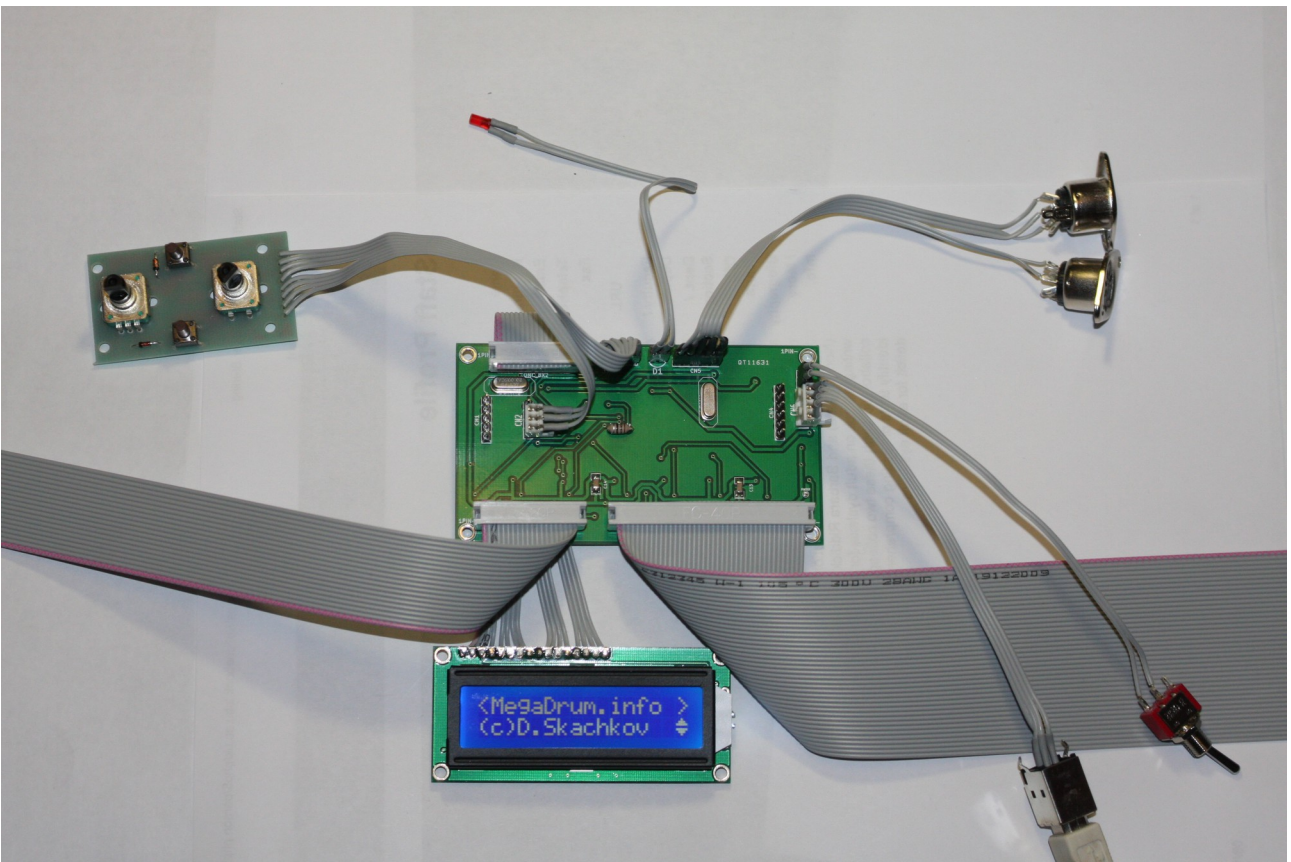




MegaDrum kit

instruction manual



1. MegaDrum kit content

1.1. **Full kit**

1. A fully soldered MegaDrum main board with ARM **STM32F205RCT6 at 120MHz** programmed with the protected bootloader and 256Kbit extended EEPROM.
2. 16x2 LCD with a soldered cable and a board connector
or 1.8" ST7735 TFT colour LCD
or 2.2" ILI9340/ILI9341 TFT colour LCD
3. Fully soldered controls mini board with rotary encoders, buttons, cables and board connectors.
4. USB socket with a soldered cable and a board connector.
5. DIN5 MIDI In and MIDI Out sockets with a soldered cable and a board connector.
6. Mini power switch with a soldered cable and a board connector.
7. MIDI activity LED with a soldered cable and a board connector.
8. 40way 30cm pads inputs cable with an IDC 2x20 board connector.
9. 20way 30cm pads inputs cable with an IDC 2x10 board connector.

