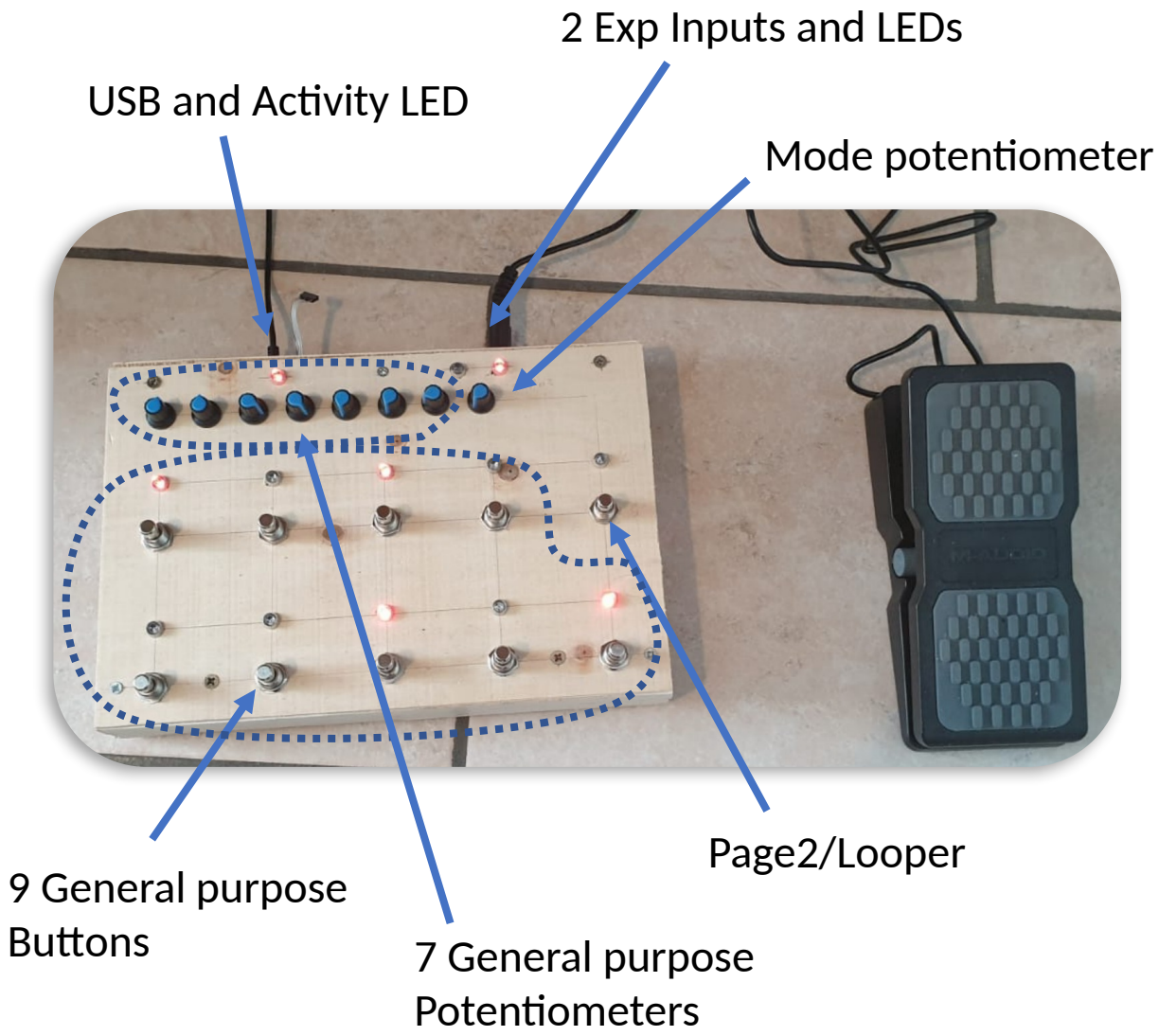
MidiPedalBoard

Features

- 8 Potentiometers (7 general purpose + Mode)
- 10 Stomps (9 general purpose + Page2)
- 2 Expression inputs

