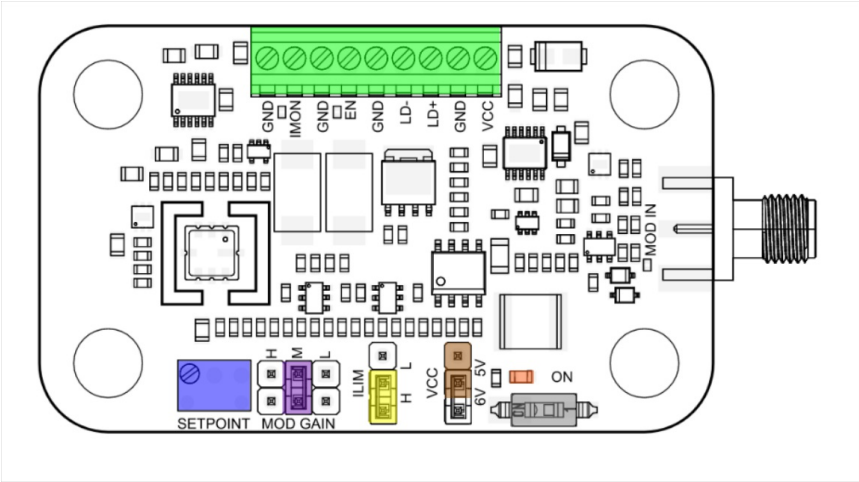
# DRV200 User Guide

## Quickstart




1. Set MODGAIN jumper (purple) on M, ILIM jumper (yellow) on H, VCC jumper (brown) on 5 V, Switch to OFF.
2. Connect the pins VCC and GND to a 5 V power supply.
3. Connect a 1 Ω resistor between the LD+ and LD- pins of the terminal block.
4. Set Switch to ON.
5. The current flowing across the resistor is measured at the IMON pin of the terminal block (100 mV = 1 mA for DRV200-A-40, 2 V = 100 mA for DRV200-A-200, 1 V = 100 mA for DRV200-A-400). Turn the potentiometer clockwise until you reach the desired current. The ON LED lights up.
6. Turn off the power supply and connect your laser between LD+ and LD- pins.

   The DRV200 is designed for operation with floating laser diodes, i.e. that neither the anode nor the cathode is connected to the case. If your laser anode or cathode is internally connected to the case (grounded anode or grounded cathode), make sure that the laser case is isolated from the ground.
7. Turn on the power supply.

## Terminal block connections

- **IMON**: Laser current monitoring pin. The voltage at this pin is proportional to the laser current. Gain is 100

mV/mA for the DRV200-A-40, 20 mV/mA for the DRV200-A-200 and 10 mV/mA for the DRV200-A-400.

- **EN**: Laser Enable pin. Apply a voltage between 2.2 V and 4.5 V to enable the laser current. Using the EN pin overrides the switch.
- **LD+**: Laser anode pin. Connect this pin to the laser anode.
- **LD-**: Laser cathode pin. Connect this pin to the laser cathode.
- **VCC**: Connect this pin to a 5 V or 6 V power supply. Using a 6V supply provides 1 V of extra compliance voltage. The VCC jumper must be set according to the chosen power supply.

## Current modulation

The DRV200 can be modulated from DC to 6 MHz using the SMA connector. The MOD GAIN jumper is used to select between 3 modulation gains:

**DRV200-A-40**

- Low: 200 µA/V
- Medium: 2 mA/V
- High: 20 mA/V

**DRV200-A-200**

- Low : 1 mA/V
- Medium: 10 mA/V
- High: 100 mA/V

**DRV200-A-400**

- Low : 2 mA/V
- Medium: 20 mA/V
- High: 200 mA/V

Modulation range is ±1 V and input impedance is 50 Ω.

## Current limit selection

The ILIM jumper can be used to switch between two current limit values:

**DRV200-A-40**

- Low: 32 mA
- High: 48 mA

**DRV200-A-200**

- Low: 160 mA
- High: 240 mA

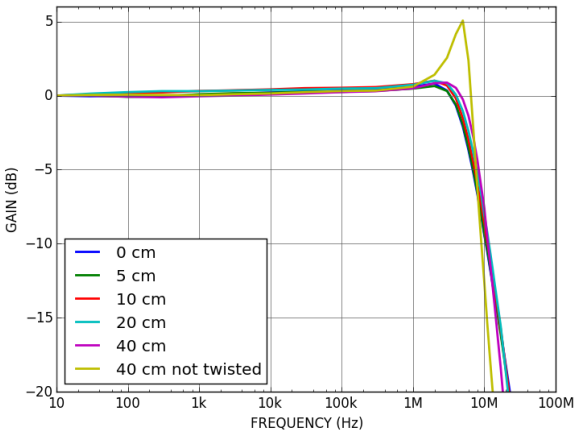
**DRV200-A-400**

- Low: 320 mA
- High: 480 mA

# Influence of cable length

The DRV200 offers high modulation bandwidth and some care must be taken when connecting the laser diode to the driver for optimal performance. As a guideline, we measured the modulation response for various length of cable between the driver and a DFB laser in TO can.

The response is measured using a DRV200-A-200 with a modulation gain set to M and a modulation signal of 500 $mV_{pp}$. The cable is a pair of 22 AWG wires (0.644 mm diameter). The cable length is the length of a single wire. The wire is always twisted except for the yellow curve.




We see that for twisted wires the peaking in the response increases slightly with the cable length, but it stays bellow 1 dB up to a length of 40 cm. However when the cable is not twisted peaking increases to more than 5 dB.

For optimal modulation performance use a twisted pair of wires with length as short as possible. The exact modulation response depends also on the laser diode that is used.