So there I was with a 3 position software switch that had a 'directional control'. That is if it was down it needed one up click to get to the middle position and another up click to get to the third position.
Good examples are the Seatbelt and No Smoking sign switches on the 737 Overhead and the Strobe Switch on the Wilco Airbus A320.

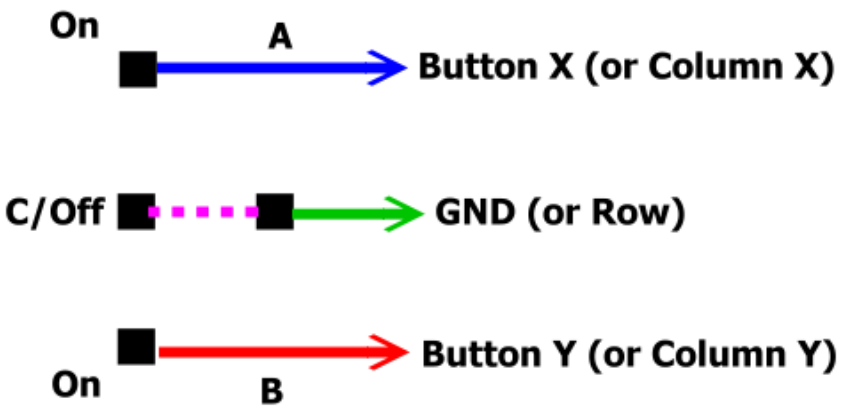
Now looking at the switch on the left (from the Airbus), to get from position 1 (Off) to position 3 (On), two inputs are required. And to get from the On position to the Off position, again two inputs are needed. To switch from Off or On to Auto, only one input is required, but they all must be in the correct direction.
Then it dawned on me that I could have the inputs work in a synchronised direction by cheating with the encoder capability of the BU0836 family of cards.
The object of this exercise is to make a three position switch input to a BU0836 (std. or X version) in two distinct opposite directions. That is when connected to a button pair, one button will operate when the switch is moved one way and the second button will operate when the switch is moved in the opposite direction. With me so far? Yes, great :o))
What a simple encoder does is look at connectivity between two contacts in a relationship (whether they are connected or not) to a common. Look at the truth table below and at position 4, 5 & 6.

