



ELITE 950

QUICK START GUIDE

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.

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. 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. This 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.

WIRING AND SETUP WARNING

If your ignition or fuel system is incorrectly configured and the ECU is powered up, damage to the engine or components may occur. To avoid damage remove the main ignition and injection fuses before powering up for the first time. Re-fit fuses when configuration of the ignition and fuel system is completed and checked in the Elite Software Programmer.

It is good practice to also disconnect when updating firmware within the ECU. Failure to follow all the warnings and precautions in this manual can lead to damage to engine components and may possibly void your warranty. Incorrect setup of the ECU can also lead to damaged engine components.

Damaged components due to incorrect setup will not be regarded as warranty repairs.

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!

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. The sale of any sensor or accessory that is 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.



Elite Series

Quick Start Guide

Congratulations on your purchase of an Elite Series Haltech Engine Management System.

This *fully programmable* product opens the door to virtually limitless performance modifications and tuning of your vehicle.

Programmable systems allow you to extract all the performance from your engine by delivering precisely the required amount of fuel and ignition timing that your engine requires for maximum output under all operating conditions.

This quick start guide will walk you through installation of a Haltech Elite Series ECU into a vehicle.

This guide is accompanied by the Help information located on the Haltech Elite Software Programmer package provided on the CD with the ECU that you or your tuner will need to refer to before completing your installation and configuration.

