

Features

Fully engineered 3D printed housing for maximum rigidity to handle the power of Direct Drive style wheel bases.

5 buttons with Integrated Paddle Shift units designed with inspiration from an actual 2009 William Formula 1 FW31

Real Structural 3K Carbon Fiber (or) Black G10 plates. *(lc)*

Shielded CAT7 Coiled Cable connection to SimuCUBE sc1, Sim-pli.city SM012 adaptor, or PSUSB_28x.

(replaceable if damaged)

Mounts ONLY to 70mm PCD hubs.

Works with most 50.8mm 3-Bolt and 70mm PCD wheels down to 260mm.

(choose wheel PCD when ordering to avoid issues)

Options

Some blind thread 70mm Hubs (e.g. NRG, Accuforce) may require the PSW_s 8mm Wheel Spacer Plate.

Free & Additional charge Customizations are available though our customization program.

Change in Wheel PCD type after ordering must be done through return service due to the difficulty of conversion.



SimuWHEELF1

(PSWF1 & PSWF1lc)

This wheel box is designed to be an affordable small size unit that can be used to create a formula style wheel using some of the smallest diameter wheels (e.g. 260mm) on the market.

(graphite PSWF1 version shown)

Design and Use:

The SimuWHEELF1 was originally designed for direct connection with the Granite Devices SimuCUBE sc1 direct drive wheel controller. Sim-li.city has extended the functionality of their Direct Drive units with the SM012 adaptor which is compatible with the SimuSERIES units as well. In addition we created the PSUSB_28x USB interface box to allow connection of up to (4) SimuSERIES units to ANY wheel system which allows for custom or standard steering wheels to be attached.

The integrated Paddle Shift units are inspired by the design of the paddles used on the Williams FW31 Formula one car to give both positive actuation and authentic feel to the wheel.

The SimuWHEELF1 must be ordered to the PCD specification of the wheel to be used, either 50.8 or 70mm.

SimuWHEEL_{F1}

Connection and included Parts...

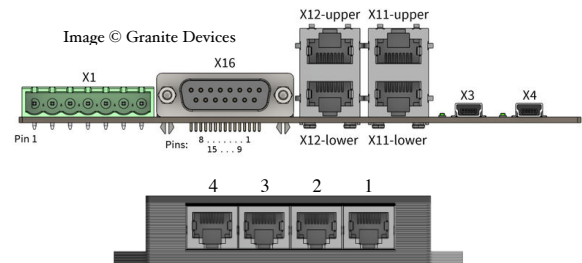


Connecting the SimuWHEEL to the SimuCUBE sc1:

- Plug the RJ45 connector into RJ45 port X12 upper.

Connecting the SimuWHEEL to the PSUSB_28:

- Plug the RJ45 connector into RJ45 Port 1



Notes:

Software - The SimuCUBE sc1 Firmware (v 0.11.0 and beyond) allows for the configuration of the X12 Inputs via the "X12 Input Mode Configuration" on the *Hardware Set-up Tab* to allow the use of a "shift" button. When enabled, pressing this button concurrently with another button it allows for a second independent button to be registered (including aux/shifter and buttons/encoders connected to the second X12 port). On the standard SimuWHEEL layout the Yellow button is used for this feature.

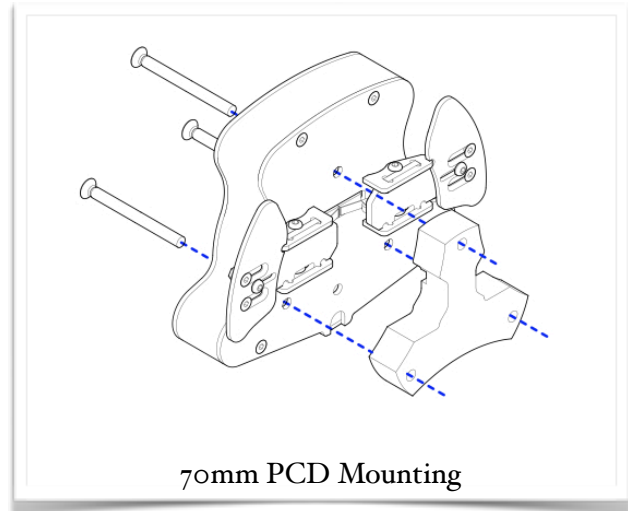
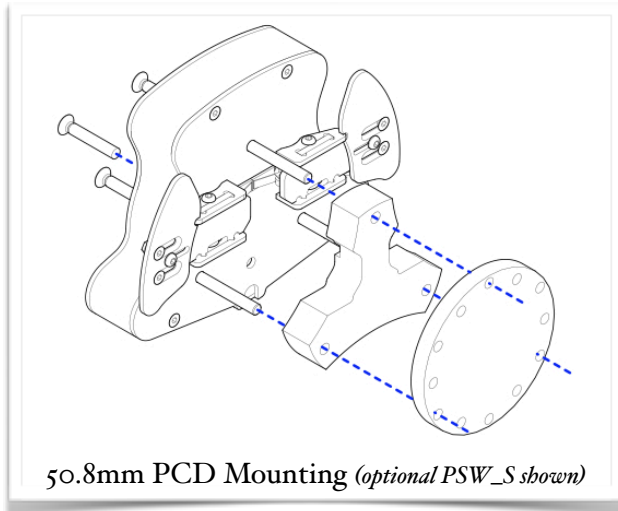
SimuWHEEL_{F1} configurations - When ordered please choose a configuration for the the F1 box to match the PCD mounting style of the steering wheel you are going to use with it. This would either be a 70mm 6 bolt PCD or a 50.8mm 3 bolt Formula PCD. The conversion process between 50.8mm PCD and 70mm PCD wheel configurations is difficult and will be performed by us via a free labor return service if needed. The SimuWHEEL_{F1} wheel box is NOT designed to be mounted to a 50.8mm PCD wheel hub. **Please contact us if there are any issues.**

