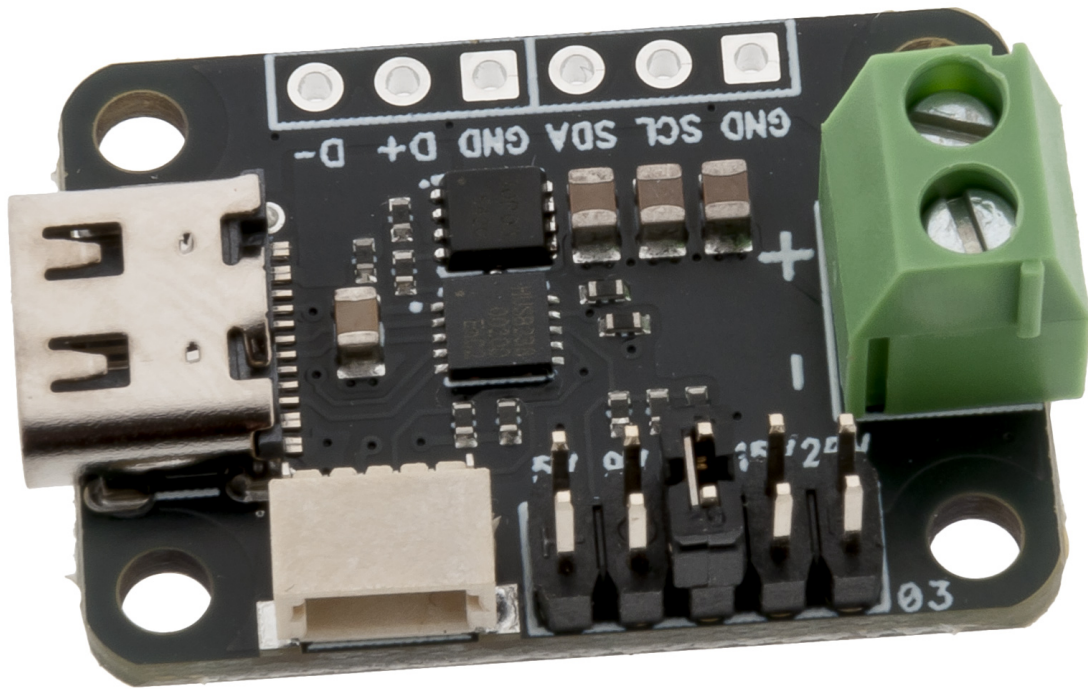# EKM024 USB-C PD-Trigger 5-20V

This module, when connected to a PD (Power Delivery) enabled USB power supply, will negotiate with the power supply to output a selectable voltage from 5V up to 20V. To configure the output voltage, simply place the jumper on the corresponding pins. Since the PD controller is configurable via I2C, these pins are also exposed for advanced users.

The I2C pins are available both as a standard 2.54mm header and as a QWIIC connector for solderless connectivity.

Please note that a PD compatible USB power supply that can provide the requested voltage must be used. This board will not generate voltages on its own and will revert to a safe 5V 500mA if PD negotiation fails.

Included parts:

- 1x 2-pin 3.5mm pitch screw terminals
- 1x 2×5-pin 2mm pin header
- 1x 2-pin 2mm jumper

Functions

- Jumper to select voltage
- Solder jumper to select current
- I2C configurable, QWIIC compatible
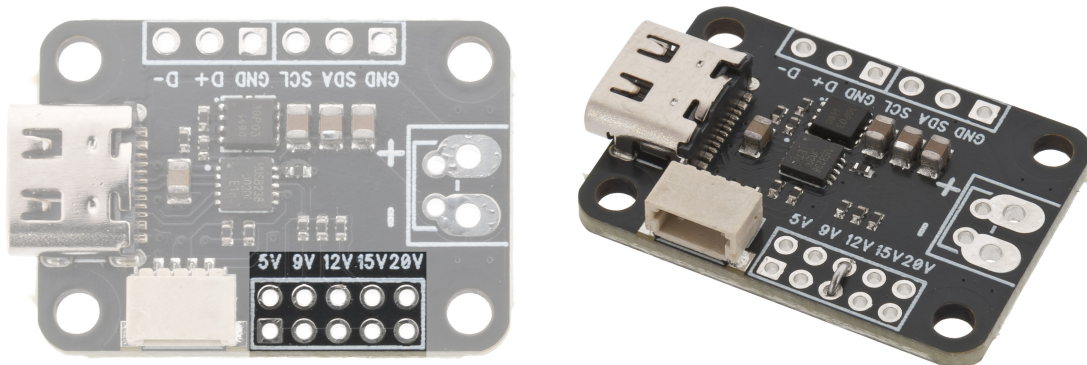- Works with all PD enabled USB chargers
- Small size
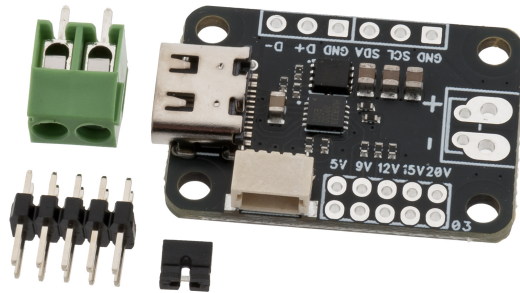
Specifications

