



NEXUS PLUG-IN

NISSAN 300ZX / FAIRLADY Z32

QUICK START GUIDE



Congratulations on your purchase of a Nexus Plug-in ECU for a Nissan 300ZX / Fairlady Z32!

This vehicle-specific product allows you to seamlessly integrate a Nexus ECU into your vehicle without the complexities of wiring. With this hassle-free solution, you can jump straight into tuning.

Nexus ECUs are at the forefront of engine management systems, featuring cutting-edge technology and innovative features. Designed for the next generation of automotive enthusiasts and professionals, this state-of-the-art ECU combines powerful engine control with a range of additional functionalities, making it a versatile and comprehensive solution for everything from everyday driving to high-performance racing.

With full compatibility across a wide range of Haltech devices, it simplifies engine configuration and additional functionalities, all programmable through a single software platform.

Supported Models

- Nissan 300ZX / Fairlady Z32 VG30DETT (RHD/LHD)
- Nissan 300ZX / Fairlady Z32 VG30DE (RHD/LHD)
- Manual transmissions only



What's in the box?

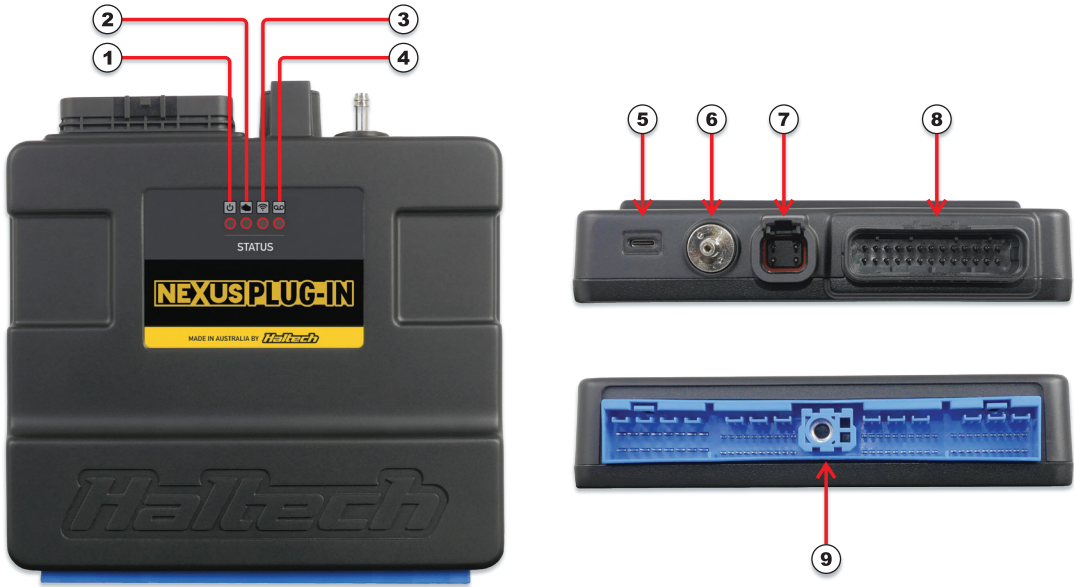
- Nexus 76 pin 6 cylinder ECU
- Air temperature + wideband expansion harness 2.5m (8')
- Air temperature sensor (1/8 NPT)
- Aluminum weld on fitting 1/8 NPT -27 TPI for air temp sensor
- Mounting brackets and hardware
- 2.5m vacuum hose and T-piece
- Haltech USB-C cable
- Quick start guide

Optional Accessories (sold separately)

- HT-189002 - IO Expansion Harness 2.5m (8')
- HT-010746 - LSU4.9 Wideband Hardware Pack
- HT-159986 - WB2 Dual Channel Wideband Kit (Bosch LSU4.9)



- 1 Power LED
- 2 DTC LED
- 3 Wireless LED
- 4 Datalog LED
- 5 USB-C Port (Comms)
- 6 Onboard MAP sensor (4 bar)
- 7 CAN Connector
- 8 Auxiliary Connector
- 9 Vehicle Connector



	LED	COLOR	CONDITION
	Power	Green	Normal operation (on main power or low power mode)
		Blue	Connect to unit and install firmware
		Red	Hardware fault
	DTC	None	DTCs not present
		Yellow	A DTC is present (of any kind, past/present/not severe/severe)
	Wireless	None	Wireless is disabled
		Green solid	Wireless is enabled
		Green flashing	Wireless is enabled and connected to NSP or Haltech Connect
	Datalog	None	Unit is not logging
		Yellow flashing	Unit is logging, unit is not looping or not full
		Yellow	Unit is logging, unit is looping or full



FEATURES	
Drive-By-Wire Throttle Support	Single
Flex Fuel	YES
Closed Loop O2 Control	YES
Knock Control	Dual
Variable Cam Control	YES
Long Term Learning	Up to 4D
Data Logging	Laptop or Onboard
Anti-Lag	YES
Rolling Anti-Lag	YES
Rotational Idle	YES
Launch Control	YES