How to use it

- Page2/Looper Btn
  - When activated (Led on) use second page for other buttons
  - No CC is sent when pressed
- Mode potentiometer (#8, the last one)
  - Left => Normal mode: Btn sends 127 when activated (Led On) and 0 on deactivation
  - Right => Bypass mode: Btn sends 0 when activated (Led On) and 127 on deactivation
  - Half => Disable potentiometers CC
  - No CC is sent when rotated
- Button CC values (excluded Looper/Page2 Btn)
  - {51, 52, 53, 54, 55, 56, 57, 58, 59}
  - {61, 62, 63, 64, 65, 66, 67, 68, 69}
- Potentiometers CC values (excluded Mode Pot)
  - {18, 19, 20, 21, 22, 23, 24};
- Expression pedal CC values
  - {16, 17};



STM32pedalStomp

Power

DRIVE BASS MID TRBL PRES VOL MAST

Exp1 Exp2

FS5 UNDO

FS6 Play Once

FS7 PRE/POST

FS8

LOOPER

FS1 REC

FS2 Play/Stop

FS3 Half Speed

FS4 Reverse

TAP

STM32F4DISCOVERY

Features

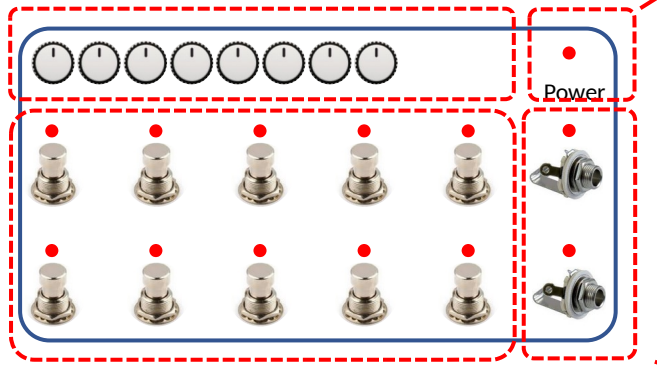
- Potentiometers: 8
- Stomps: 10
- LEDs: 13
- Expression inputs: 2

Expression pedals

STM32pedalStomp

Analog example controls
- Preamp
- Master volume
- Distortion
- Equalizer
- Your effects pots

USB power indication
- Fixed: power on
- Flashing: communicating



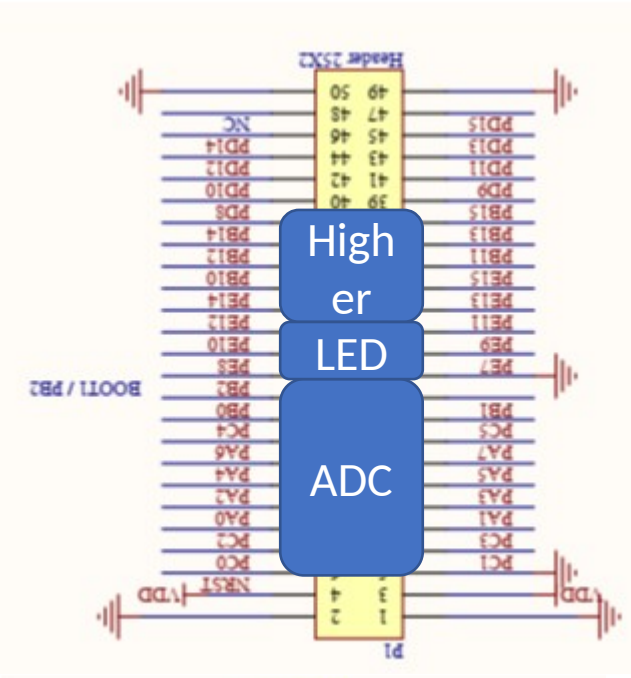
Stomp buttons and LEDs
- Programmable functions

