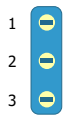
SWITCHES AND BYPASS WIRING

Lets take a look at how switches works and how to wire it up a 3PDT for true bypass and LED indication

To understand how a switch works, let start with a simple one
SPDT - this shows the back of a single pull, dual throw switch



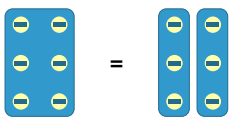
The middle pin (pin 2) is the "common" pin that is internally connected to one of the outer pins (1 or 3), depending on the switch position
The exception is the 3-position on/off/on switch which leaves the middle pin completely disconnected in the middle (off) position

Internal connections (depending on switch position)

= internal connections, no actual wires

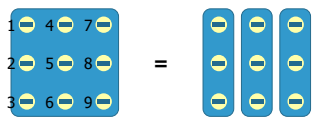
Down position *Up position*
Note that on a flip switch, the actual switch potion works in the opposite direction (as marked above)

DPDT - dual pull, dual throw switch



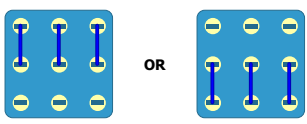
Basically 2 switches in one package controlled by a single toggle

3PDT



Basically 3 switches in one package controlled by a single toggle
I added the pin numbers here just to show how the switch pins are counted

Internal connections 3PDT

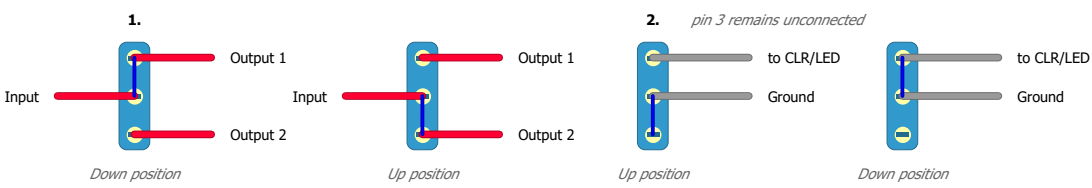


There are no internal connections between the 3 separate rows
The exception is a DPDT on/on/on switch (not that common)

A 3PDT stompswitch can be turned 180 degress -
Orientation doesn't matter as long as you don't put it sideways

SPDT switch use examples

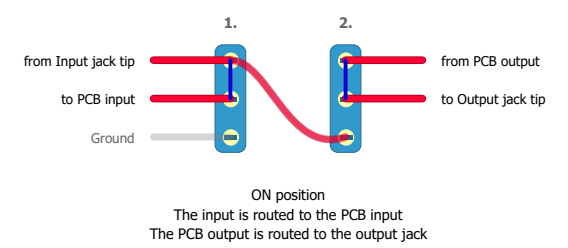
Example 1 - Shows how a SPDT can easily be used to route signal to either one of the two outputs
Example 2 - Shows how a SPDT also can be used as a simple on/off switch for many types of applications (here for a LED indicator)



Let's wire up a true bypass switch!

For this we need at least one DPDT switch (represented here a separate rows to easier see the internal connections)

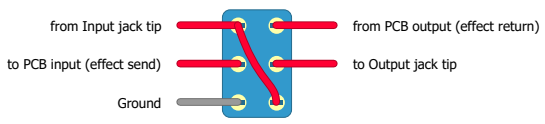
Row 1 - This row routes the input signal to the PCB or grounds the PCB input (effect send)*(optional method - some prefer to ground the PCB output)*
Row 2 - This row routes the output from either the input jack or the PCB output (effect return)
Between these rows we need a wire to link them together to be able to send the input signal directly to the output jack



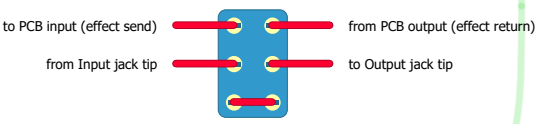
ON position
The input is routed to the PCB input
The PCB output is routed to the output jack

BYPASS position
The input jack is routed to the output jack
The PCB input is grounded

Actual DPDT diagram illustrated above combined



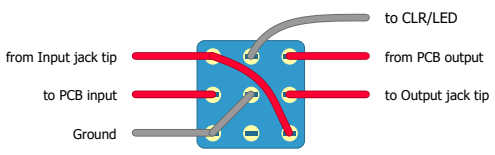
Another version that doesn't ground the PCB input in bypass



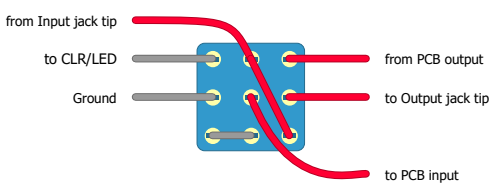
This version is is shown because it's very easy to understand the signalflow here
Not recommended by true bypass, but useful in other routing applications

For LED indication on/off we need one more row, wired up as the SPDT example nr 2 shown above

3PDT BYPASS EXAMPLES



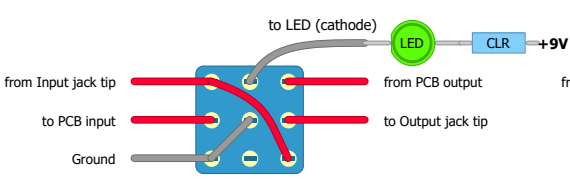
Example 1.
As you can see, this is basically the same as the DPDT version above, I just added the LED on/off switching to the middle row

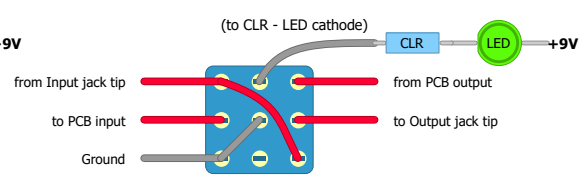


Example 2.
This version looks very different, but it does the exact same thing. Only the rows has switched place

There are many other different methods aswell, but these are my favourites

Important note!
All these examples here does not show the CLR (Current Limiting Resistor) needed for the bypass LED indicator
You need to connect the resistor to either end of the LED (sometimes the CLR is board mounted on the PCB)





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