



# Read all Instructions before beginning!!!!

Caution – EXTREME DANGER – Caution

Do not use or mix any other manufacturer's products with any Nitrous Express products.

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THESE INSTRUCTIONS APPLY TO NITROUS EXPRESS PRODUCTS ONLY!

FOR SANCTIONED RACE USE ONLY - NOT FOR SALE OR USE IN CALIFORNIA

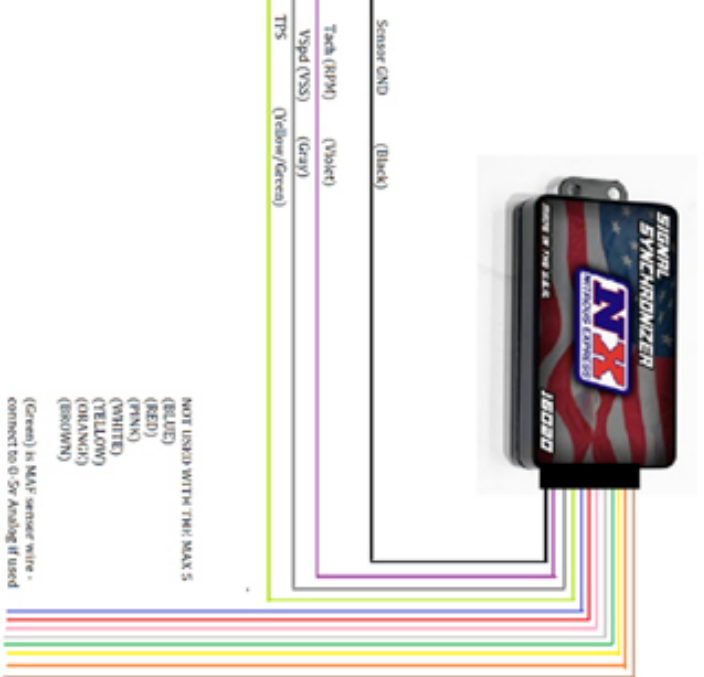
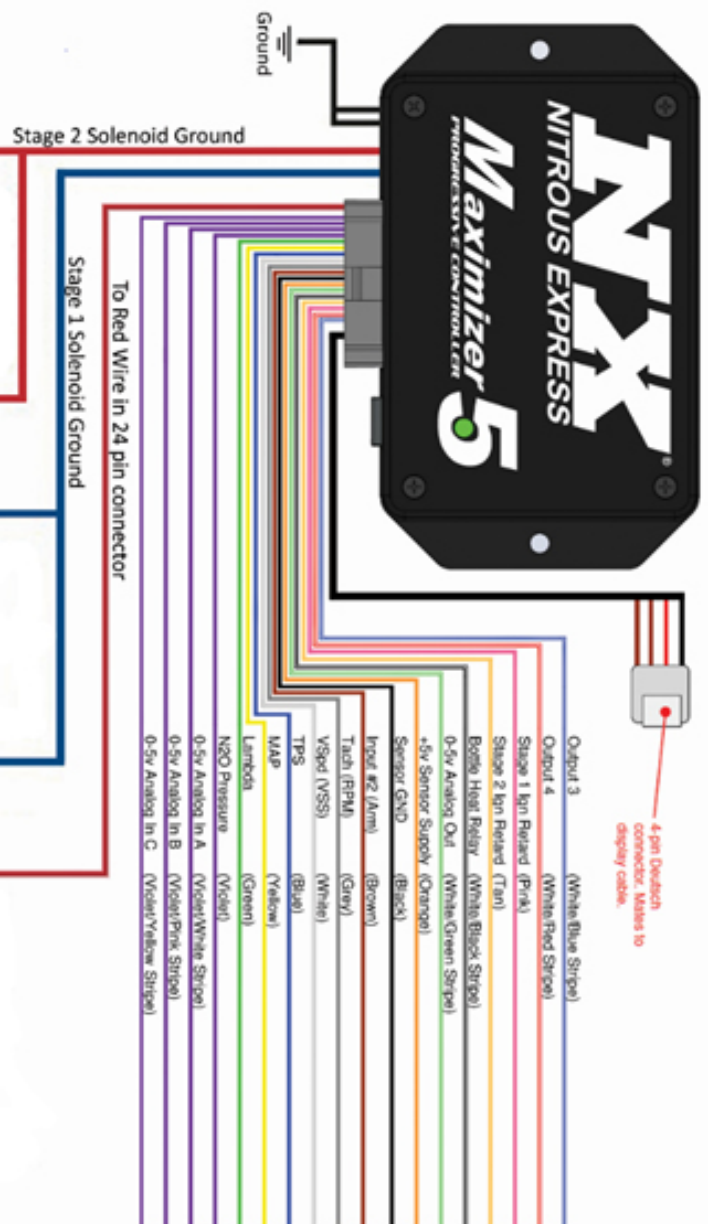
## Signal Synchronizer