Replacing Communication Cable:

If you need to replace the communication cable to the SimuWHEEL_{F1} you can do so by removing the the (4) T-8 TORX screws that hold the back plate to the box, Disconnect the cable from the RJ45 Socket, Plug in the replacement Ethernet cable and route it in the same manner as the original reinstalling the strain relief and back plate.

SimuWHEEL_{F1}

Mounting and Paddle Plate Adjustment



Installation:

50.8mm PCD Wheels (see 50.8mm PCD Mounting image) - Mount the SimuWHEELF1 to your 70mm hub using the captured M5 bolts. These bolts use a 4mm hex key through the holes in the front of the plate. Tighten the bolts to your hub in a manner which provides even torque. If you have a blind threaded hub you may need the optional PSW_S (8mm wheel spacer - shown) for the wheel box to fit securely. Once the box is secure use the 3 included M5x30 to attach your 50.8mm PCD Wheel to the box. DO NOT use longer bolts than the ones provided or interference with the paddles may occur.

70mm PCD Wheels (see 70mm PCD Mounting image) - Mount your wheel and the box directly to your hub with the paddle spacer as shown using the three M5 socket head bolts that are provided.

*Conversion between the 50.8 PCD and 70 PCD options is Difficult but not impossible - Please contact us for options if needed...

Adjusting the paddles:

The included paddles are mounted with a fully adjustable triangulated mounting system. You can mount the paddles to the front or the back of the paddle shift levers depending on the distance needed for the paddles. We recommend mounting to the back of the lever so that the edge of the lever does not come in contact with your fingers during actuation. To mount the paddles place all three screws into the paddle with the two countersunk screws in the countersunk slot and the Button head screw in the center location. Loosely tighten the paddle to the lever with the included nuts, the paddle should slide with a little friction. Once you find the position you feel is optimal for the paddle tighten the center button head screw to lock in the location, then tighten each of the flat head screws to further secure the paddle in place. Once secure the paddle should not move or rotate on the mounting. It is recommended to tighten the center button head screw first as tightening the flat head screws prior to the button head can cause tracking which will alter the positioning of the paddle.

Notes:

Paddle Spacing - It is possible to space the paddle further away from the lever if wanted by using longer screws and spacers between the paddle and lever.

PSUSB_28x & PSUSB_28lcx USB Interface Box

Connection and Setup...



To connect the PSUSB_28x use the provided cord to connect to any available USB port on your computer. This controller requires no additional software or drivers as it is a standard Windows HID device. The PSUSB_28x initializes upon being powered up so any setup changes will not take effect until the device is power cycled either by unplugging it or by turning off your computer.

Notes:

First Connection - Factory first connection of the PSUSB_28x is for all ports to be used with button boxes. Port 1 of the PSUSB_28x cannot be altered from the initial button configuration while ports 2-4 can be used with the PSB3e Encoder box. The Device will show up as Penguin r/c PSUSB_28x in the Windows devices and peripherals.

Opening your PSUSB_28x:

In order to change device set-up for use with the PSB3e or PSB3elc encoder boxes you will need to open the PSUSB_28x to change the programming and ports used for encoders.

- 1) First make sure the PSUSB_28x is disconnected from your computer.
- 2) Open the PSUSB_28x by removing the (3) T-8 TORX screws that hold the top plate to the box using either a T-8 driver or if in a pinch a 2mm Hex Key can work.
- 3) When finished setting up the PSUSB_28x replace the top plate to protect the electronics.

