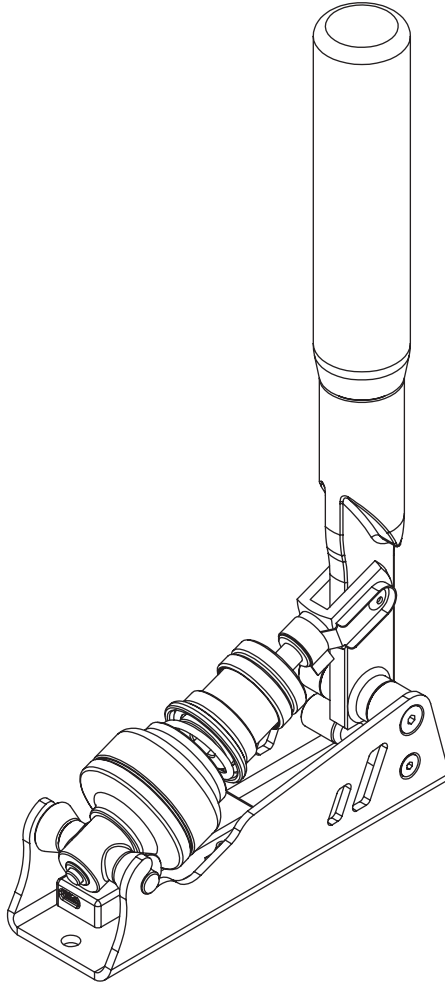# SIM LAB

INSTRUCTION MANUAL

XB-1 LOADCELL HANDBRAKE
VERSION 1.31
Last updated: 04-04-2024

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.

XB-1 LOADCELL HANDBRAKE

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

301

166

48
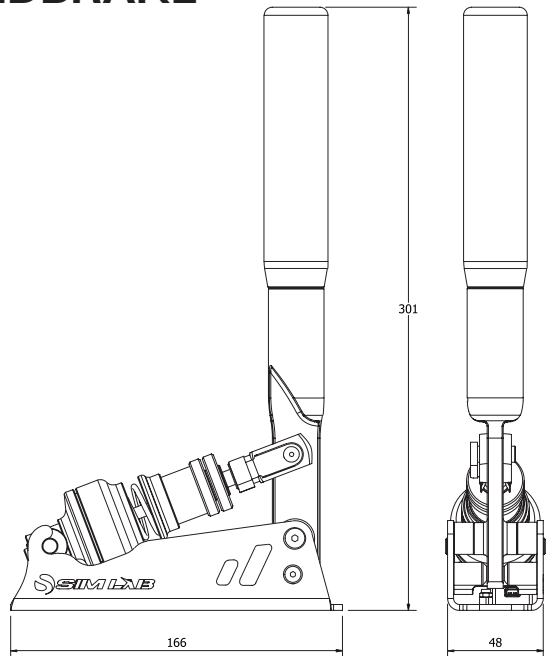
Installation

Depending on your setup, the XB-1 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.
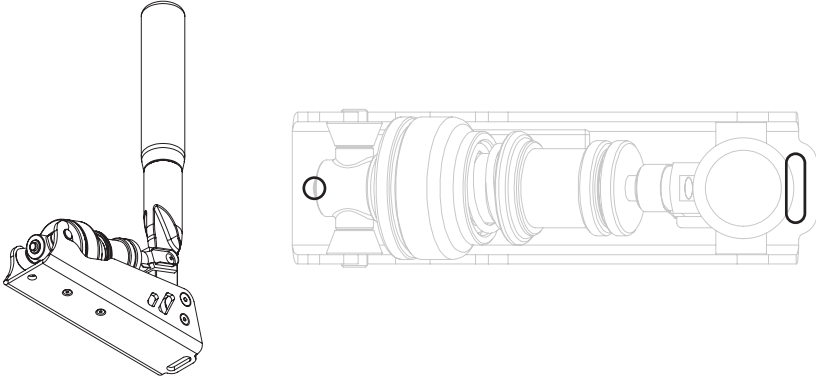
Using the handbrake mount purchased seperately, the handbrake can be mounted to the side of a shifter. The mount is compatible with our existing shifter mounting bracket and allows for roughly 20 degrees of outward rotation.