More information is available from the Haltech website

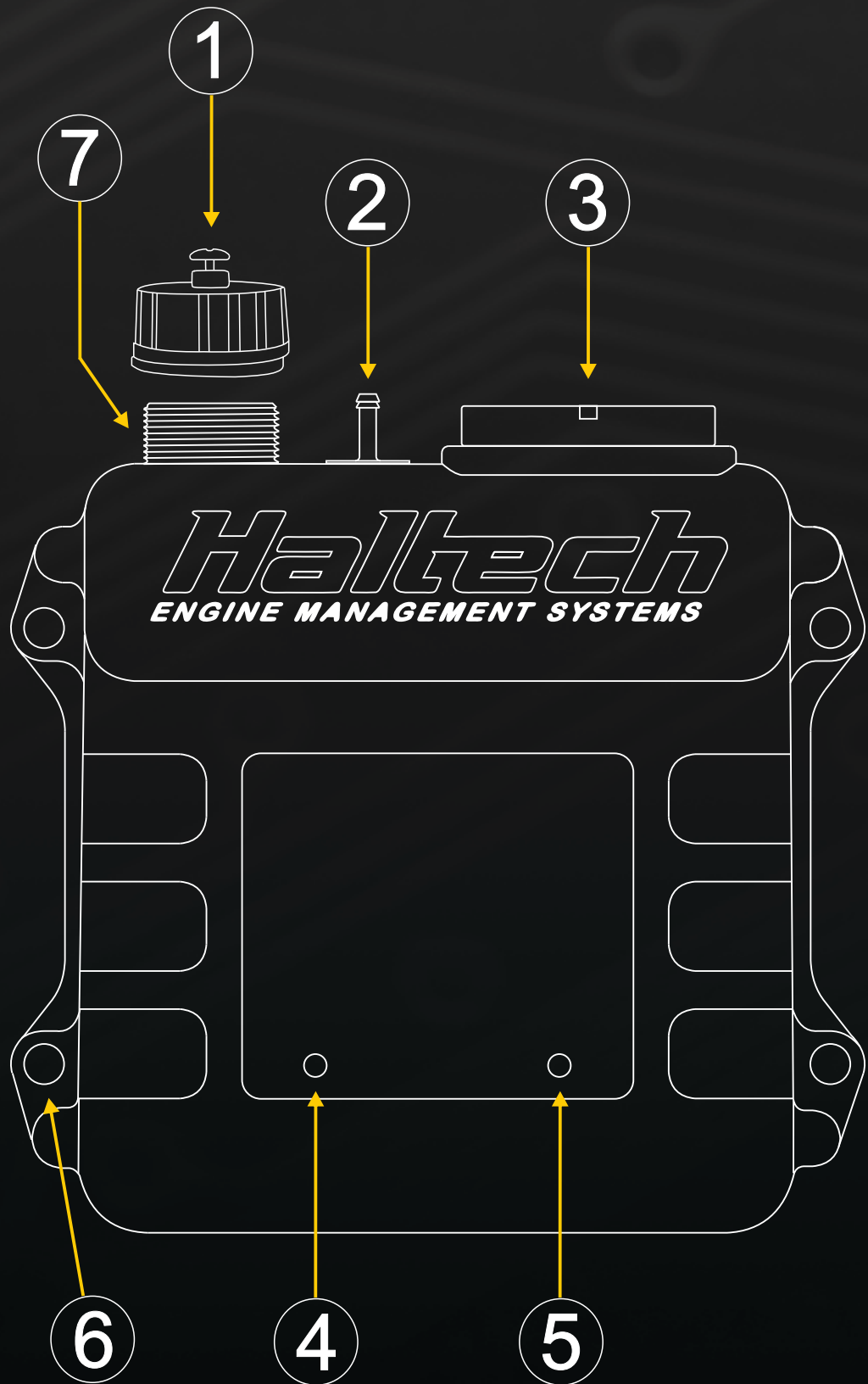
WARNING - HALTECH OFF-ROAD USAGE POLICY

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. Using Haltech products for street/road use on public roads is prohibited by law. 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 using any Haltech product.

ECU OVERVIEW

- 1** USB Cover
*USB Cover must be fitted in order to fulfill IP67 rating
- 2** Internal MAP Sensor
- 3** Main Connector
- 4** Power LED
- 5** Status LED
- 6** Mounting Hole
- 7** Communications USB Port



ELITE SOFTWARE PROGRAMMER INSTALLATION

MINIMUM SYSTEM REQUIREMENTS

Operating System:	Windows XP / Vista / 7 / 8 /10
Processor:	Dual Core 2GHz
RAM:	2GB
Video Card:	128MB graphics card with 3D acceleration
USB:	1.1
HDD Space:	300MB
Min Screen Resolution:	1024 x 768 pixels



Elite Series
Full Online
Manual



INSTALLATION

Installation of the Elite Software Programmer onto your PC is performed similar to any other Windows software package. Installation is outlined below.

1. Insert the included Haltech CD into your computer
2. Open "My Computer" and see what drives are shown.
The Haltech Resource CD should be shown as a device with removable storage icon named "HALTECH". Double click on the device icon to open the root directory of the Haltech Resource.
3. Double click on the "Start Haltech Resource.exe" file to run the Haltech Resource Centre. A browser window will appear and you will need to agree to the terms stated before progressing. Read the disclaimer and click on "AGREE" if you agree.
You will now be able to access all the information contained on the Haltech Resource CD.
4. To download and install the Elite Software Programmer click on the software link. You will be prompted to install the software. Click "Install" to install the software to your computer.
5. Follow the software prompts to complete the Elite Software Programmer installation. Please note DirectX is required for correct operation of the Elite Software Programmer, the installer package will check your system and prompt for installation of DirectX if not already installed. Follow the prompts to complete.
6. Alternatively, the software package can be directly downloaded and installed from the Haltech website www.haltech.com.au

ELITE SERIES INTEGRATED HELP MANUAL

A comprehensive instruction manual is available within the Elite Software Programmer which contains detailed information regarding installation, setup and tuning of your Elite Series of ECU.

To access, start the Haltech Elite Software Programmer and press the "F1" key on your computer.