TRUTH TABLE 2 BIT BINARY

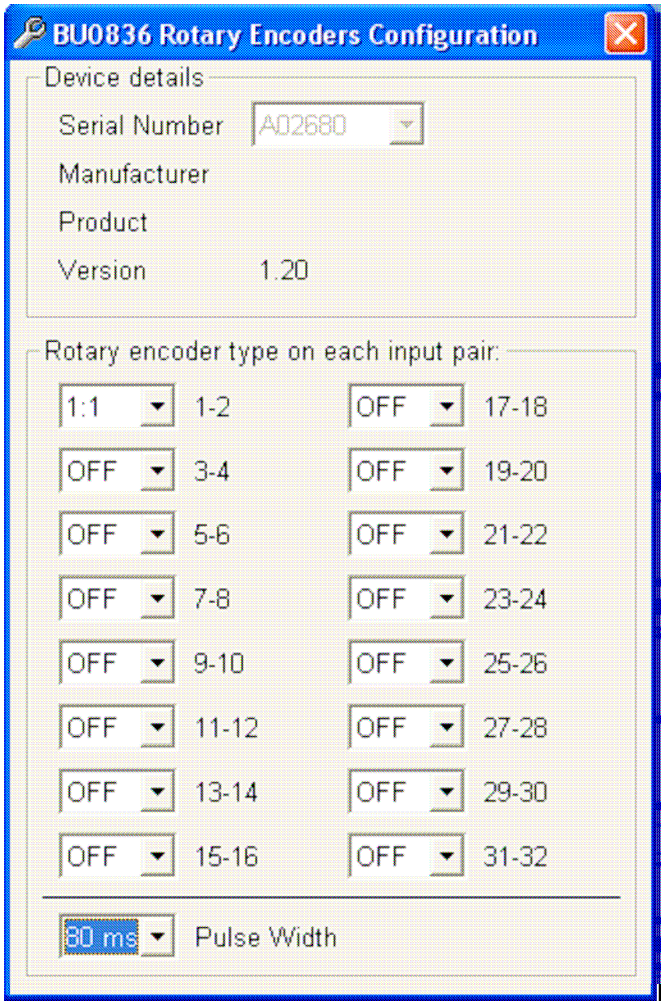
*

DENOTES CONTACT CLOSURE TO COMMON																
	B	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1 1
	A	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1 0
POS. NO.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 16

In position 4, the B line is in contact with the common. In position 5 neither of the A or B lines are connected to the common and in position 6, the A line is connected. An encoder tells the control card which way it has turned by this change in the relationship with the common (the switch change state).
I realised that I could make the BU0836 card react the same way it would if I had a simple encoder connected, but in this instance, I am only using 3 positions.

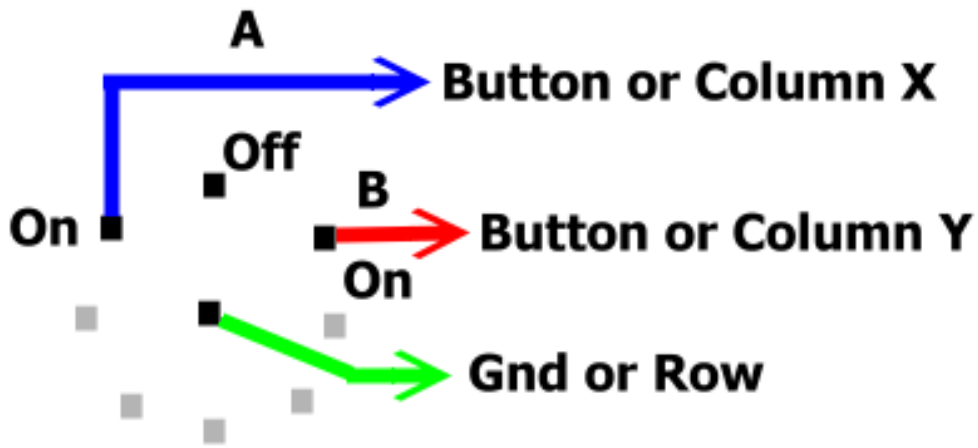


Looking at the above diagram of a 3 position (centre off) switch, it's possible to replicate the position 4, 5 & 6 switch states in the truth table.
Switch Down, B is in contact with the common (position 4)
Switch Off, neither line is in contact with the common (position 5)
Switch Up, A is in contact with the common (position 6)
That means we have successfully copied the action of an encoder over the three positions.



In Leo's Encoders utility, choose your button pair and select encoder type 1:1 as in the above example.
Using an X board, simply connect the common to either GND connector of your button pair and the two A & B lines to the actual Button inputs (in this example 1 & 2).
Using a Standard BU0836, decide which Row/Column combination is going to give you to Button Pair you need. In the above example for Button 1 & 2 it's going to be Row 1 and Column 1 & 2. Connect the common to the row and the A & B lines to the two columns. Remember to use diodes when using a standard card. It doesn't matter where you put them, but just remember as a rule of thumb, the continuity flow is from the Column to the Row, so the diode will always ' Face the Row'.

Then another application springs to mind. A 3 position rotary. Good example is the Engine Mode Switch on the A320.
Same rules apply, three positions that have a directional control, the + & -.
So using a rotary switch (limited to 3 positions), something like this can also be included using this idea. Only as good as your imagination. Here's the connection diagram.



Result is a directional 3 way switch which inputs to Button X at each movement one way and Button Y at each movement the other way. So it's off to FSUIPC and record the macro's :o))

Hope that helped you out and was of some use. Necessity is the mother of invention and if I have a requirement for something like this, then I'm sure you will have :o))

Thanks for your interest and please tell me if you have a better way to do it …….

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