ShiftByWire SEQUENTIAL®
V1

Wiring:

1. GND or 5v* - Black
2. Switch 1 - Brown
3. Switch 2 - Blue

*(depending on controller input. Dig. Analog. Pull up, pull down. etc)

Specifications:

Material: T6-6061 Billet

Weight: 2.12Kgs

Dimensions:

Height – 415mm

Width – 79mm

Depth – 192.5mm

Operating temperature:

–25°C to 85°C (at ambient humidity of 60% max.)

Spare parts:

Handle bearings – 2x req - #16001

Spring ball plungers – 4x req - #RS Stock No.: 284-5471

Body bolts – M6x1.00 x 20mm – 16x req

Microswitches – 2x req - OMRON D2F-FL3-D

Tension springs – 2x req - SPEC D12510

M8 male bulkhead connector – 1x req - # 50-00675

M8 Female 90deg 1m cable – 1x req - # YG8U13-020UB1XLEAX

Torque specs:

Body: M6 - 8Nm

Spring saddles: M6 < 2Nm

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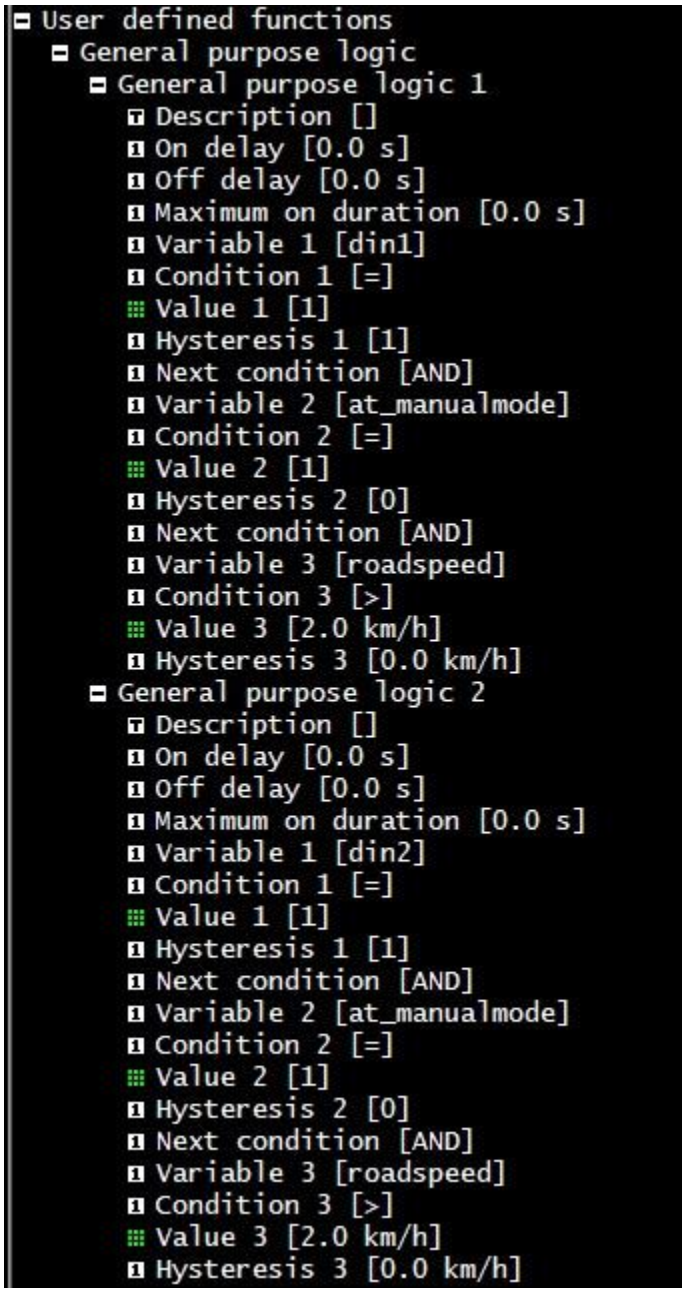
Logic example:

To control all gears (p,r,n,d and also 1 to 10 gears) we must employ some logic for control and safety.

