HEUSINKVELD

Sim Pedals Sprint preview

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In Q4 2018 Heusinkveld will release the Sim Pedals Sprint. This all new eSports pedal set marks a major step forward in terms of mechanics, electronics and software. We listened to our customers and worked hard to develop many new innovations, some of which are groundbreaking for the industry. This brochure gives you a first look at a top-of-the-line racing simulator product.

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Mechanical features

The Sim Pedals Sprint have been designed from the ground up, allowing our development team to improve all aspects of the mechanics. The result is a more compact pedal set with excellent durability. They can be configured to suit the specific requirements of every simracer.

All new pedal design

The brake pedal features a completely new load detection mechanism. Instead of directly stressing a large load cell, a lever system now actuates a much more compact sensor (custom made for Heusinkveld, rated at 120kgs/264lbs). This results in an actual maximum brake force of 64kg/141lbs at the pedal plate.

The benefits of this design are a smaller pedal footprint and a more compact overall package.

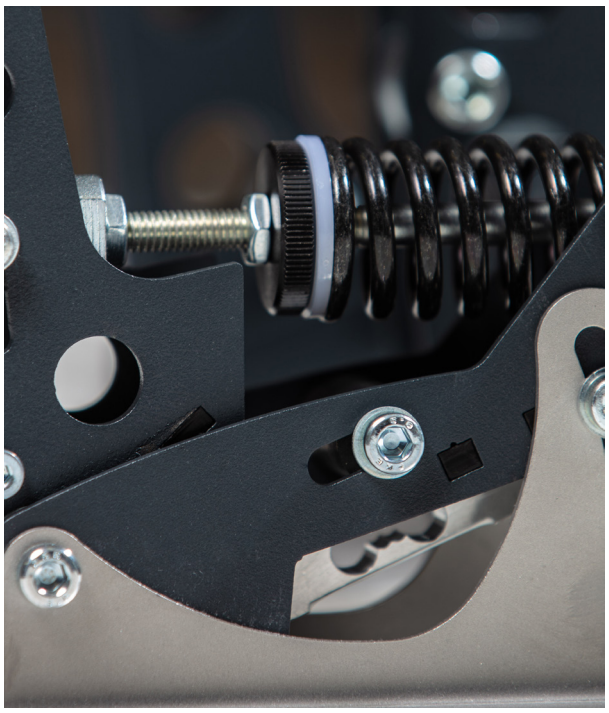
The use of a smaller loadcell has created space to integrate the pedal electronics into the brake pedal base. This greatly reduces wire clutter.

The throttle and clutch have also been made much more compact, with the clutch now featuring a more prominent concave feel curve.

Spring & rubber improvements

The brake pedal comes with several rubbers, made with our own rubber compound. This allows you to set an even larger range of brake stiffness settings. We've retained our 2-stage brake system with an additional metal coil spring, simulating the pad-to-disc gap.

The coil springs on the throttle, brake and clutch are also made to spec for Heusinkveld. This allows us to further improve the reliability and feel of the complete pedal set.



New bearing & pivot systems
We want our customers to enjoy their purchases for a long time. A great deal of attention has therefore been given to ensure that each of the three pedals has excellent wear characteristics.

The Sim Pedals Sprint come with new solutions for the pedal bearings and pivot points, reducing metal-to-metal friction and unnecessary play in the pedal arms. This ensures that your pedals feel tight even after years of heavy use. Also, at the beginning and at the end of pedal travel the pedal arms will now rest on end-stops made with our own molds and rubber compounds.

Further improvements in this area have been made on the brake pedal. We conducted material research to find the optimal solution for the composition of the moving spacer rings in the brake rubber stack. The result is a super smooth pedal feel.

Baseplate and mounting improvements
Many of our customers use the optional baseplate to mount their Heusinkveld pedals.

Based on customer feedback we made a number of alterations to its design. The baseplate now features a height adjustable heel rest. Also the maximum spacing between the leftmost and rightmost pedal has been increased by 4 cm (1,57 inch).

The range in which the vertical angle of the pedal can be adjusted has been increased as well. By adjusting the pedal body relative to the pedal feet they can be angled from -25 degrees (slanted backwards) to +5 degrees (leaning slightly forwards), making them compatible with most seating positions.