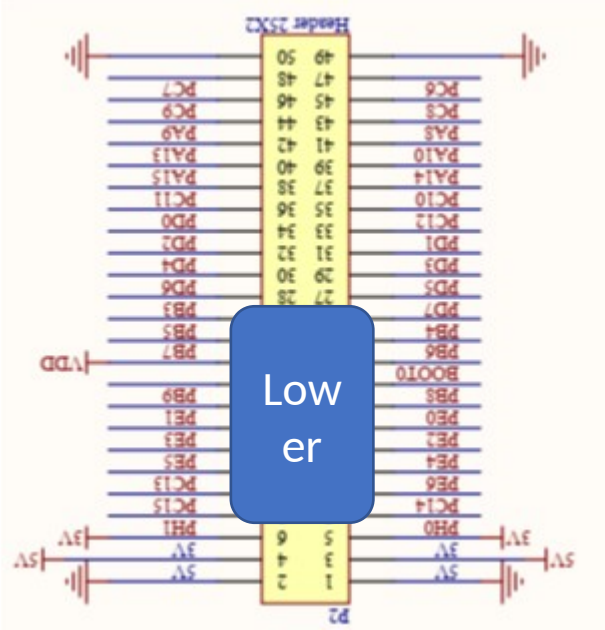
Expression pedals

STM32 pin assignments

- HW modifications
  - Connect PA9 (P2.44) to 5V (P2.4) (USB power supply)
  - Remove R46 (Enable Exp2)
- Potentiometers (8) and expression inputs (2)
  1. PA0 ADC1_IN0 (removing SB20)
  2. PA1 ADC1_IN1
  3. PA2 ADC1_IN2
  4. PA3 ADC1_IN3
  5. PC1 ADC1_IN11
  6. PC2 ADC1_IN12
  7. PC4 ADC1_IN14
  8. PC5 ADC1_IN15
  9. PB0 ADC1_IN8 (Exp1)
  10. PB1 ADC1_IN9 (Exp2)

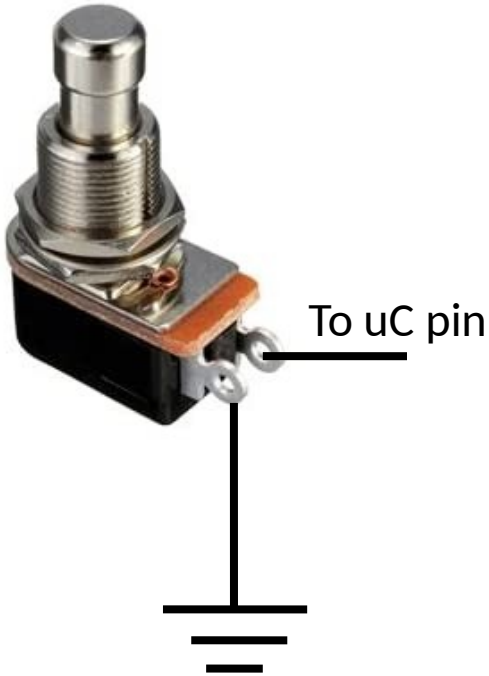
- Higher row Stomp 1:5
  - Btn: PE11:15
  - LED: PB11:15
- LEDs:
  - LD_PWR: PE9
  - LD_Exp1: PE8
  - LD_Exp2: PE7
- Lower row Stomp 6:10
  - Btn: PE0,2,4,5,6
  - LED:PD7,PB4,5,7,8
- Board Btn and LEDs
  - PA0 (PB blue)
  - PD13 (LED3)
  - PD12 (LED4)
  - PD14 (LED5)
  - PD15 (LED6)