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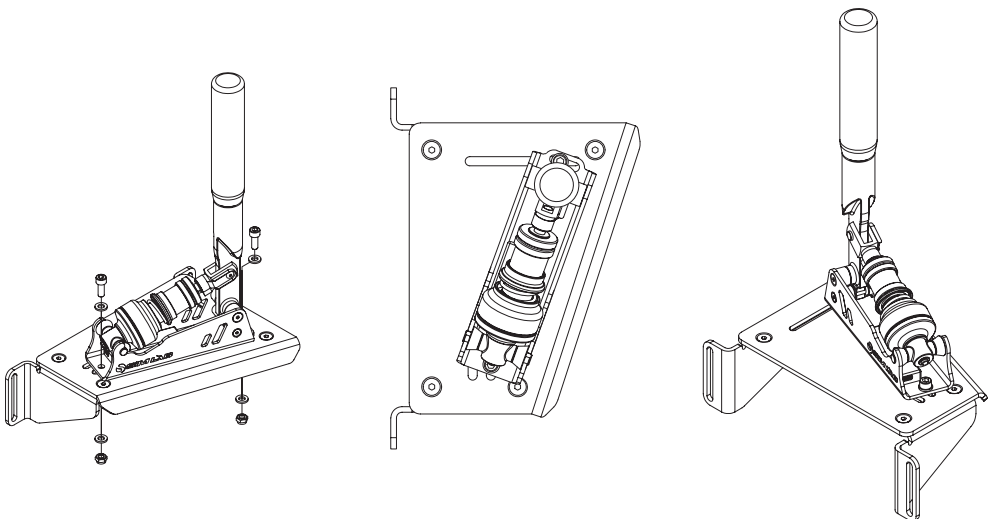
Configuration

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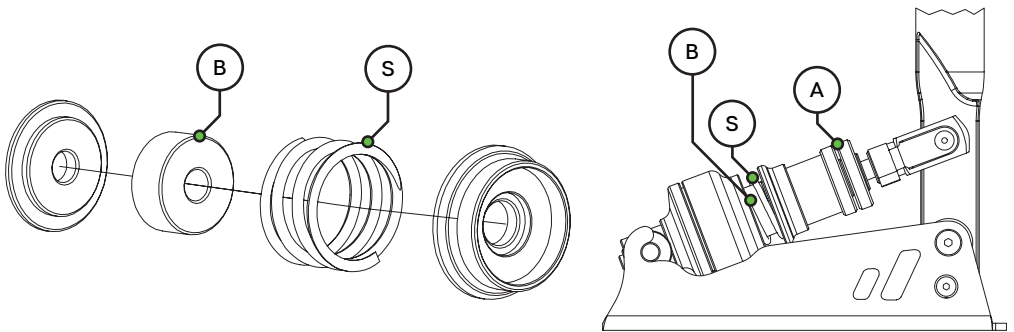
On the next pages we will show you how easy it is to disconnect the brakestack to add the preload buffer (B) and/or change elastomers.

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 enitre brake stack. Slightly push in the direct of the brake stack and rotate upwards. The enitre brack stack should be free of its captive position.
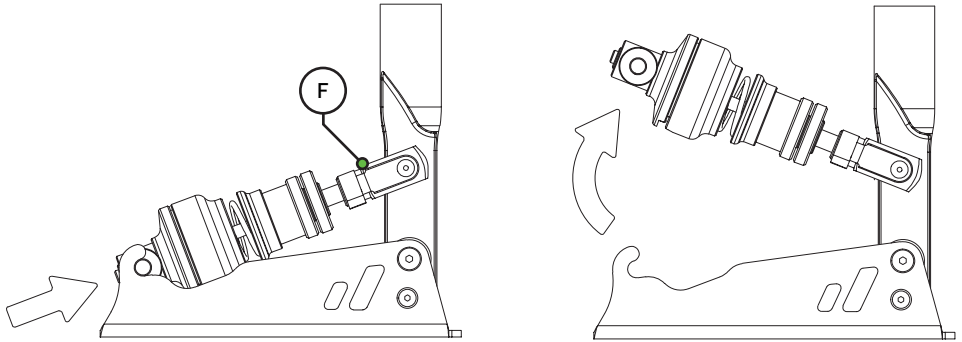

