

Ease of build	Advanced
-partscount	Medium
-density	High
Parts sourcing	Normal
Enclosure fitting	Normal
Debugging level	Advanced

## Effect Control V1.2d

### Single switching solution for multi-effect pedals

## Overview

Everything started with the Ultimate switch. It was a great solution for switching multiple pedals in a box and single modules could be used as relay bypass board.

Here is the next step: The Effect-Control unit can do better to get your multi-build working as there are even more available options than before. The features are:

- up to five relay channels
- fewer channels possible
- Mode1: standard switching On/Off for each channel
- Mode2: real radiobutton-mode (One channel is active at any time)
- Mode3: fake radiobutton-mode (One channel is active but can also be toggled off – unit bypass)
- Mode4: cycle through channels (up and/or down using one or two momentary switches)

Version 1.2 of the circuit also has the “Mute”-feature which allows for absolutely quiet switching!

## General

I developed this unit for a custom multi-effects unit I built. The build used standard true-bypass-switching but using the experience from the Ultimate switch I decided to make it even more flexible and powerful.

There is the possibility to mount the LEDs (loop indicators) directly to the board or to use them externally via the switch connectors.

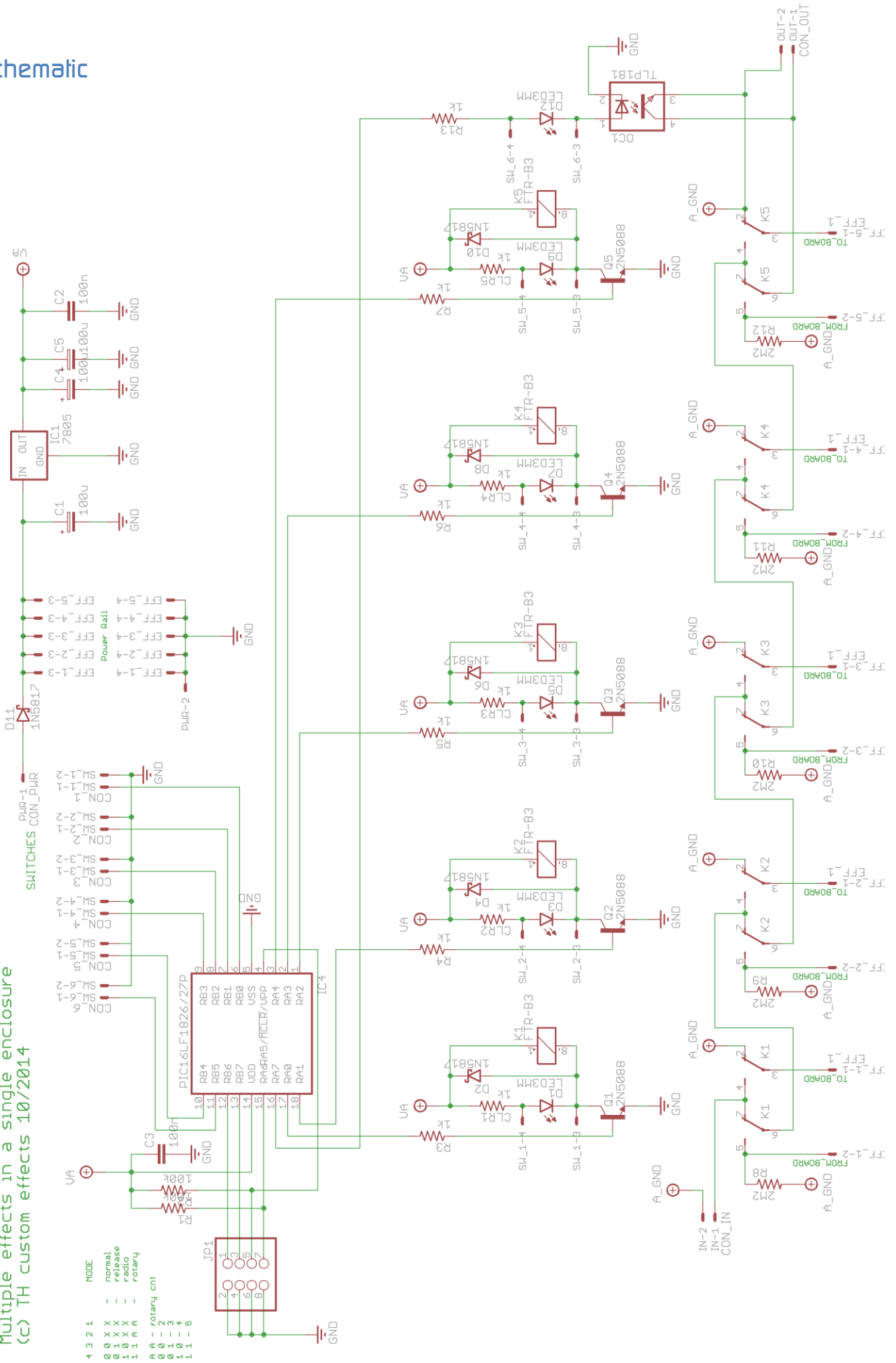
The board has mounting holes for plastic standoffs in the corners.

