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## Setting up Nitrous Control on a DTA S Series ECU

Nitrous (NOS) setup on an S Series ECU is very simple, and uses the flexible analogues. Aux3 has extra settings available. Aux3 has been chosen, as Aux1 and Aux2 are more likely to be in use for other functions.

There are a number of inputs and outputs required to accurately control a NOS system.

### Inputs

The only extra input the ECU requires is the pressure from the NOS bottle. This must be used to turn off the nitrous control when the pressure in the bottle drops too low.

It is recommended that the Map2 switch is fitted to turn NOS control on and off. This is a physical switch, and NOS will be permanently off when the switch is in the off position. Turning the switch on turns on NOS control in the ECU, which will then use the parameters set to turn NOS control on or off.

From this basic setup, other inputs can be used to control when the NOS system is switched on. Most systems will use a combination of throttle position and RPM to turn on the NOS system. When the NOS is added to the fuel, it will be necessary to retard the timing.

Below is an example of a NOS setup.

Analogue3 and AUX3 NOTE:- ANA3 Alt. Function is Gear Sensor, AUX3 is VTEC \*

Row	RPM 0 to 20000 RPM	Fuel Comp % -90 to 500	Advance Comp % -90 to 500	Ana3 Value -500.0 to 1000.0	AUX3 Duty Cycle 0 to 100%
1	3000	0	0	0.0	0
2	3250	0	0	0.0	0
3	3500	0	0	0.0	0
4	3750	0	0	0.0	0
5	4000	0	0	0.0	0
6	4250	0	0	0.0	0
7	4500	0	0	0.0	0
8	4750	0	0	0.0	0
9	5000	10	-15	0.0	50
10	5250	10	-15	0.0	55
11	5500	10	-15	0.0	60
12	5750	10	-15	0.0	65
13	6000	10	-15	0.0	75
14	6250	10	-15	0.0	100
15	6500	10	-15	0.0	100
16	6750	10	-15	0.0	100
17	7000	10	-15	0.0	100
18	7250	10	-15	0.0	100
19	7500	10	-15	0.0	100
20	7750	10	-15	0.0	100
Sec. Input Function On At	3000				
Second Input Hysteresis	5				

Use Which Input ?

- RPM
- Man Pressure
- Water Temp
- Air Temp
- Battery Volts
- Throttle
- A/F Ratio
- Undriven Wheel Sp
- Ana 3 Volts

Which Second Input ?

- None
- RPM
- Man Pressure
- Water Temp
- Air Temp
- Battery Volts
- Throttle
- Lambda
- Undriven Wheel Sp
- Ana 1 Volts
- Ana 2 Volts
- Ana 3 Volts
- Oil Pressure
- Fuel Pressure
- Oil Temp

Ana3 Name |NOS|

Function Active?

AUX3 Active?

AUX3 Frequency (16-1000 hz) |16|

Vary AUX3 Frequency not Duty

Turn On Using MAP2 Switch ?

Turn On Only at and Above Throttle (0 - 100%) |50|



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In this example, the NOS system will start adding NOS when the RPM is above 5000 RPM. However, the pedal must also be at 50% or greater.

As the RPM rises, more NOS is added to the system, by increasing the amount of time the NOS solenoids are opened, until 6250 RPM, when the solenoids are fully open all the way to 7750 RPM.

When the NOS is being added, the ECU can also add (or remove) fuel and timing. In this example we are adding 10% fuel, and retarding the ignition by 15%.

The bottle pressure sensor voltage is connected to Analogue 3. This input requires the bottle pressure sensor to output a voltage that drops below 5000 mV when the pressure is too low. In the example below, we've assumed 3000 mV is where we want to turn the system off, as the pressure in the bottle is too low.

This can be seen here:

<b>Sec. Input Function On At</b>	<b>3000</b>
<b>Second Input Hysteresis</b>	<b>5</b>

As long as the bottle pressure sensor sends out a voltage that is greater than 3000mV, the NOS system will function as normal. When it drops below, the system will not be turned on.

That is all that is required to set up basic NOS control with an S series ECU.

More complicated setups can be achieved by using multiple flexible analogues, and connecting the switches together to switch NOS on or off using boost, oil or coolant temperature, and any of the values available in the ECU.