Haltech
ENGINE MANAGEMENT SYSTEMS

PLATINUM SERIES

Haltech

Thermocouple Amplifier

TCA 2 (HT059920 / HT059921) (A / B)

TCA 4 (HT059940 / HT059921) (A / B)

QUICK START GUIDE



LIMITED WARRANTY

Lockin Pty Ltd trading as Haltech warrants the Haltech™ Programmable Fuel Injection System 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 bill of sale or receipted invoice, which indicates that the product is within the warranty period, must be presented to obtain warranty service. Lockin Pty Ltd trading as Haltech suggests that the purchaser retain the dealer's dated bill of sale as evidence of the date of retail purchase.

If the Haltech™ Programmable Fuel Injection System 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 Lockin Pty Ltd trading as 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 Lockin Pty Ltd trading as Haltech, be liable for special or consequential damages.

DISCLAIMER

Haltech will not be held responsible for any damage caused by the incorrect installation or tuning of this product. It is the installers responsibility to ensure the wiring connections and pinouts match that of the vehicle the unit is being installed into.

Haltech has taken all care to make sure the connections match the specified vehicles listed, but variations in wiring and connections on vehicles can occur and therefore this should be checked BEFORE the unit is installed.

Haltech highly recommends installation and tuning of this product is to be carried out by a professional, with an understanding on installing and tuning engine management systems.
Misuse of this product can destroy your engine.

WARNING – HALTECH OFF-ROAD USAGE POLICY

It is unlawful to tamper with your vehicle's emissions equipment.
This ECU is designed and sold for Sanctioned Offroad/Competition Non-Emissions Controlled Vehicles only. Using this product for street / road use on public highways 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 this product.

GENERAL INSTALLATION WARNING

Avoid open sparks, flames or operation of electrical devices near flammable substances.
Always disconnect the battery cables when doing electrical work on your vehicle.

Do not charge the battery with a 24 Volt truck charger or reverse the polarity of the battery or any charging unit. Do not charge the battery with the engine running as this could expose the ECU to an unregulated power supply that could destroy the ECU and other electrical equipment.

All fuel system components and wiring should be mounted away from heat sources, shielded if necessary and well ventilated. Disconnect the Haltech ECU from the electrical system whenever doing any arc welding on the vehicle by unplugging the wiring harness connector from the ECU.

After completing the installation, make sure that there are no fuel leaks, and no wiring left un-insulated in case a spark or short-circuit occurs and causes a fire. Also make sure that you follow all proper workshop safety procedures. If you're working underneath a jacked-up car, always use safety stands!

Haltech Thermocouple Amplifier
Quick Start Guide

Congratulations on purchasing a Haltech Thermocouple Amplifier.
This *Plug and Play* product allows the user the ability to increase the functionality of their Haltech ECU by using the Haltech CAN system which is fitted to all Platinum Series ECU's.

The Thermocouple Amplifier Box makes available multiple temperature inputs for monitoring, tuning and logging.

This quick start guide will walk you through installation of the Haltech Thermocouple Amplifier into a vehicle. This guide is accompanied by the full service manual located on the software CD provided with the ECU that you or your tuner will need to refer to before completing your installation and configuration. The Manual can also be downloaded from the Haltech website www.haltech.com

Included in Haltech Thermocouple Amplifier Kit – TCA2

- Haltech 2 Channel Thermocouple Amplifier Box
- Haltech CAN Cable Direct Connection Black 600mm
- Quick start guide
- Haltech Sticker

Included in Haltech Thermocouple Amplifier Kit – TCA4

- Haltech 4 Channel Thermocouple Amplifier Box
- Haltech CAN Cable Direct Connection Black 600mm
- Quick start guide
- Haltech Sticker

Optional Accessories (Sold Separately)

- Thermocouple Probes (Please contact Haltech for probe sets available)
- TCA – Flying Lead Auxiliary Harness (HT049940)
- TCA – Plug and Pin Set (HT030006)
- CAN Cable Hub Connection White, available in various sizes 75mm up to 3600mm (Please contact Haltech for sizes and prices)
- CAN Cable Direct Connection Black, available in various sizes 75mm up to 3600mm (Please contact Haltech for sizes and prices)

Installation

Installing the Haltech Thermocouple Amplifier is quick and simple. There are 3 possible methods for connection to your Haltech ECU outlined below:

Method 1: Direct Connection to Haltech Platinum Series ECU

- Connect the Haltech Thermocouple Amplifier directly to a Haltech Platinum Series ECU via the CAN direct connection cable included with the kit

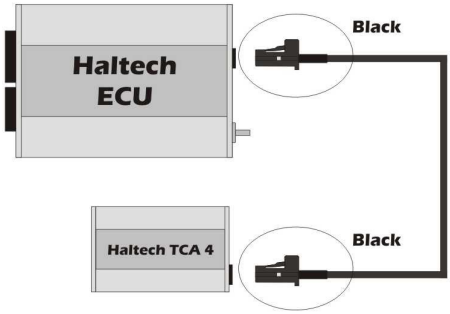


Figure 1 – Haltech TC Amplifier connected directly to a Haltech Platinum Series ECU

Method 2 : Connection Via Haltech CAN Hub (HT059990)

- Connect the Haltech Thermocouple Amplifier directly to the CAN Hub attached to a Haltech Platinum Series ECU (a Haltech CAN Hub Connection Cable may need to be purchased depending on your setup. Please refer to the Haltech CAN Hub quick start guide for details on connecting multiple devices to your Platinum Series ECU.)

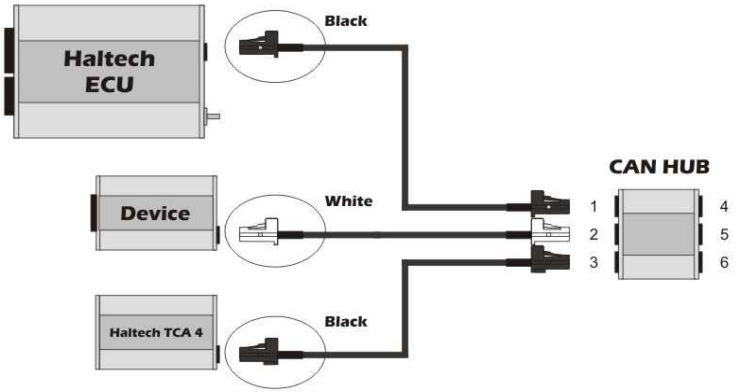
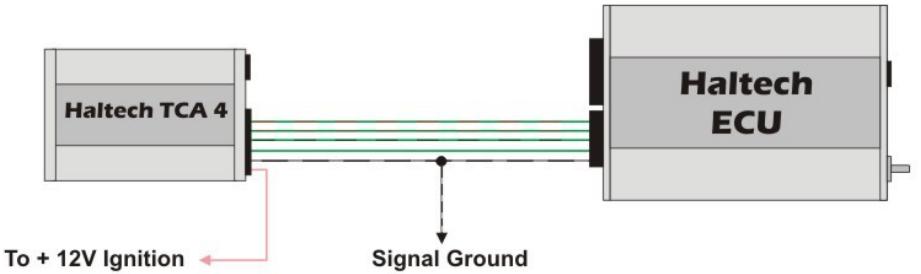


Figure 2 – Haltech TC Amplifier connected via the Haltech Can Hub

Method 3 : Connection Via Auxiliary Harness (HT049940)

- Connect the Haltech Thermocouple Amplifier via the optional auxiliary harness (order as part number HT049940) This allows the Amplifier to be used with earlier Haltech non - CAN based ECU's.
    - Connect the Black / White (signal ground) cable from the auxiliary harness to a signal ground from the ECU harness
    - Connect the Pink (12V Ignition) cable from the auxiliary harness to a switched 12V ignition source
    - Connect the corresponding outputs of the thermocouple inputs in use to separate spare AVI inputs on your Haltech ECU (see diagram below)
    - Connect the auxiliary harness to the 16pin connector on the rear of the device



Calibration:

Volts	Deg C
0.75	0
4.5	1250

Figure 3 – Haltech TC Amplifier connected via the optional auxiliary harness

EGT Weld- In Sensor Installation Notes

When installing the Thermocouple probes into your headers please note the following:

- For accurate temperature readings the placement of the weldment should be as close to the header flange as practical up to 100mm from the flange is acceptable.
- All weldments should be mounted in a position consistent on all pipes. It is very important that they are all equidistant from the flange.
- The ideal depth for the thermocouple probes in installations other than turbocharged or any supercharged nitromethane applications, is to have the probe located in the centre of the pipe.
- The ideal depth for the thermocouple probes in turbocharged or supercharged nitromethane fueled engines should be no more than 6mm into the pipe

