



DiffDriver Clubsport - Installation and Use

Simple pinout and bolt spacing are laser engraved on the unit for quick reference during initial installation. Only 5-7 wires required.



Detailed pinout and wiring instructions:

Pin 1 "Signal": Wired to the PWM ground output signal from your standalone ECU or chosen control device.

- Suggested wire gauge: 20, external pull up NOT required, internal 5V pull-up already present.

Pin 2 "Override": This optional input causes 100% duty lockup when grounded. It is generally wired via a toggle switch to chassis ground, but this function can be enabled by any means of applying ground to this pin. If not used, seal the pin location with a sealing plug.

- Suggested wire gauge: 20, external pull up NOT required, internal 5V pull-up already present.

Pin 3 "Ground": Connect this to a good chassis ground point.

- Use high quality 16 gauge wire. Keep length under 5 feet.

Pin 4 "12V": Connect to a switched 12V source capable of delivering 10 amps continuous to this circuit.

- Use high quality 16 gauge wire. Keep length under 5 feet.

Pins 5 and 6 "Coil +" and "Coil -": Wire these to the two factory differential coil wires on the chassis side of the transmission harness connector.

- Use high quality 16 gauge wire, keep length under 5 feet.
- Polarity does not matter.
- We suggest wiring both coil wires to the chassis side of the transmission harness containing the differential coil wiring to retain ease of transmission servicing (not having to cut wires if you ever remove the transmission).

Pin 7 "Disable": This optional input gets wired to the e-brake switch if you'll be using the e-brake while driving. Confirm the other side of the e-brake switch connects to chassis ground and ensure ground is only sent to the Disable pin while the e-brake is active. Subarus meet these requirements in stock form.

- Suggested gauge: 20, external pull up NOT required, internal 12V pull-up already present.
- Alternate option: If no e-brake is fitted, or if you want to activate this feature with a switch or button in addition to e-brake actuation, the choice is yours as long as you send ground to the DiffDriver input pin when you want to disable electronic lockup.
- If not used, seal the pin location with a sealing plug.

Pin 8 "No Connect": Unused. Seal the pin location with a sealing plug.

Notes:

Inputs are protected against general mis-wiring, but are not intended to be left in that state for extended periods of time.

The signal, override and disable inputs are enabled by sending ground. They are “active low” inputs, and all have internal pull-ups, so wiring is as simple as it looks.

The wire gauges suggested are based on the amp requirements, and the fitment range of the terminals used, which is 16-20 AWG. We specify keeping some wires under 5 feet due to safe wiring practices with 16 AWG and 10 amp continuous current at 12V, accounting for transmission harness length.

When choosing ground points, find clean bare metal, nothing painted or corroded, and secure them well to ensure good contact. While the product might still work with sub-optimal ground inputs, we suggest using points with less than 5 ohms of resistance to the negative battery terminal.

The blue LEDs on the module provide an easy way to check the module's status. With the unit mounted so the text is right side up, the bottom LED lights up green when the power system is ready. The top LED lights up amber based on differential control output (OFF = OFF, 100% brightness = 100% duty cycle, and brightness in between varies as your duty cycle does).

The LEDs are bright since install of the unit under the dash is common, and that way you can perform a quick visual check for power without getting your face all the way up to install location. Due to the brightness, I don't suggest holding the unit up to your eyes the first time you plug it in, or installing with LEDs pointing directly at vehicle occupants.

While the circuitry is weather sealed, the fuse was left easy to service. If you have concern about moisture or dust getting in the fuse receptacle, feel free to dab a hint of dielectric grease on the exposed portion while the fuse is inserted.

A quality 15 amp fuse has been provided, which will tolerate 12 amps at 60 degrees C. Please be aware a cheaper "15 amp" fuse may not perform similarly.

Mounting:

To allow for greater installation flexibility, the device has 2 mounting points and is quite small. We suggest securely mounting DiffDriver Clubsport in the cabin with 4mm hardware (supplied). Please locate the unit safely, and away from high heat sources i.e. cooling or exhaust components. Suggested mounting is within 5 feet of the transmission harness connector for the differential coil, to ensure high amperage wire lengths are not excessive.

Mating connector and pins:

- 1 AT06-08SA male connector (or you can substitute DT06-08SA, or if you want a boot lip DT06-08SA-E008)
- 1 AW8S Wedglock (or substitute W8S if using DT series)
- 7 AT62-201-16141 Terminals (can accept 16-20 AWG wire), or substitute 0462-201-16141 if using DT series

- 1-3 A114017 sealing plugs (or substitute 114017 if using DT Series connector)

Suggested use and ECU setup:

- Subaru suggested base frequency 100Hz.
- While DiffDriver has been tested to sustain full lock operation for hours, we don't suggest leaving your Differential 100% locked for long periods of time because the differential coil itself, or the factory wiring, may overheat.
- The goal is to apply a duty cycle level appropriate as vehicle conditions vary, starting with 0% duty at key on and idle where lockup is not needed.
- Depending on road surfaces, tires, competition format, and driver preference, your control duty cycle should reflect ECU monitored vehicle speed, engine output, as well as cornering and braking if applicable.
- Tuning the signal sent to the DiffDriver Clubsport unit is up to user discretion. DiffDriver Clubsport units purchased from Innovative Tuning come with a 1 time diff tuning consult of up to 10 minutes, with additional paid consulting available if desired.

