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TECHNOLOGIES

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RAPTOR

**RAPTOR
PRO**

INSTALLATION
& USER GUIDE

The RAPTOR - Overview

In the box you will find three parts to the system...

- The Button Plate Transmitter Assembly.
- The 12 volt Receiver Module.
- Wiring loom.



You will have noticed that the entire button plate is made from a 3.2mm FR4 (RoHS Compliant) custom circuit board. This not only gives you an extremely tough and hard wearing button plate, it integrates the wiring right into the design. FR4 is a composite material comprised of woven fiberglass cloth with an epoxy resin binder that is flame resistant (self extinguishing). It also has impressive water resistant characteristics so it's ideal for open cockpit cars.

The push buttons have been soldered to the board and bonded in, complete with protecting caps. There are no user serviceable parts on the button plate, apart from battery replacement. The buttons have been specifically selected to provide the right level of tactile responsiveness (Positive Press) as well as being IP65 Rated for water ingress. Again, a great choice when using this system in an open cockpit race car.

The transmitter electronics are protected by a conformal coating and located under the Raptor Transmitter Cap. This protects the components should your steering wheel or controls be exposed to a typical British summer !

The transmission system uses similar technology to that of a remote door locking for a regular passenger car. It uses the same frequency band of license free radio waves to communicate on and each transmitter is paired exclusively with one receiver during the manufacturing process. This ensures that no two systems are the same and you won't be flashing your competitors lights when you press your own button.

The typical range of transmission is in excess of 100ft LoS, so the receiver module can happily be fitted anywhere inside the vehicle. Ideally, up under the dashboard on the occupant side of the firewall.

The Receiver Module has an 18 Pin Connection Block which ensure a cleaner, safer connection to your vehicles electrics. We have provided 40cm of wiring loom for you to connect into your vehicle system, along with 30cm of Braid to protect the wires.



It is important that you DO NOT use this system to switch any load greater than 8 amps. Doing so will damage the receiver module and can be dangerous. If you need to switch a higher current than 8 amps then you would need to use this system to trigger an additional external relay.

Transmitter Battery Replacement

The Raptor Transmitter contains an integrated Battery Status LED which lights up each time a button is pressed. If the LED is GREEN, the battery is good. If the LED flashes RED, then the battery is starting to go flat needs replacing. Replacing the battery for the transmitter is designed to be easy and can be performed in just a few seconds. Just hold the transmitter cap and turn it anti-clockwise, this will expose the battery compartment.



BE CAREFUL NOT TO DAMAGE ANY OF THE COMPONENTS EXPOSED.

Replace the battery with one of the same type (3 volt CR2032) paying particular attention to insert the new battery with the correct way round. Once the battery is replaced, align the transmitter cap with the button plate and tighten the unit again. The battery should last a good while, but as with any battery left in the cold for a long time, it will eventually drain and need replacing. It is suggested to have a spare one available in your tool bag just to be on the safe side. They are not an expensive item and are available online or in your local stores.