Now you can simply slide the parts off of the shaft until you reach the part you want to replace.

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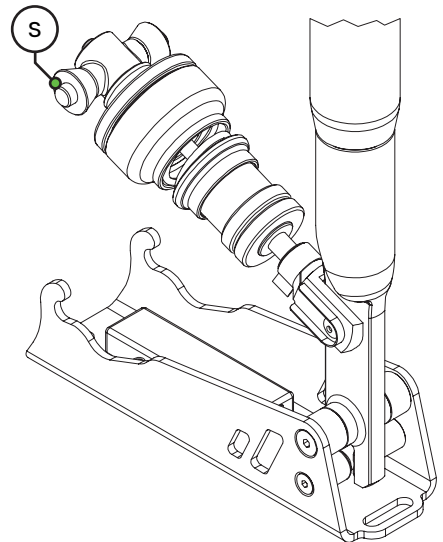
Depending on the spring you installed, the previous description can be hard to do. To counter that you can also choose to loosen the 'Spring Pin' (S) and rotate the entire brake stack away from the handbrake in the following way. Again, make sure you loosen the blue adjustment and locking knobs and thread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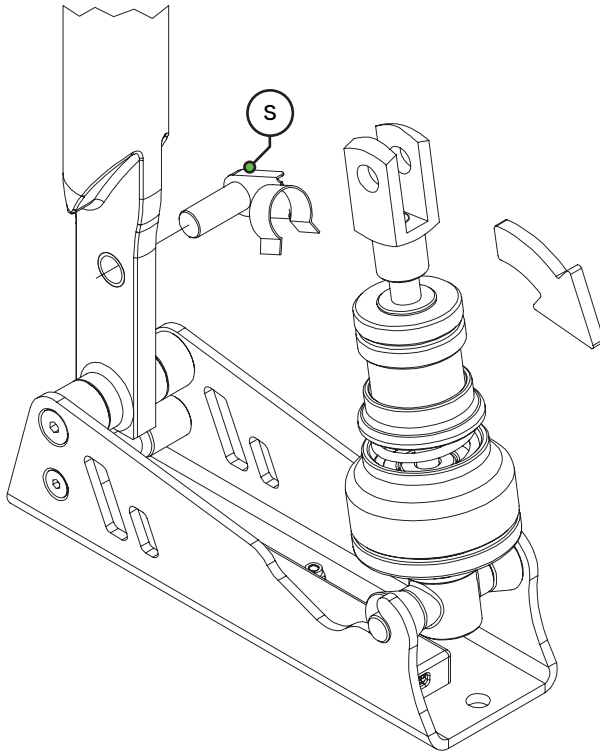
Now you have two ways of getting acces to elastomers and preload spring.

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.

These are the main parts which make up the loadcell sub-assembly. These are the pivot (P), loadcell base (B), loadcell (L) and the loadcell cover (C).

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 might seem a bit complex looking at the image above. When holding the parts in your hands it does makes sense and it all looks together when assembled. This also makes sure you basically can't get it wrong. Here is the complete brake stack for reference.

