

HALTECH TO MAXxECU GATEWAY SETUP FOR 8HP TRANSMISSION CONTROL

Thank you for the purchase of the Haltech to MaxxECU gateway controller. This module will allow seamless communication between a Haltech ECU running NSP firmware and a MaxxECU for the control of a 8HPXX transmission.

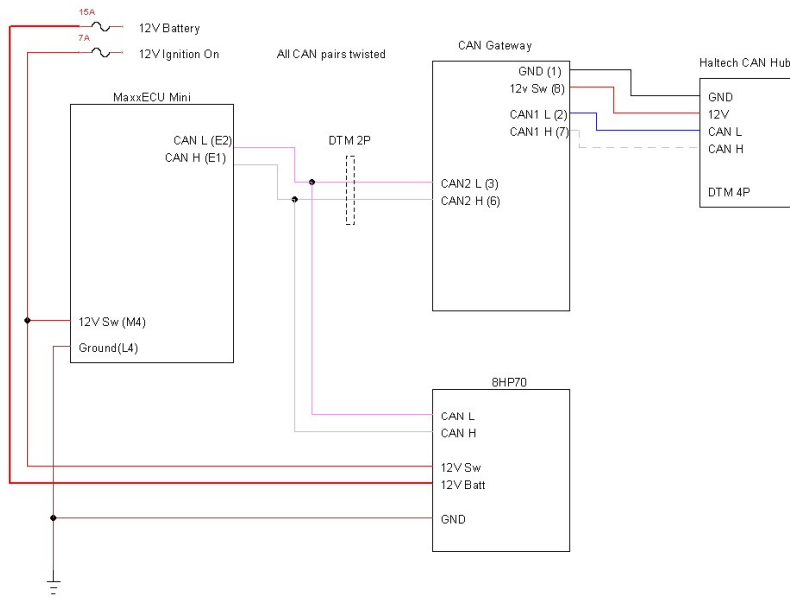
The CAN gateway is a triple bus module but for the purpose of integrating the MaxxECU for transmission control we will only be using two CAN busses.

Bus #1 runs at 1Mbit/s and connects to the Haltech side of the network.

Bus #2 runs at 500Kbit/s and connects to the MaxxECU side of the network.

The 8HPXX transmission by default operates at 500Kbit/s which cannot be changed.

Below you will find a wiring diagram of how the system is to be laid out.



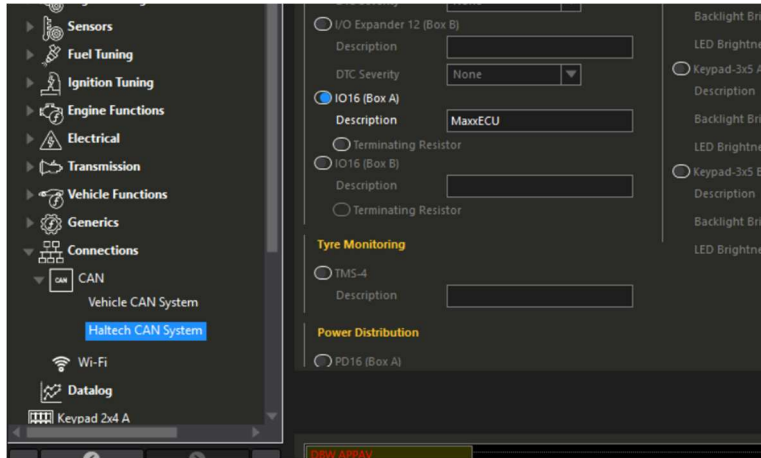
Title		
Author		
File C:\Use ... Haltech To Maxx Gateway Wiring.dsn		Document
Revision 1.0	Date	Sheets 1 of 1

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To set this system up requires the programming of several inputs and outputs. Below is a list of such items to be configured.