1.2. **Basic kit**

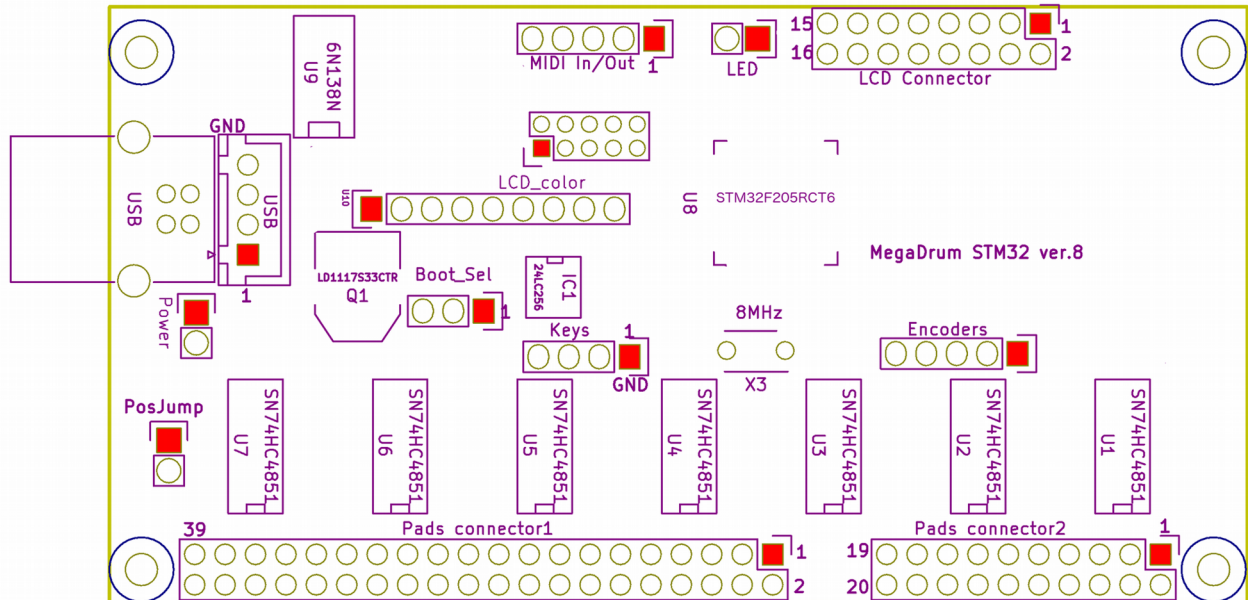
1. A fully soldered MegaDrum main board with ARM **STM32F205RCT6 at 120MHz** programmed with the protected bootloader and 256Kbit extended EEPROM.
2. 16x2 LCD with a soldered cable and a board connector.
or ST7735 TFT colour LCD
or 1.8" ST7735 TFT colour LCD
or 2.2" ILI9340/ILI9341 TFT colour LCD
3. USB socket with a soldered cable and a board connector.
4. Mini power switch with a soldered cable and a board connector.
5. MIDI activity LED with a soldered cable and a board connector.
6. One IDC 2x20 male connector.
7. One IDC 2x10 male connector.
8. 4 buttons, 2 1n4148 diodes, 4way flat cable and 4way connector.

1.3. **Minimal kit**

1. A fully soldered MegaDrum main board with ARM **STM32F205RCT6 at 120MHz** programmed with the protected bootloader and 256Kbit extended EEPROM.