CRANK / CAM

(TRIGGER) / (HOME)

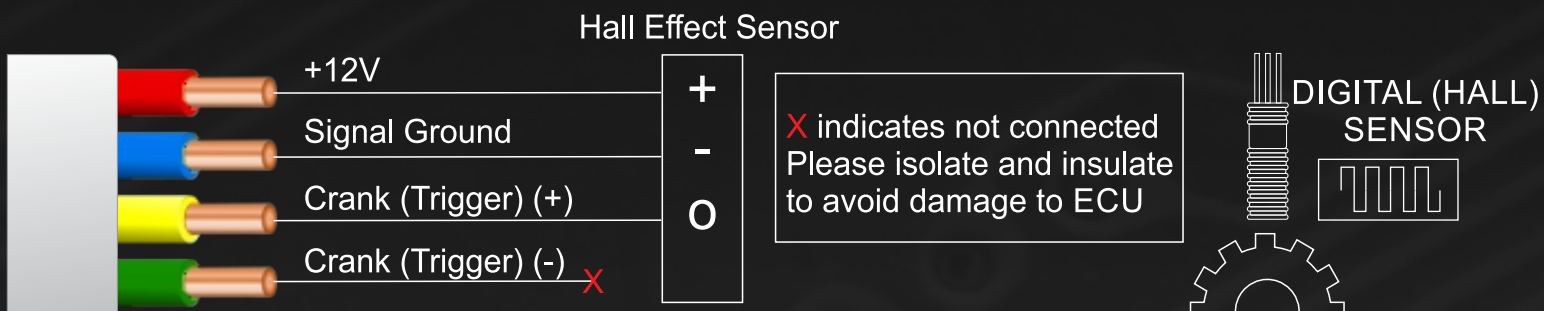
OVERVIEW

The crank and cam position sensors are required so that the ECU has the necessary information available to it to determine engine speed and position at any point in time.

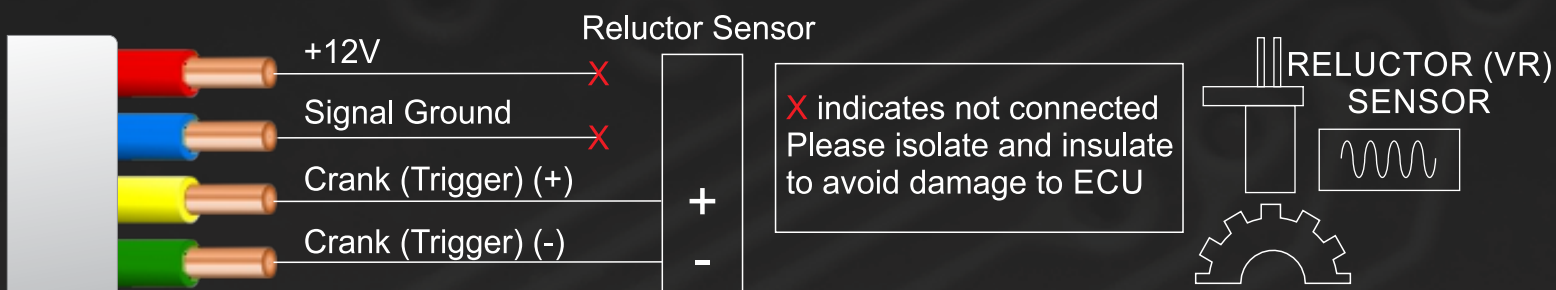
Generally two sensors are required - a cam position and crank position, however many cars will have just a cam position sensor that is capable of giving the ECU enough information to run the engine correctly. Vehicles that have a crank position sensor only are not capable of determining the difference between compression stroke and exhaust stroke and therefore are not suitable for sequential fire applications. In this case a cam position sensor may need to be added.

There are generally 2 types of crank / cam sensor signals

- Hall Effect signal (0-5V Digital square wave signal)
Hall effect sensors have 3 wires - a power supply (could be 5V ,8V or 12V), a ground and a signal out wire.



- Reluctor signal (Analogue style signal)
This type of sensor will only have two wires, signal Positive (+) and signal negative (-)



AVI

ANALOGUE VOLTAGE INPUTS

OVERVIEW

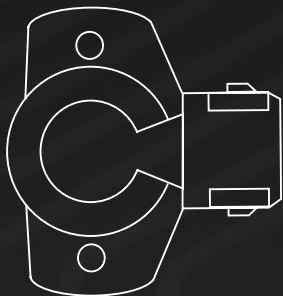
Analogue Voltage Inputs (AVI's) are inputs to the ECU that accept variable voltage signals from 0V to +5V such as signals from pressure, temperature and fuel level sensors.