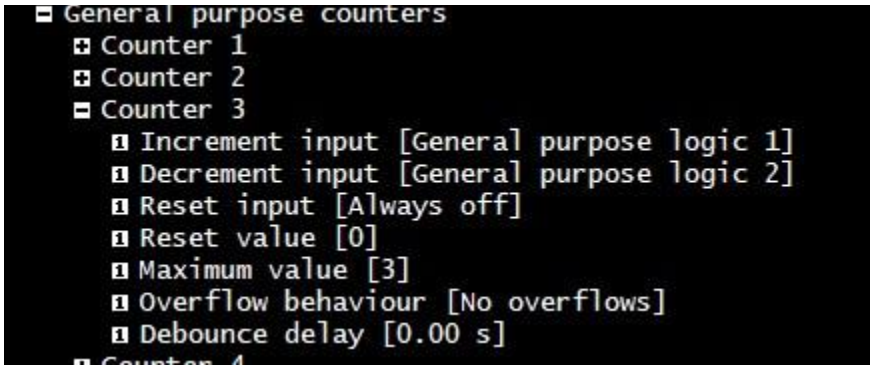
This example is done using the Baldur Control Systems Calibrator Software (BG Calibrator)

For this scenario, assume we are connecting the shifters inputs to 2x spare Dig inputs on our controller (LPC4 or LPC8 for eg.) We will say we have up shift connected Dig1 and down shift connected to Dig2.

First make 2x gp logics for up and down inputs that only work with roadspeed less than 2kph and manual mode is 0. This is going to increment our P R N D.



Then make a counter that is Incremented by up shift and decremented when down shift registered. (assign gp1 and gp2 as above)



We now Have:

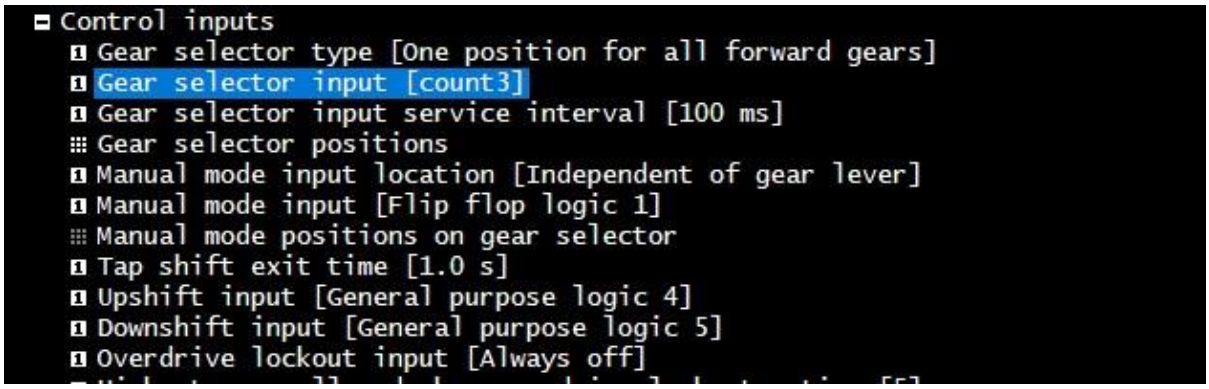
P – 0

R – 1

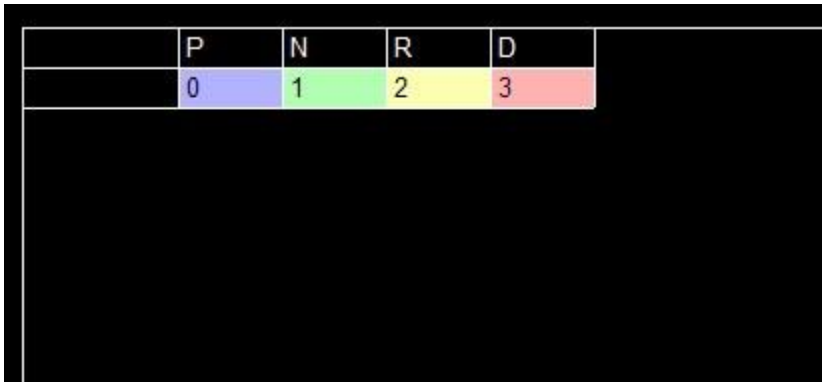
N – 2

D – 3

Now assign the counter 3 to gear selector input.



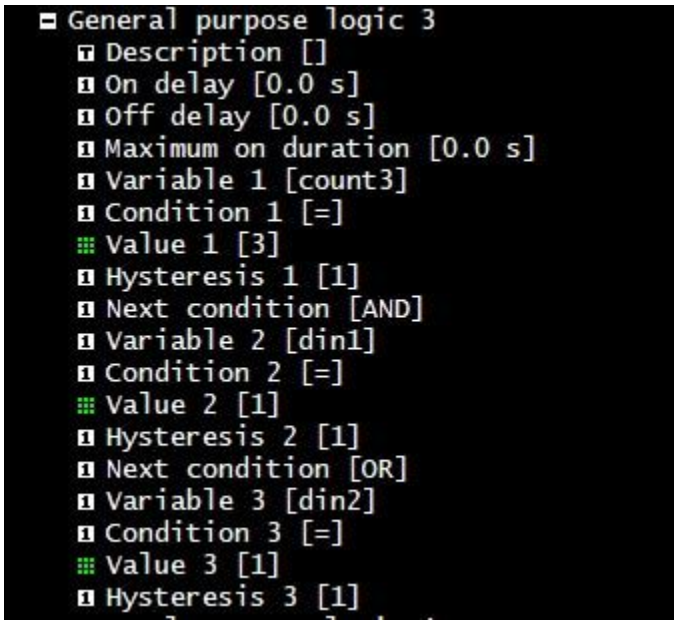
Then assign the gear selector positions for the count 3 value.