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.
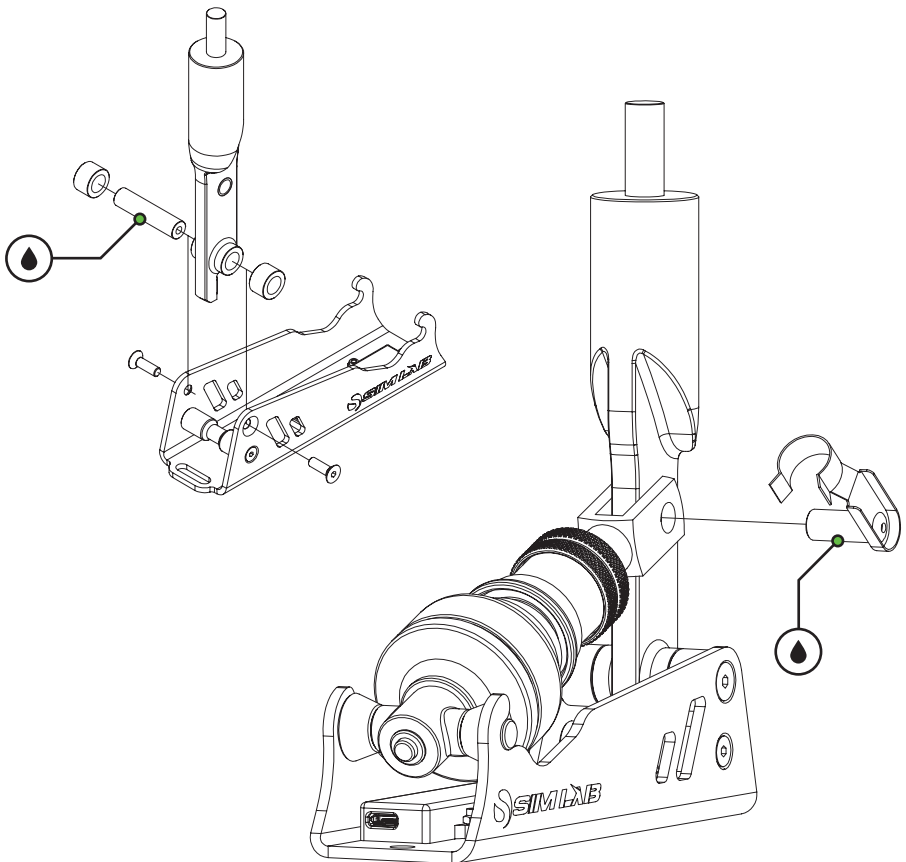
RaceDirector

Download and install the lastest 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 possiblities RaceDirector has to offer.

