



***Haltech***  
***Thermocouple Amplifier***

**TCA 8 (HT-059918)**

**QUICK START GUIDE**



## WARNING - 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.seman.com/emissions](http://www.seman.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.

## 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. 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.

## 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.

**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.

Exhaust Gas Temperature or EGT is a fundamental tool in tuning, diagnosing problems and ensuring the proper operating range of an internal combustion engine. This simple, but effective tool can diagnose potential engine problems before failure and ensure proper cylinder equalization when tuning or running an engine at the edge of it's operating capabilities.

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](http://www.haltech.com)

### **Included in Haltech Thermocouple Amplifier Kit – TCA8**

- Haltech 8 Channel Thermocouple Amplifier Box
- Haltech CAN Cable DTM4 to Circular Connector to suit TCA8 (1200mm)
- Quick start guide
- Haltech Sticker

***NOTE: Thermocouple Probes sold separately - please contact Haltech for available probe sets***

### **Technical Specifications**

- Temperature measurement range of 0 to 1000 degrees Celsius
- 8 input channels
- Outputs temperature via CAN bus communication to the ECU
- Interfaces to K-Type Thermocouples
- Input voltage range of 9 to 20 VDC
- Rugged billet aluminum case
- Compact dimensions (124.5mm (4.9in) x 57mm (2.25in) x 25.5mm (1.0in))

# 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

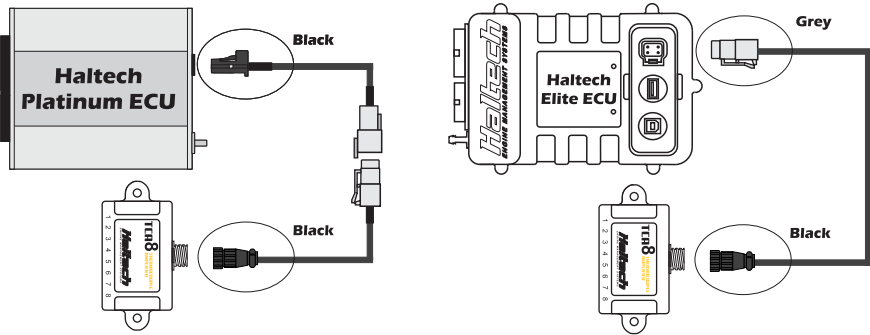


Figure 1 – Haltech Thermocouple Amplifier connected directly to a Haltech ECU

## 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).

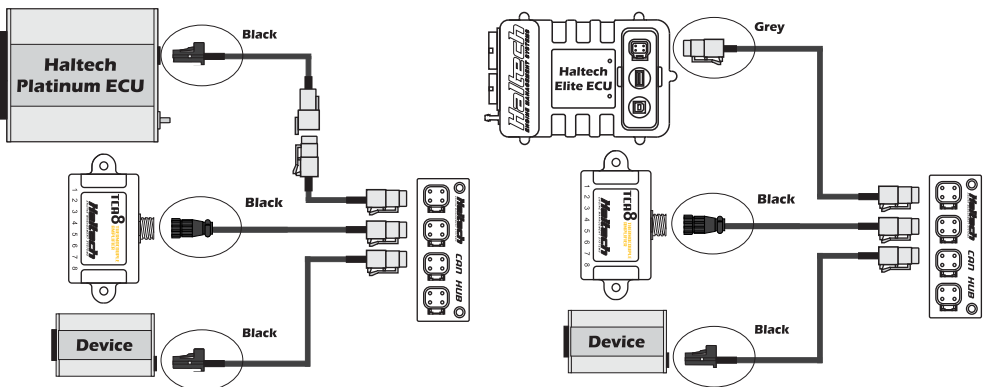
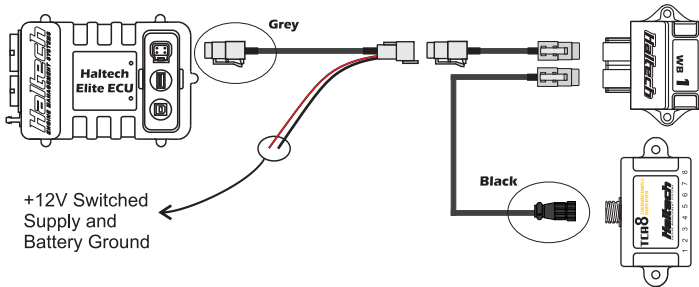


Figure 2 – Haltech Thermocouple Amplifier connected via the Haltech DTM4 Can Hub

### Method 3 : Connection Via Haltech CAN Wideband Controller (HT-159970/80)

Connect the Haltech Thermocouple Amplifier directly to a CAN Wideband Controller attached to a Haltech Platinum or Elite Series ECU (please refer to the Haltech CAN Wideband Controller quick start guide for details on connecting multiple devices to your Platinum or Elite Series ECU).