FEATURES continued	
Traction Control	YES
Flat Shift Control	YES
Boost Control	4D Closed Loop
CO2 Boost Control	YES
Nitrous Control	6 Stages
Intake Air Bleed Control	YES
Race Timer	YES
Advanced Torque Management	YES
Shock Travel & Ride Height	YES
Engine Protection	Multi Level
Onboard Wideband Control	Single Channel LSU 4.9 / NTK

OUTPUTS	
Ignition	6
Injection (peak and hold)	6
Digital Pulsed Outputs (User-defineable functions, DPO 1-8)	8
Fixed Function DPOs (Low current)	10
Half Bridge Outputs (HBO)	2
CAN / AUX Power Output	1
Engine Control Relay (ECR) output	1
5V Sensor Supply	1

INPUTS	
Onboard MAP sensor (4 bar)	1
Analog Voltage Inputs (AVI)	14
Engine Position Inputs	2 (Trigger and Home)
Synchronised Pulsed Inputs (SPI)	6
Knock Inputs	2
Onboard Wideband Controller (LSU 4.9 / NTK)	1
Ignition Switch Input	1

OTHER	
4 Channel Oscilloscope	50kSa/s per channel, 2ms/Div limit, optional external trigger

COMMUNICATIONS	
CAN Bus Networks 1000, 500 or 250 kbit/s	1
High Speed USB 2.0 (USB-C interface) 480 Mbit/s connection	1
Power up over USB	Datalogging, settings and firmware upgrade available
Wireless	900 kB/s datalog extraction. Hardware lockout for security

DATA LOGGING	
Location	Onboard
Storage	128 MB
Max sampling frequency	1kHz
Maximum channels per log	300

DIMENSIONS	
Enclosure	160 x 140 x 35.5 mm (6.3 x 5.5 x 1.4 in)
Overall (inc. connector protrusion)	160 x 160 x 35.5 mm (6.3 x 6.3 x 1.4 in)
Weight	0.57 kg (1.26 lbs)
Operating Temperature (ambient)	-40 to 85°C (-40 to 185°F)

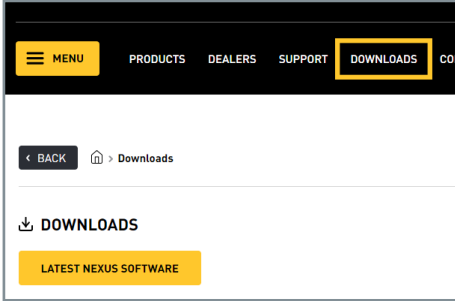
ELECTRICAL	
Power Supply (across power terminals)	8 to 22V
No output static current draw	< 1A
Low Power Mode (USB)	4 to 5.5V
Static current draw from USB port	< 500mA

NEXUS SOFTWARE PROGRAMMER

Installing the NSP software

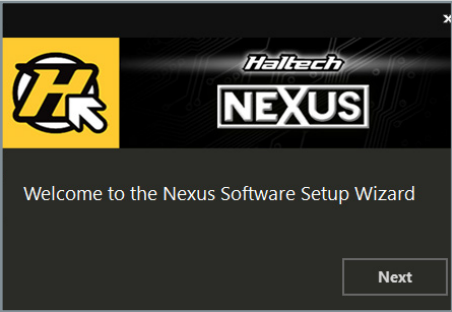
Haltech NSP (Nexus Software Programmer) is the software used for tuning and programming Nexus Plug-in ECUs. Follow these steps to install the Haltech NSP software:

1. Download the NSP installer - Go to the Haltech website (www.haltech.com), navigate to the 'Downloads' section, and click on the download link.



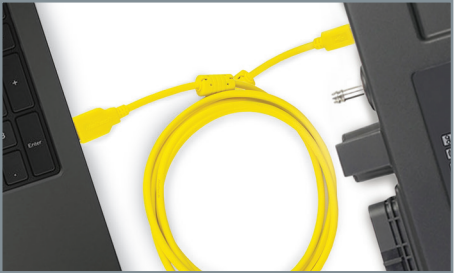
2. Run the installer file - Once the download is complete, locate the downloaded file (usually in the 'Downloads' folder of your computer) and double-click on the file to run the Nexus Software Setup Wizard.

3. Launch Haltech NSP - Once the installation is complete, you can launch the Haltech NSP software from the Windows 'Start' menu or using the desktop shortcut that was created.

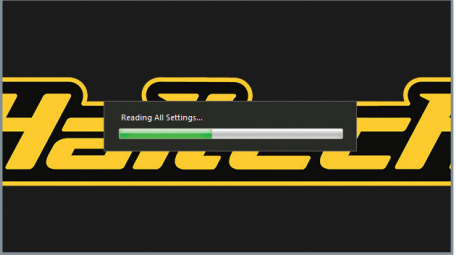


Going online with the ECU

With the NSP software open, connect the supplied Haltech USB cable between your laptop and the USB-C port on the front of the Nexus Plug-in ECU.