Setting up your PSUSB_28x for encoder and extended use:

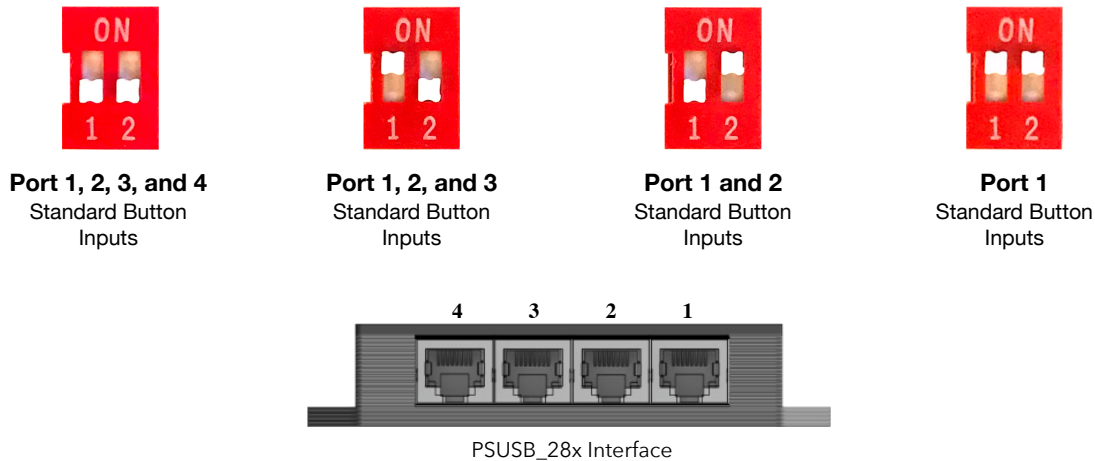
In order to use the PSB3e Encoder box correctly with the PSUSB_28x you will need to set the programming for encoders use. In the process you will also set how many and which Ports are converted for encoder use. It is NOT recommended to use the encoder programming with button boxes as some paired inputs could be ignored causing missed button presses. You may also set your PSUSB_28x for extended button usage which increases the controller button count from 28 to 55.

PSUSB_28x & PSUSB_28lcx USB Interface Box

Connection and Setup continued...

Setting Encoder Programming and Ports:

Inside the PSUSB28x there is a Red DIP switch which controls what programming is set to which ports. By selecting different combinations on the switches you can control how many of the ports provide decoding for the encoder input from the PSB3e. Below is the table showing which ports are converted with each setting.



PSUSB_28x Extended Mode:

Inside the PSUSB_28x there is a switch located in on the right side near the USB Port. This switch enables Extended mode (disabled standard). When enabled the button on Pin 7 of Port 1 becomes a “shift” button and when held down with any other button from any Port, the PSUSB_28x will send a second independent game control signal effectively doubling the button and encoder inputs for devices attached. Pin 7 is normally the “yellow” button on SimuSERIES devices.

Mounting your PSUSB_28x:

The PSUSB_28 can be mounted in many different ways from using double sided tape or by hard mounting using the integrated 5mm mounting tabs. The dimensions for these mounts are provided on the Mounting Schematics Page.

Notes:

Connection Length - The PSUSB_28x control box inputs are completely diode isolated with pull-up resistance to provide error free button actuation over longer connection lengths. The unit has been fully tested with ethernet cables up to 3 meters and semi-tested with ethernet cables of 10 meters without issue. Environmental conditions could cause shorter or longer wire lengths to be used effectively.

DIY Supported Capability - The PSUSB_28x control box inputs allow for DIY connections through the RJ45 plugs if you are inclined to do so. Pins 1-7 on each RJ45 port correspond to an independent button which can be triggered with any momentary release button you choose. Pin 8 is a common ground. Diode isolation ensures no additional hardware is required.

Encoder programming for 1:1 (full greyscale cycle, 4 pulse per detent) encoders is enabled through the dip switch. When the encoder programming is enabled Pin 1 is a standard button input while Pins 1+2, 3+4, and 5+6 are linked for encoder decoding. Pin 8 remains a common ground when encoder programming is enabled.



About, Contacts, and Custom Projects

Contact Information

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Catalog Notes

Pricing - There are no prices in this catalog. Current pricing can be found on our website along with further information.

Ordering - Throughout this catalog there are "Visit our website..." links that will open up the ordering page for the items in this catalog.

Questions - Feel free to email us at any time.

Warranty - Lifetime, 90 day full coverage. See website for details.

About us...

Penguin r/c was opened in April of 1997 with the intent of creating the best products that could be made for reasonable prices. Originally we started business focusing on aftermarket parts and chassis upgrades for high performance remote control vehicles, pinpointing the areas where existing cars could be made to perform beyond their original design. Penguin r/c made a name for itself by achieving this goal through products where the additional performance gained far outweighed the cost of the parts. Having racked up a couple of championships and a good name in the market place we slowly transitioned into becoming a more involved OEM supplier for other manufactures in the r/c industry and other industries. We still sell and support our r/c products to this day and will continue to do so with every product we produce including our new Simulation Products. In 2010 we started manufacturing parts for a high-end simulation company and found a renewed love for racing in the virtual world. In 2018 we decided that we could bring our expertise in manufacturing and design to the Simulation market and started our newest products. We hope to bring the same values and customer support to the simulation marketplace as we have for years as an OEM manufacturer and part supplier to the r/c industry.

Custom Designs...

Penguin r/c is capable of Custom Manufacturing and Design of prototype and production parts for individuals and companies. Most of our manufacturing is done in-house which allows us significant control over the quality and assembly of parts we manufacture and allows us to make prototypes that have the quality and durability of production pieces. If you have anything that you would like to produce please feel free to contact us about the possible product.