Haltech System:

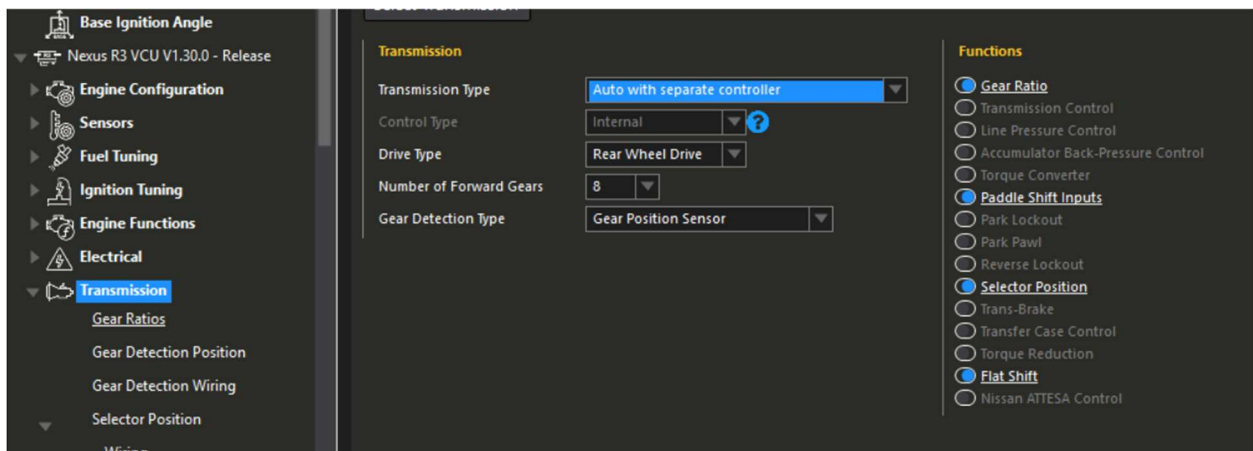
Go under Connections>CAN>Haltech CAN System> and enable IO16 Box A and name it MaxxECU. This now allows us to route CAN messages from the Maxx through the gateway too the Haltech.



Transmission setup-

Now we need to setup all the transmission functions on the haltech side of things.

First step- Select Auto with separate controller, enable Gear Ratio, Paddle Shift, Selector Position and Flat Shift. Set to Rear Wheel Drive, 8 forward gears and Gear Position Sensor



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Next we will setup Gear Positions- Enter the voltage values as below.

Gear	Nominal Voltage	Voltage Tolerance	Action
1st	1.00	0.10	Calibrate
2nd	1.50	0.10	Calibrate
3rd	2.00	0.10	Calibrate
4th	2.50	0.10	Calibrate
5th	3.00	0.10	Calibrate
6th	3.50	0.10	Calibrate
7th	4.00	0.10	Calibrate