The USB connection allows the NSP software to automatically recognize the ECU and activate it in low-power mode. This enables you to start setting up the preloaded basemap or switch to a different one before installing the ECU in the vehicle. In low-power mode, the ECU's inputs and outputs are disabled, allowing you to safely configure your vehicle setup before installation and full power activation.



Setting up Wireless communications

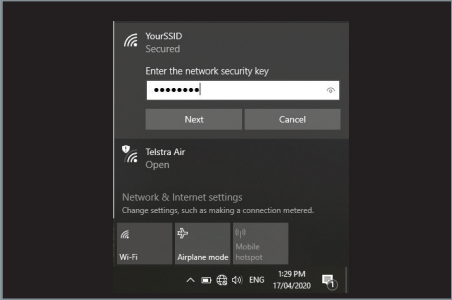
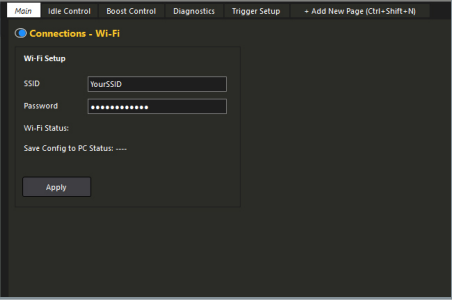
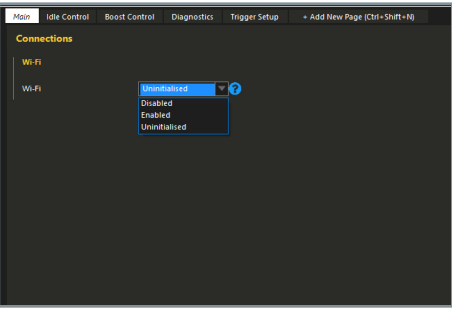
Wireless communication is another method for connecting the Nexus Plug-in ECU to your laptop, serving as an alternative to a USB connection once the Wireless module is enabled.

To set up your Wireless connection follow these steps:

1. Open NSP and connect your Nexus Plug-in ECU using the provided USB-C cable.
2. Click on 'Connections' in the navigation tree and enable the Wireless module.
3. Under 'Connections', select 'Wireless' to set up your SSID and password. Note that your SSID must be at least 1 character long, and your password at least 8 characters.
4. Click 'Apply'.

5. Power up the ECU using main power (ignition switch on), then go to your computer's Network settings. Connect to your Nexus Plug-in ECU by selecting your chosen SSID and entering your password.

NOTE: The Wireless antenna is internal on the Nexus Plug-in ECU. The unit must be powered by the main power source for Wireless communication. Up to two computers can connect to the ECU via Wireless, and one via USB-C, at any given time. When the Wireless module is disabled, it is completely inactive and held in an OFF state.



NEXUS PLUG-IN SETUP WIZARD

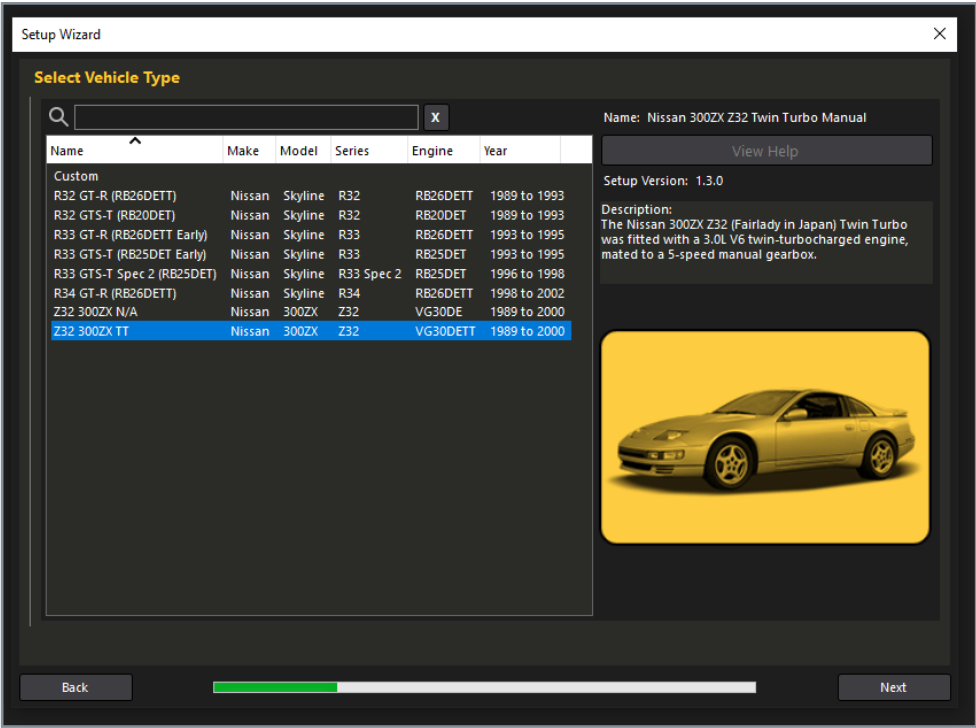
The NSP software, when used with a Nexus Plug in ECU, features a comprehensive setup wizard designed to create a basemap tailored for your specific application.