Aesthetics
The main parts of the Sim Pedals Sprint are made of laser cut steel. They have either received a glass bead blasted finish or a fine-structured powder coat.

Details such as rubbers, spacers, end-stops, springs and load cell mounts have been given a neat black finish wherever possible.

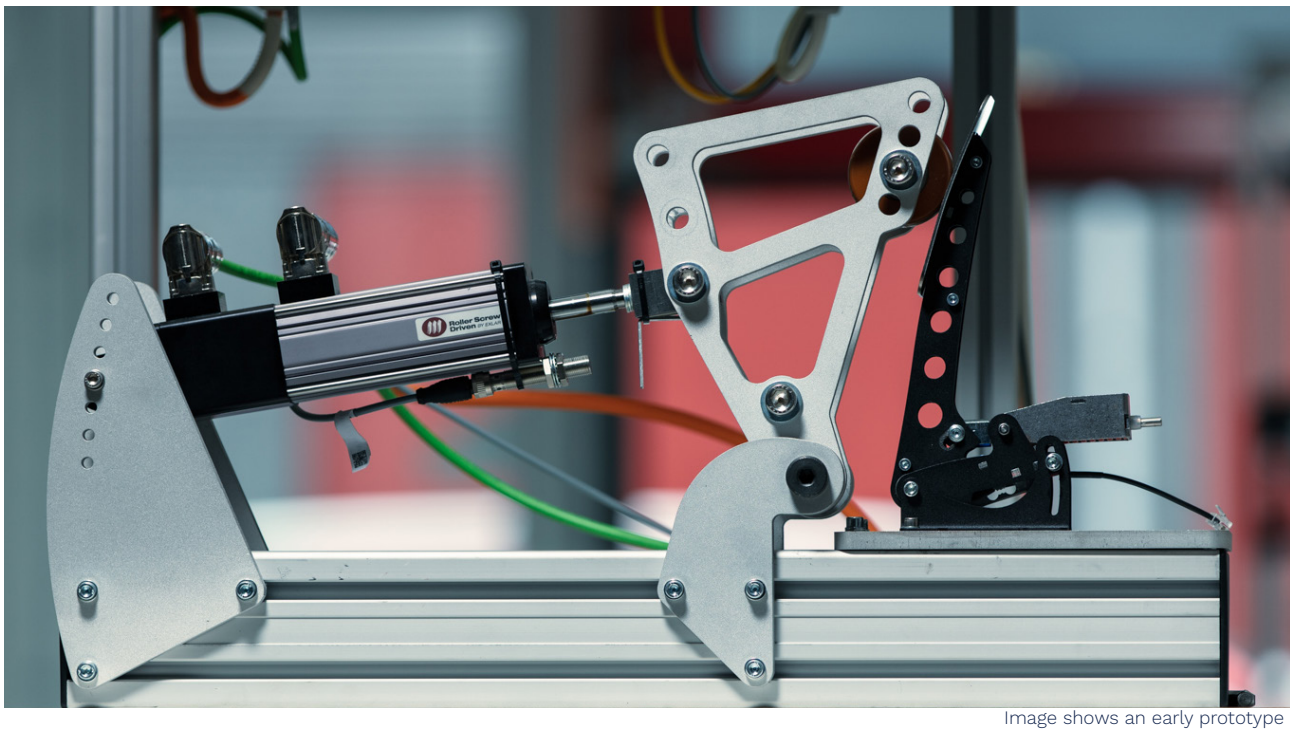


Image shows an early prototype

It's no secret that many simracers spend a lot of hours on the virtual track. Continuous trouble-free operation of your simulator hardware is therefore very important. With the legs being the most powerful part of the human body, a typical simulator pedal set gets a lot of abuse. During the development of the Sim Pedals Sprint we employed various testing methods to help us make the pedals as good and reliable as possible.

Automated endurance testing

When starting the Sim Pedals Sprint project, we wanted to have the tools to test the full life cycle of a pedal within a matter of weeks. For this purpose we developed an automated pedal tester.

