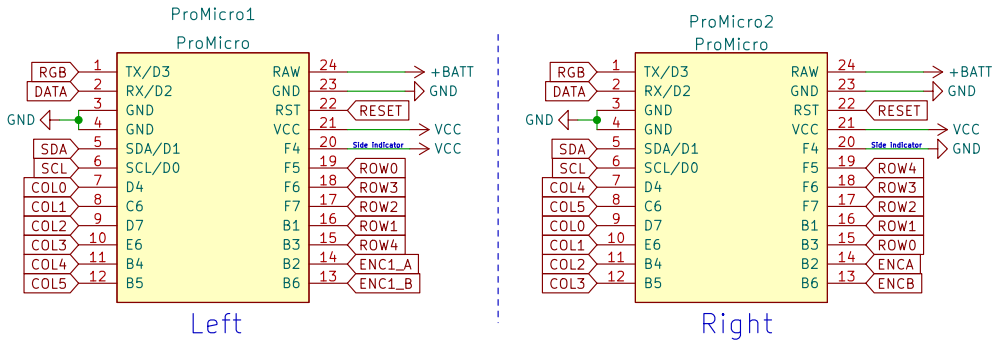# Microcontroller

The Pro Micros form the hearts of each half of the keyboard.
The left and right halves each have a different pinout.

You may of course also use Pro Micro compatible controllers,
such as the Liatris, Elite-C, or nice!nano.

ProMicro1
ProMicro

RGB	1	TX/D3	RAW	24	+BATT
DATA	2	RX/D2	GND	23	GND
GND	3	GND	RST	22	RESET
	4	GND	VCC	21	VCC
SDA	5	SDA/D1	F4	20	VCC
SCL	6	SCL/D0	F5	19	Side Indicator
COL0	7	D4	F6	18	ROW0
COL1	8	C6	F7	17	ROW3
COL2	9	D7	B1	16	ROW2
COL3	10	E6	B3	15	ROW1
COL4	11	B4	B2	14	ROW4
COL5	12	B5	B6	13	ENC1_A / ENC1_B

Left

ProMicro2
ProMicro

RGB	1	TX/D3	RAW	24	+BATT
DATA	2	RX/D2	GND	23	GND
GND	3	GND	RST	22	RESET
	4	GND	VCC	21	VCC
SDA	5	SDA/D1	F4	20	GND
SCL	6	SCL/D0	F5	19	Side Indicator
COL5	7	D4	F6	18	ROW4
COL4	8	C6	F7	17	ROW3
COL0	9	D7	B1	16	ROW2
COL1	10	E6	B3	15	ROW1
COL2	11	B4	B2	14	ROW0
COL3	12	B5	B6	13	ENCA / ENCB

Right

The two resistors R1 and R2 should
normally be soldered on both sides.
If you choose to use I2C across halves,
R1 and R2 only need to be soldered on one half.

They are required for proper I2C operation.

R1 4k7   R2 4k7
SDA   SCL
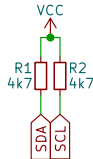
The reset button allows you to flash new
firmware to the keyboard. For most changes,
it's only necessary to flash the side you use
as master. Some changes, like those to
underglow and the OLED display, do need to be
flashed to both sides.

S1 MJTP1117
RESET
GND
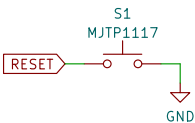
Header for SSD1306 (or compatible) OLED display

J2 SSD1306

| SDA | 4 | SDA |
SCL	3	SCL
VCC	2	VCC
GND	1	GND
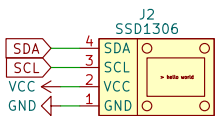
A TRS or TRRS cable connects both halves of the
keyboard. Do not unplug when turned on.

By default, serial is used across halves. This
enables the use of one OLED screen per key-
board half. If you require I2C across halves
(and thus give up using two OLED displays),
you may cut the JP1 jumper and solder wires
from the SDA and SCL pins of the Pro Micro
or I2C breakout to the R1 and R1 pins
respectively - marked RA and RB on the PCB.