The process begins with naming your vehicle, which creates a dedicated folder on your laptop for saving maps and datalog files. You also have the option to add a vehicle description—a useful feature for quickly identifying different map versions.

Next, you select your vehicle and engine type from a list, followed by selecting the auxiliary harness you’re using. This allows the ECU to assign I/Os to specific sensors such as a wideband O2 sensor, pressure sensors, and more.

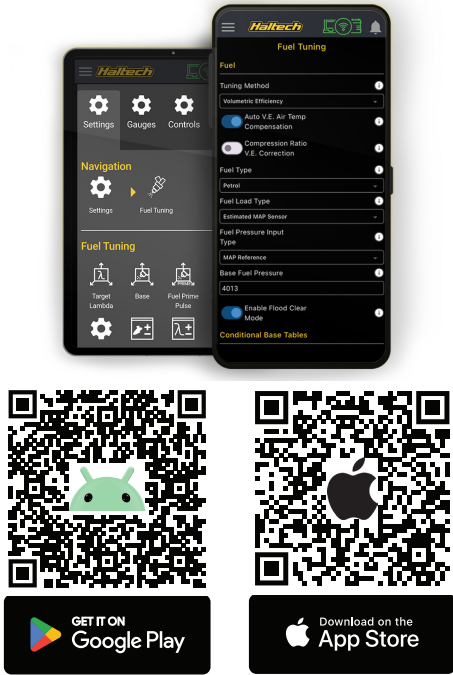
The next few steps involve setting up application specific options, such as selecting between cable or electronic throttle control, defining camshaft profiles, and configuring injectors and ignition systems.

After completing these steps, NSP presents a summary of your selections for confirmation, allowing any necessary adjustments before finalizing the setup. This thorough process ensures that the Nexus Plug-in ECU is optimally configured to start and run the engine with your own base tune.



Haltech Connect App

The Haltech Connect App enables you to connect wirelessly to and interact with your Haltech Nexus Plug-in ECU via your smartphone or tablet. View real-time data from the ECU, set up basic gauges, clear DTCs, assign wiring, and adjust select parameters. Available for free on Google Play (Android) and the Apple App Store (iOS).



Application Specific Notes

This Nexus Plug-in ECU is compatible with the following vehicles:

- Nissan 300ZX / Fairlady Z32 VG30DETT
- Nissan 300ZX / Fairlady Z32 VG30DE
- Compatible with both RHD and LHD
- Manual transmissions only

1. Wizard setup - Ensure that the ECU is correctly set up using the NSP software setup wizard before powering the unit through the vehicle. Please note that the setup wizard serves only as a starting point, and the ECU will require appropriate tuning. Haltech is not responsible for any engine damage resulting from the improper use of base maps.

2. MAP Sensor - Mass airflow (MAF) sensors are not used. Instead, engine load is measured using a MAP sensor. A vacuum hose is included to connect the ECU’s onboard 4-bar MAP sensor to an available vacuum port on the intake manifold. A T-piece is also included, providing the option to tap into an existing vacuum hose for a vacuum signal.

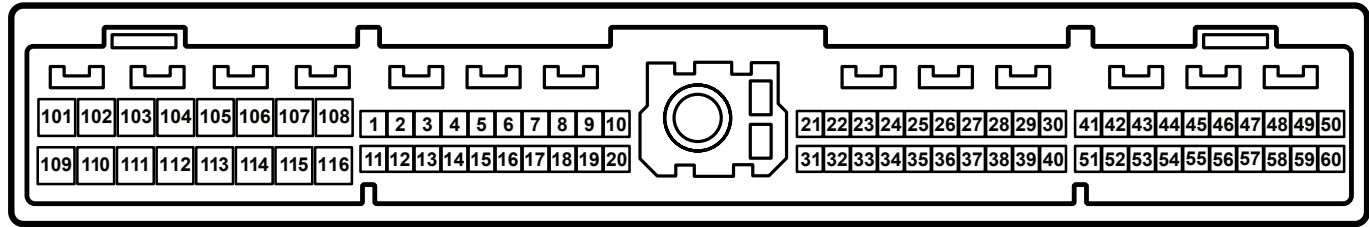
3. Air Temperature Sensor - An air temperature sensor is essential for the ECU to correctly calculate the required fuel delivery as intake air temperature changes. The included air temperature sensor and weld-on bung can be installed on the intake pipe just before the throttle body.