2. Main board layout

All connections to the STM32F205RCT6 based main board are done according to this diagram:



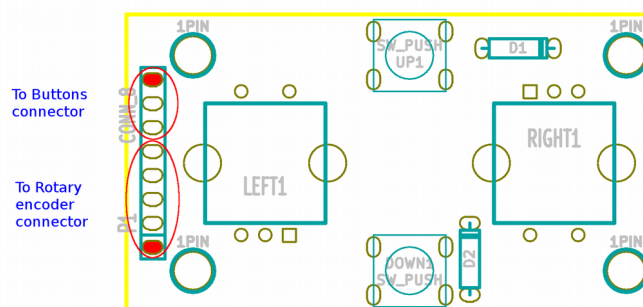
All connectors have pin 1 marked as red.

When connecting any cable (except Power switch) to the main board pin 1 on the cable must align with pin 1 of a corresponding connector on the main board.

Power switch can be connected to the main board in either orientation.

3. Controls mini board.

Controls mini board contains Up and Down buttons, a Left/Right rotary encoder with a built-in Left button and an Up/Down rotary encoder with a built-in Right button.

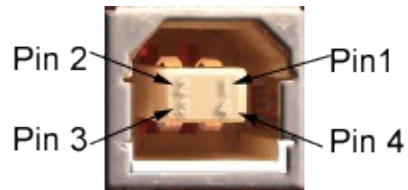


It connects to two connectors on the main board – 'Rotary encoders connector' and 'Buttons connector' (pin 4 of this connector is not used).

4. Connectors pinouts

4.1. USB

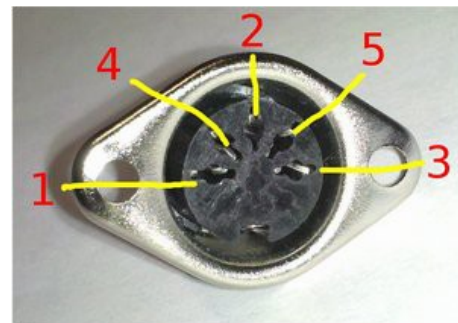
- 1 V BUS (5V)
- 2 Data-
- 3 Data+
- 4 Ground



4.2. DIN 5 (MIDI In/Out)

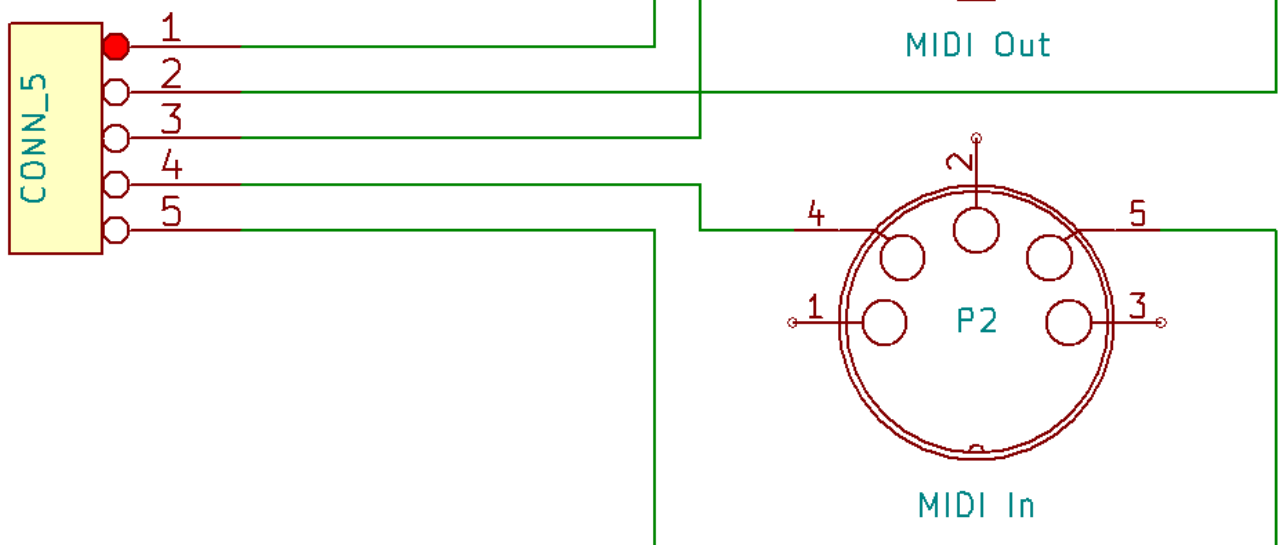
On a MIDI Out socket pins 2, 4 and 5 are used.