Reverse: ☐ Enable
Nominal Voltage: 0.30 Volts
Voltage Tolerance: 0.10 Volts

Neutral: Nominal Voltage: 0.60 Volts
Voltage Tolerance: 0.10 Volts

Next we set the Gear Position Wiring as below. Make sure to select IO16A, AVI1

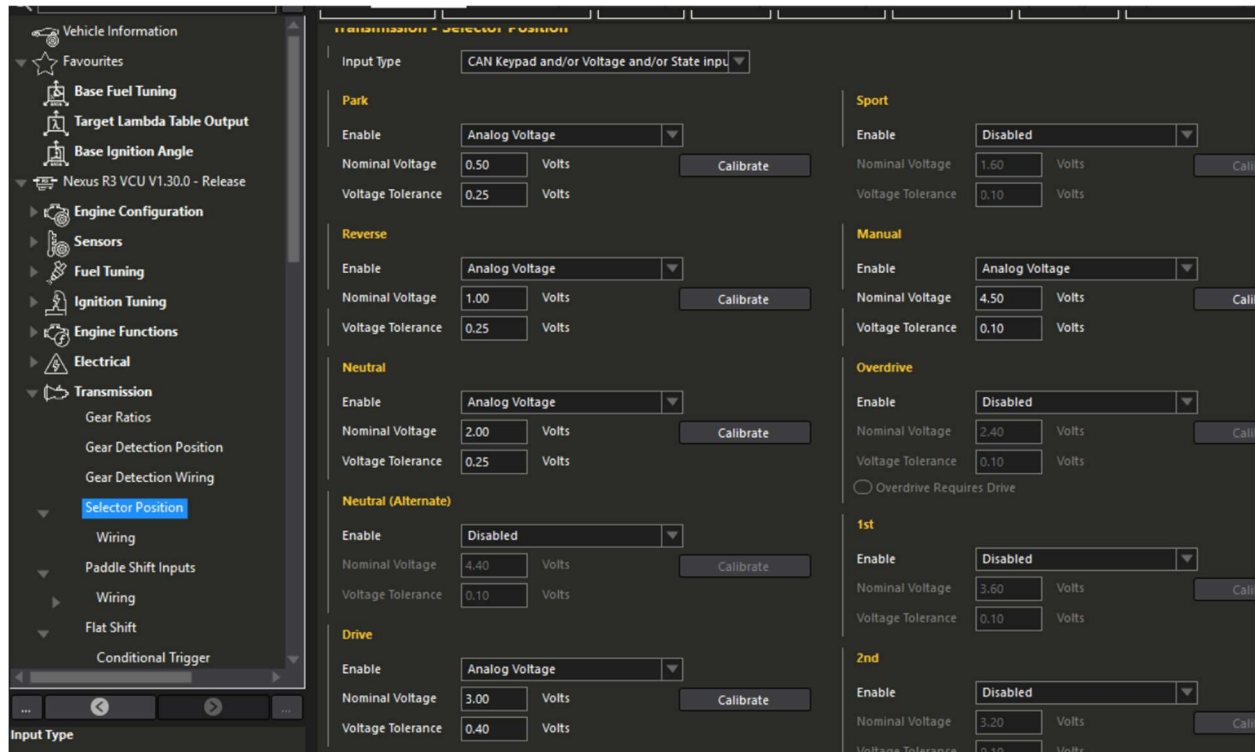
Connections

Gear Voltage Input: Assign IO16A AVI1
Clear

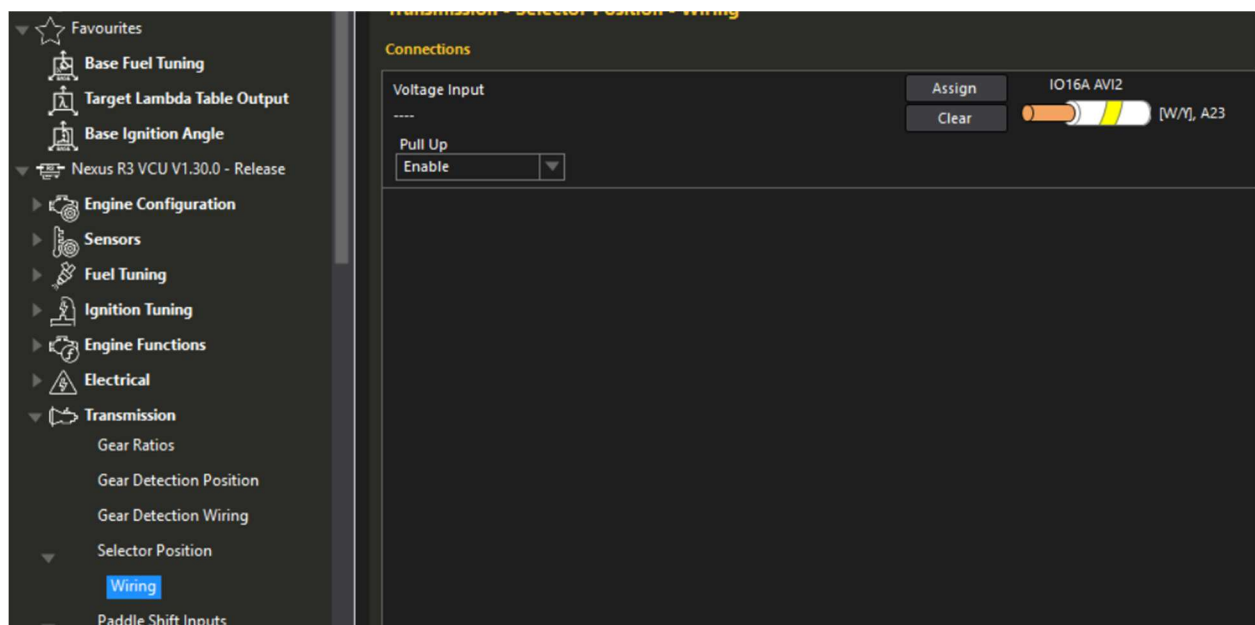
Pull Up: Enable

Next is Select Position- Set the voltages as per below. Make sure input type is CAN Keypad or Voltage.