4. Wideband O2 Sensors - Replacing the factory narrowband oxygen sensors with a wideband lambda sensor is highly recommended for tuning. In most applications, a single wideband lambda sensor connected to the ECU via the auxiliary harness is sufficient for monitoring and tuning the engine. However, depending on the application requirements, a dual-channel wideband kit can be used to monitor and tune both engine banks.

5. Base Timing - The base ignition timing must be checked and synchronized using a timing light once the engine has started and is idling.

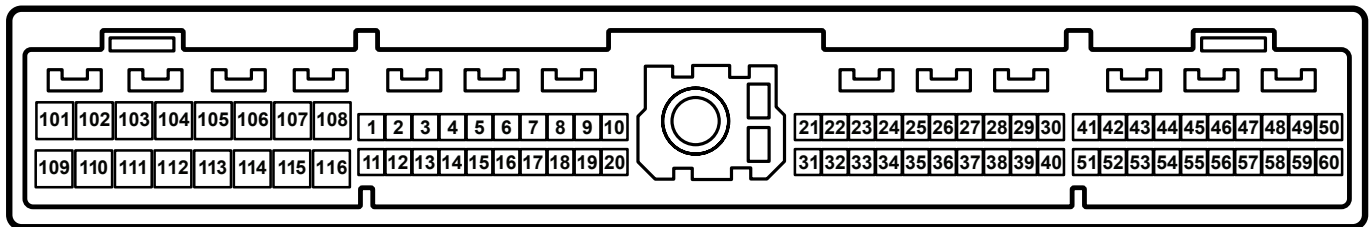


Scan this QR code to access more information about the Nexus Nissan Z32 Plug-in ECU



PIN	ECU CONNECTION	FUNCTION
101	Injector 1	Injector output for cylinder 1
102	EGR control	Recirculation valve output
103	Injector 3	Injector output for cylinder 3
104	Fuel pump speed 1	Unused
105	Injector 5	Injector output for cylinder 5
106	Fuel pump speed 2	Unused
107	Power ground	Battery ground
108	Power ground	Battery ground
109	Unused	Unused
110	Injector 2	Injector output for cylinder 2
111	Fuel pressure control	Fuel pressure control (PRVR)
112	Injector 4	Injector output for cylinder 4
113	DPO 6	Cam Control (VCT Right / Left)
114	Injector 6	Injector output for cylinder 6
115	DPO 7	Narrowband O2 ground
116	Power ground	Power ground
1	Ignition 1	Ignition output for cylinder 1
2	Ignition 2	Ignition output for cylinder 2
3	Ignition 3	Ignition output for cylinder 3

PIN	ECU CONNECTION	FUNCTION
4	DPO 8	Idle control (AAC)
5	Unused	Unused
6	Thermofan 2	Thermofan 2 (VG30DETT)
7	Tachometer	Tachometer
8	Ignition switch	Unused
9	A/C control	A/C control
10	Power ground	Battery ground
11	Ignition 4	Ignition output for cylinder 4
12	Ignition 5	Ignition output for cylinder 5
13	Ignition 6	Ignition output for cylinder 6
14	Unused	Unused
15	Unused	Unused
16	ECR output	Engine Control Relay
17	Injector monitor	Unused
18	Fuel pump relay	Fuel pump relay
19	Thermofan 1	Thermofan 1
20	Power ground	Battery ground
21	Unused	Unused
22	Unused	Unused



PIN	ECU CONNECTION	FUNCTION
23	Knock 1	Knock 1
24	Knock 2	Knock 2
25	DPO 5	Boost control (VG30DETT)
26	Sensor ground	Sensor ground
27	AVI 5	MAF sensor
28	AVI 8	Coolant temperature sensor
29	AVI 6	Narrowband O2 input (Right)
30	Sensor ground	Sensor ground
31	Unused	Unused
32	Check engine light	Check engine light
33	AVI 14	Unused
34	Power steering	Power steering input
35	AVI 9	Unused
36	AVI 7	Fuel temp sensor ('89-'94)
37	Unused	Unused
38	AVI 10	Throttle position sensor
39	Unused	Unused
40	Unused	Unused
41	Trigger	Trigger (Reference)

PIN	ECU CONNECTION	FUNCTION
42	Home	Home (Position)
43	AVI 12	Unused
44	SPI 6	Neutral switch
45	Ignition switch	Ignition switch
46	AVI 13	A/C request switch
47	Unused	Unused
48	+5V DC	5V sensor power supply
49	Switched power	Switched power input
50	Power ground	Battery ground
51	Trigger	Trigger (Reference)
52	Home	Home (Position)
53	SPI 5	Vehicle speed sensor
54	Unused	Unused
55	AVI 11	Narrowband O2 input (Left)
56	TPS output	TPS output
57	Unused	Unused
58	Unused	Unused
59	Switched power	Switched power input
60	Power ground	Battery ground

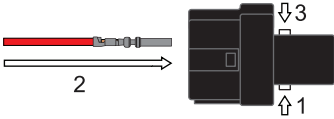
AUXILIARY CONNECTOR

Nexus Plug-in ECUs are fitted with a 26-pin auxiliary connector that can be used to wire in sensors or devices not available in the vehicle from the factory.

