

Quanto

CV quantizer

User manual

About Quanto

Quanto quantizes the input CV to the nearest selected note.

You can select the notes with buttons, selected notes are indicated by the LED on the corresponding button.

Other features:

- **trigger** output on note change
- **octave transpose** of the output CV
- **glide** control of the output CV

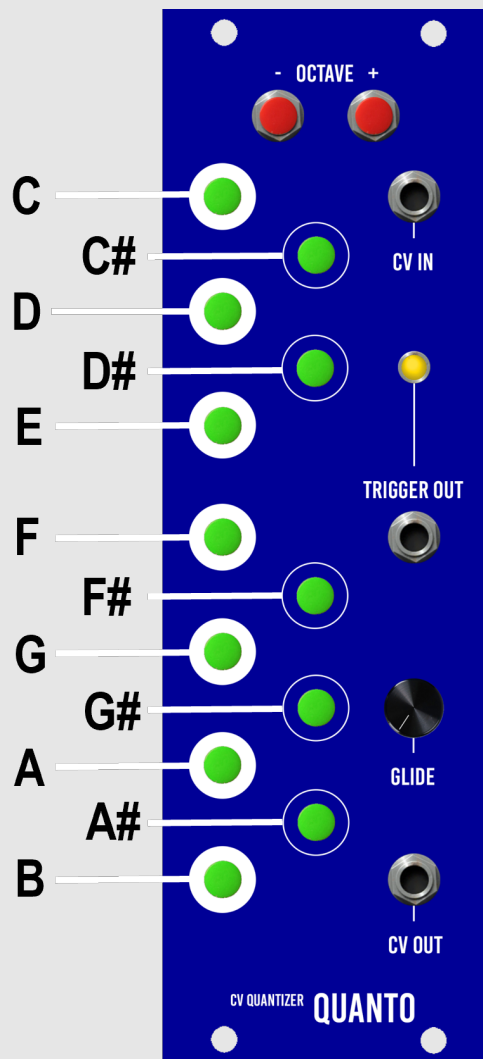
Assembly and installation

If you are starting from the empty PCB, you can find the BoM and component placement drawings in Appendix.

Quanto uses a 2x5 pin power connector and requires +12V and -12V supply voltages.

The current draw is **70 mA** from the +12V power supply rail and **8 mA** from the -12V rail.

Interface



You can select notes with the 12 buttons **C** to **B**. The LED will light on buttons corresponding to the selected notes.

The CV from **CV IN** will be quantized to the nearest selected note and output from **CV OUT**, allowing to play any scale from any CV.

The **GLIDE** control applies a lowpass filter the output, to obtain a glide effect. Every time the output CV changes note, a trigger signal is output from **TRIGGER OUT**.

CV IN accepts signals from -5V to +10V, while **CV OUT** ranges from 0V to +10V. You can transpose the output CV up to 5 octaves up or down with respect to the input CV, using the **OCTAVE+** and **OCTAVE-** buttons.

Calibration

To calibrate the ADC (CV input):

1. Connect a well-calibrated note CV source (1V/oct) to the **CV IN** input.
2. Press and hold for about 3 seconds the **OCTAVE-** button. The **C** LED starts blinking.
3. Send a voltage of 5.000V to the **CV IN** input.
4. Press the **OCTAVE-** button. The **B** LED now blinks.
5. Send a voltage of 0.000V to the **CV IN** input (or disconnect cable, which puts the input to ground).
6. Press the **OCTAVE-** button. The module goes back into normal mode.