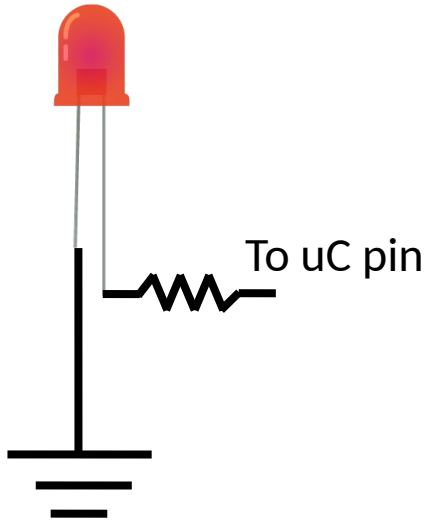


HW/SW

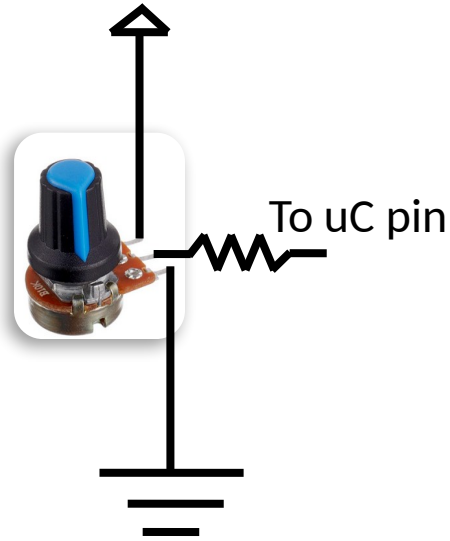
STOMP



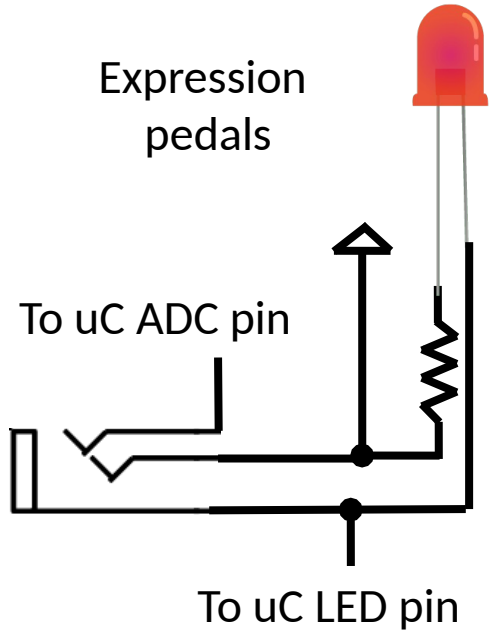
LED

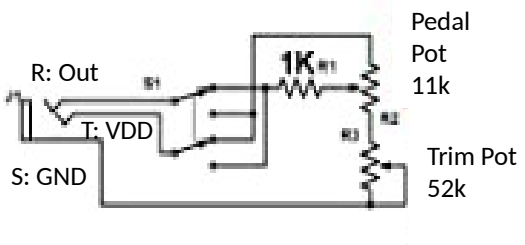


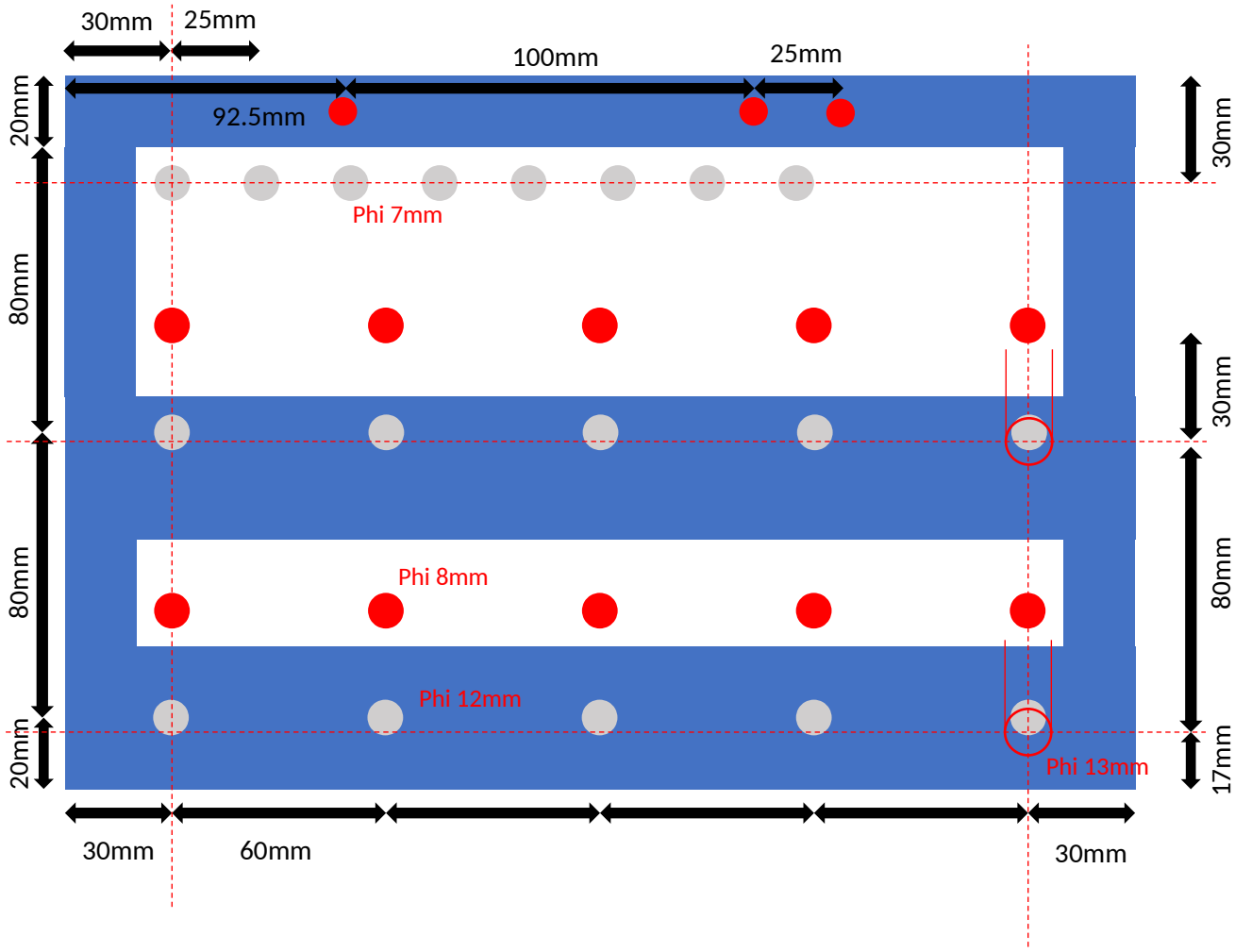
POT

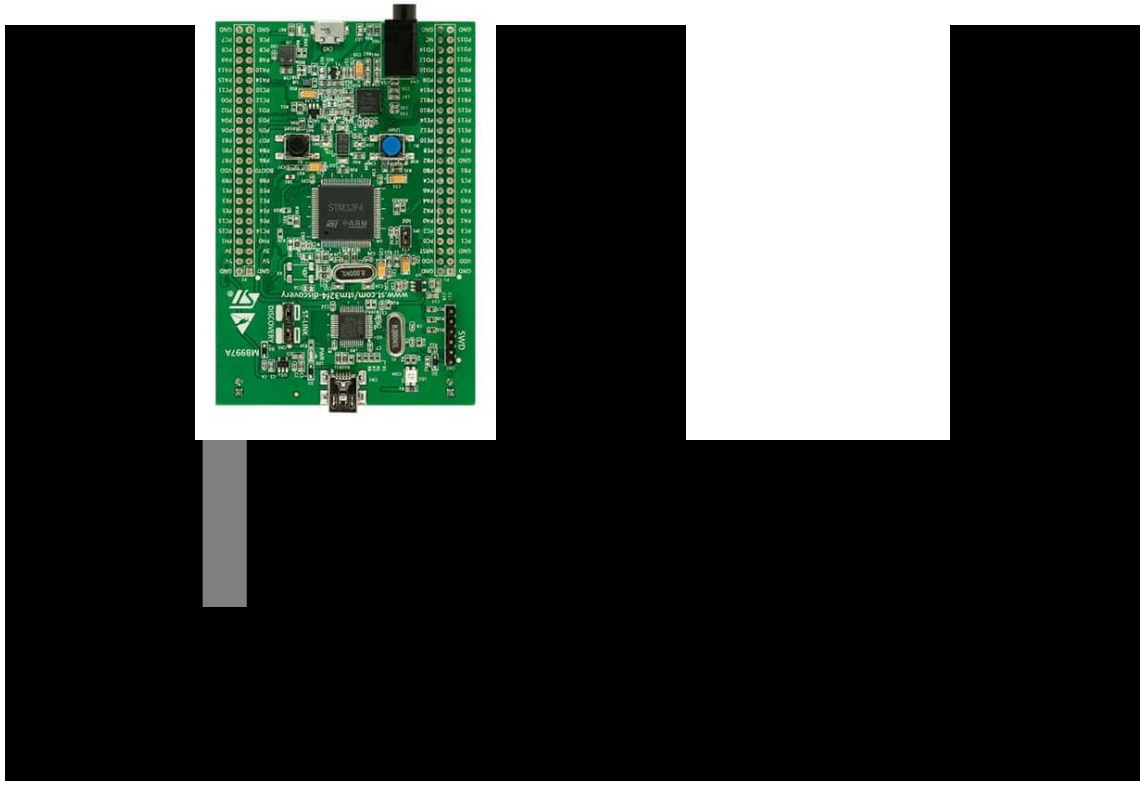


Expression pedals






30mm
25mm
100mm
25mm
20mm
92.5mm
Phi 7mm
80mm
30mm
30mm
80mm
Phi 8mm
Phi 12mm
20mm
Phi 13mm
80mm
17mm
30mm
60mm
30mm

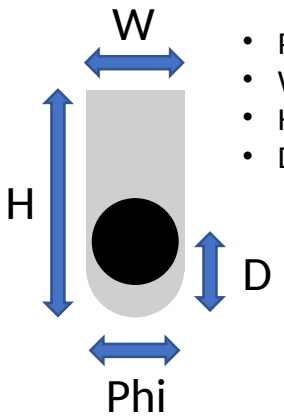


BOM

- STM32F411E-DISCO
  - 18 €
  - Disc4 https://it.rs-online.com/web/p/strumenti-di-sviluppo-per-microcontrollori/8463503/
- Potentiometers:
  - 8€ (price for 10), hole phi 6mm, knob phi 16mm