Fitting Information

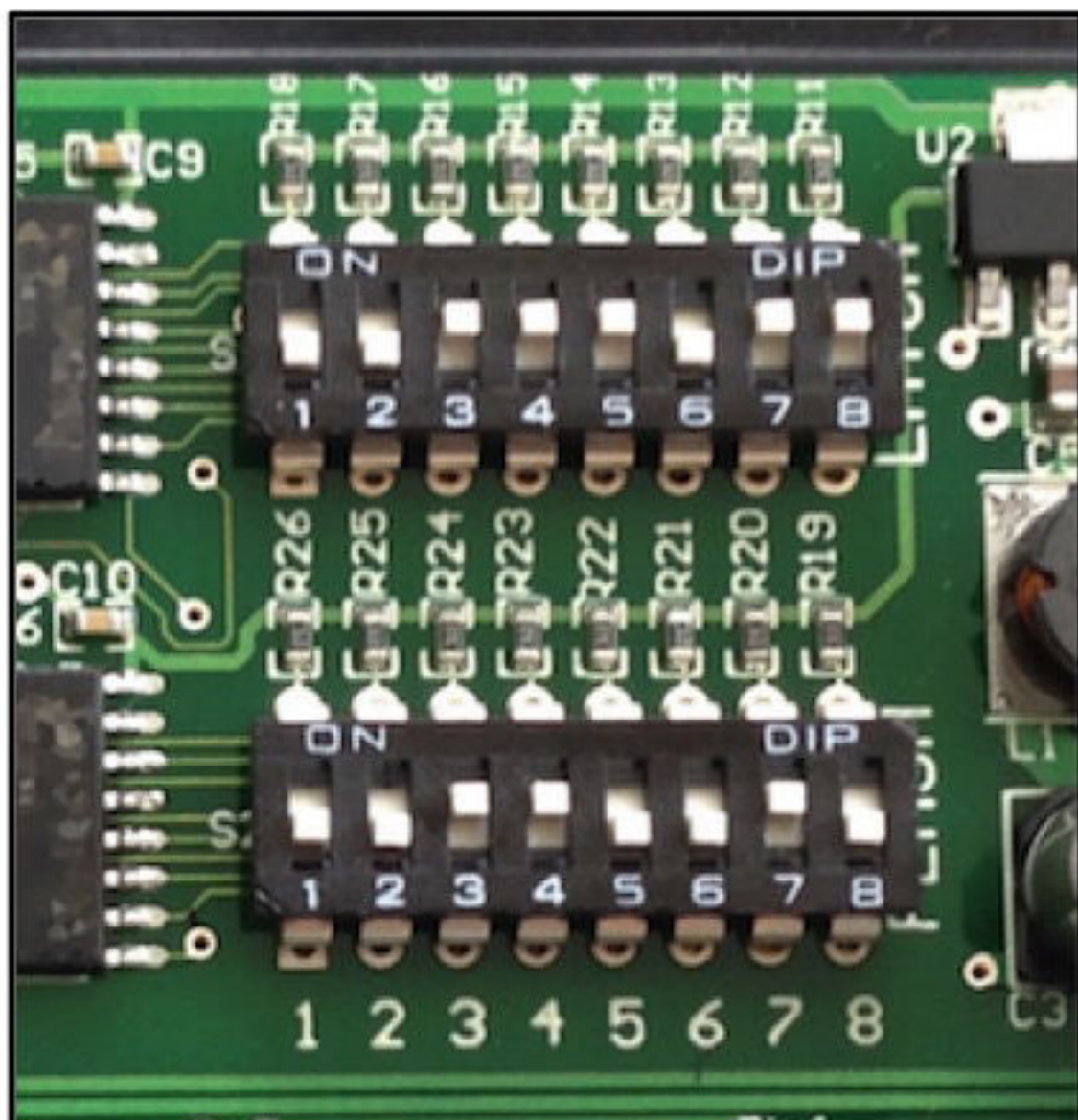
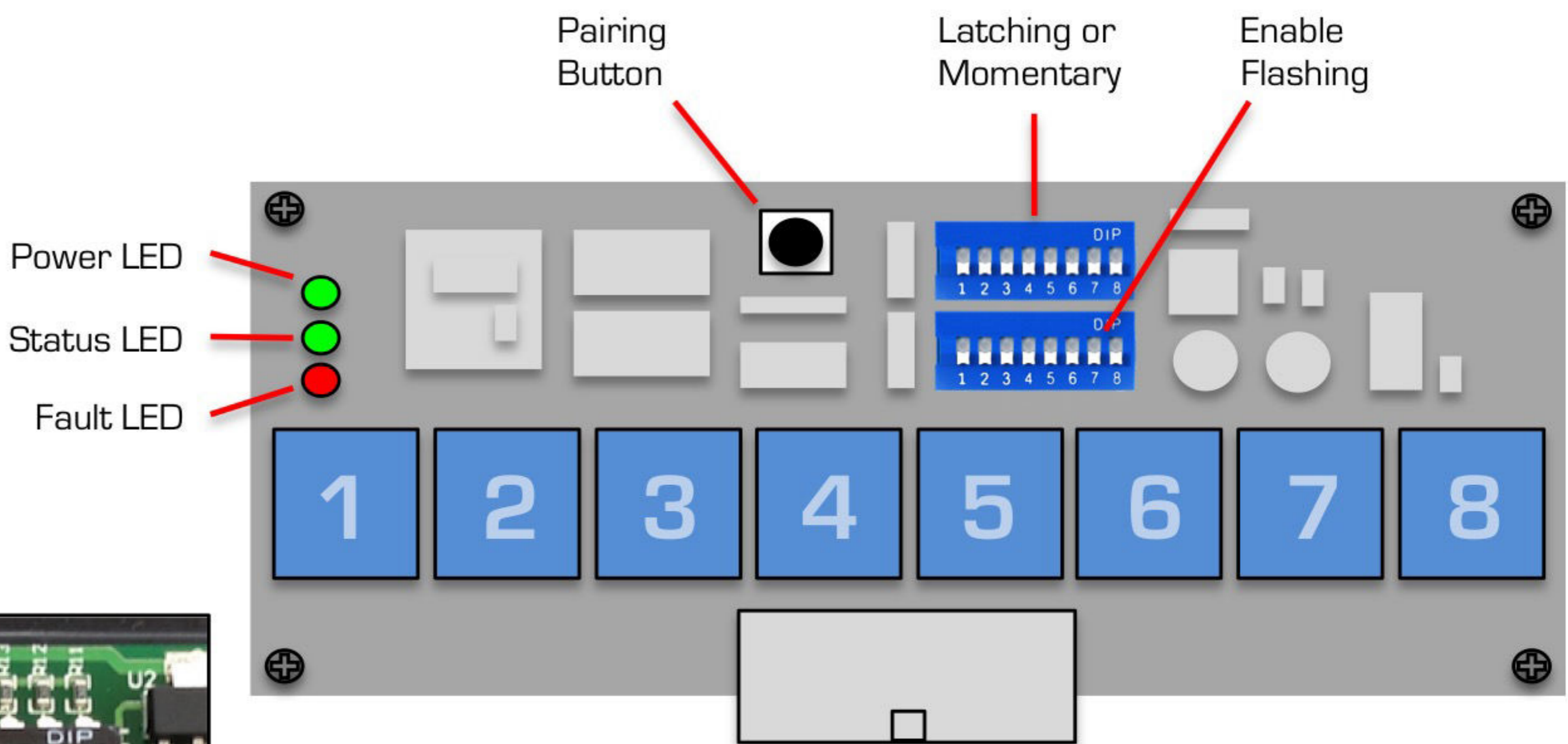
The Raptor Receiver Module is programmable by the fitter for enabling the various relay states. The relay states are Momentary, Latching with a Flashing option on both conditions.

Please refer to the circuit diagram below when changing the settings. Changes can be made on the fly, and it is not necessary to power cycle the system to effect the changes.