AVI's can tolerate a maximum input voltage of 20V.

These inputs can also accept switched inputs that change between two different voltage levels. The *On Voltage* and *Off Voltage* define what the thresholds are between the on and off states.

The voltage can be viewed as a channel in the Elite Software Programmer to determine the thresholds for a switched input. Common examples of switched inputs include A/C Request switch and intercooler spray switch.

AVI's #2, #3, #4 and #5 have a software selectable 1K pull-up resistor to 5V, which can be enabled or disabled with a check box within the setup page. Pull-up resistors are generally enabled for temperature sensors. Some examples of sensors are shown below. Please refer to the individual sensor notes supplied with the sensors for specific wiring information.



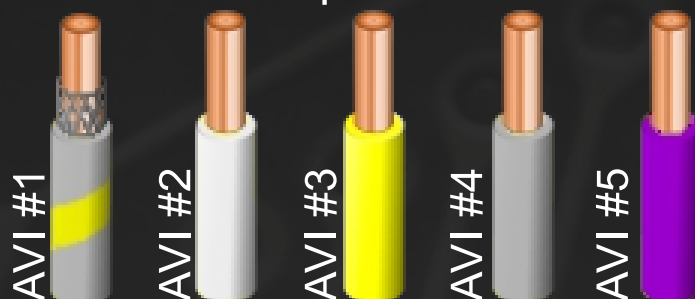
Throttle Position



Temperature



Pressure

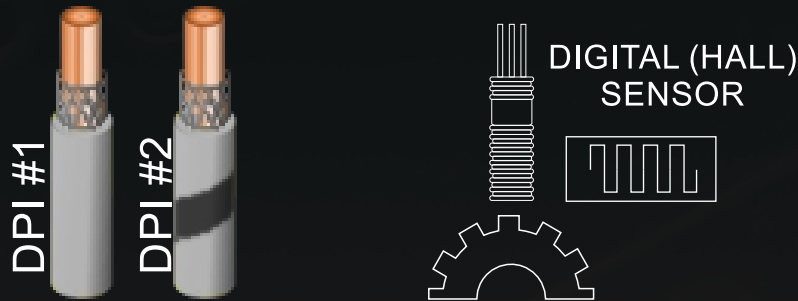


DPI

DIGITAL PULSED INPUTS

OVERVIEW

Digital Pulsed Inputs (DPI's) are capable of measuring the duty cycle, frequency or state of a signal. These inputs are suitable for sensors and switches such as fuel composition sensors, road speed sensors, A/C Request switch and various switched inputs. DPI's are compatible with hall effect based sensors and have a maximum input voltage rating of 25VDC. These sensors can measure up to 50KHz maximum frequency.



MAP SENSOR

On-board Pressure Sensor

OVERVIEW

The MAP sensor is used to convert the manifold pressure into an electrical signal for the ECU to use. The internal Manifold Absolute Pressure Sensor is a 3Bar sensor which is rated up to 200kPa of boost (2Bar / 29psi). Connect the sensor to the inlet manifold via the shortest possible length of vacuum hose and fasten with either hose clamps or nylon cable ties. Avoid connecting the vacuum hose below the level of the fuel injectors, because fuel may collect in the vacuum hose and run down into the sensor causing the sensor to read incorrectly or fail.



DPO

DIGITAL PULSED OUTPUTS

OVERVIEW

Digital Pulsed Outputs (DPO's) are capable of producing pulsed waveforms with varying duty and frequency.

DPO's can be used to control various devices such as thermo fans, shift lights, bypass air control valves, boost control solenoids etc. When a Digital Pulsed Output is activated by the ECU the output will switch to ground. Solenoid valves and shift lights etc can be run directly from the output, however high current devices such as thermo fans and additional fuel pumps must be activated through a relay, this way the DPO is only switching a relay and not a high current draw device.