### Contents of the Kit

1. Signal Synchronizer Unit
2. OBD2 Interface Cable
3. Harness Cable – output signals
4. USB Cable – for firmware updates, setup and monitoring



# Wiring Diagram



## Harness Cable

Signal	Description – Wire Color
1. CAN Hi	: Auxiliary Bus - BLUE
2. A_OUT_4	: 0-5 V analog output signal (reference to GND) – Yel/Grn
3. A_OUT_5	: 0-5 V analog output signal (reference to GND) - Red
4. A_OUT_6	: 0-5 V analog output signal (reference to GND) - Pink
5. PWM_OUT_1	: Frequency signal, pulsed battery voltage - Violet
6. PWM_OUT_2	: Frequency signal, pulsed battery voltage - Gray
7. CAN Lo	: Auxiliary bus - White
8. A_OUT_1	: 0-5 V analog output signal (reference to GND) - Green
9. A_OUT_2	: 0-5 V analog output signal (reference to GND) - Yellow
10.A_OUT_3	: 0-5 V analog output signal (reference to GND) - Orange
11.PWM_OUT_3	: Frequency signal, pulsed battery voltage - Brown
12.GND	: Signal Ground for all signals – Black

Note: Make sure that output wires are not shorted together while operating the units. Unused wires should be cut off or capped off to avoid accidental shorts.

## Operating the Unit

1. Connect all output wires to external devices before plugging the harness into the unit. Make sure that unused wires are not shorted together.
2. Plug harness into the unit (12 pin connector)
3. Plug HDMI connector into the unit and connect the OBD2 connector to the vehicle.

When the unit receives power from the OBD2 connector it will load the parameter definition file (which PIDs are to be streamed for each output) and then request the VIN from the vehicle. When it receives the VIN, it will immediately start streaming the PIDs from the vehicle and output values on the frequency and analog outputs.

## PC Monitoring Program

A PC (Windows) compatible program can be downloaded from the Nitrous Express Website

([http://www.nitrousexpress.com/images/signal\\_synchronizer.zip](http://www.nitrousexpress.com/images/signal_synchronizer.zip)) to verify the function and output from the devices.

1. Download and run the setup file. Start the program. The program window should appear.
2. Connect the unit to the laptop/computer running the program with a USB cable. FTDI device drivers are required to communicate with the unit, they can be downloaded from the following link if needed: <https://ftdichip.com/drivers/d2xx-drivers/>
3. When the unit starts up it will display the following in the terminal window:

```
NX Term 1.0.0.8 – 10/27/2020 1:08 PM
Streaming started, waiting for data...
Default Parameters were loaded!
Vehicle VIN - *****
Initiating communication with vehicle.
```

4. When it starts streaming PIDs, it will repeatedly display the following

Pin	Signal	Value	Unit	Output	Unit	Color (wire)
1	CANH	*****	***	*****	**	Blue
2	TPS	00008.00	%	0000.41	V	Yellow/Green
3		00000.00	--	0000.00	V	Red
4		00000.00	--	0000.00	V	Pink
5	RPM	00798.00	rpm	0053.22	Hz	Violet
6	VSS	00000.00	kph	0000.00	Hz	Gray
7	CANL	*****	***	*****	**	White
8	MAF	00576.00	g/s	0000.04	V	Green
9		00000.00	--	0000.00	V	Yellow
10		00000.00	--	0000.00	V	Orange
11		00000.00	--	0000.00	Hz	Brown
12	GND	*****	***	*****	**	Black

5. The first column is the pin number on the Molex connector, then the PID assigned or requested, value read from vehicle, unite of the PID value, output value and unit, followed by the wire color corresponding to the output.