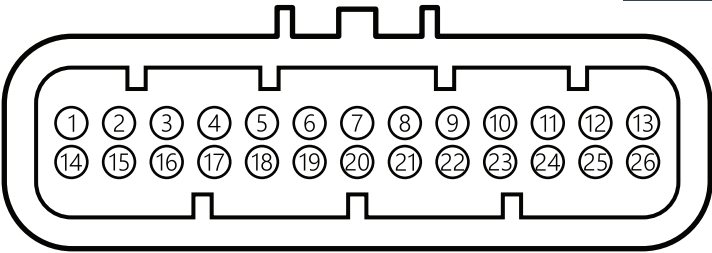
The ECU also includes an expansion harness that plugs into the auxiliary connector and can be conveniently routed through the vehicle's firewall into the engine bay. The included expansion harness (HT-189000) provides a connector for a Haltech air temperature sensor, which can be used in place of the factory sensor—for example, when the original air temperature sensor is integrated into an air flow meter. A wideband O2 sensor plug is also available and is controlled directly by the ECU's onboard wideband O2 sensor controller, allowing direct connection to a wideband hardware pack. A set of spare pins is also provided for the 26-pin connector, enabling the addition of sensors such as fuel or oil pressure sensors, and a flex fuel composition sensor.

Pinout information for these connections is provided on the next page. To place pins into the auxiliary connector:

- 1. Push bottom tabs to unlock
- 2. Insert pin into harness side of connector
- 3. Push top tabs to lock



AUXILIARY CONNECTOR PINOUT



ECU Auxiliary Connector
Pin Side View

PIN	HALTECH CONNECTION	WIRE COLOR
1	DPO 1	Violet / Black
2	DPO 3	Violet / Red
3	Aux power (12V switched)	Red
4	Sensor ground	Black / White
5	SPI 1	Gray / Brown
6	SPI 3	Gray / Orange
7	HBO 1	Brown / Black
8	AVI 1	White
9	AVI 3	White / Gray
10	Sensor ground	Black / White
11	WBI 1 Heater +	Gray
12	WBI 1 Input	Yellow
13	WBI 1 Pump	Red

PIN	HALTECH CONNECTION	WIRE COLOR
14	DPO 2	Violet / Brown
15	DPO 4	Violet / Orange
16	Aux power (12V switched)	Red
17	Sensor +5V DC	Orange
18	SPI 2	Gray / Red
19	SPI 4	Gray / Yellow
20	HBO 2	Brown / Red
21	AVI 2	White / Yellow
22	AVI 4	White / Violet
23	Sensor +5V DC	Orange
24	WBI 1 Nernst	Black
25	WBI 1 Heater -	White
26	WBI 1 Cal	Green

NOTE: The switched 12V pins on the onboard CAN and auxiliary connectors can supply a total of 8A, shared across the three pins.

IO AND DBW EXPANSION HARNESSES

In addition to the basic expansion harness included, Haltech offers optional expansion harnesses (sold separately) to conveniently support common sensor upgrades for your Nexus Plug-in ECU:

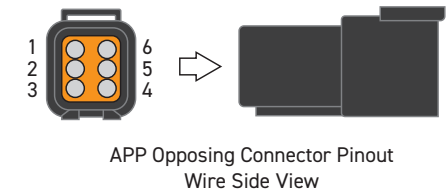
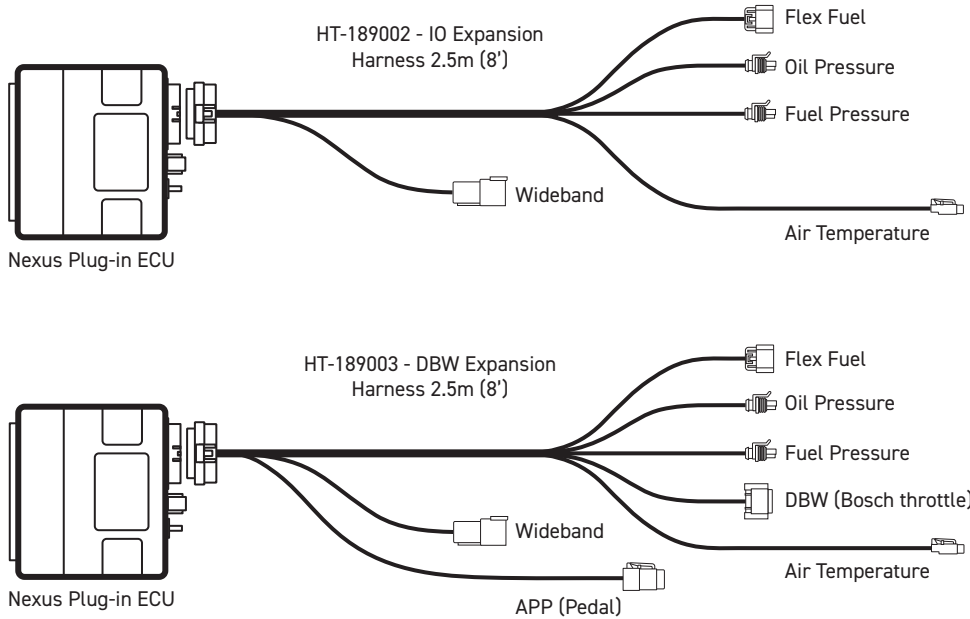
HT-189002 - IO Expansion Harness 2.5m (8')