Switch #6 on this unit is currently empty but there might be a software update in the future utilizing this switch by just replacing the programmed microcontroller.

The board can also be used to build an external looper device. Please see the special wiring notes.

## Schematic

THC Effect Control V1.2  
 Multiple effects in a single enclosure  
 (c) TH custom effects 10/2014



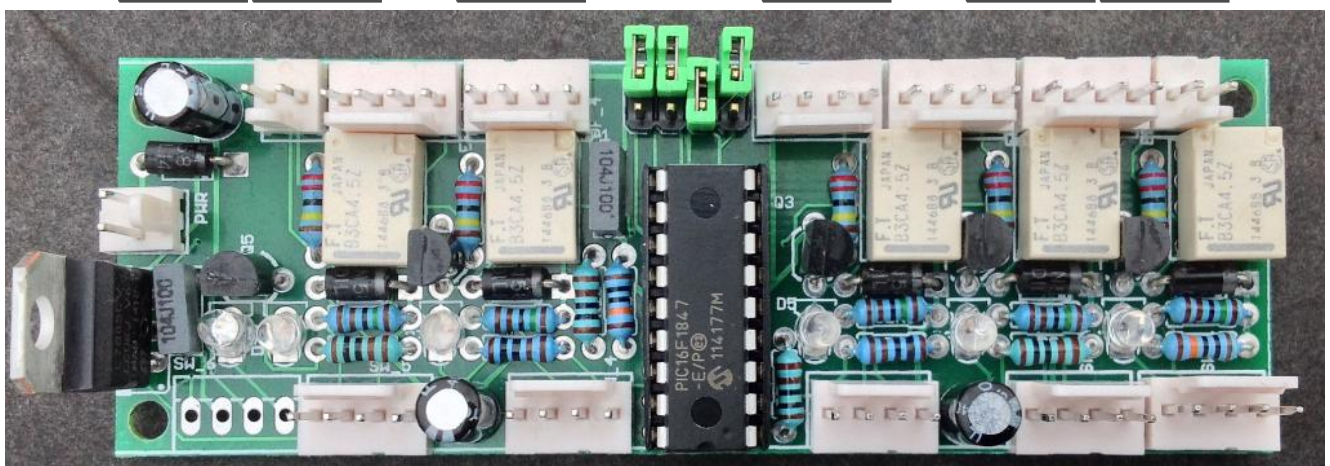
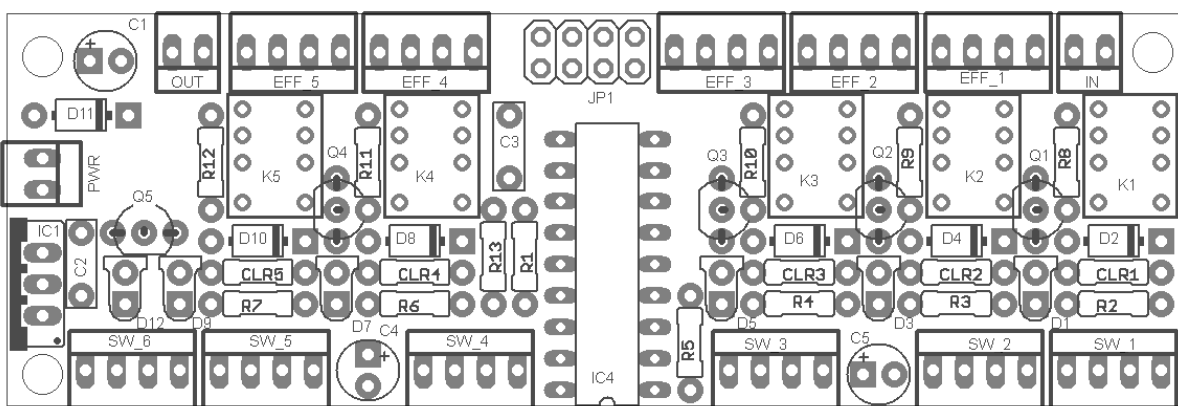
MODE	1	2	3	4
00	X	X	X	X
10	X	X	X	-
11	A	A	A	-
A A	-	-	-	rotary cnt
00	-	2	-	-
01	-	3	-	-
10	-	4	-	-
11	-	5	-	-