  - https://www.amazon.it/dp/B07ZJL91YP
- Stomps:
  - 22€ (price for 10), hole phi 10mm
  - https://www.amazon.it/dp/B0734ZR3FY
- LED mount 5mms:
  - 8.5€ (price for 20)
  - https://www.amazon.it/PORTALED-ACCIAO-CROMATO-pannello-fissaggio/dp/B0162UO9VC
- Jack TRS 6,35 mm (Expression inputs)
  - 7€ (price for 2)
  - https://www.amazon.it/dp/B07BRQXQVL
- Expression pedals (optional)
  - 17€ (each)
  - https://www.amazon.it/dp/B000NLRWEI
- Case:
  - 10€ ?
- Others:
  - 13 red LEDs
  - 13x 1kOhm

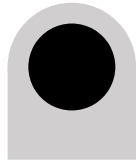
- TOT (no expr-pedal and expr inputs): 65€
- TOT (1 expr pedal): 90€

Stomp buttons



- Phi: 11.5mm
- W: 13 mm
- H: 31mm
- D: 9mm

Potentiometers



- Phi: 6.5mm
- D: 17mm

Expression pedals

STM32F4Discovery

LED mount

- Phi: 8 mm

Jack TRS

- Phi: 9mm
- D: 19mm

Other Devices

- MeloAudio USB MIDI
  - 10 Stomps
  - No potentiometers
  - 2 expression pedal inputs
  - 130€
  - https://www.amazon.it/dp/B07F1GLGCL

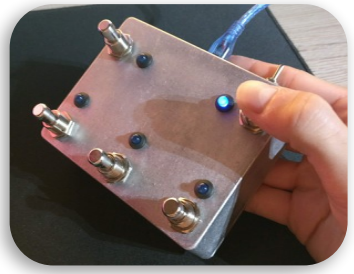
- LINE6 FBV Express MKII
  - 4 stomps
  - 1 expression pedal
  - No potentiometer
  - Tuner (only if connected to line 6 devices via rj45)
  - 86€
  - https://www.strumentimusicali.net/product_info.php/products_id/8316/line6-fbv-express-mkii.html