This expansion harness adds connections for sensors such as a wideband O2 sensor, flex fuel composition sensor, oil pressure sensor, fuel pressure sensor, and air temperature sensor. It also includes spare pins for connecting to additional outputs available on the 26-pin connector.

HT-189003 - DBW Expansion Harness 2.5m (8')

This expansion harness adds connections for sensors such as a wideband O2 sensor, flex fuel composition sensor, oil pressure sensor, fuel pressure sensor, air temperature sensor, a Bosch DBW throttle plug, and a universal plug for an Accelerator Pedal Position (APP) sensor. This connector can be used to wire an APP sensor of your choice, and the pinout information for the opposing connector is shown on the right.

Similar to the IO Expansion Harness, it also includes spare pins for connecting to additional outputs available on the 26-pin connector.



PIN	FUNCTION
1	Sensor ground
2	AVI 3
3	5V
4	5V
5	AVI 4
6	Sensor ground

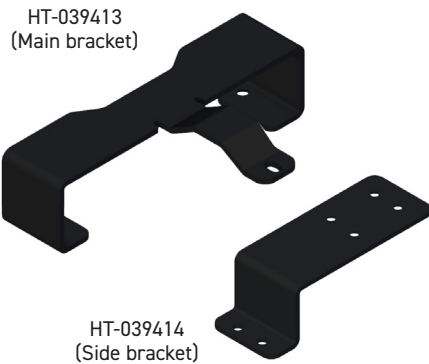
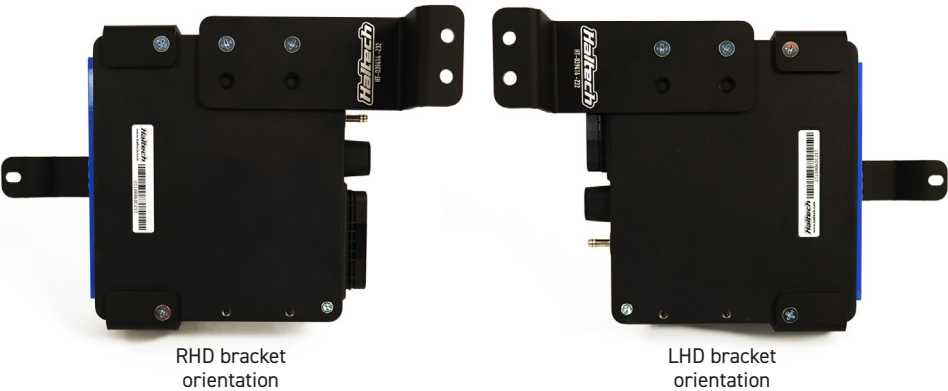
NEXUS PLUG-IN ECU INSTALLATION



The Nexus Plug-in ECU replaces the factory ECU, which is located under the dashboard behind the passenger-side footwell. To access this location, the wooden footwell cover must be removed. The compact dimensions of the Nexus Plug-in ECU allow the cover to be reinstalled after installation.

The Nexus Plug-in ECU is supplied with both a main mounting bracket and a side mounting bracket, along with the required screws, to facilitate installation in this location. The side bracket features multiple mounting holes, allowing the ECU to be used in either right-hand drive (RHD) or left-hand drive (LHD) vehicles.

Note: A 10 mm wrench or socket is required to unlock the factory ECU connector and secure it back in place.



HALTECH CAN SYSTEM

The Nexus Plug-in ECU is equipped with an onboard CAN connector for direct connection to a wide range of Haltech CAN expansion products.