On a MIDI In socket only pins 4 and 5 are used.

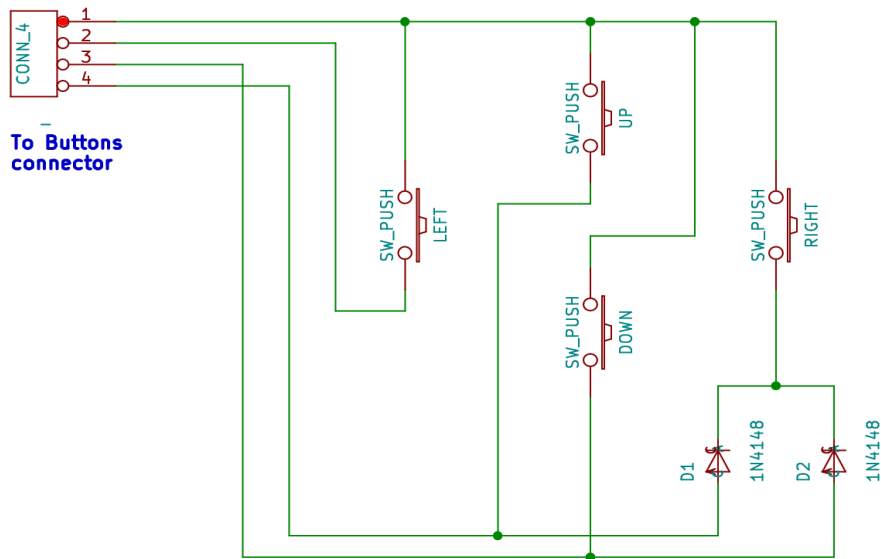


To MIDI In/Out connector

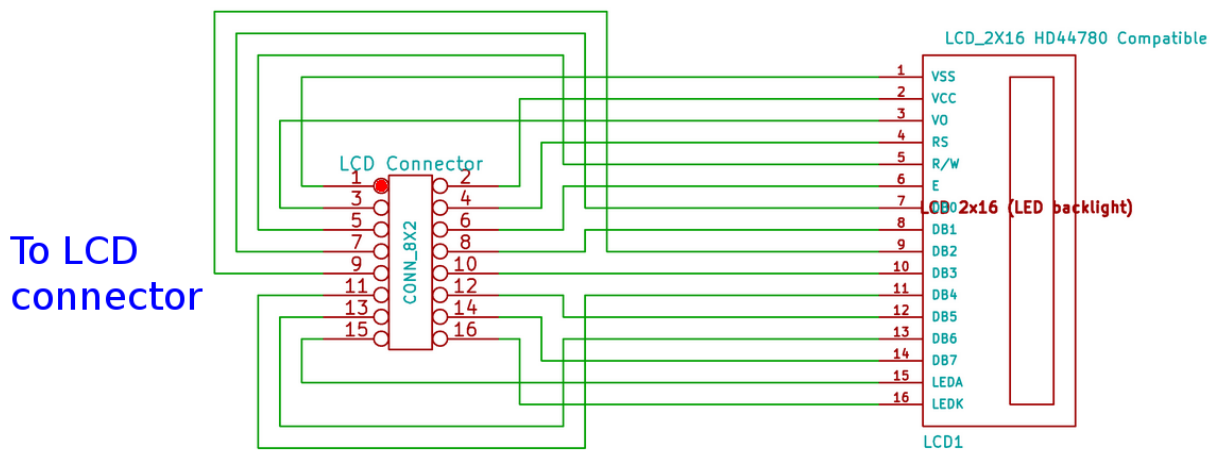
MIDI In/Out



4.3. Buttons (Basic kit only)



4.4. HD44780 LCD



4.5. 1.8" ST7735 LCD or 2.2" ILI9340/ILI9341 LCD

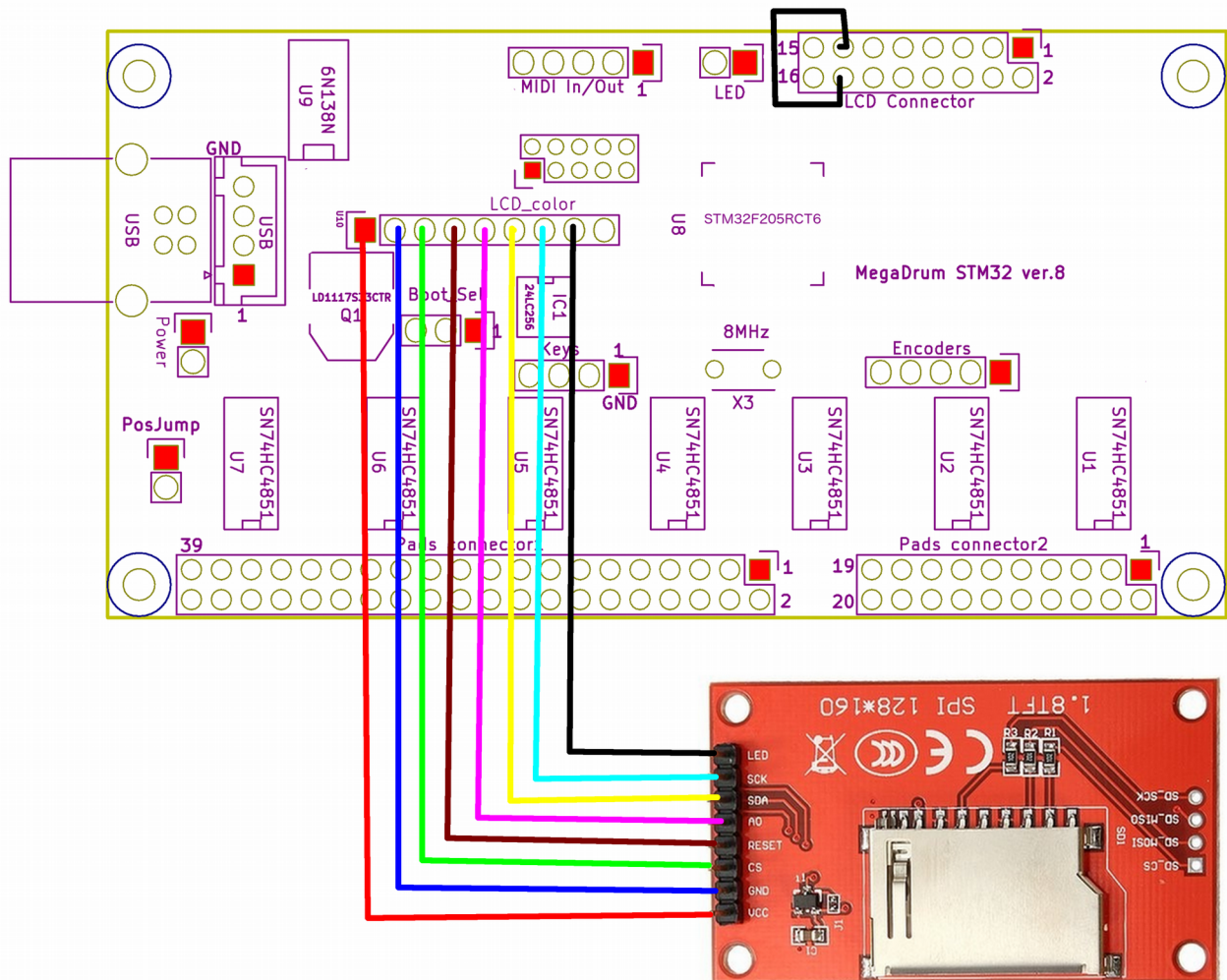
Board to LCD connectors pinout.

- LCD_color pin1 → LCD VCC
- LCD_color pin2 → LCD GND
- LCD_color pin3 → LCD CS
- LCD_color pin4 → LCD Reset

LCD_color pin5 → LCD AO (Data/Command)
LCD_color pin6 → LCD SDA
LCD_color pin7 → LCD SCK
LCD_color pin8 → LCD LED

For ST7735 LCDs pins 13 and 14 of the LCD Connector must be connected with a jumper.
For ILI9340/ILI9341 LCDs pins 11 and 12 of the LCD Connector must be connected with a jumper.

