

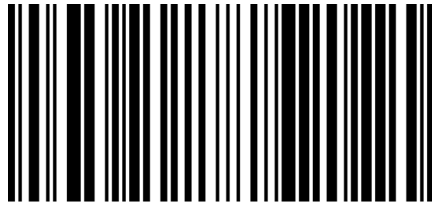


DCMD

DC MOTOR DRIVER

QUICK START GUIDE

HT-038009



9356450011082

PRODUCT OVERVIEW

Congratulations on purchasing a Haltech DC Motor Driver (DCMD).

This driver has been designed to drive a DC motor like the Turbosmart Electric Wastegate or Varex systems. It can also be used to drive high power, external electric throttle bodies.

Compatible with all Elite and NEXUS series devices, this 8A full bridge DC Motor Driver will work in applications where the current requirements are higher than the Haltech Elite ECU's stepper (1A) or DBW (3A) outputs can provide.

This driver can also be used with NEXUS devices where no HBO (8A) or HCO (25A) pins are available.

The DCMD is rated for 8A continuous per channel, with a maximum current of 30A.

Both channels can be controlled independently, ie "Control A" switches "Motor/Output A".

With a maximum recommended switching speed of 2.2kHz, this driver box is perfect for connecting devices like the Turbosmart EWG to your Elite or NEXUS device.

NOTE: Native Turbosmart Electric Wastegate control is limited to Elite and NEXUS series devices and is not supported on Platinum series ECUs.



What's in the box?

- Haltech DC Motor Driver (DCMD)
- 1 x DT02-2S - includes wedges and pins
- 1 x DT06-4S - includes wedges and pins
- 1 x DTM06-4S-E004 - inc. wedges & pins
- 1 x DTM04-49-E004 - inc. wedges & pins
- 1 x Quick Start Guide



Features:

- Compatible with all Elite and NEXUS ECUs
- Two independent channels
- Switching Speeds up to 2.2kHz
- Limited automatic overcurrent protection

To ensure that your Elite ECU or NEXUS ECU is compatible, please download the latest software and firmware available from our website. www.haltech.com/downloads

For more guides and instructions, visit our Knowledge Base. <https://support.haltech.com>

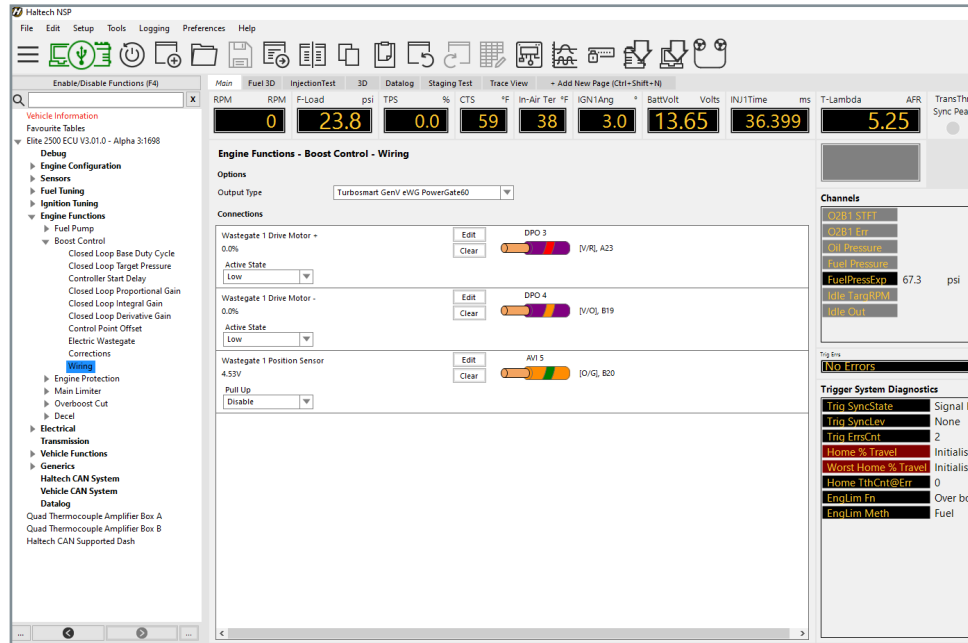
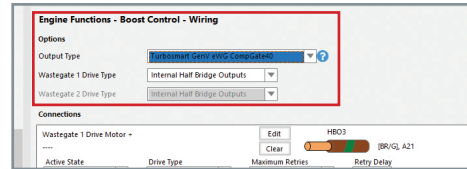
DCMD	
Size (without connector)	86mm x 28mm x 55.5mm
Operating Voltage	8V to 18V DC
Recommended Switching Speed	2.2kHz Maximum
Operating Current	8A Continuous Per Channel, Maximum Transient Current 30A
Ambient Operating Temperature	-40C to +85C (-40F to 185F)
Supported Haltech ECUs	All Elite and NEXUS Devices
Recommended Wire Size	16AWG - Power, Ground, Motor A/B 20AWG - Control A/B
Recommended Fuse	20A for Switched Power
Configuration	via Haltech NSP Software
Control Source	Any spare DPO, Ignition, Injection, Stepper or DBW output(s).