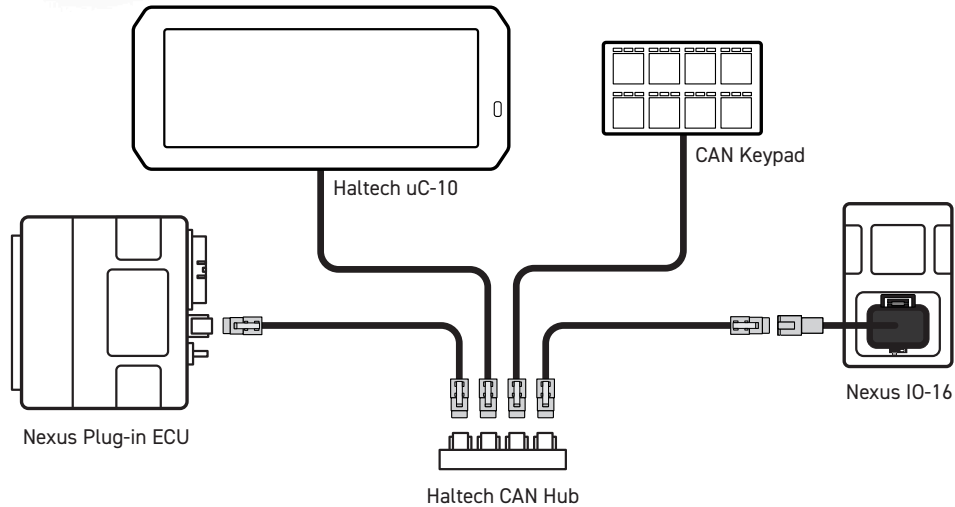
CAN Connector

Multiple CAN devices can be used simultaneously by linking them together using Haltech CAN cables and a Haltech CAN hub. Examples of Haltech CAN devices include the Haltech uC-10 display dash and the Haltech CAN keypad. The dash allows user-selected ECU or engine parameters to be displayed on a customizable screen, while the keypad enables you to scroll through multiple screens or control other functions managed by the ECU.

Additionally, a Nexus IO16 can be added to expand input and output functionality via the Haltech CAN system, supplementing the onboard capabilities of the ECU.

The diagram on the right illustrates an example of how to connect these Haltech CAN devices (sold separately).

NOTE: The switched 12V pins on the onboard CAN and auxiliary connectors can supply a total of 8A, shared across the three pins.



Haltech
WARRANTY CERTIFICATE

At Haltech we make every effort to design and manufacture fault-free products that perform up to or above the market expectations. All our products are covered by a Limited 12 Month Warranty.

Haltech Limited Warranty

Unless specified otherwise, Haltech warrants its products to be free from defects in material or workmanship for a period of 12 months from the date of purchase.

If the Haltech product is found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of purchase. Proof of purchase in the form of a copy of the original purchase invoice, receipt or bill of sale which indicates that the product is within the warranty period, must be presented to obtain warranty service.

Replacement or repair of a defective product shall constitute the sole liability of Haltech. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations, either expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Haltech, be liable for special or consequential damages.

Product Returns

Please include a copy of the original purchase invoice, receipt or bill of sale along with the unused, undamaged product and its original packaging. Any product returned with missing accessory items or packaging will incur extra charges to return the item to a re-saleable condition.

All product returns must be sent via a freight method with adequate tracking, insurance and proof of delivery services. Haltech will not be held responsible for product returns lost during transit.

Returns of Products Supplied in Sealed Packaging

The sale of any sensor or accessory supplied in sealed packaging is strictly non-refundable if the sealed packaging has been opened or tampered with. This will be clearly noted on the product packaging. If you do not accept these terms please return the sensor in its original unopened packaging within 30 days for a full refund.

A sensor or accessory product may be returned after 30 days of purchase (with its sealed packaging intact) for credit only (no refunds given) and will be subject to a 10% restocking fee.

Installation of Haltech Products

No responsibility whatsoever is accepted by Haltech for the fitment of Haltech Products. The onus is clearly on the installer to ensure that both their knowledge and the parts selected are correct for that particular application. Any damage to parts or consequential damage or costs resulting from the incorrect installation of Haltech products are totally the responsibility of the installer.

Always disconnect the battery when doing electrical work on your vehicle. Avoid sparks, open flames or use of electrical devices near flammable substances. Do not run the engine with a battery charger connected as this could damage the ECU and other electrical equipment.

Do not overcharge the battery or reverse the polarity of the battery or any charging unit. Disconnect the Haltech ECU from the electrical system whenever doing any welding on the vehicle by unplugging the wiring harness connector from the ECU.

After completing the ECU installation, make sure there is no wiring left un-insulated. Uninsulated wiring can cause sparks, short circuits and in some cases fire. Before attempting to run the engine ensure there are no leaks in the fuel system.

All fuel system components and wiring should be mounted away from heat sources, shielded if necessary and well ventilated. Always ensure that you follow workshop safety procedures. If you're working underneath a jacked-up car, always use safety stands!

Haltech Off-Road Usage Policy

In many states it is unlawful to tamper with your vehicle's emissions equipment. Haltech products are designed and sold for sanctioned off-road/competition non-emissions controlled vehicles only and may never be used on a public road or highway.

Using Haltech products for street/road use on public roads or highways is prohibited by law unless a specific regulatory exemption exists (more information can be found on the SEMA Action Network website www.semasan.com/emissions for state by state details in the USA).

It is the responsibility of the installer and/or user of this product to ensure compliance with all applicable local and federal laws and regulations. Please check with your local vehicle authority before purchasing, using or installing any Haltech product.



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