MeloAudio USB MIDI

LINE6 FBV Express MKII

Other projects and resources

Arduino MIDI Footswitch



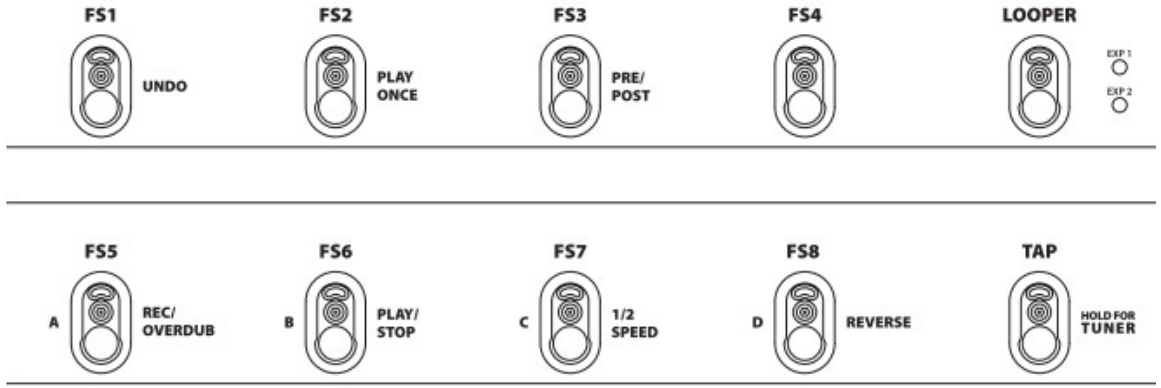
Arduino MIDI Footswitch
- https://github.com/Hecsall/arduino-midi-footswitch

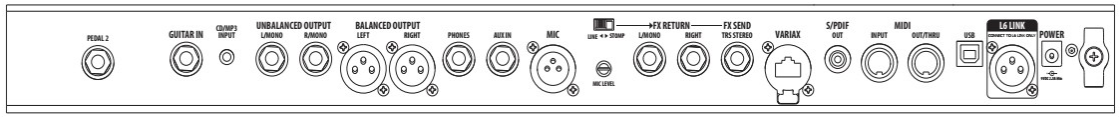
STM32 projects
- https://github.com/keshikan/CureMIDI8
- https://github.com/ripxorip/stm32_usb_midi
- https://github.com/sebseb7/stm32-midi-demo
- https://github.com/guitarfriiik/stm32_usb_midi

Midi tools
- https://mountainutilities.eu/miditools

MIDI format
- CC table https://www.midi.org/specifications-old/item/table-3-control-change-messages-data-bytes-2
- Tempo (FF 51 03 xx xx xx) https://it.wikipedia.org/wiki/Musical_Instrument_Digital_Interface

Line6 POD HD 500





POD HD500 - MIDI Control Reference		
MIDI CC #	**Value**	**Function**
Pedal & Footswitch Assignments		
001	0 - 127	EXP-1 Pedal Assignment
002	0 - 127	EXP-2 Pedal Assignment
051	0 - 127	Toggles FS1 Assignment On/Off
052	0 - 127	Toggles FS2 Assignment On/Off
053	0 - 127	Toggles FS3 Assignment On/Off
054	0 - 127	Toggles FS4 Assignment On/Off
055	0 - 127	Toggles FS5 Assignment On/Off
056	0 - 127	Toggles FS6 Assignment On/Off
057	0 - 127	Toggles FS7 Assignment On/Off
058	0 - 127	Toggles FS8 Assignment On/Off
059	0 - 127	Toggles EXP Toe Switch Assignment On/Off
Looper Controls		
060	0-63 = Overdub, 64-127 = Record	Looper Record/Overdub Switch
061	0-63 = Stop, 64-127 = Play	Looper Play/Stop Switch
062	64-127 = Play Once	Looper Play Once Switch
063	64-127 = Undo	Looper Undo Switch
065	0-63 = Forward 64-127 = Reverse	Looper Forward/Reverse Switch
067	0-63 = Pre 64-127 = Post	Looper Pre/Post Position Switch
068	0-63 = Full 64-127 = Half	Looper Full/Half Speed Switch
099	0-63 = Off 64-127 = On	Looper Mode On/Off
Additional Controls		
064	64-127 = Tap	Tap Tempo - Enter Tap Tempo
069	0-63 = Off 64-127 = On	Tuner Mode On/Off