The Pull-Up Voltage specifies the waveforms maximum voltage output ie 0 to 12V, 0 to 8V or 0 to 5V.

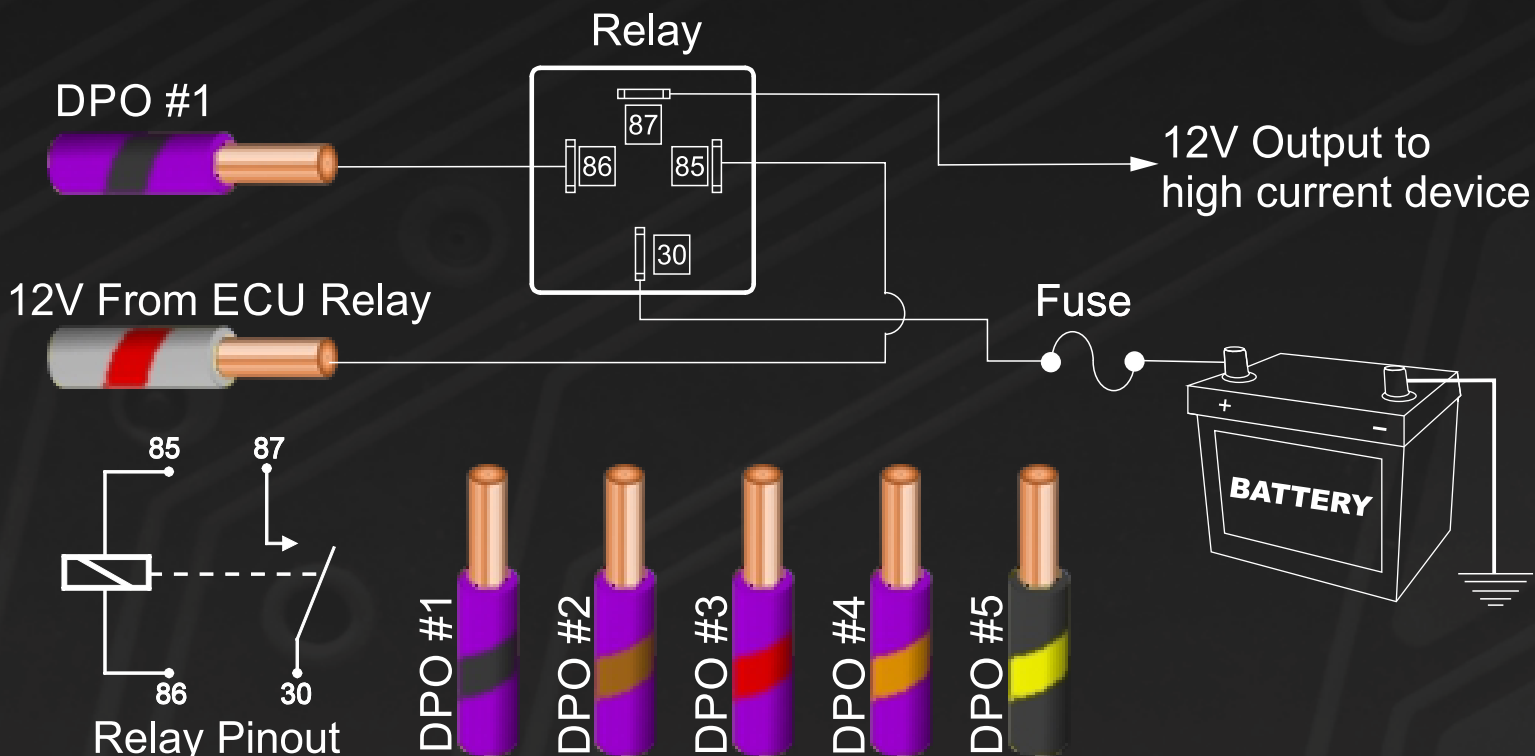
The Pull-Up Voltage specific to each DPO is outlined below:

DPO 1: User definable 0-12V Pull-Up

DPO 2: Fixed 5V Pull-Up

DPO 3 to 5: Fixed 12V Pull-Up

OUTPUT: Ground @ 1A Max Current



IGNITION

IGNITION 1 - 4

OVERVIEW

Ignition outputs must be connected to an ignition module to control the spark timing of the vehicle. Do not connect directly to a coil without an internal or external ignition module as doing this will damage the ECU.