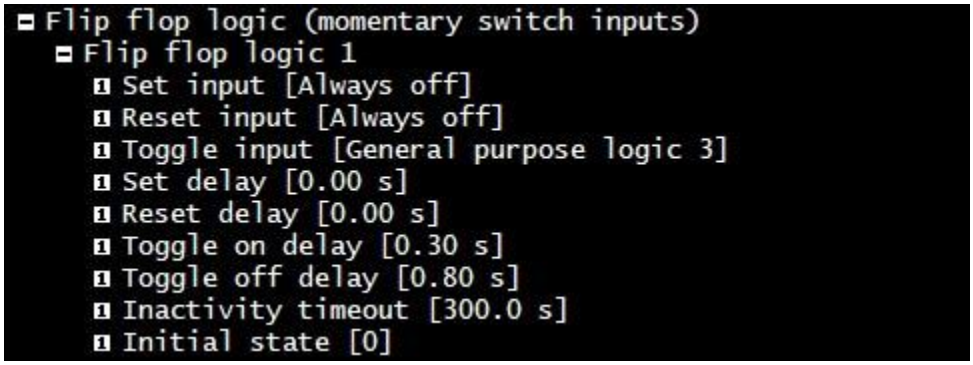
We now have P R N D selectable if the vehicle is stationary and manual mode is off.

Next, we need to control manual mode and manual shifts.

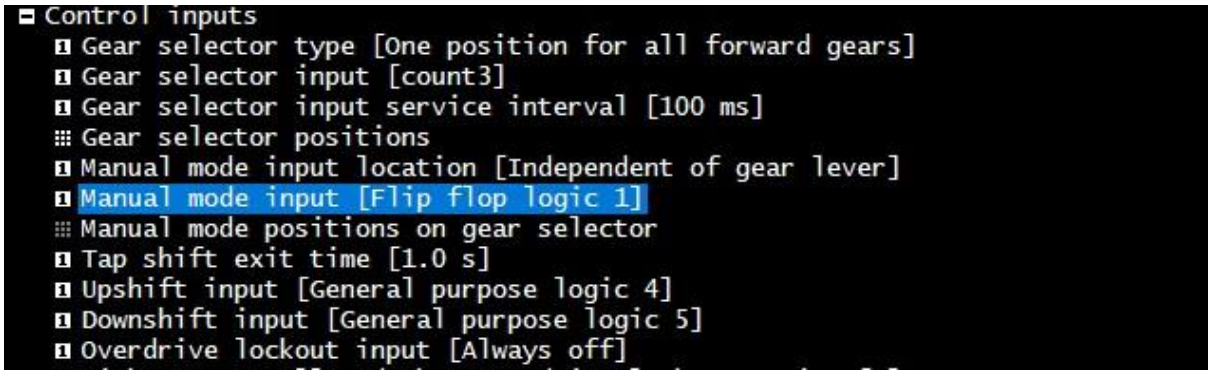
First, Create a trigger for manual mode. We only want to allow manual mode if count is 3 (Drive) and a up or down shift input is registered.