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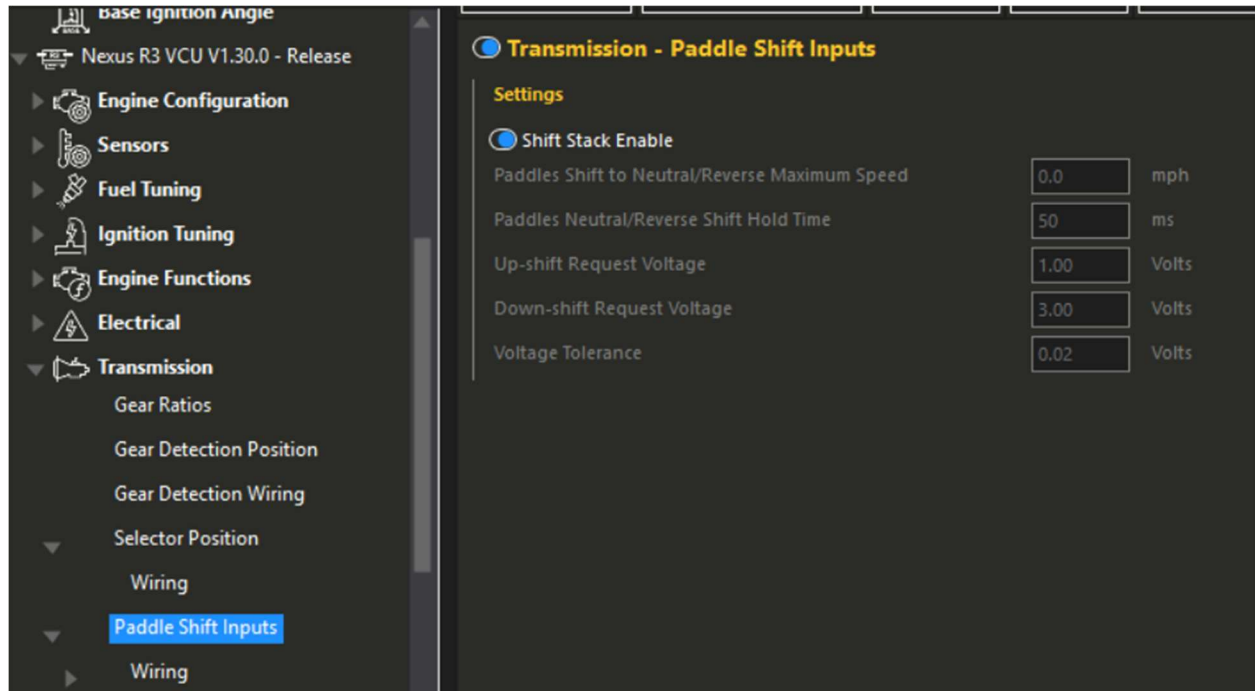