EGT Weld- In Sensor Installation

1. Select the header tube in which you wish to mount the probe
2. Select the sensor location point on the pipe.
3. Once the position is located, drill a 5/16 inch diameter hole in the header tube
4. Remove the plastic protective tip from the thermocouple probe
5. Center the weld-in weldment around the hole and weld to the header pipe a full 360 degrees
6. Install the compression cap and ferrule on the welded base and bring up finger tight
7. Measure the distance from the exposed tip, up the hot leg of the sensor that's equal to the height of the compression fitting plus the immersion depth that the sensor will extend into the exhaust stream. Mark that length using a marker or pencil
8. Insert the thermocouple probe through the installed mounting hardware until the mark touches the top of the cap and tighten the compression nut using a 9/16 inch spanner. Make sure sensor transition and spring is at a 90 degree angle to the exhaust pipe, if room permits. This will position the sensor tip correctly in the exhaust stream

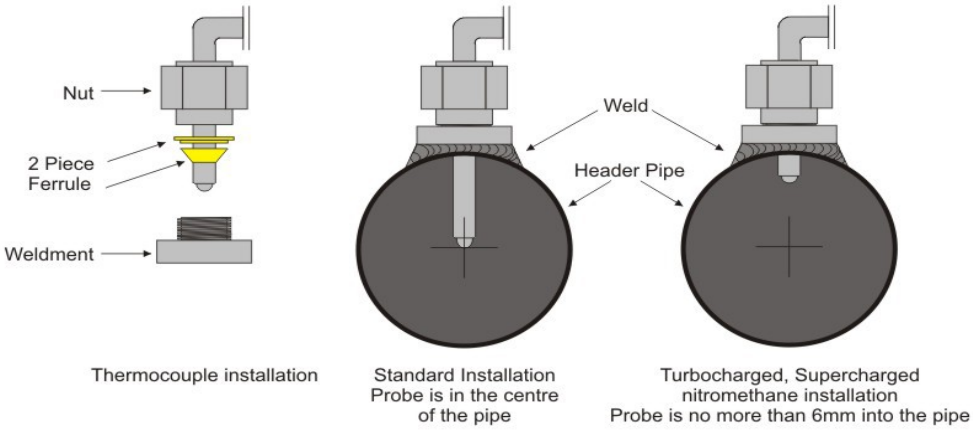
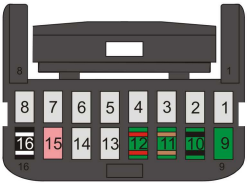


Figure 4 – Thermocouple Installation

Appendix



Looking into Connector

TCA Auxiliary Connector		
Pin #	**Wire Colour**	**Description**
1	-	Not Used
2	-	Not Used
3	-	Not Used
4	-	Not Used
5	-	Not Used
6	-	Not Used
7	-	Not Used
8	-	Not Used
9	G	CH 1 Output (TCA 4 Only)
10	G/B	CH 2 Output (TCA 4) / CH 1 Output (TCA 2)
11	G/BR	CH 3 Output (TCA 4) / CH 2 Output (TCA 2)
12	G/R	CH 4 Output (TCA 4 Only)
13	-	Not Used
14	-	Not Used
15	P	12V Ignition Input
16	B/W	Signal Ground

Figure 5 – Haltech TCA Auxiliary Connector Wiring

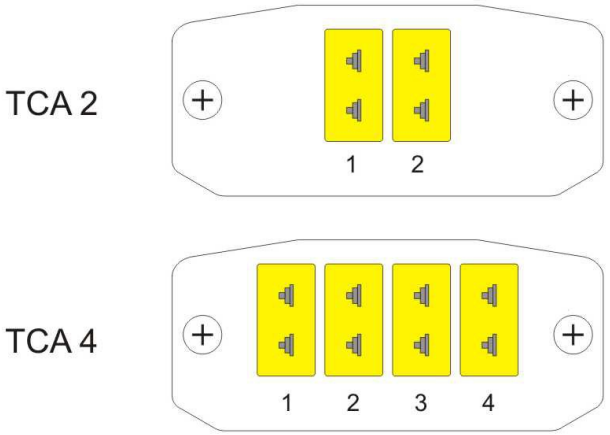


Figure 6 – Thermocouple Input Channel Identification

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See the Haltech Website for your local authorized dealer.

www.haltech.com

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