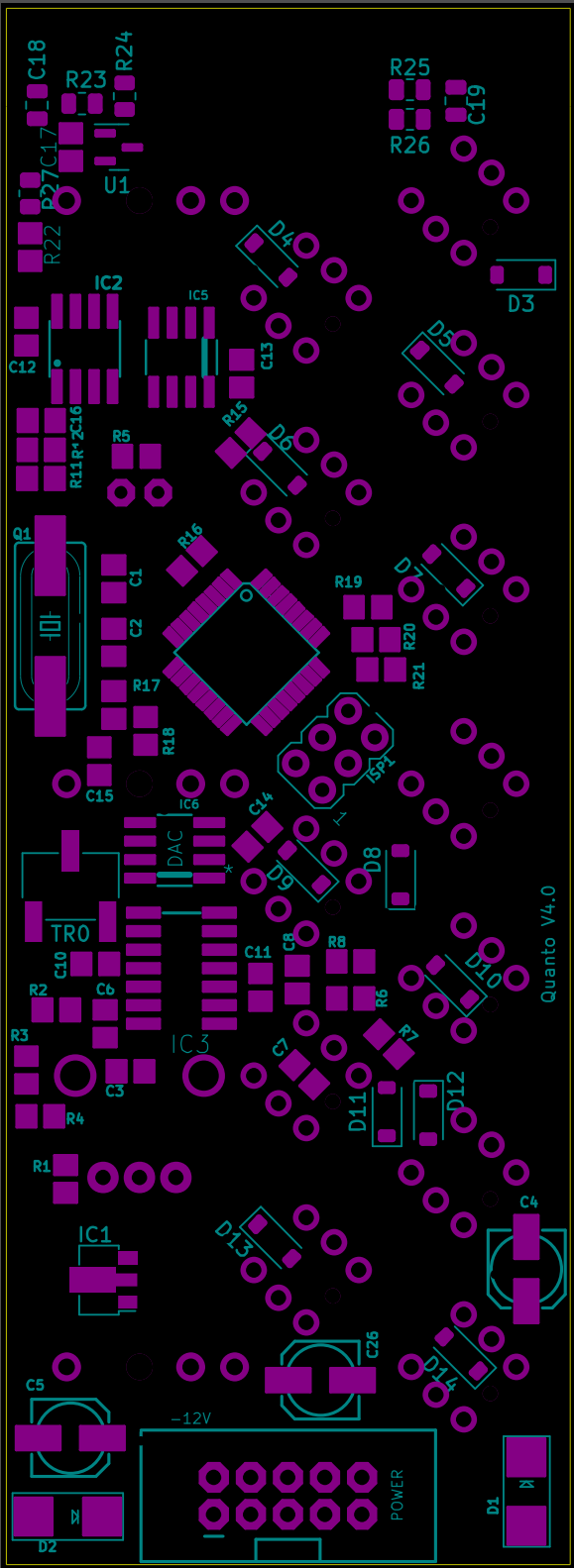
To calibrate the DAC (CV output):

1. Press and hold for about 3 seconds the **OCTAVE+** button. The module goes into fixed output mode.
2. Pressing the **C** button will output the max CV.
3. Measure the **CV OUT** signal with a well-calibrated voltmeter. Adjust trimmer TR0 to make the output 10.000V.
4. Pressing the **B** button outputs the min CV, which should correspond to 0V. The **F** button should result in a 5.000V output.
5. Press the **OCTAVE+** button. The module goes back into normal mode.