Selector Position Wiring – IO16A, AVI2

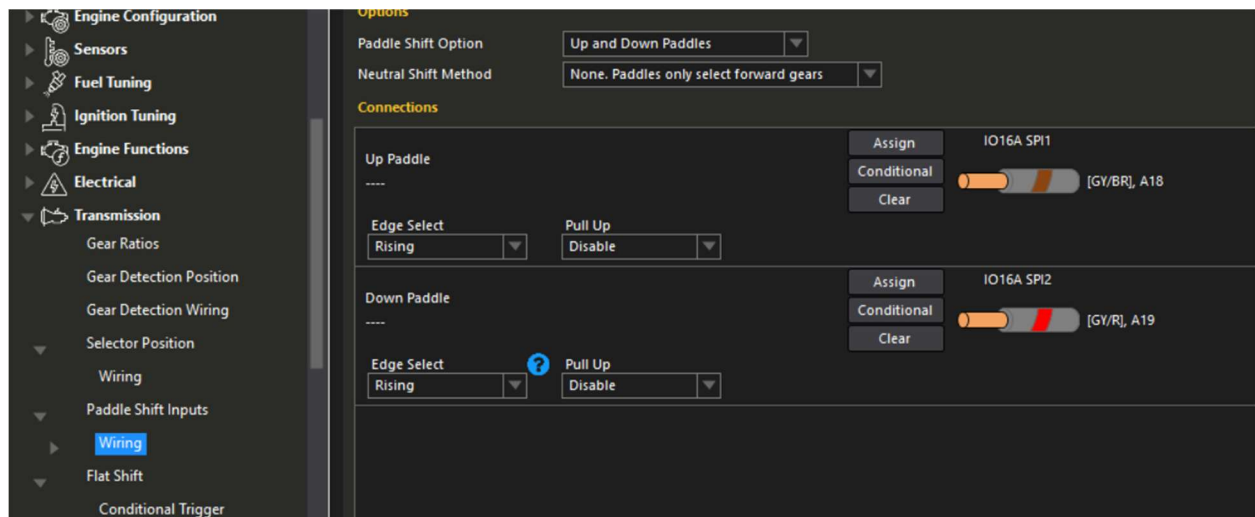


Paddle shift setup- Simply enable Shift Stack

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Paddle Shift Wiring- Select Up and Down Paddles, Neutral shift method set to None. Up Paddle- IO16A, SPI1. Down Paddle- IO16A, SPI2. Set both to Rising edge with pull up disabled.



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Flat Shift setup- Set all settings as below.

The screenshot shows the 'Transmission - Flat Shift' configuration page in the Haltech software. The left sidebar lists various settings categories, with 'Transmission' expanded and 'Flat Shift' selected. The main panel is divided into three sections: 'Flat Shift', 'Throttle Blip on Down Shift', and 'Trigger Options'. The 'Flat Shift' section has 'Mode' set to 'While Active', 'Max Shift Time' at 750 ms, and 'Blockout' at 800 ms. The 'Throttle Blip on Down Shift' section has 'Enable' checked, 'Min Speed' at 12.4 mph, 'Min RPM' at 1200 RPM, 'Delay' at 300 ms, 'TPS Correction' at 4.0 %/sec, 'Post Shift TPS Fade Enable' checked with a rate of 100.0 %/sec, 'Gear Tolerance Enable' checked, 'Allow When Anti-Lag Active' unchecked, and 'Actuation Method' set to 'Drive by Wire'. The 'Trigger Options' section has 'Conditional Trigger' selected, 'Flat Shift Input Enable' unchecked, 'Input Select' set to 'Paddles with external controller', 'Torque Reduction Method' set to 'Fuel Cut & Ignition Retard', 'Torque Reduction Type' set to 'Cut Percentage', 'Rev Match Offset' at 0 RPM, 'Recovery Method' set to 'Ramp Out Cut and Retard Together', 'Shift Direction' set to 'Up Shifts', 'Min TPS' at 75.0 %, and 'Min RPM' at 4000 RPM.

Transmission - Flat Shift

Flat Shift

Mode: **While Active**

Max Shift Time: **750** ms

Blockout: **800** ms

Throttle Blip on Down Shift

☒ Enable

☐ Rev-match Limiter

Min Speed: **12.4** mph

Min RPM: **1200** RPM

Delay: **300** ms

TPS Correction: **4.0** %/sec

☐ Post Shift TPS Fade Enable

Post Shift TPS Fade Rate: **100.0** %/sec

☒ Gear Tolerance Enable

☐ Allow When Anti-Lag Active

Actuation Method: **Drive by Wire**

Trigger Options

☒ Conditional Trigger

☐ Flat Shift Input Enable

Input Select: **Paddles with external controller**

Torque Reduction

Torque Reduction Method: **Fuel Cut & Ignition Retard**

Torque Reduction Type: **Cut Percentage**

Rev Match Offset: **0** RPM

Recovery Method: **Ramp Out Cut and Retard Together**

Shift Direction: **Up Shifts**

Min TPS: **75.0** %

Min RPM: **4000** RPM

The screenshot shows the 'Transmission - Flat Shift - Conditional Trigger' configuration page. The left sidebar is the same as the previous screenshot, but 'Conditional Trigger' is now selected under the 'Flat Shift' category. The main panel shows the conditional trigger logic. It starts with 'When Flat Shift Switch is On' followed by a dropdown menu set to 'And'. Below this, there is a logic statement: 'Paddle Shift State' followed by a 'Select' button, 'is' followed by a dropdown set to 'Equal To', and 'Up Shift' followed by a dropdown set to 'Up Shift'.