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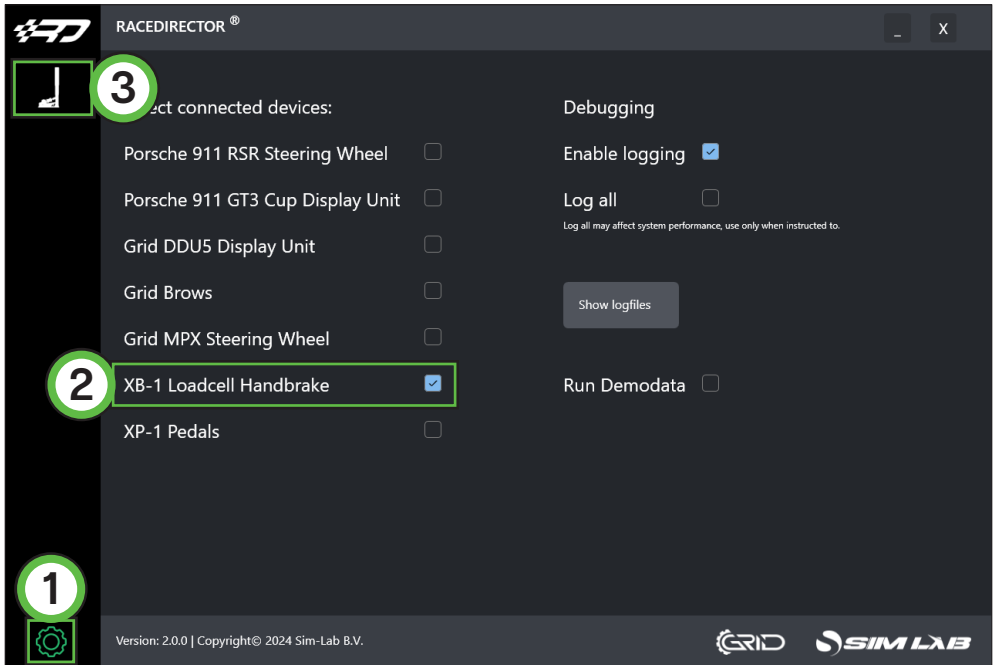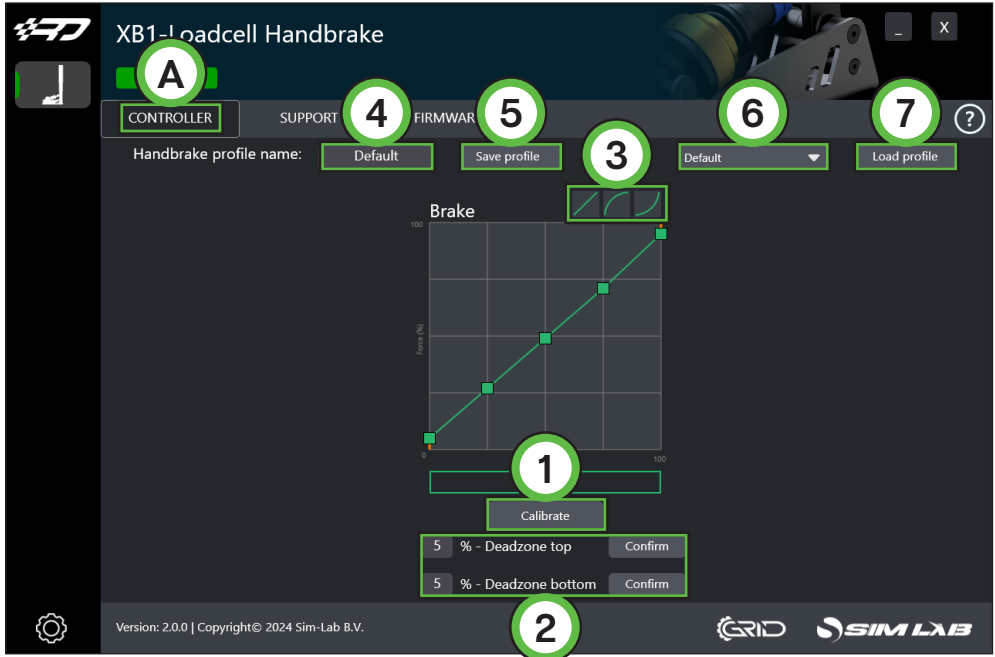

Tick the 'Activate' tickbox next to 'XB-1 Loadcell Handbrake' (2) and its icon (3) should
appear on the left side of the screen. Selecting the icon (3) will take us to its device
pages.

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.

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 three can be manipulated by clicking and dragging to really dial in your input.

As a means of providing a starting point, we provide three presets (3) which are Linear, Aggressive, Progressive.