## Bill of materials

	Parts	Qty	Value	Description
<b>Resistors</b>	R1, R2	2	100k	
	R3-R7, R13	6	1k	
	CLR1-CLR5	5	1k*	*test with your LED for brightness
	R8-R12	5	2M2	
	<b>Capacitors</b>	C1, C4, C5	3	100uF
	C2, C3	2	100nF	box film
<b>Diodes</b>	D2, D4, D6, D8, D10, D11	6	1N5817	
	D1, D3, D5, D7, D9, D12	6	LED 3mm/5mm	color and type of your choice
<b>ICs</b>	IC1	1	7805	
	IC4	1	microcontroller	
<b>Transistors</b>	Q1-Q5	5	2n5088	or similar (BC549 turn 180deg)
<b>Other</b>	K1-K5	5	Subminiature Relay	FTR-B3CA-4.5Z (Fujitsu)
	OC1	1	CPC1017NTR	Optocoupler
	JP1	1	5x2 pin headers	
	JX	1-4	jumper 5mm	
	Con IN/OUT/PWR	3	Molex Connector 2p	
	Con SW1-SW6, EFF1 – EFF5	10	Molex Connector 4p	
	Switch S1-S6	5	Momentary SPST	normally open

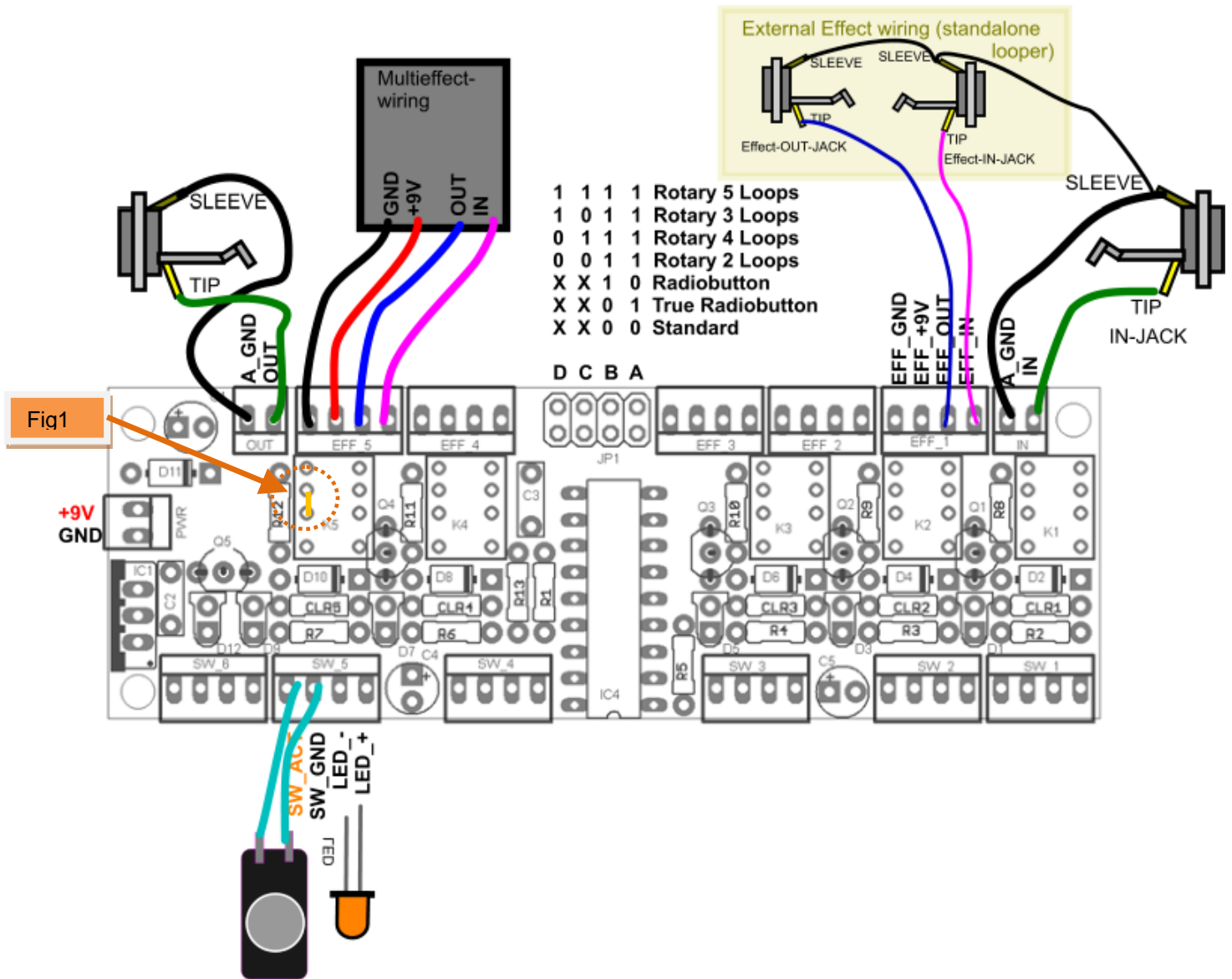
## Building

Populate resistors and diodes first. Then IC socket and relays. Transistors and on-board LEDs next. If you are populating LEDs directly on the board then the long leg goes into the square hole. Next put in box film and electrolytic caps. Headers and connectors as well as the 7805 voltage regulator go in last.



## WIRING

Please note that there is no connection on the board between analog (signal) ground and digital ground. You can make one between one of the A\_GND pads and Power\_GND (right at the power jack) if you need it. Configuration of the device via jumpers can be found at the middle of the diagram. "1" means the jumper is set. In Rotary mode you need to tell the unit how many active loops there are. If you want to use less loops start with the K1-relais. You need to solder a jumper into the relay pads which are left empty from K5 down to Kx (see Fig 1) For the up/down counter to work use SW1 for up and SW2 for down. If the board is used in a standalone-looper scenario, then the jacks to the external effects are to be wired like in the yellow section.



## Finally

This is a great and versatile helper for all multi-effect builds.

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