For **ROAD Versions**, the Relay Flash Cycle Rate has been set to 250ms (or 2 Flashes per second). This complies with the legal UK direction indicator flash speed requirements.

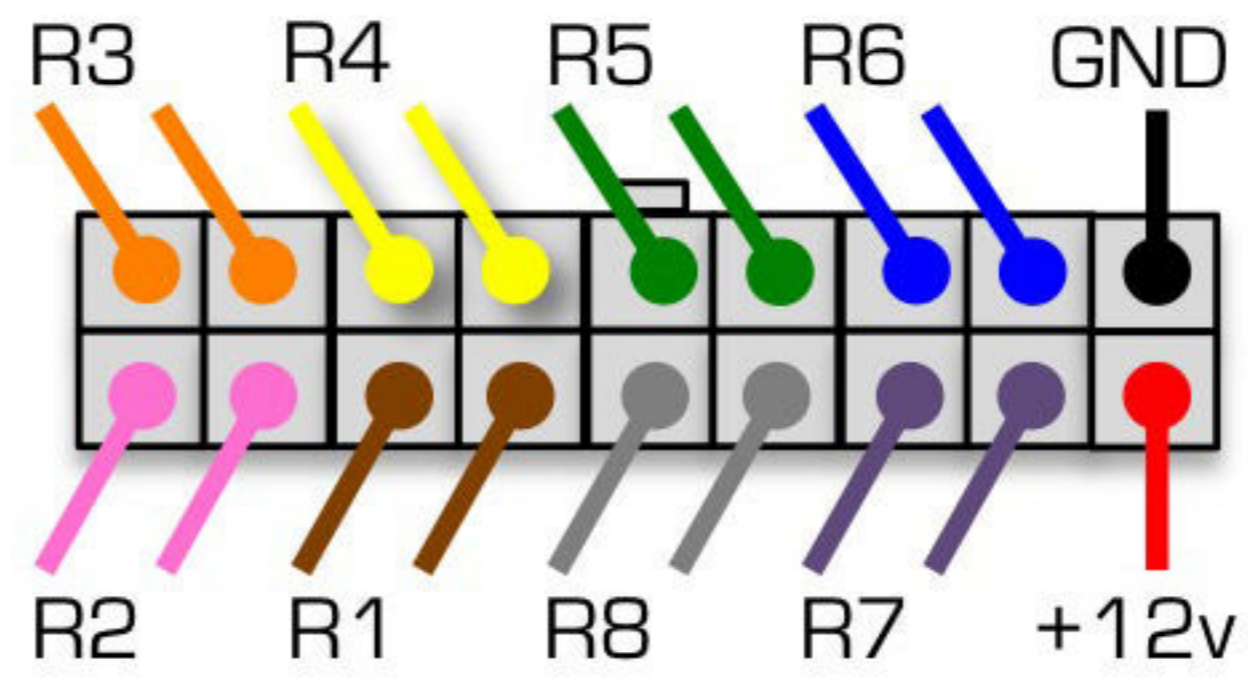
For **RACE Versions**, the Relay Flash Cycle Rate has been doubled to 125ms (or 4 Flashes per second). This provides a good rate of flash for using as a 'Flash to Pass' when wired to your Race Car headlights.

Changes are made to each relay mode with the use of the DIP switches on the Raptor Receiver Board.



Use the tip of a ball point pen or a small flat head screwdriver to gently flick the DIP Switches into their selected positions

- Relay 1 — Brown
- Relay 2 — Pink
- Relay 3 — Orange
- Relay 4 — Yellow
- Relay 5 — Green
- Relay 6 — Blue
- Relay 7 — Violet
- Relay 8 — Grey
- GND — Black
- +12v — Red