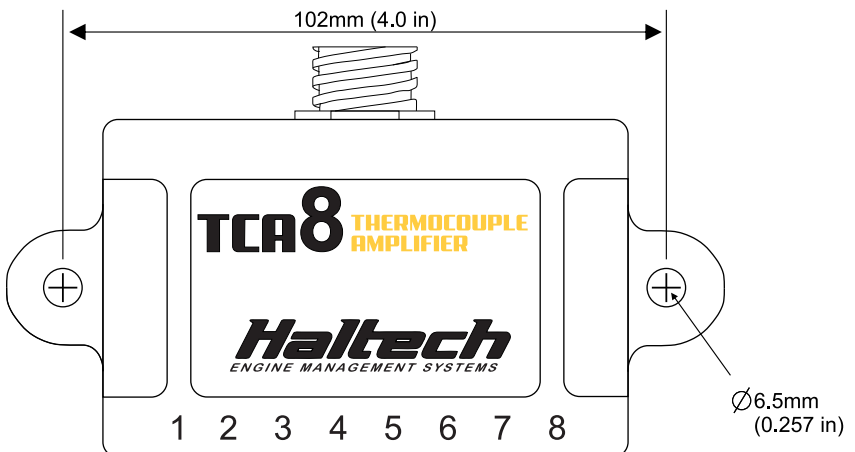


**Figure 3 – Haltech Thermocouple Amplifier connected via the Haltech Wideband Controller**

### Mounting Information

The Haltech TCA module is not fully sealed. For this reason, the module should be mounted close enough to the probe for ease of installation, however it must be mounted far enough from the exhaust system so that it is not damaged from excessive heat. The TCA Module must also be mounted away from sources of water, with the correct side up (as shown below) to avoid damage.

The module should be secured to the vehicle using the two bolt holes in the case, shown below:



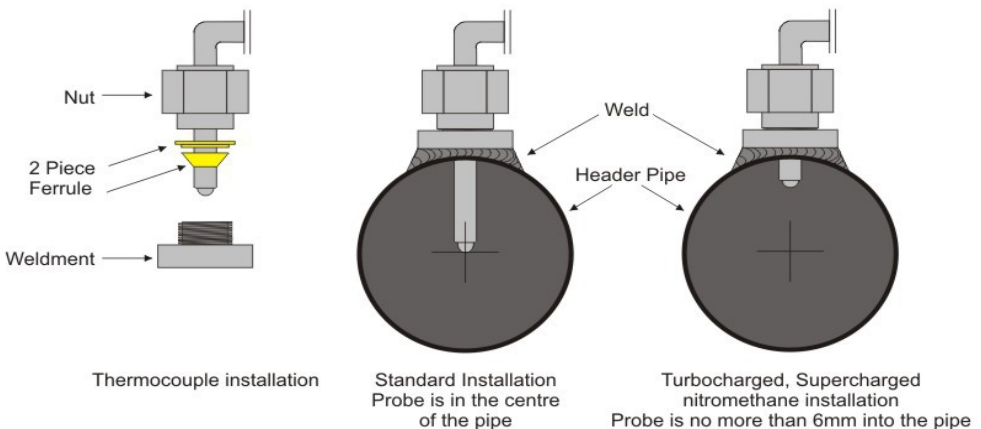
## EGT Weld-In Sensor Installation Notes

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

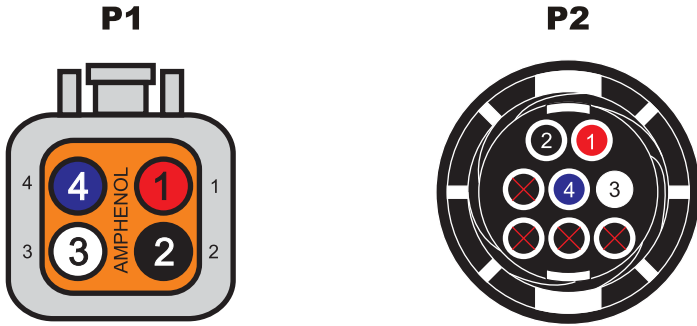
## EGT Weld-In Sensor Installation

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**

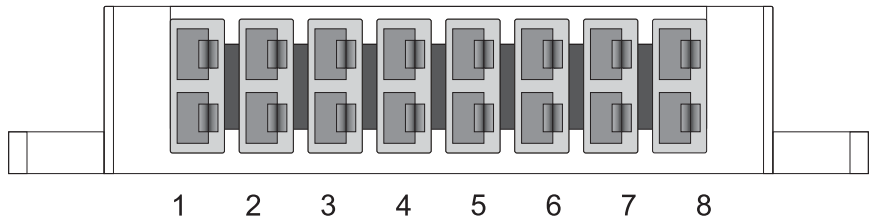
# Appendix



REAR VIEW (WIRE SIDE)

<b>Connector P1</b>		
Pin #	Wire Colour	Description
1	RED	+12V Supply
2	BLACK	Signal Ground
3	WHITE	CAN High
4	BLUE	CAN Low
<b>Connector P2</b>		
Pin #	Wire Colour	Description
1	RED	+12V Supply
2	BLACK	Signal Ground
3	WHITE	CAN High
4	BLUE	CAN Low

**Figure 5 – Haltech TCA Auxiliary Connector Wiring**



**Figure 6 – Thermocouple Input Channel Identification**



V1.0

### Need more help?



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