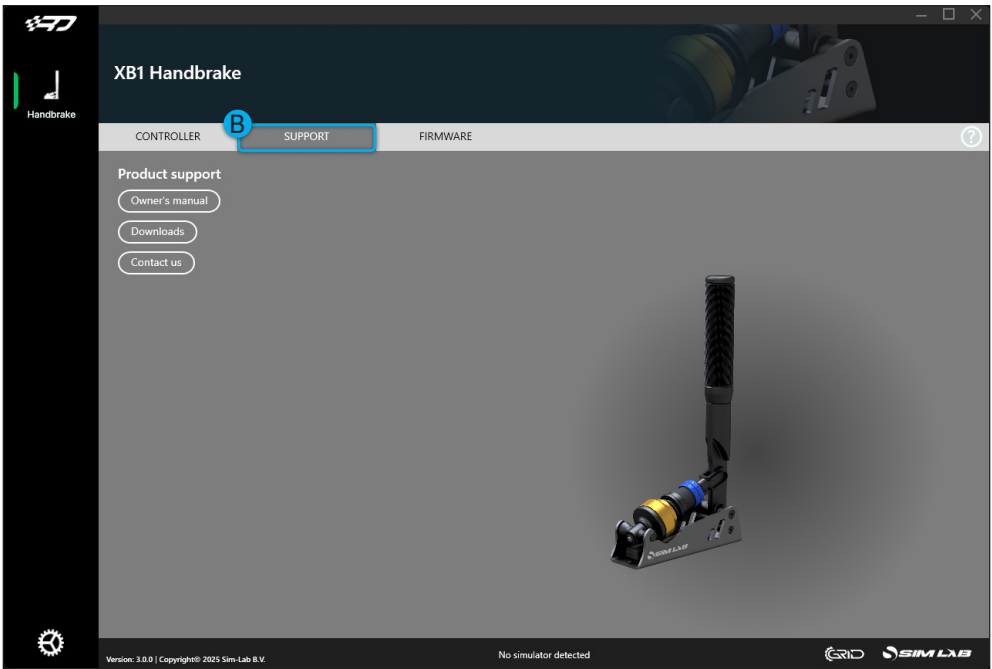
Use this button to save changes made to a profile, or use it to save a copy of the currently loaded profile.
- 'New' (6):

Creates a new, empty profile.
- 'Delete' (7):

This removes the currently loaded profile from RaceDirector and your PC. Warning, there is no undo! Default profiles can not be deleted.

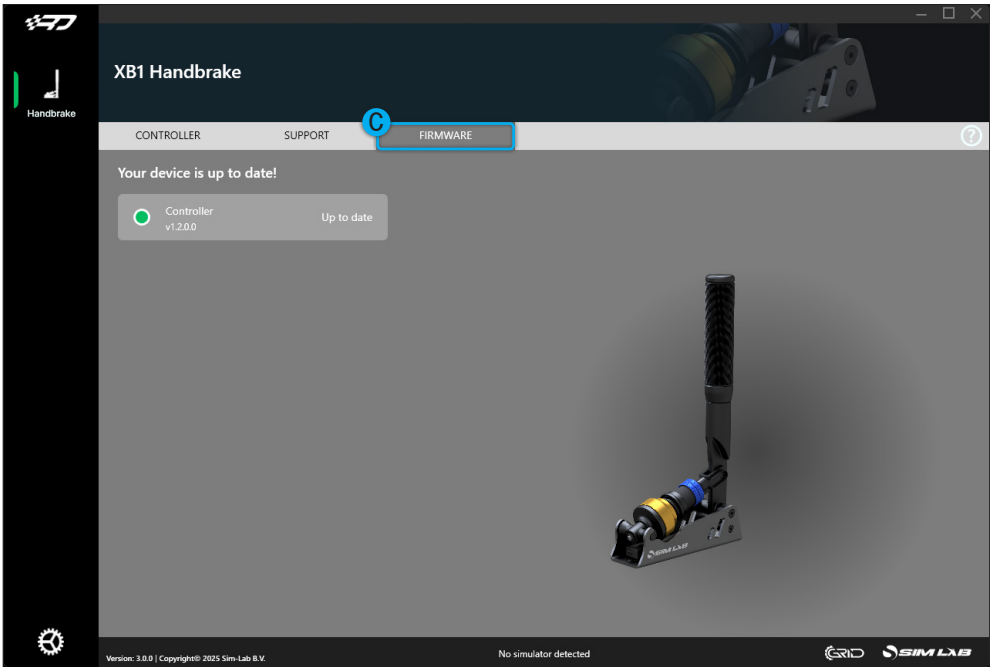
SUPPORT (B)

If you run into trouble with your hardware, here are a few options to help you in finding a solution.



FIRMWARE (C)

On this page you can see the current firmware loaded on the wheel. If your firmware is out of date, we recommend to update it using our tool.



RaceDirector keeps tabs on current firmware versions. When it detects a difference, a notification ● will let you know more recent firmware has been detected.

When an updated firmware version has been detected, please follow the instructions and click the 'Perform update' (1) button.

RaceDirector will show the progress and will take care of the updating for you. If you see a windows explorer or USB device popping up, don't worry, it is part of the process.

An update for your device is available!

● Controller v1.14.0.0

Update available v1.15.0.0

How to update?

Press the button below to automatically install any required updates to your device.

Please ensure your device remains connected during the update procedure.

Contact support if you have any problems updating your device via RaceDirector..

Perform update

1

Older devices might still require the former firmware update tool. In that case, RaceDirector will tell you what to do.

Bill of materials

IN THE BOX			
#	Part	QTY	Note
A1	XB-1 Loadcell Handbrake	1	
A2	USB-C cable	1	
A3	Elastomer spring	2	Shores 50A and 70A.
A4	Preload buffer	1	
A5	Bolt M6 X 16 DIN 912	2	
A6	Washer M6 DIN 125-A	4	
A7	Lock-Nut M6	2	
A8	Slot-Nut M6	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

[Product page on the
Sim-Lab website:](#)