Terminal Block wiring loom connections and colors

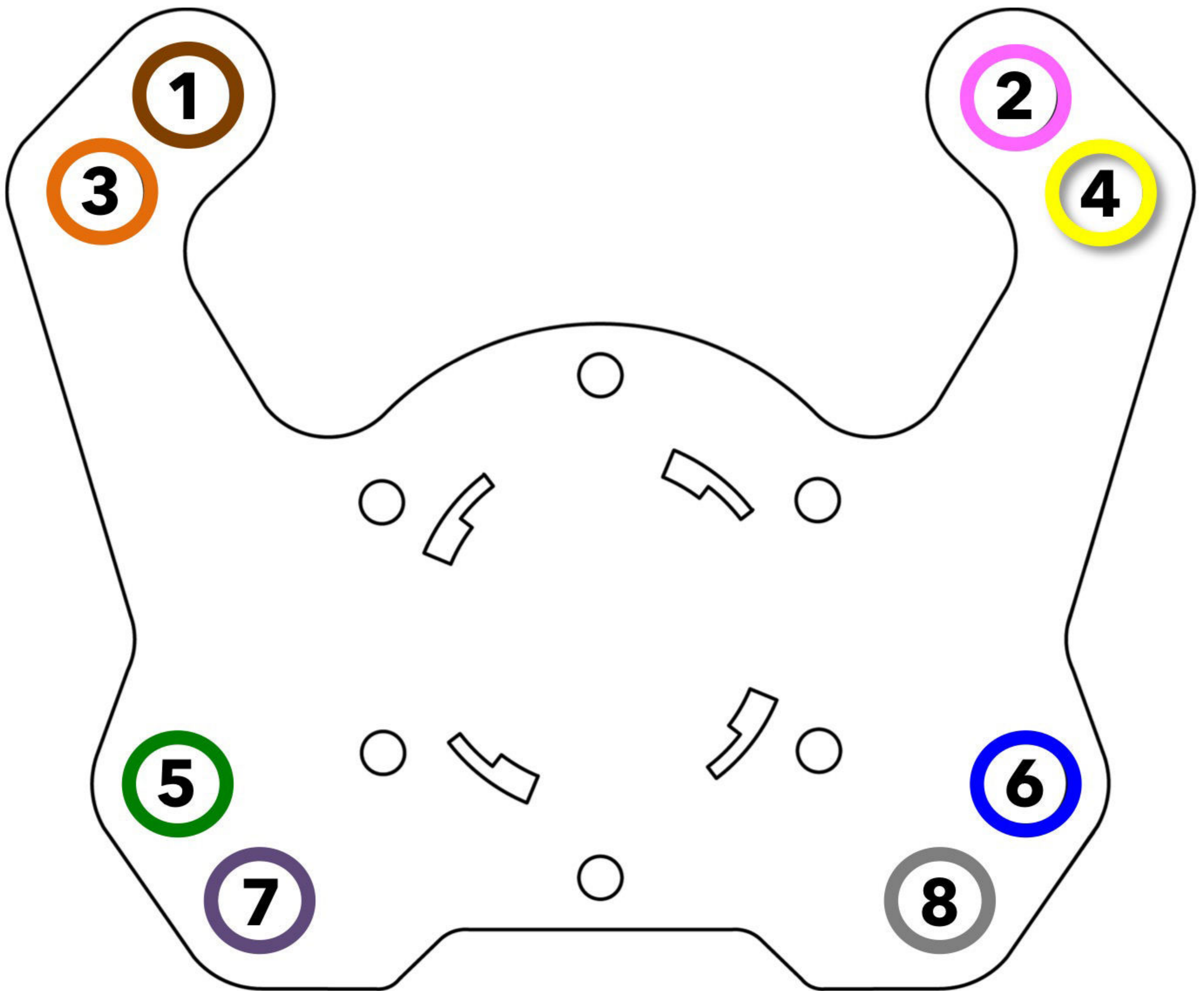


Diagram showing which Raptor Buttons operate which Relays

RAPTOR Pairing

Your Raptor has already been paired and thoroughly tested by Summit Technologies.

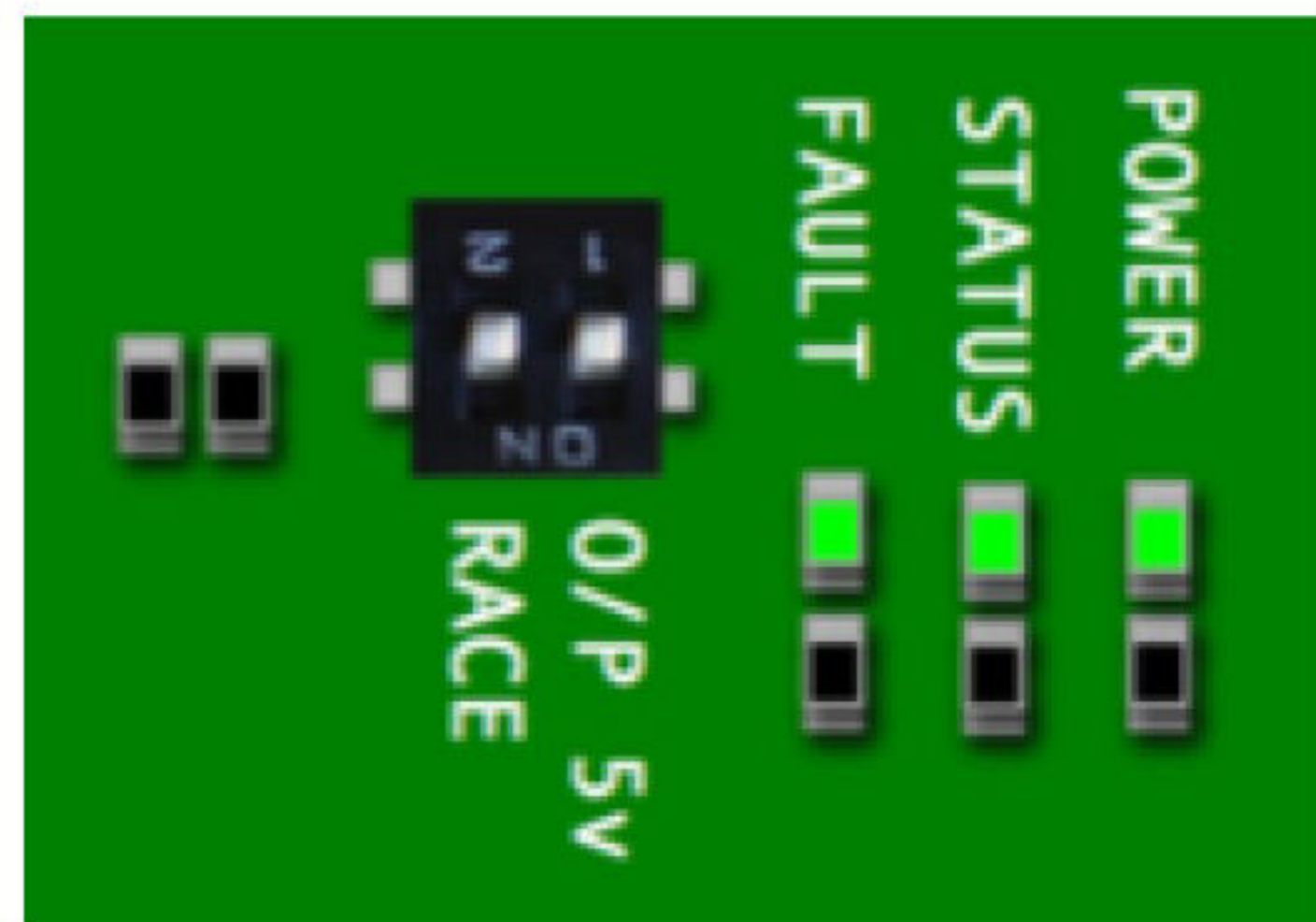
However, should your transmitter need pairing with your receiver again, this can be accomplished with the use of the Pairing Buttons on both the transmitter and receiver.