- Output voltages: 5V, 9V, 12V, 15V, 20V
- Output current: max 3A
- Supported standards: PD3.0, Type-C V1.4, Apple Divider 3, BC1.2 SDP, DCP, CDP
- Dimensions: 28 x 20 mm
- Mounting holes: ø2.5 mm / 23 x 15 mm

Connections

Voltage selection

Before use, the module must be configured to request the desired voltage from a connected USB power supply. A 2×5-pin header is included in the package and can be soldered to the board for a quick and easy way to change the voltage using the included jumper. For a more permanent and low-profile application, a simple wire or component lead can be used instead of the entire pin header.

I2C & USB pins
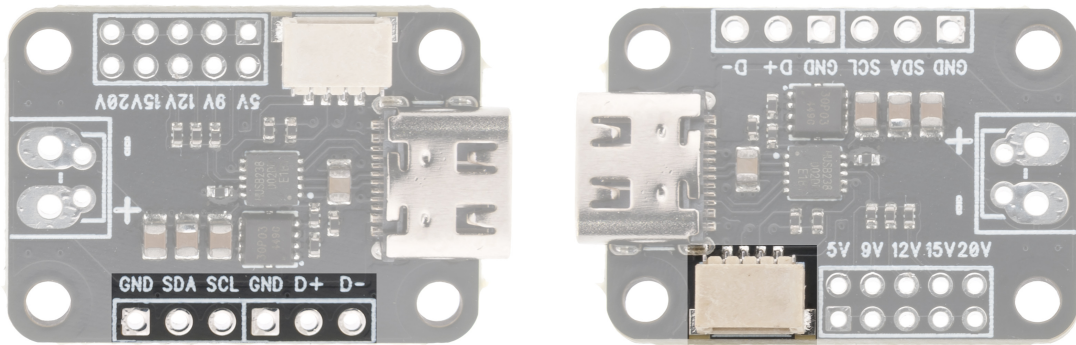
To configure the PD controller and change the output voltage and current limit from a microcontroller, I2C pins are broken out both as individual pins and as a JST-SH 1.0mm QWIIC connector. The PD controller works as an I2C slave on address 0×08. I2C takes priority over the manual voltage setting. External pullup resistors for SCL/SDA must be used.

Documentation and example code are provided below.

The D+/D- pins from the USB connector are also broken out to provide easy access to the USB data pins.
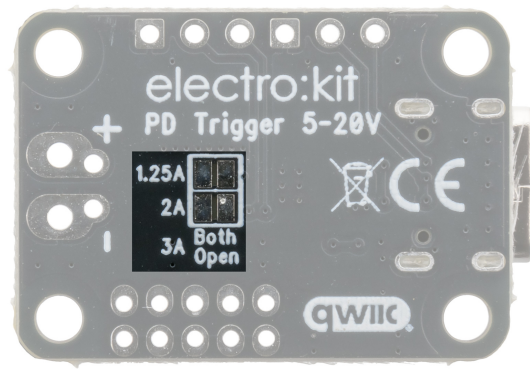
Voltage output
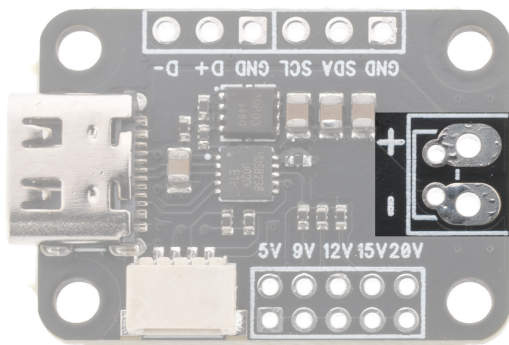
The voltage from the USB power supply is provided on the large pads opposite the USB connector. Please be observant of the polarity markings! The pads will fit either a 2.54mm pitch connector (screw terminal or pin header) or the included 3.5mm pitch screw terminal. Wires can also be soldered directly to the board for space-constrained applications.

Current setting

The PD Trigger is set to request 3A from the USB-PD power supply as default. The current can be lowered to support lower wattage PD power supplies.

When a higher voltage is selected, the current request must stay within the limits of the connected power supply. If the module asks for a voltage that the supply cannot provide at the

requested current, the supply will output a lower voltage.

Datasheet and example code

- HUSB238 Datasheet
- HUSB238 Registers
- Arduino Library
- Python Driver

Mechanical dimensions

28

23

20

15

9

D- D+ GND SCL SDA GND

+

−

7

5V 9V 12V 15V 20V