ST7735 example connection:



4.6. LED

The LED connector has only 2 pins and a LED will work only in one orientation. There is no key on the connector but if the LED doesn't work in one orientation just reverse the connection.

4.7. Power switch

Power switch connector has only 2 pins and a power switch can be connected to it in either orientation or just replaced with a jumper.

4.8. Pads connectors

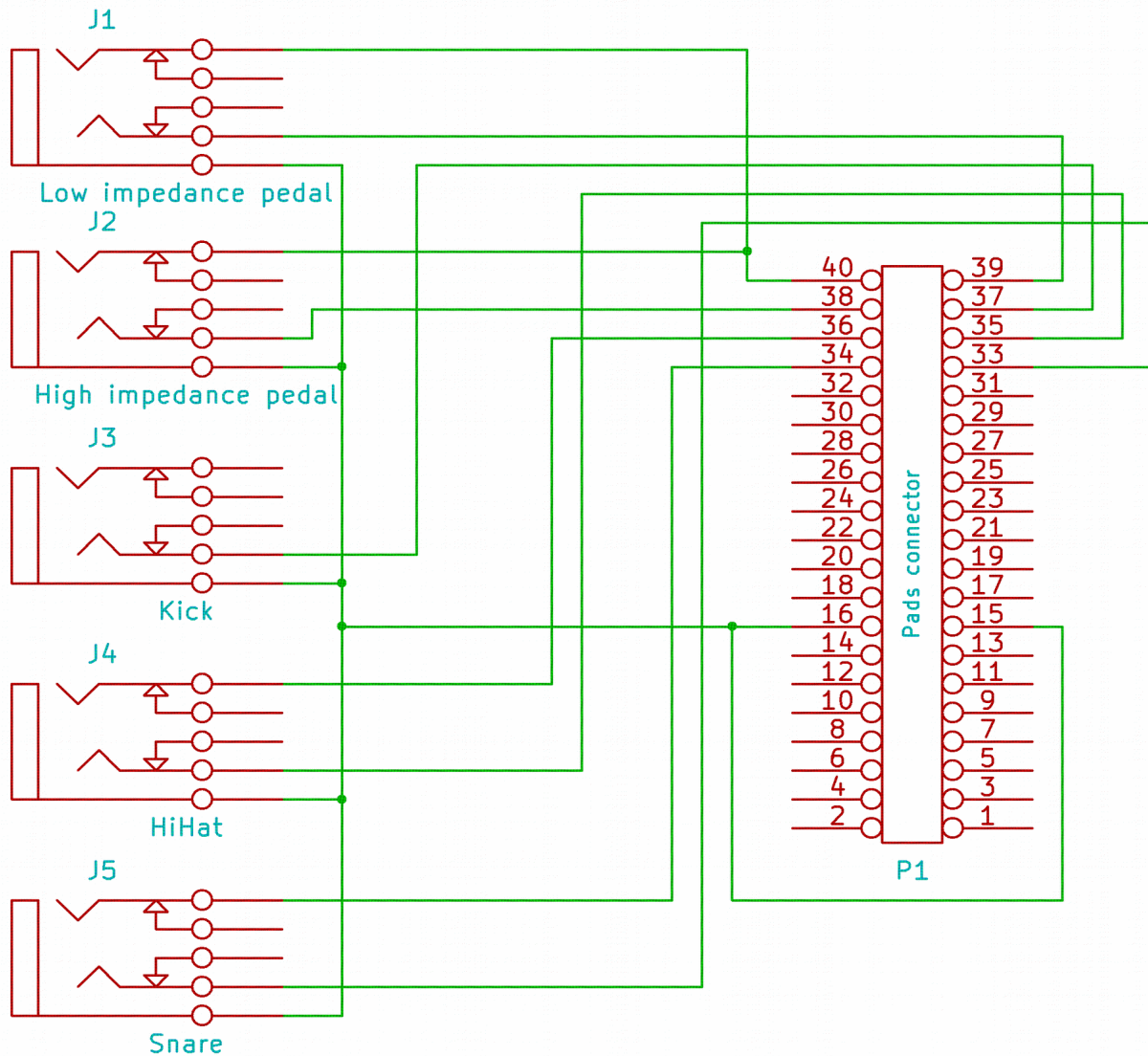
Pads connector 1	
Pin number	Input
40	Pedal power
39	Low impedance pedal
38	High impedance pedal
37	Kick
36	HiHatE
35	HiHatB
34	SnareR
33	SnareH
32	RideE
31	RideB
30	CrashE
29	CrashB
28	Tom1R
27	Tom1H
26	Tom2R
25	Tom2H
24	Tom3R
23	Tom3H
22	Tom4R
21	Tom4H
20	Aux1R
19	Aux1H
18	Aux2R
17	Aux2H
16	Ground
15	Ground
14	Aux3R
13	Aux3H
12	Aux4R
11	Aux4H
10	Aux5R
9	Aux5H
8	Aux6R
7	Aux6H
6	Aux7R
5	Aux7H
4	Aux8R
3	Aux8H
2	Aux9R
1	Aux9H