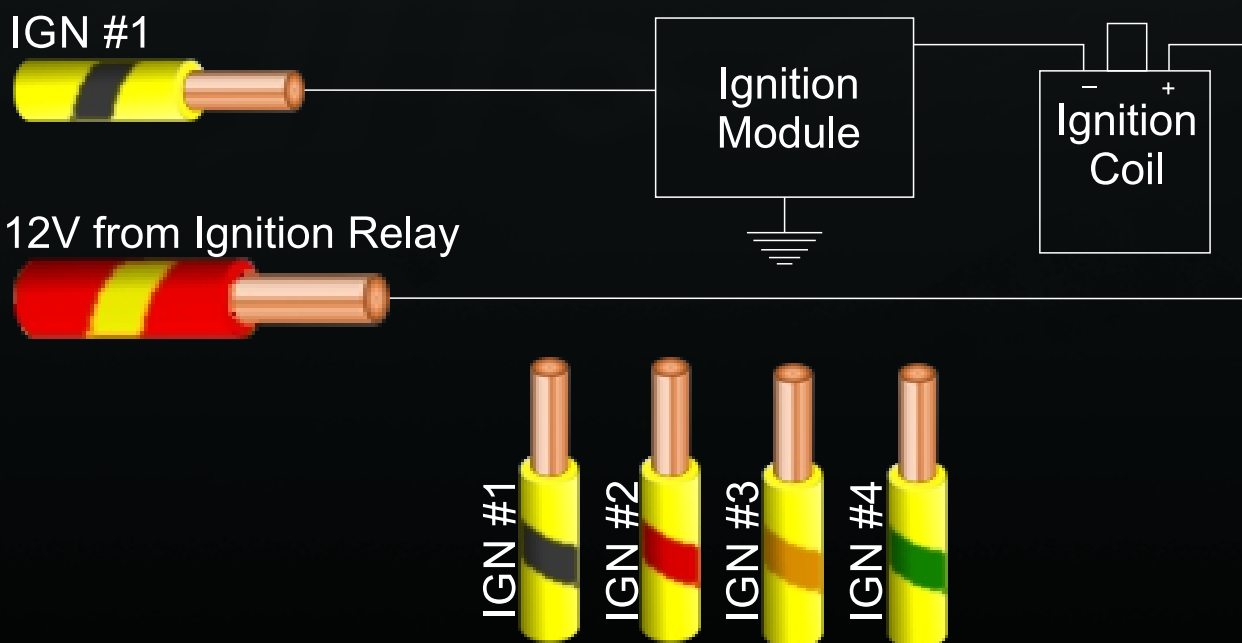
The ECU ignition output produces a signal between 12V and ground to control the ignition module allowing the charging and firing of the coil.

WARNING

Connecting the ECU to an ignition module before setting the ignition firing edge correctly may damage the module and coils, therefore it is advised to disconnect the module or the main ignition fuse until the unit has been setup and configured.

WASTED SPARK / DIRECT FIRE

In wasted spark set-ups, firing will occur in the order of ignition 1, 2, 3, 4 (fixed firing sequence). For direct fire set-ups in four cylinder applications, wire the outputs according to cylinder number (ECU determines firing order).



