



**NEXUS I016  
UNIVERSAL WIRE IN HARNESS  
2.6m (8.5')**

**QUICK START GUIDE**

**HT-180000**





Congratulations on purchasing a Nexus IO16 universal wire-in harness. This harness, when used with a Nexus IO16, expands a Haltech Nexus or Elite ECU's functionality by adding 16 user-configurable channels of combined inputs and outputs via the Haltech CAN system.

**What's included?**

- 1 x HT-180000 Nexus IO16 Universal Wire In Harness
- 1 x Quick Start Guide

**Harness Features:**

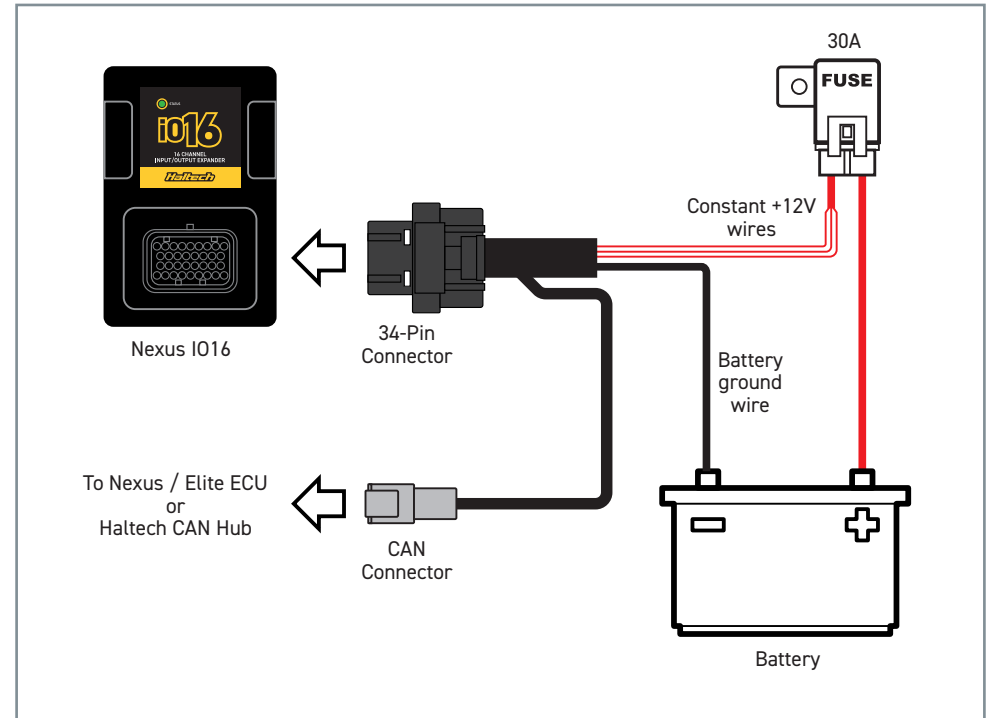
- 6 x Half Bridge Outputs (HBO)
- 6 x Analogue Voltage Inputs (AVI)
- 4 x Synchronized Pulsed Inputs (SPI)
- 34-pin Superseal connector (Keyway Type 2)
- Terminated Haltech CAN connector
- All wires colour coded and grouped
- 2.6m / 8.5' length

**Power and Ground Connections**

To fully utilize the Nexus IO16's functionality, the harness must be wired to a fused (30A) constant battery power and battery ground. This connection provides the necessary current for all the Half Bridge Outputs (HBO) when driven high or low.

Switching the Nexus IO16 is managed through the CAN connection by plugging the harness into the Haltech CAN system, either directly into a Haltech Nexus or Elite ECU or an available port on a Haltech CAN hub. This connection controls the Nexus IO16, switching it ON or OFF whenever the CAN system is powered.

Alternatively, the Nexus IO16 can be powered and switched solely through the CAN connector by plugging into the CAN system. This method is less preferred and will limit the current available to the unit. Use this approach only if you are utilizing the inputs (AVIs or SPIs) and your application does not require the use of the Half Bridge Outputs. Always insulate and isolate any unused wires in the harness.

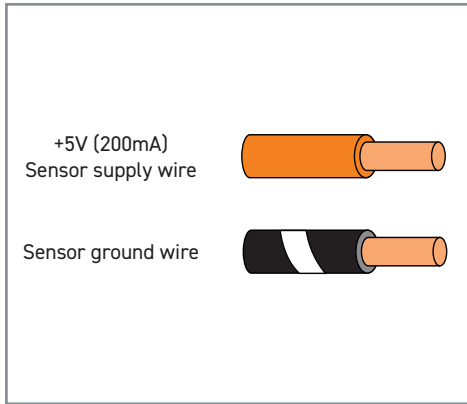


## 5V Sensor Power and Sensor Ground

The Nexus IO16 harness includes multiple wires for a regulated +5V sensor power supply, designed to power typical 3-pin analog voltage devices such as MAP sensors, pressure sensors, position sensors, and rotary trim switches.

Similarly, the Nexus IO16 harness features dedicated sensor ground wires for connecting sensors wired to the Nexus IO16 as described above. Any 5V wire can be paired with any sensor ground wire when wiring sensors connected to the Nexus IO16 harness.

