



***Haltech
Thermocouple Amplifier***

TCA 2 (HT-059920 / HT-059921) (A / B)

TCA 4 (HT-059940 / HT-059941) (A / B)

QUICK START GUIDE



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

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 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, valid in the original country of purchase only. 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. Haltech suggests that the purchaser retain the dealer's dated bill of sale/receipt as evidence of the date of retail 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. 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.

PRODUCT RETURNS

Please include a copy of the original purchase invoice 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.

Returning a sensor or accessory product within 30 days of purchase: Product may be returned for credit or full refund. (Any sealed packaging must not have been opened or tampered with)

Returning a sensor or accessory product after 30 days of purchase: Product may be returned for credit only (no refunds given) and is subject to a 10% Restocking fee. (Any sealed packaging must not have been opened or tampered with)

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 and Elite Series ECU's.

The Haltech 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 or USB key 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 DTM4 to 8-pin Tyco (300mm) (HT-130032)
- Quick start guide
- Haltech Sticker

Included in Haltech Thermocouple Amplifier Kit – TCA4

- Haltech 4 Channel Thermocouple Amplifier Box
- Haltech CAN Cable DTM4 to 8-pin Tyco (300mm) (HT-130032)
- Quick start guide
- Haltech Sticker

Optional Accessories (Sold Separately)

- Thermocouple Probes (Please contact Haltech for probe sets available)
- TCA – Flying Lead Auxiliary Harness (HT-049940)
- TCA – Plug and Pin Set (HT-030006)
- Haltech CAN Cable DTM4 to 8-pin Black Tyco in various sizes 150mm 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 or Elite Series ECU

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

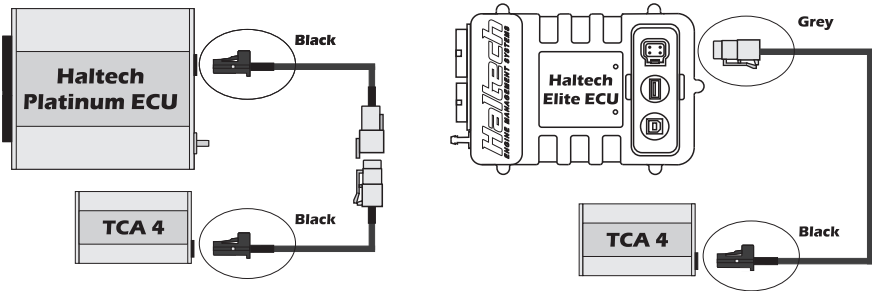


Figure 1 – Haltech TC Amplifier connected directly to a Haltech ECU

Method 2 : Connection Via Haltech DTM4 CAN Hub (HT-159000)

- Connect the Haltech Thermocouple Amplifier directly to the CAN Hub attached to a Haltech Platinum or Elite 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 or Elite Series ECU.)

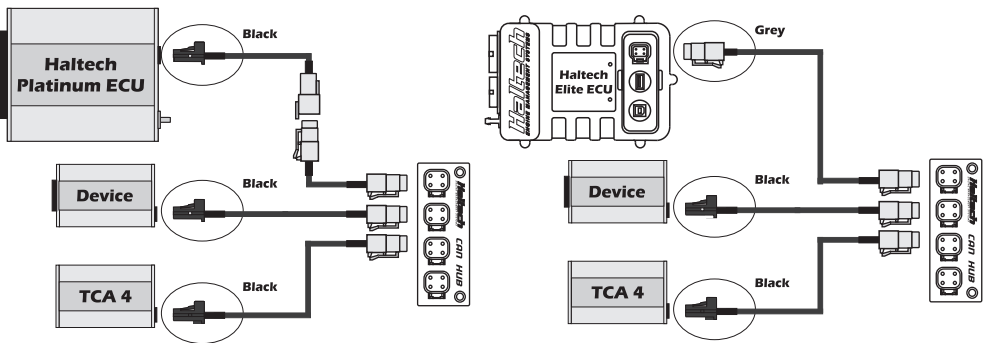


Figure 2 – Haltech TC Amplifier connected via the Haltech DTM4 Can Hub

Method 3 : Connection Via Auxiliary Harness (HT-049940)