To RE-PAIR your transmitter

Hold the Pairing button down on the Receiver Module, then press Pairing Button on your transmitter. Once the 2 have paired, the Receiver LED will flash to confirm the pairing. The system will not lose it's pairing should any power be lost, as it is programmed on the boards EPROM.

ROAD Vs. RACE Versions

The ROAD version of the Raptor has predefined buttons with printed symbols to comply with sections (12 and 33) of the current 2014 IVA M1 Inspection Manual, which is perfect for Kit Car Manufacturers and Road Going Vehicles.



The ROAD Version also has custom code with some clever cancellation logic. This is designed in such a way, that you cannot activate all of the signal indicators at the same time. The system actually checks to see if any of the signal indicators are active BEFORE allowing another selection.

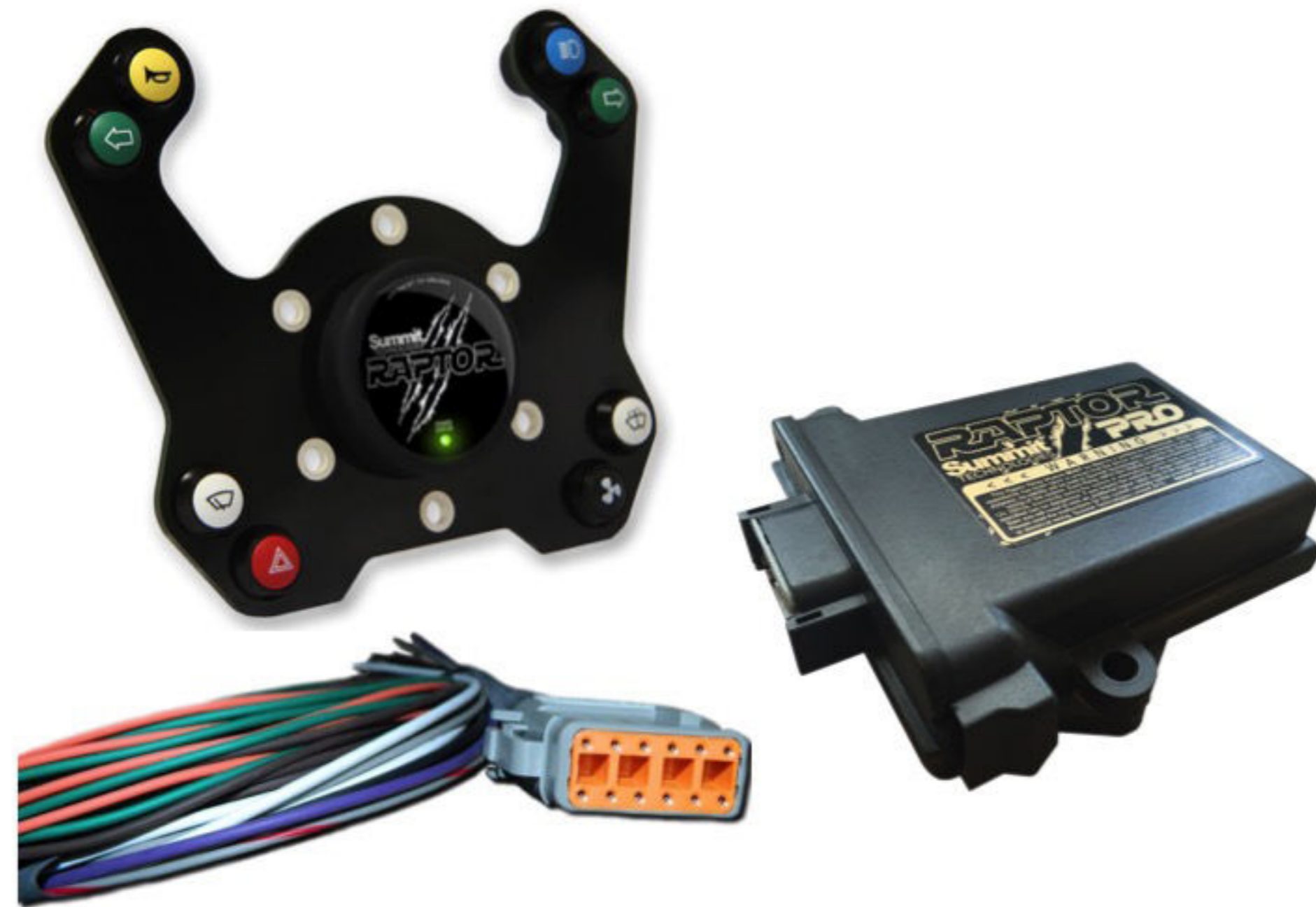
The RACE version of our Raptor allows full control over ALL buttons and Relays. The buttons are kept blank for you to decide how to use them without any restriction.