Transmission - Flat Shift - Conditional Trigger

When Flat Shift Switch is On: **And**

Paddle Shift State **Select** is **Equal To** **Up Shift**

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▼ Nexus R3 VCU V1.30.0 - Release

- ▶ Engine Configuration
- ▶ Sensors
- ▶ Fuel Tuning
- ▶ Ignition Tuning
- ▶ Engine Functions
- ▶ Electrical
- ▼ Transmission
 - Gear Ratios
 - Gear Detection Position
 - Gear Detection Wiring
 - ▼ Selector Position
 - Wiring
 - ▼ Paddle Shift Inputs
 - Wiring
 - ▼ Flat Shift
 - Conditional Trigger
 - Cut Percentage**

Flat Shift Cut Percentage Table

Output: ---- %

Manifold Pressure (psi/inHg)

RPM (RPM)

	1000	2000	3000	4000	5000	6000	7000	8000
45.0	50.0	50.0	50.0	46.0	46.0	46.0	46.0	46.0
40.0	43.7	43.7	44.4	41.2	41.9	42.7	43.5	44.3
30.0	32.8	32.8	35.1	33.5	35.8	38.1	40.4	42.9
20.0	25.9	25.9	27.3	27.0	31.0	34.1	37.2	40.5
10.0	19.0	19.0	19.4	20.6	26.1	30.1	34.0	38.0
0.0	0.0	0.0	7.1	14.1	21.3	26.0	30.7	35.5

HALTECH TO MAXXECU GATEWAY SETUP FOR 8HP TRANSMISSION CONTROL

Base Ignition Angle

Nexus R3 VCU V1.30.0 - Release

Engine Configuration

Sensors

Fuel Tuning

Ignition Tuning

Engine Functions

Electrical

Transmission

Gear Ratios
Gear Detection Position
Gear Detection Wiring
Selector Position
Wiring
Paddle Shift Inputs
Wiring
Flat Shift
Conditional Trigger
Cut Percentage
Ignition Retard

Flat Shift Retard Table

Output: ---- °

Manifold Pressure (psi/inHg)

RPM (RPM)

	1000	2000	3000	4000	5000	6000	7000	8000
45.0	14.2	14.2	14.2	15.2	15.2	15.2	15.2	15.2
40.0	10.4	10.6	10.8	12.1	12.3	12.5	12.8	13.0
30.0	7.8	8.5	9.2	10.7	11.4	12.1	12.8	13.5
20.0	5.2	6.4	7.6	9.3	10.5	11.7	12.9	14.0
10.0	2.6	4.3	5.9	7.9	9.5	11.2	12.9	14.5
0.0	0.0	2.2	4.3	6.5	8.6	10.8	12.9	15.0