- Connect the Haltech Thermocouple Amplifier via the optional auxiliary harness (order as part number HT-049940) 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

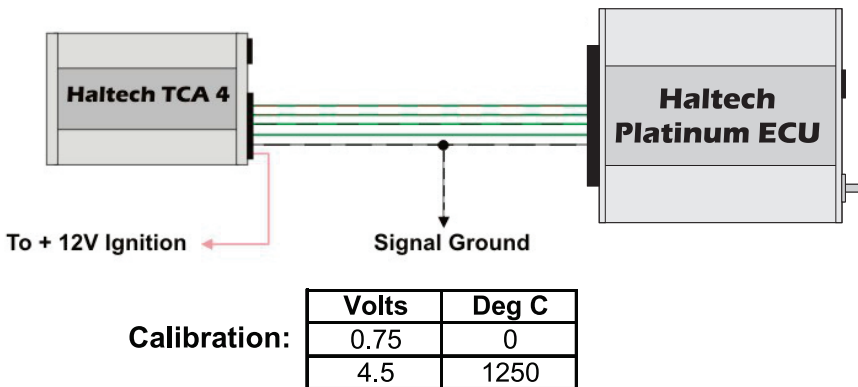


Figure 3 – Haltech TC Amplifier connected via the optional auxiliary harness

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

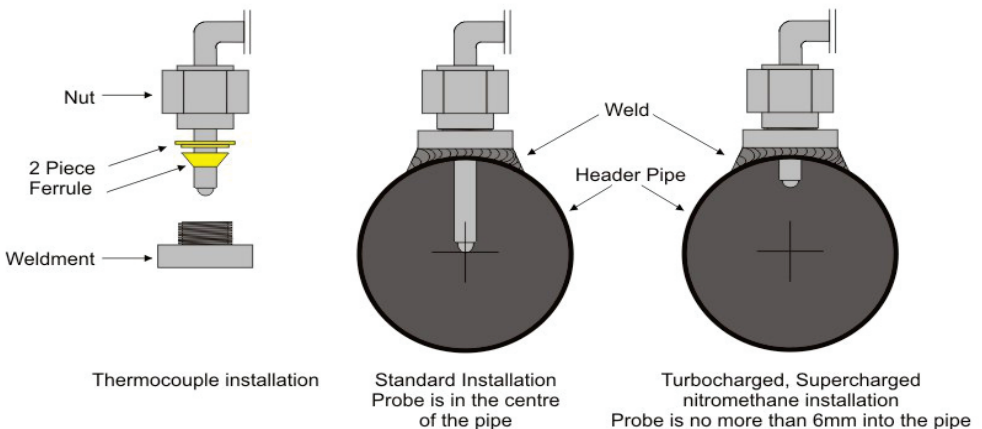
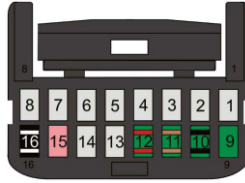


Figure 4 – Thermocouple Installation

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

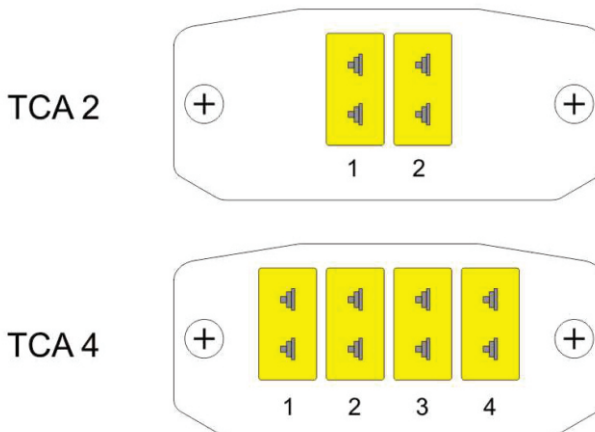


Figure 6 – Thermocouple Input Channel Identification



V3.1

Need more help?



Intl: +61 2 9729 0999
USA: +1 888 298 8116



Intl: support@haltech.com
USA: usasupport@haltech.com



www.haltech.com



[/Haltechecu](https://www.youtube.com/Haltechecu)



[/HaltechEngineManagement](https://www.facebook.com/HaltechEngineManagement)