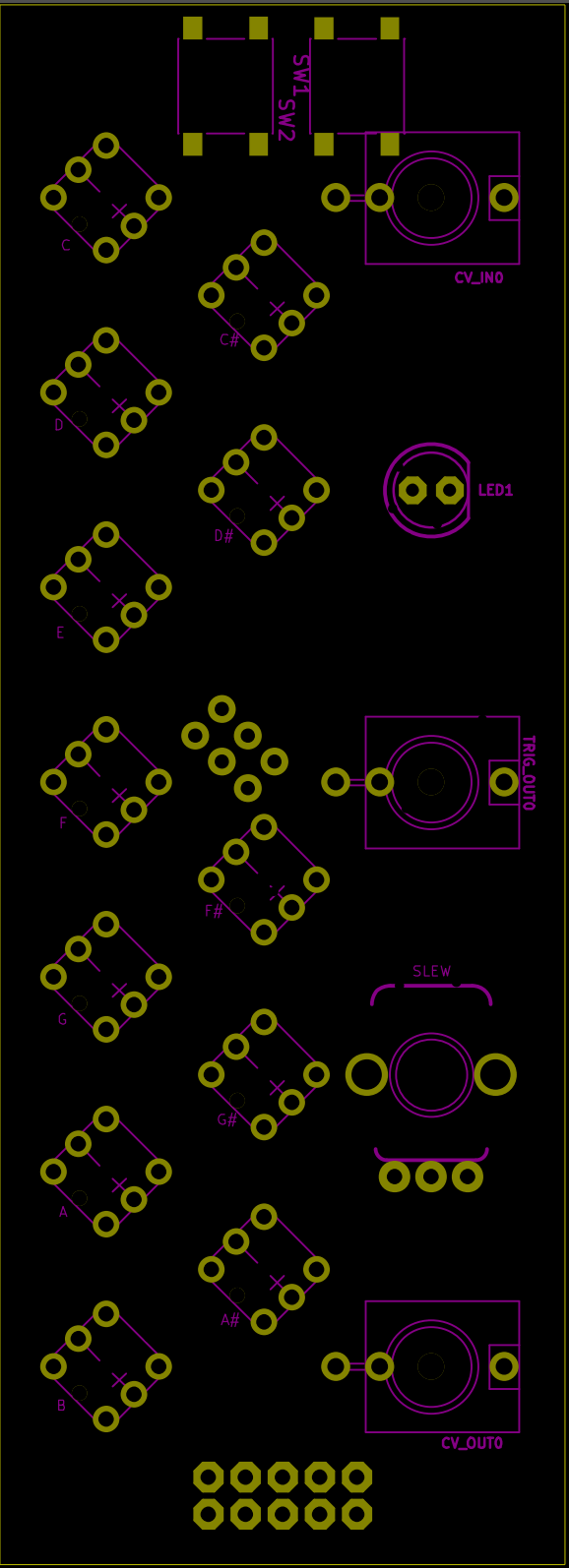
Appendix: Bill of Materials

Qty	Reference(s)	Value	Footprint
2	C1, C2	22p	C0805
2	C6, C16	1nF	C0805
10	C3, C7, C8, C10, C11, C12, C13, C14, C15, C18, C19	100nF	C0805
1	C3	1uF	C0805
3	C4, C5, C26	10uF	153CLV-0505
2	D1, D2	1N5819	SOD-123
12	D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14	1N914	SOD-123
1	IC1	LD2981-50	SOT-89
1	IC2	MCP6002	SOIC-08
1	IC3	TL074	SOIC-14
1	IC4	ATMEGA328P	TQFP32-08
1	IC5	MCP3202	SOIC-08
1	IC6	MCP4921	SOIC-08
1	LED1	LED 3mm	LED THT 3mm
1	Q1	20MHz CRYSTAL	HC49UP
1	U1	LM4040B-10	SOT-23
2	R1, R4	10R	R0805
1	R2	10k	R0805
1	R3	4.7k	R0805
1	R5	1k5	R0805
2	R6, R7	1M	R0805
1	R8	1k	R0805
4	R11, R22, R24, R26	100k	R0805
1	R12	33k	R0805
6	R15, R16, R17, R18, R23, R25	10k	R0805
3	R19, R20, R21	220R	R0805
1	R27	2.2k	R0805
2	SW1, SW2	OCTAVE BUTTON	SW_Push_1P1T_NO_6x6mm_SMD
1	TR0	B10k	TRIMMER_SMD
1	GLIDE0	B10k	POTENTIOMETER_9MM
1	CV_IN0	SOCKET_MONO_3.5MMPJ301M-12	PJ301M-12 Thonkiconn Jack
1	CV_OUT0	SOCKET_MONO_3.5MMPJ301M-12	PJ301M-12 Thonkiconn Jack
1	TRIG_OUT0	SOCKET_MONO_3.5MMPJ301M-12	PJ301M-12 Thonkiconn Jack
1	ISP1	AVR ISP CONN	HEADER2X3
1	JP1	POWER CONN	HEADER2X5 SHROUDED
12	UNK1, UNK2, UNK3, UNK4, UNK5, UNK6, UNK7, UNK8, UNK9, UNK10, UNK11, UNK12	PB6149L	SWITCH_PUSHBUTTON_LED

Appendix: Component placement



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Appendix: Schematic