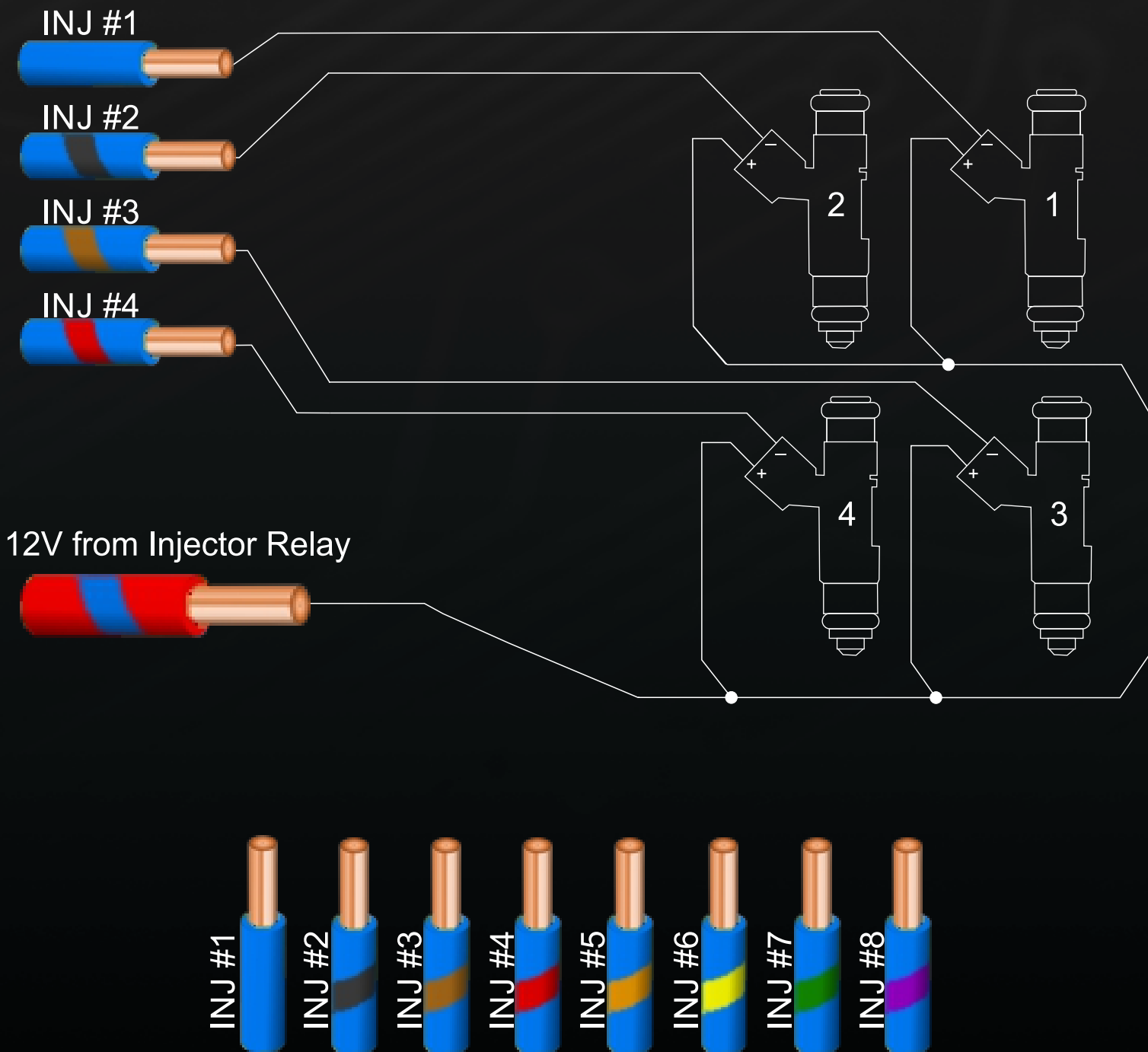
INJECTION

INJECTORS 1 - 8

OVERVIEW

Fuel Injectors are wired directly to the ECU's corresponding cylinder output pins. When an injection event occurs the ECU will ground the output pin, opening the injector.