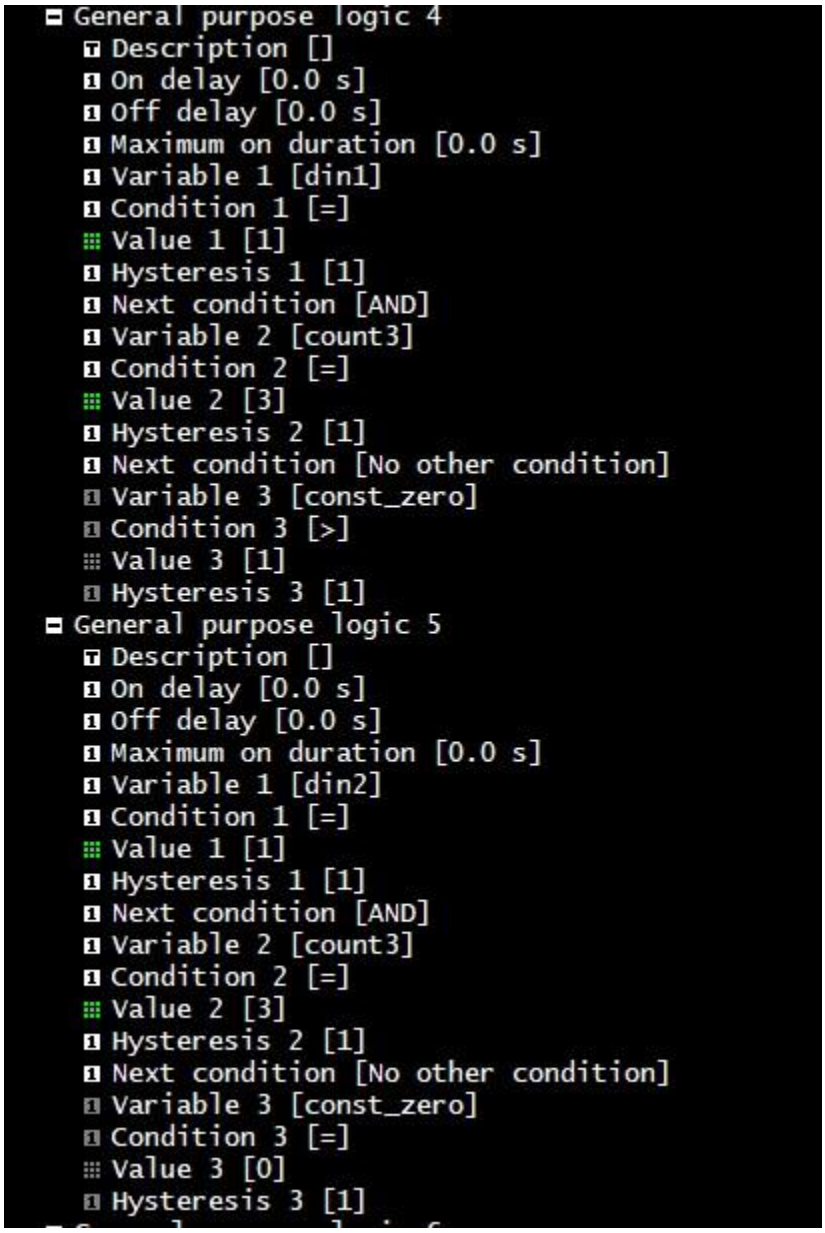
Now create a FlipFlop logic for the manual mode input using this GP logic as the toggle input.



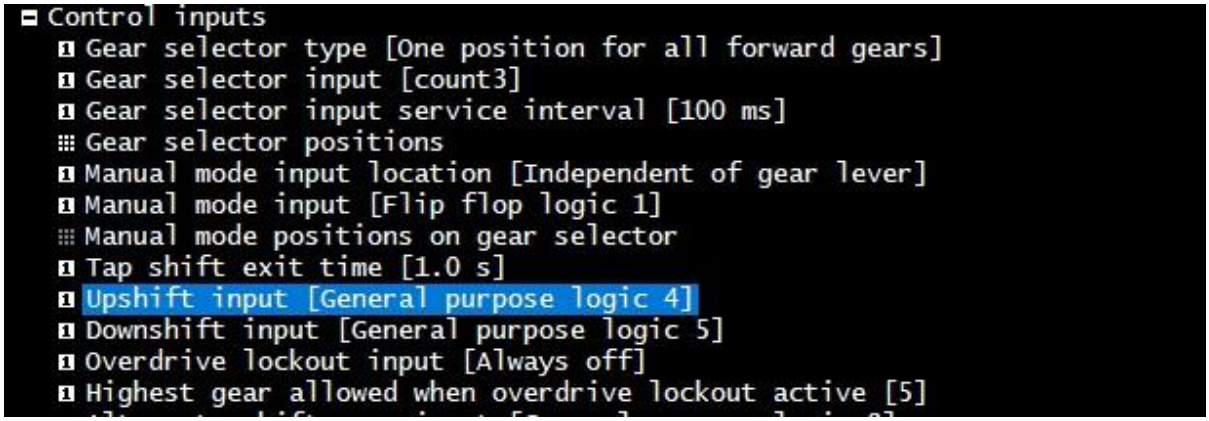
Then assign it to manual mode input



Finally, we create 2x more gp logics for up and down shift inputs. These are also interlocked with count3 (DRIVE) but are not inhibited by road speed like gp1 and gp2.



Assign these to the upshift and downshift inputs.



What we end up with when simply pulling or pushing the sequential shifter:

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Vehicle not moving:

P, R ,N, D

Vehicle not moving in Drive:

P, R, N, D, 1 2 3 4 5 6 7 8 9 10

Vehicle moving in Drive:

1 2 3 4 5 6 7 8 9 10

Exit manual mode:

Hold up or down for 0.8 secs

It's recommended to add adequate time to the Pre and Post amble tables between P > R and N > R.

This will give time to pass over Reverse without it engaging instantly