This testing machine consists of an electronic actuator and a control unit, and allows us to simulate a human foot pressing a pedal. Settings like actuator speed, max force, actuator stroke and duration of the pedal press can all be set on this machine.

In order to simulate non-perpendicular eg. slightly sideways actuation of a pedal (for example when heel-toe braking techniques are used), the angle of attack between the actuator and the pedal can be also varied.

Some of the prototypes have made up to one million duty cycles during automated testing. This roughly equates to 2.500 F1 Grand Prix distances!

Vibration tests

Motion and force feedback systems may emit a lot of vibration to other assemblies mounted on a simulator. The Sim Pedals Sprint have been tested on a vibration platform to ensure they can withstand these effects.

Functional testing

Heusinkveld headquarters has a dedicated simulator room with two simulators. During the development prototypes have seen continuous testing on these rigs in order to reach the optimal pedal geometry and pedal feel.

These simulators also allow us to check the compatibility with various simulator software and check the functionality and usability of the new Heusinkveld SmartControl software.

Electronics features

An all new electronics concept has been developed for the Sim Pedals Sprint. Our new proprietary controller platform is reliable, future-proof and offers excellent possibilities for advanced configuration of your pedal set using the accompanying SmartControl software.

Integrated electronics

The pedal controller of the Sim Pedals Sprint has been integrated into the base of the brake pedal. Connecting your pedal set has never been more straightforward: Connect the throttle and clutch to the brake pedal. The brake pedal itself is then connected to your pc using a USB-cable.

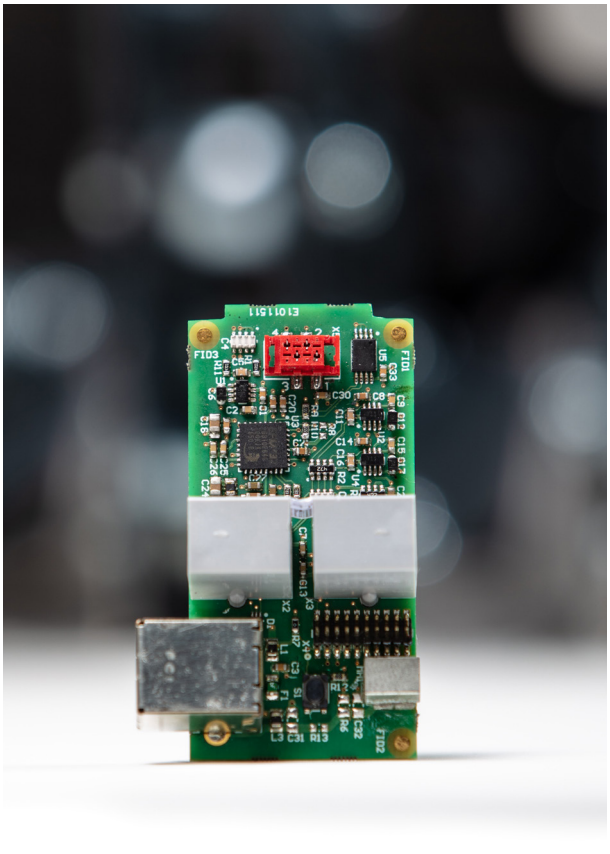
Testing and reliability

Our electronics are produced in a modern ESD safe facility. Every single circuit board is tested on critical control points during production, using an automated testing tool. The circuit board then gets a conformal coating in an automated process, which shields the components from moisture and dust.

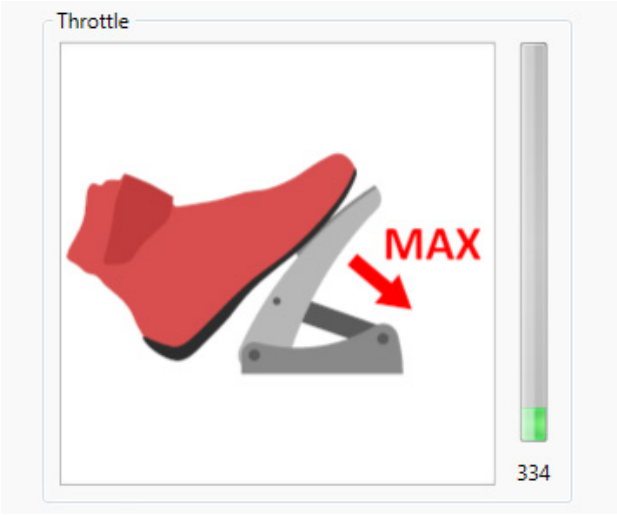
The electronics are tested a second time after the assembly of a complete pedal set has been completed.