HALTECH TO MAXXECU GATEWAY SETUP FOR 8HP TRANSMISSION CONTROL

Base Ignition Angle

Nexus R3 VCU V1.30.0 - Release

Engine Configuration

Sensors

Fuel Tuning

Ignition Tuning

Engine Functions

Electrical

Transmission

Gear Ratios

Gear Detection Position

Gear Detection Wiring

Selector Position

Wiring

Paddle Shift Inputs

Wiring

Flat Shift

Conditional Trigger

Cut Percentage

Ignition Retard

Recovery Time

Flat Shift Recovery Time

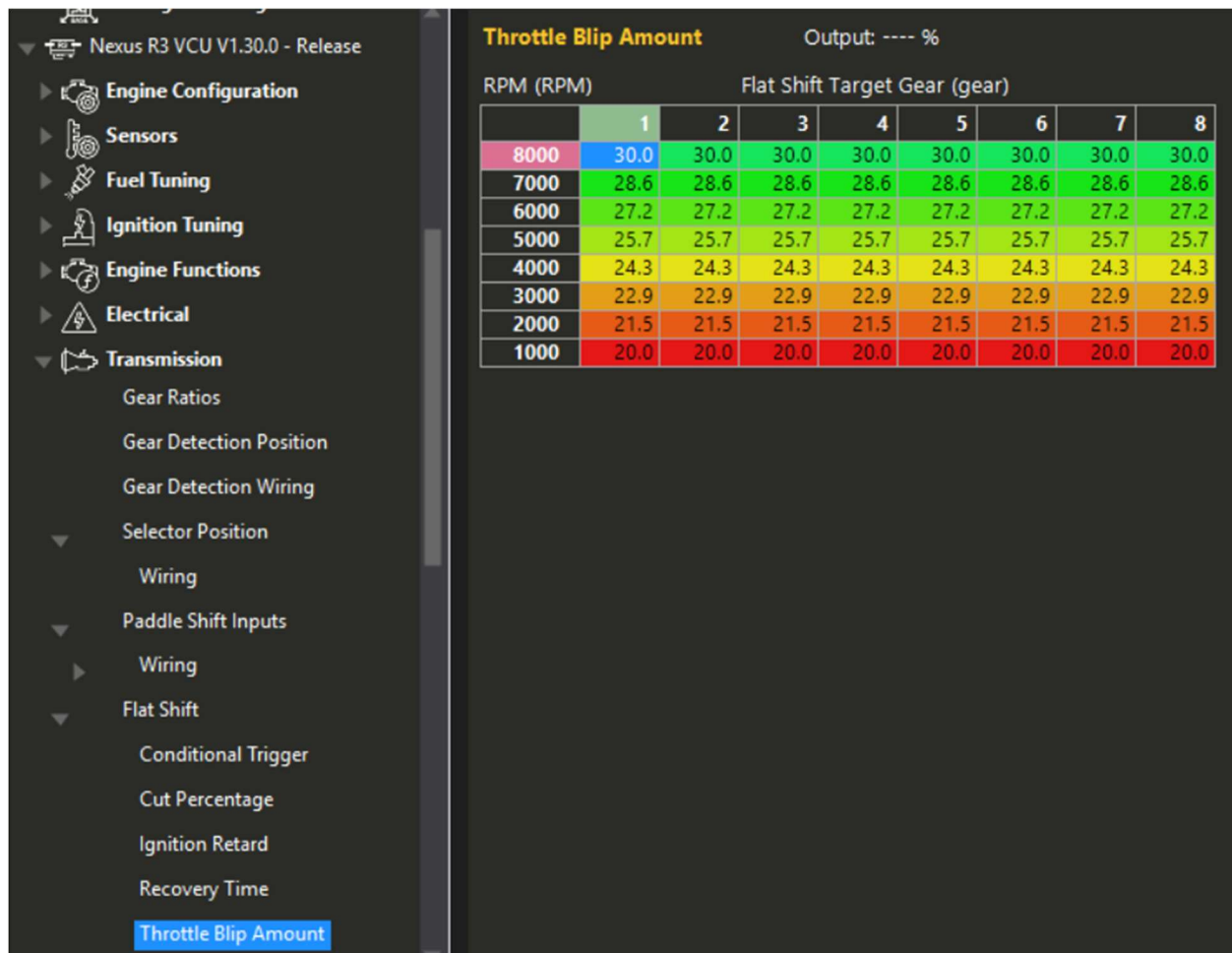
Output: ---- ms

Manifold Pressure
(psi/inHg)

RPM (RPM)

	1000	2000	3000	4000	5000	6000	7000	8000
45.0	10	30	33	37	40	49	67	95
40.0	9	27	29	31	33	42	59	85
30.0	7	22	24	26	27	35	49	72
20.0	5	17	18	20	26	33	40	59
10.0	2	12	15	18	25	32	39	55
0.0	0	7	12	17	24	31	38	50

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Throttle Blip Amount Output: --- %

RPM (RPM)	1	2	3	4	5	6	7	8
8000	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
7000	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
6000	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2
5000	25.7	25.7	25.7	25.7	25.7	25.7	25.7	25.7
4000	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3
3000	22.9	22.9	22.9	22.9	22.9	22.9	22.9	22.9
2000	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
1000	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0

The values assigned to shift cut, shift retard, recovery time and blip amount are all base line values and can be adjusted to clean up shifts if need be.

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Launch Control Setup- Enable Launch Control under Vehicle Functions then assign IO16A SPI4 as the wiring input as below.

Launch Control will enable whenever the transmission is put into Launch mode or Trans brake mode.