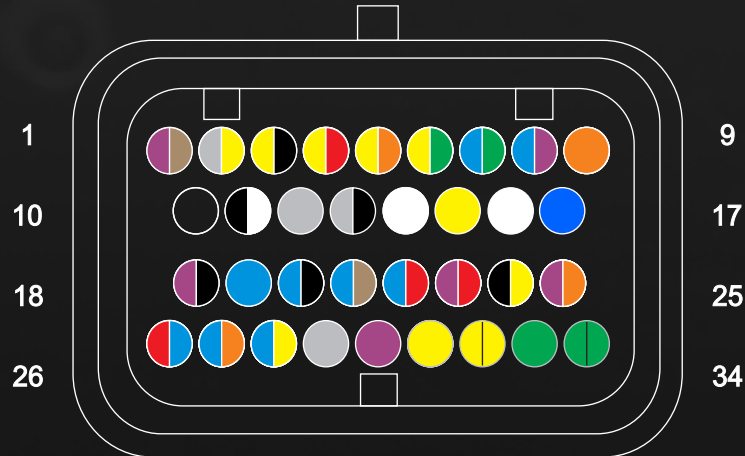
All injectors are required to be wired to a common +12V supply preferably from an injector relay located within the fuse box of the vehicle or the Haltech premium harness.



ECU PINOUT

OVERVIEW

The Elite 950 main connector is a 34 position connector. Pinout is outlined below.



Looking into rear of ECU Connector

Pin #	Wire Colour	Connection
1	V/BR	DPO 2
2	GY/Y <SHD>	AVI 1
3	Y/B	IGN 1
4	Y/R	IGN 2
5	Y/O	IGN 3
6	Y/G	IGN 4
7	L/G	INJ 7
8	L/V	INJ 8
9	O	+5V DC
10	B	BATTERY GROUND
11	B/W	SIGNAL GROUND
12	GY <SHD>	DPI 1
13	GY/B <SHD>	DPI 2
14	W	THROTTLE POSITION SENSOR
15	Y	AVI 3 (* MAP)
16	W	CAN H
17	L	CAN L

Pin #	Wire Colour	Connection
18	V/B	DPO 1
19	L	INJ 1
20	L/B	INJ 2
21	L/BR	INJ 3
22	L/R	INJ 4
23	V/R	DPO 3
24	B/Y	DPO 5 (* Fuel Pump Relay)
25	V/O	DPO 4
26	R/L	+12V ECU / INJECTOR PWR
27	L/O	INJ 5
28	L/Y	INJ 6
29	GY	AIR TEMPERATURE
30	V	COOLANT TEMPERATURE
31	Y (GY 4C)	TRIGGER +
32	Y (GY/B 4C)	HOME +
33	G (GY 4C)	TRIGGER -
34	G (GY/B 4C)	HOME -

*Function pre-allocated but not limited to.

MAIN POWER

POWERING UP THE ECU

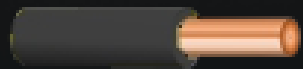
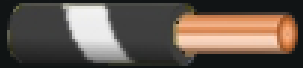
OVERVIEW

The Elite 950 has two universal wiring harnesses available.

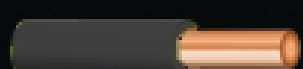
A Premium Harness which includes a pre terminated fuse and relay box and a Basic Harness which does not.

Please refer to your specific harnesses wiring diagram for more information, main connections are outlined below.

Premium Universal Wiring Harness #HT-140704

-  12V Input - Connect directly to battery (+) terminal
-  12V Input - Connect directly to battery (+) terminal
-  12V Ignition Input - Connect to 12V switched input
-  12V Supply for Fuel Injectors - Connect to fuel injectors
-  Battery Ground Input - Connect to battery (-) terminal
-  Signal Ground Output - To sensors requiring a ground
-  5V Sensor Supply - To sensors requiring 5V
-  12V Sensor/Relay Supply - To sensors or relay coils requiring 12V

Basic Universal Harness Only - #HT-140702

-  12V Supply for ECU - Connect to switched main relay supply
-  Battery Ground Input - Connect to battery (-) terminal
-  Signal Ground Output - To sensors requiring a ground
-  5V Sensor Supply - To sensors requiring 5V

NEED MORE HELP?

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