The RAPTOR PRO contains 2 versions of Firmware which are switchable from the RACE DIP Switch on the receiver board (seen above).

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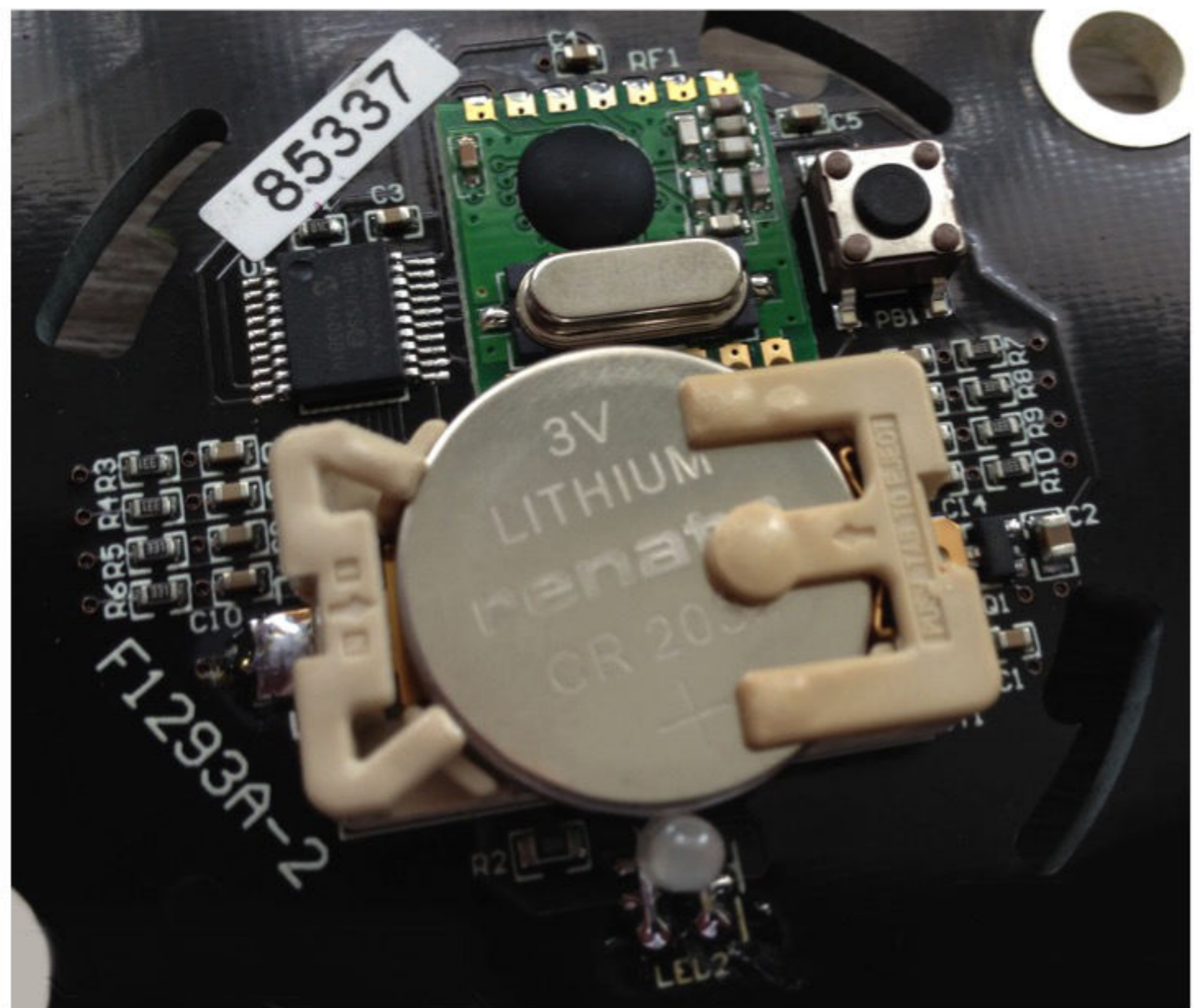
The Receiver Module has a Deutsch 12 Pin Connection Block which ensure a cleaner, safer connection to your vehicles electrics. We have provided a wiring loom for you to connect into your vehicle System.



It is important that you DO NOT use this system to switch any load greater than 250 milliamps. Doing so will damage the receiver module and can be dangerous. If you need to switch a higher current than 250ma, then you would need to use this system to trigger an additional external high power relay.