The R2 pin may also be used to pass extra data
through to the other side. If R2 is used, you
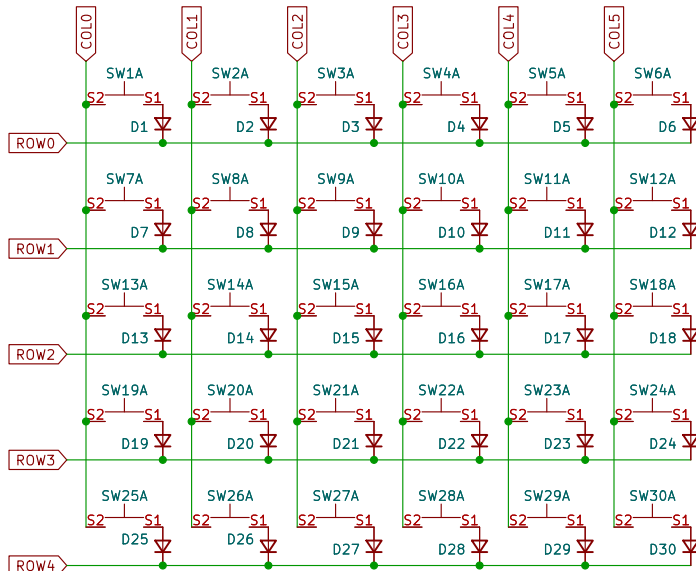must use a TRRS cable.

JP1
DATA   1   2
J3 PJ-320A
VCC   T   R1   R2   S
GND
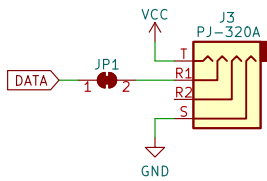
Battery header and power switch
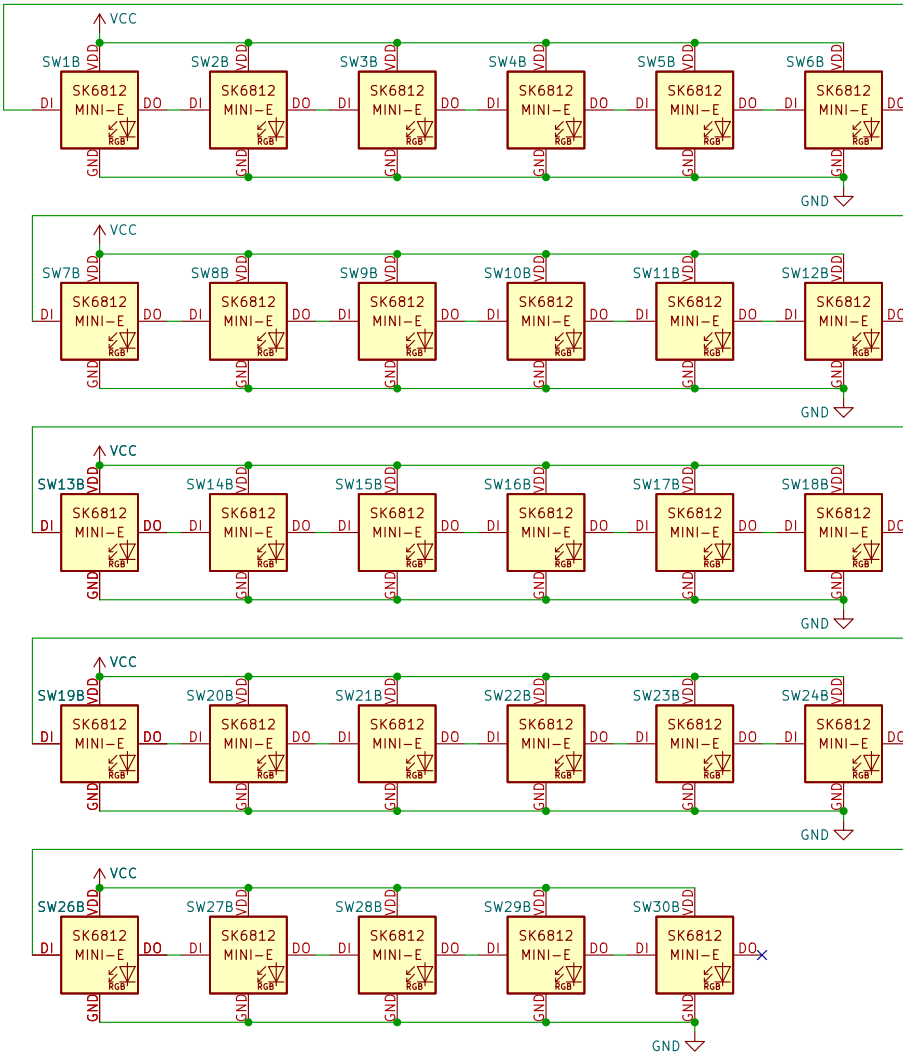for nice!nano users