To begin configuring your DCMD for use with the NEXUS Software Programmer (NSP), please make sure you have the most up-to-date version.

With your new DCMD installed and connected, boot your Elite or NEXUS device with NSP.

The Electric Wastegate function within NSP was developed specifically for Turbosmart EWGs, greatly simplifying the whole setup process.

Using NSP's simple drop down menu, up to two EWGs can be selected, configured and calibrated.



Wiring Configuration

The wiring node is used to change your boost control method from standard solenoid to a single or dual EWG option.

Through the navigation tree, enter the Wiring configuration tab for Boost Control. Select your wastegate output type in the pull down menu.

If you get prompted to reset your ECU for these settings to take effect, please do so now.

If you have not configured your Wastegate Temperature Sensor(s), there will be a warning (!) in red with a hyperlink to those settings.

Wastegate Temperature is required for EWG control, the circuitry used for EWG position should not exceed 150°C.

If a temperature higher than 150°C is measured, the EWG will hold in an open position until temperatures have reduced to 140°C or lower.

WARNING!

Turn your engine off before calibrating your Electric Wastegate. The calibration process cannot be completed with the engine running.

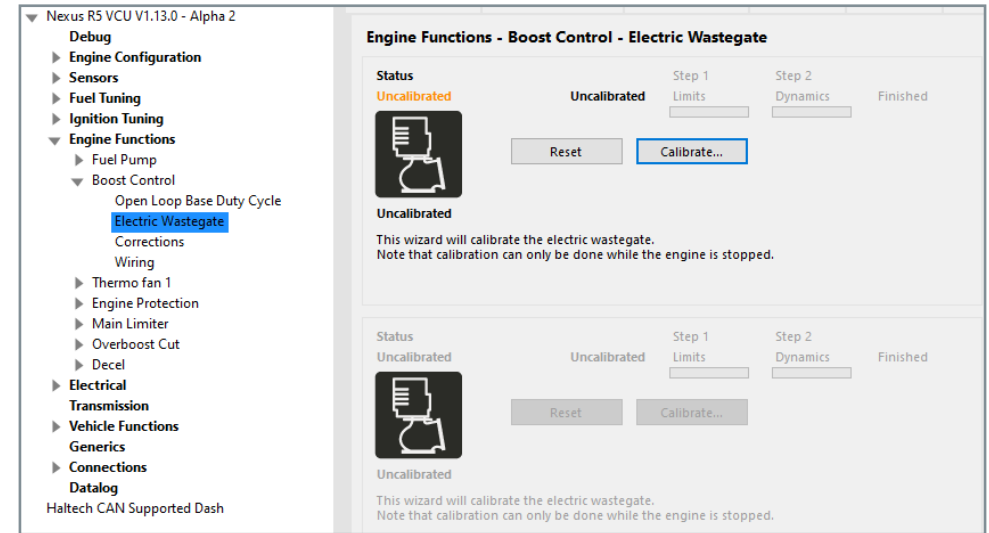
Calibration

The calibration node is used to calibrate your electronic wastegate. Make sure your engine is turned off through this process.

Begin by clicking "Reset", the status bar will read "Uncalibrated" for each wastegate.

Click "Calibrate" and NSP will perform the necessary adjustments automatically.

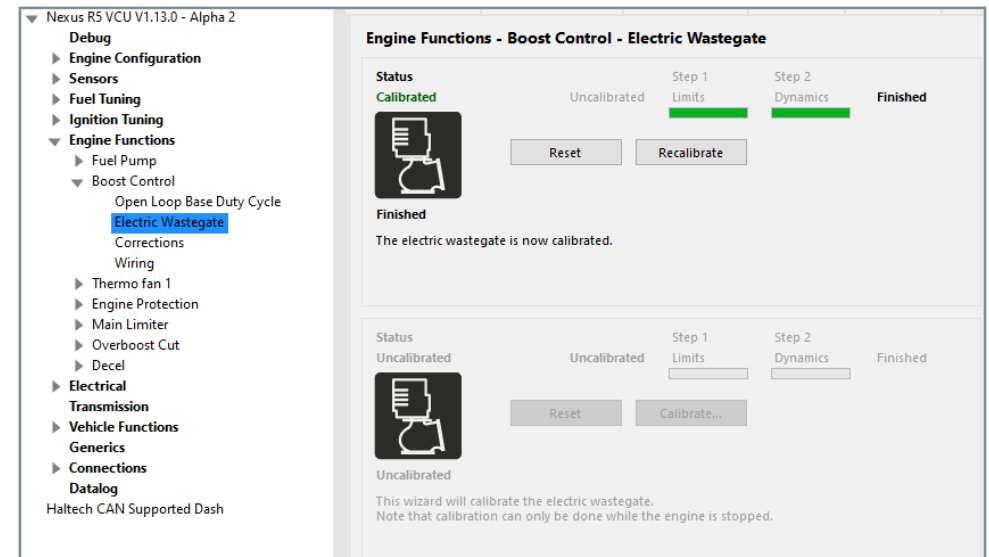
Don't be alarmed if two messages pop up during this process: "Step 1 - Limit Calibration" and "Step 2 - Dynamics Calibration".