Transmitter Battery Replacement

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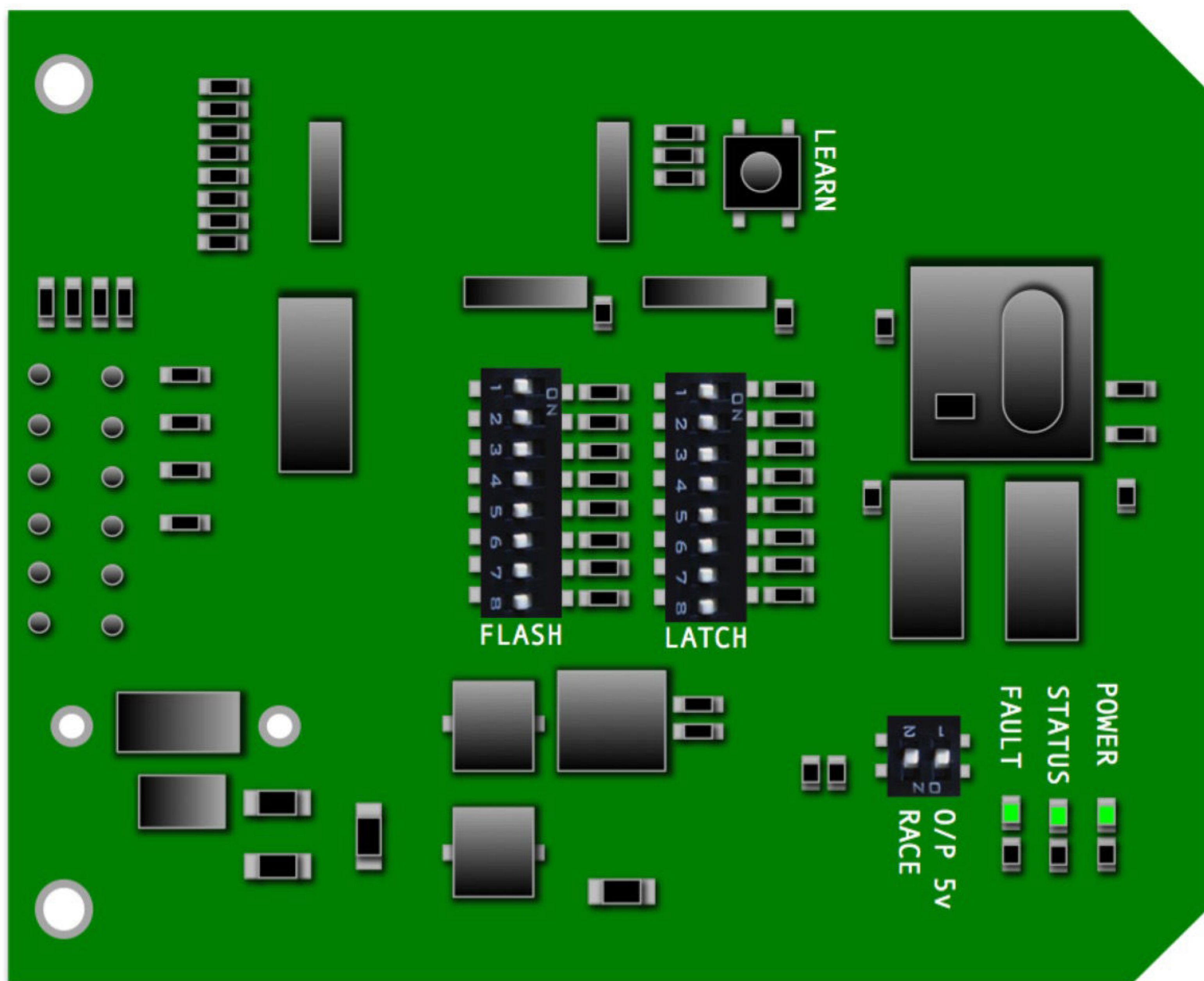
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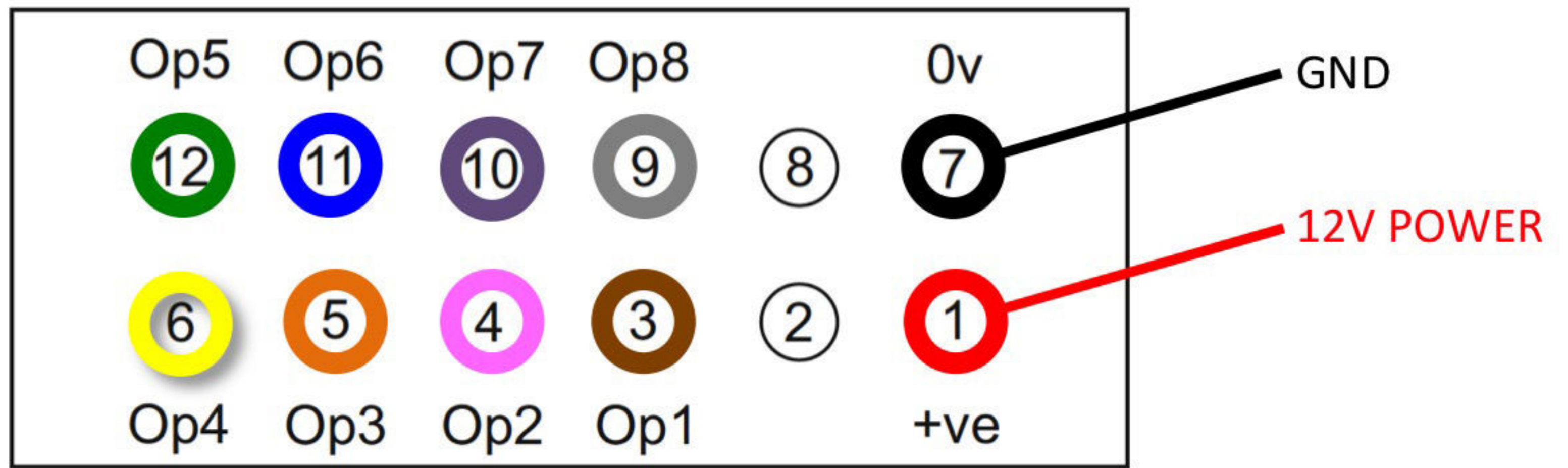
Please refer to the diagram below when changing the settings. Changes can be made on the fly, and it is not necessary to power cycle the system to effect the changes.