J1 JST-PH
GND
S2 MSK12C02
+BATT
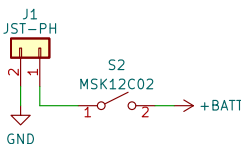
Switch matrix

The inner and outer thumb cluster keys can be replaced with a rotary encoder.
If the encoder has a button, that button takes the place of SW19 / SW21 in the matrix.

COL0 COL1 COL2 COL3 COL4 COL5

ROW0: SW1A D1, SW2A D2, SW3A D3, SW4A D4, SW5A D5, SW6A D6
ROW1: SW7A D7, SW8A D8, SW9A D9, SW10A D10, SW11A D11, SW12A D12
ROW2: SW13A D13, SW14A D14, SW15A D15, SW16A D16, SW17A D17, SW18A D18
ROW3: SW19A D19, SW20A D20, SW21A D21, SW22A D22, SW23A D23, SW24A D24
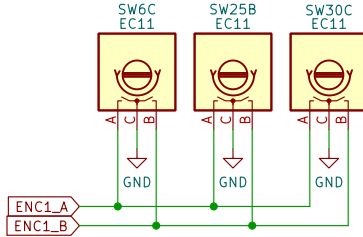ROW4: SW25A D25, SW26A D26, SW27A D27, SW28A D28, SW29A D29, SW30A D30

Encoders

The use of a rotary encoder is optional.
An EC11 encoder or compatible may
be used. When you don't use an encoder,
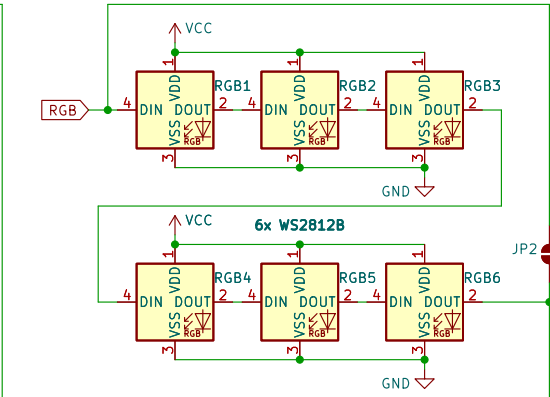the encoder pins become available for
use in modifications.

Note that the SW?C encoder shares the
same physical position as the SW?A switch.

Only one encoder may be installed per half.

SW6C EC11   SW25B EC11   SW30C EC11
GND   GND   GND

ENC1_A
ENC1_B

Per-key RGB

Per-key RGB LEDs are optional and may be
installed using SK6812MINI-E LEDs (or compatible).

VCC
SW1B SK6812 MINI-E, SW2B SK6812 MINI-E, SW3B SK6812 MINI-E, SW4B SK6812 MINI-E, SW5B SK6812 MINI-E, SW6B SK6812 MINI-E
GND

VCC
SW7B, SW8B, SW9B, SW10B, SW11B, SW12B (SK6812 MINI-E)
GND

VCC
SW13B, SW14B, SW15B, SW16B, SW17B, SW18B (SK6812 MINI-E)
GND

VCC
SW19B, SW20B, SW21B, SW22B, SW23B, SW24B (SK6812 MINI-E)
GND

VCC
SW26B, SW27B, SW28B, SW29B, SW30B (SK6812 MINI-E)
GND

RGB Underglow

RGB underglow LEDs are optional and may be
installed using WS2812B LEDs (or compatible).

VCC
RGB   RGB1 DIN DOUT, RGB2 DIN DOUT, RGB3 DIN DOUT
VDD VSS
GND

6x WS2812B

VCC
RGB4 DIN DOUT, RGB5 DIN DOUT, RGB6 DIN DOUT
VDD VSS
GND

JP2
Underglow bypass
Solder jumper JP2 closed
if you are using per-key rgb
without rgb underglow.