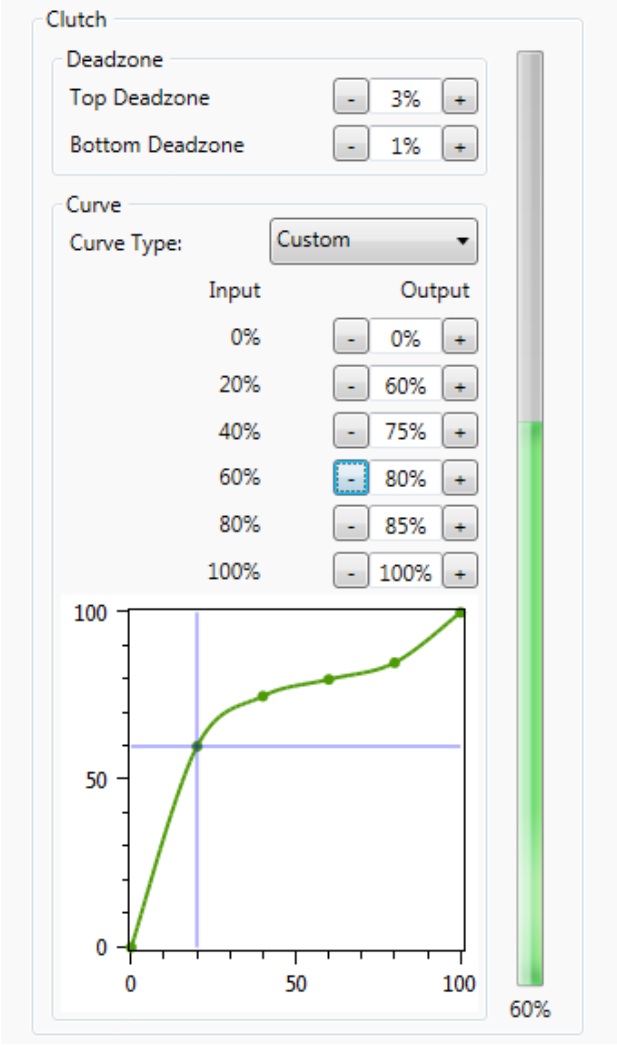
EMC compliant

Simulators are changing rapidly, with powerful motors and actuators for motion and force feedback applications mounted to many rigs. In the market there are examples of interference (EMI) from these devices affecting other simulator components. Our new electronics platform has therefore been developed and tested to be fully compliant with the European Electromagnetic Compatibility Directive.



Introducing SmartControl





The release of the Sim Pedals Sprint also marks the introduction of our new software: Heusinkveld SmartControl. This is an extremely powerful configuration tool allowing you to set up your pedals in ways not possible before.

Easy calibration and adjustment

The software features an easy-to-use calibration wizard. Only a few pedal presses are required to set up the pedals for first use.

The required brake force can be set in kilos. Top and bottom deadzones can be set and checked visually, using the real-time visual representation of the pedal output curves.

All calibration data is stored inside the electronics (hardware calibration). Subsequent adjustment of any pedal setting within SmartControl does not require re-calibration. This includes titles with in-game calibration such as iRacing.

Throttle, brake and clutch mapping

SmartControl allows you to freely set the pedal sensitivity in 6 zones, allowing for example for linear, concave, convex or S-shape output curves.

Do you want a less sensitive throttle pedal in case of rain? Or a clutch which is 60% disengaged at 20% pedal travel? SmartControl makes this possible.

Profiles

The software supports unlimited saving and loading of profiles. Changing your pedal setup to match a specific car only requires a few mouse clicks.