Each channel provides a 12v 250ma output or a 5v Logic level output (Switchable via O/P 5v switch). This is a global setting.

Changes are made to each relay mode with the use of the DIP switches on the Raptor Receiver Board.



Use the tip of a ball point pen or a small flat head screwdriver to gently flick the DIP Switches into their selected positions.



Terminal Block wiring loom connections

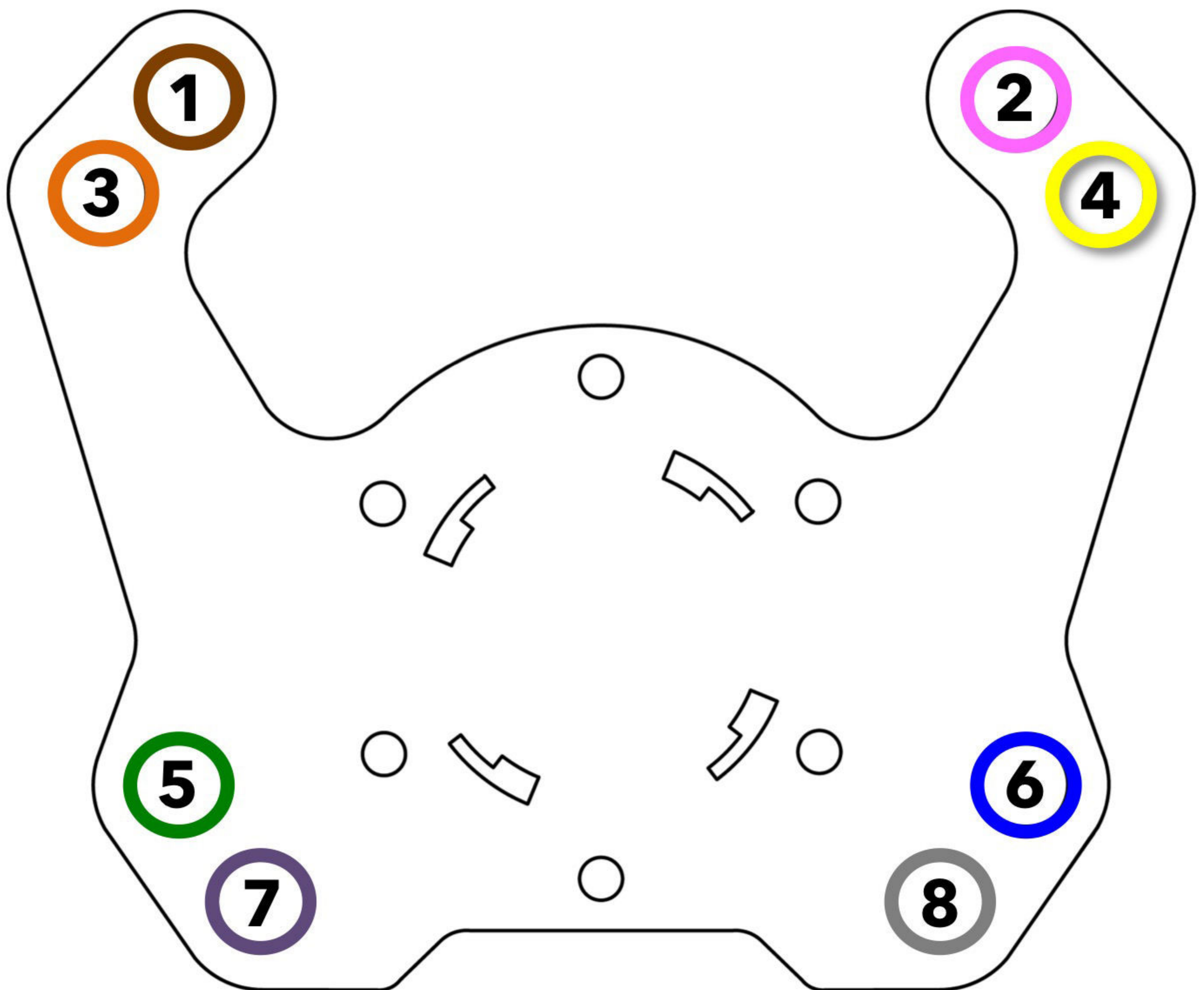


Diagram showing which Raptor Buttons operate which Relays

Hard wiring the transmitter for 12v

If your Raptor transmitter board has been upgraded to include the option of hard wiring a 12v power supply, please follow these instructions carefully.

On the rear of the transmitter board (Button Plate), you will find 2 empty solder terminals.

With the rear of the board facing you, the +VE connection is to the left and slightly recessed. The GND connection is to the right (As shown in this photo).

These solder points will accept a 12v Switched or permanent live connection from the vehicle.

When using this feature, **DO NOT use the battery at the same time**. This will damage the battery / circuit board. This is an 'Either / Or' option only.

The advantage of hard wiring the power to the transmitter board is that you will never require a battery for the system to operate correctly.



It is possible to use a removable steering wheel boss that includes a 2 pin 'Horn' connection for this purpose. This will give you a dedicated power supply to your Raptor transmitter, and retain the removable functionality of your steering wheel.

An example of a removable steering wheel boss that supports the 2 pin wiring Connection.





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