'Pedal profile name' (4): The currently loaded profile, or create a new profile by changing the name.
'Save profile' (5): By pressing 'save profile' (5) you can save all settings.
'Default' (6): Use the drop down to select a profile.
'Load profile' (7): By pressing 'load profile' (7) you can load the selected profile.
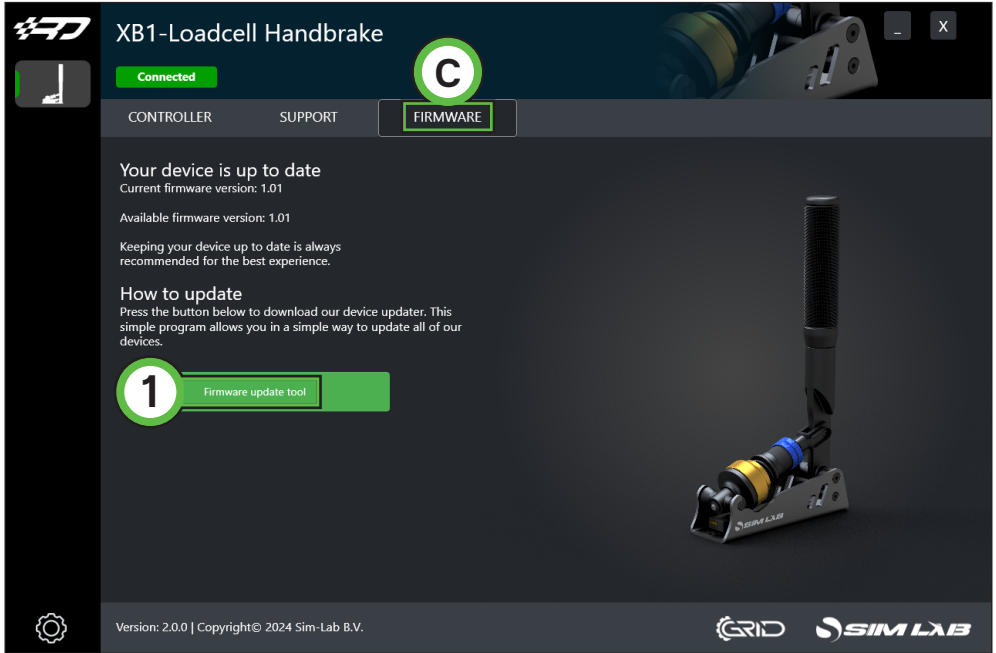
SUPPORT (D)

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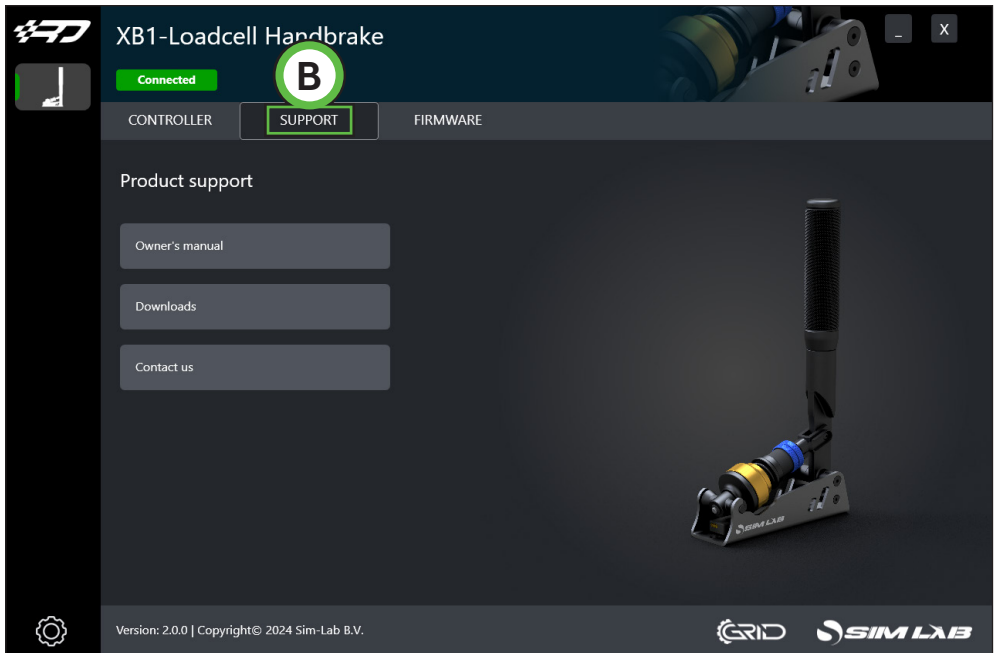
FIRMWARE (C)

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.

Press 'Firmware update tool' (1) to download the tool.

For more information on how to use the tool, please see its documentation: sim-lab.eu/firmware-updater-manual

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:**