Pads connector 2	
Pin number	Input
20	Aux10R
19	Aux10H
18	Aux11R
17	Aux11H
16	Aux12R
15	Aux12H
14	Aux13R
13	Aux13H
12	Aux14R
11	Aux14H
10	Aux15R
9	Aux15H
8	Aux16R
7	Aux16H
6	Aux17R
5	Aux17H
4	Aux18R
3	Aux18H
2	Aux19R
1	Aux19H

Aux1H — Aux1 Head (Bow) input

Aux1R — Aux1 Rim (Edge) input

The example of wiring input jacks to the Pads connector 1 is shown below:



The rest of input jacks are wired to Pads connector 1 and Pads connector 2 as exemplified above using Pads connector pinout.

5. Assembling MegaDrum from the Full kit

1. Remember that all connectors have pin 1 marked as **red** on the main board layout diagram.
2. Wire all required input jacks (or any other types of input sockets/connectors) to the Pads connectors cables.
3. Connect the Pads connectors cables to the main board (Pads connector 1 and Pads connector 2) making sure alignment is correct (pin 1 to wire 1).
4. Connect the Controls mini board to the main board (Rotary encoders connector and Buttons connector) making sure alignment is correct (pin 1 to wire 1).
5. Connect the LED to the main board (LED connector).
6. Connect the LCD to the main board (LCD connector) making sure alignment is correct (pin 1 to wire 1).
7. Connect MIDI In/Out sockets to the main board (MIDI In/Out connector) making sure

alignment is correct (pin 1 to wire 1).

8. Connect the Power switch to the main board (Power switch connector).
9. Connect the USB socket to the main board (USB connector) making sure alignment is correct (pin 1 to wire 1).

MegaDrum is now ready and can be powered on. On the first connection to a PC all modern Oss (Windows XP/Vista/7, Mac OS X, Linux) will detect MegaDrum and automatically install required drivers.

6.Assembling MegaDrum from the Basic kit

1. Remember that all connectors have pin 1 marked as **red** on the main board layout diagram.
2. Wire all required input jacks (or any other types of input sockets/connectors) to the Pads connectors IDC sockets.
3. Connect the Pads connectors cables to the main board (Pads connector 1 and Pads connector 2) making sure alignment is correct (pin 1 to wire 1).
4. Wire buttons and diodes according to the Buttons diagram and connect to the main board (Buttons connector) making sure alignment is correct (pin 1 to wire 1).
5. Connect the LED to the main board (LED connector).
6. Connect the LCD to the main board (LCD connector) making sure alignment is correct (pin 1 to wire 1).
7. Connect the Power switch to the main board (Power switch connector).
8. Connect the USB socket to the main board (USB connector) making sure alignment is correct (pin 1 to wire 1).

MegaDrum is now ready and can be powered on. On the first connection to a PC all modern Oss (Windows XP/Vista/7, Mac OS X, Linux) will detect MegaDrum and automatically install required drivers.

7.Assembling MegaDrum from the Minimal kit

The Minimal kit contains only a fully soldered and programmed main board. You will need to source all other external components elsewhere and do all the wiring according to the diagrams shown in the Connectors pinouts. After that the assembling is the same as for the Basic kit.

8. The main board schematic.