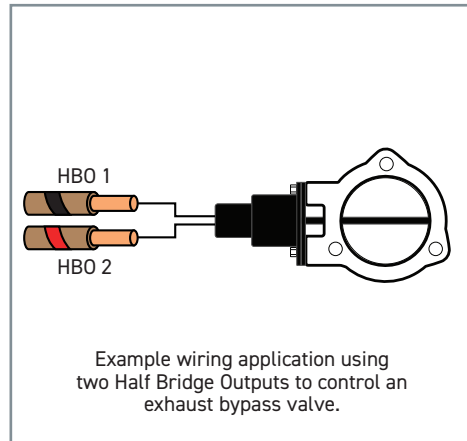
To avoid potential ground loop issues, do not connect the signal ground wires between the Nexus IO16 and the ECU.



## Half Bridge Outputs

Half Bridge Outputs (HBO) function as push-pull, Pulse Width Modulated (PWM) channels suitable for controlling stepper motors, DC motors, or simple switch-to-ground control. HBOs can also provide +12V power to high-side driven devices, such as 12V-switched automatic transmission solenoids, or function as power distribution outputs to supply 12V to various circuits in the vehicle.

**NOTE:** When using HBOs, ensure the Nexus IO16 is powered using the constant power and battery ground wires as described on page 3.



## Analog Voltage Inputs

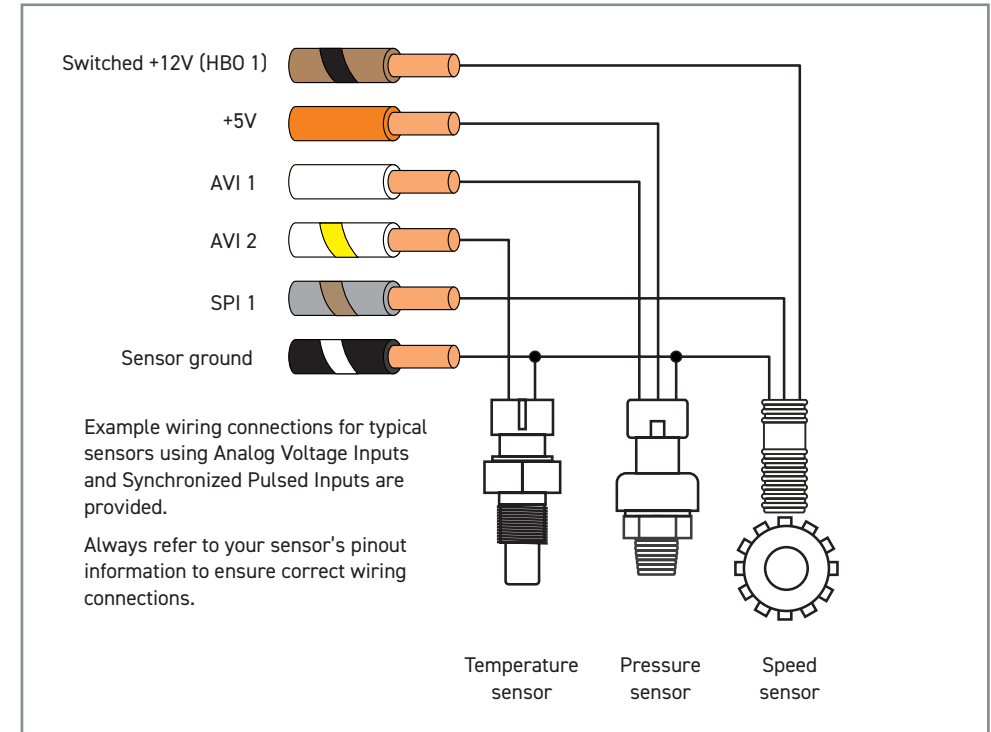
Analog Voltage Inputs (AVI) serve as input channels capable of measuring variable 0-5V signals from sensors that monitor pressure, temperature, and position. Additionally, these inputs can be configured as switch inputs, toggling between two distinct voltage levels.

AVIs feature a software-selectable 1K pull-up resistor to +5V, which can be enabled within the NSP software when configuring two-pin temperature sensors or switch-to-ground inputs.

## Synchronized Pulsed Inputs

Synchronized Pulsed Inputs (SPI) can measure the frequency or duty cycle of a signal and, like AVIs, can also be used to measure 0-5V analog voltage sensors. These inputs are suitable for various sensors, including flex-fuel composition sensors, vehicle speed sensors, and general on/off switches.

Synchronized Pulsed Inputs are compatible with both digital (Hall effect or optical) and reductor (analog) sensors.



Nexus I016 connector  
AMP 34-pin Keyway 2  
Wire side view



PIN	FUNCTION	WIRE COLOR
1	CAN High	White
2	CAN Low	Blue
3	CAN Power (+12V switched)	Pink / Red
4	Power ground	Black
5	Power ground	Black
6	Power ground	Black
7	HBO 1	Brown / Black
8	HBO 2	Brown / Red
9	HBO 3	Brown / Green
10	Constant +12V	Red
11	Constant +12V	Red
12	Constant +12V	Red
13	+5V	Orange
14	+5V	Orange
15	+5V	Orange
16	AVI 5	White / Green
17	AVI 6	White / Orange
18	SPI 1	Gray / Brown
19	SPI 2	Gray / Red
20	SPI 3	Gray / Orange
21	SPI 4	Gray / Yellow
22	AVI 1	White
23	AVI 2	White / Yellow
24	AVI 3	White / Gray
25	AVI 4	White / Violet
26	Sensor ground	Black / White
27	Sensor ground	Black / White
28	Sensor ground	Black / White
29	Sensor ground	Black / White
30	No connection	No connection
31	No connection	No connection
32	HBO 4	Brown / Pink
33	HBO 5	Brown / Yellow
34	HBO 6	Brown / Blue



## 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](http://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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