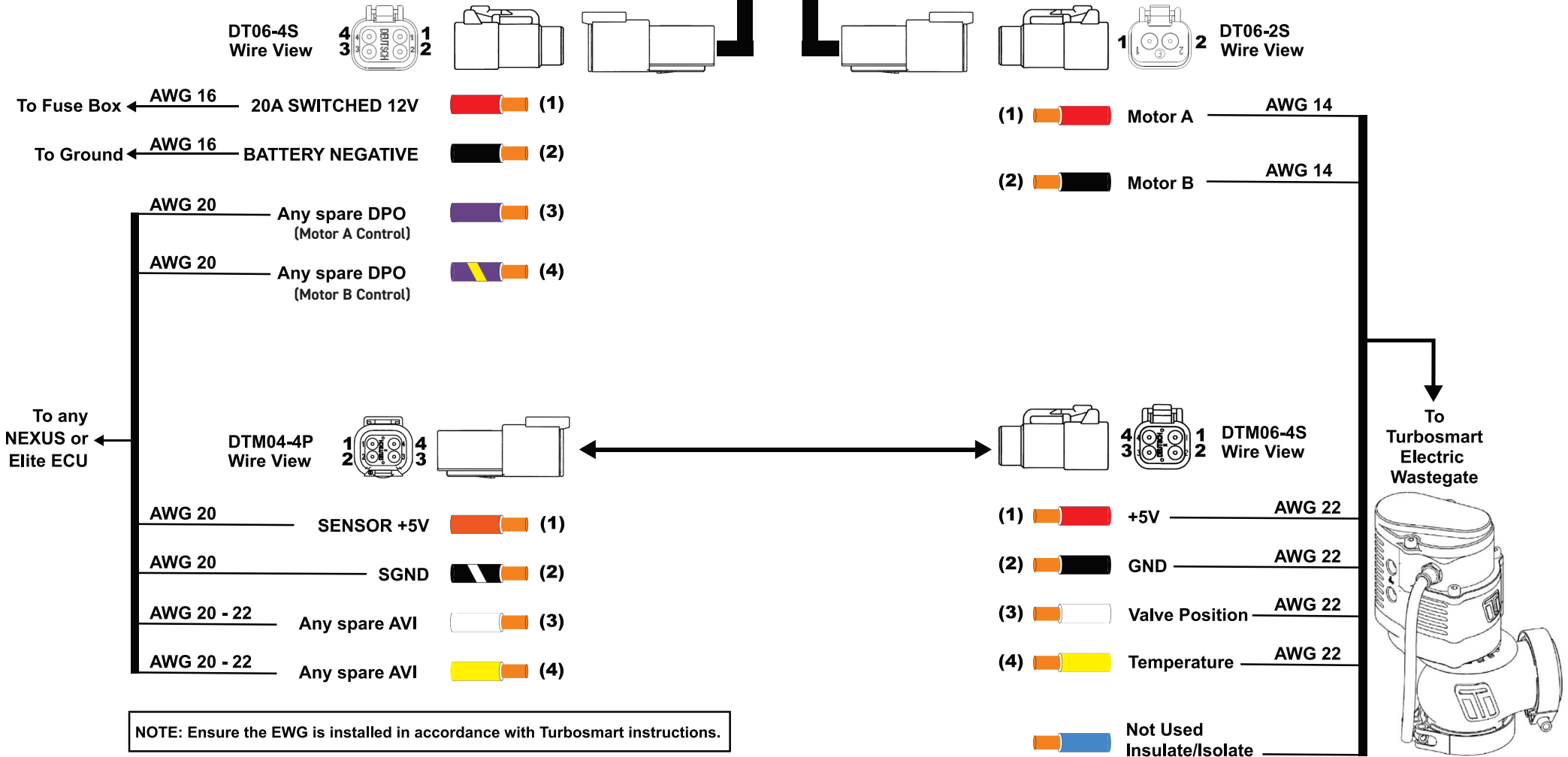
NSP will alert you when the process has been successfully completed. Your status bar should change to a highlighted green "Calibrated" message.

If you are using a second EWG, repeat the same process for the second status window.

Your wastegate(s) is now ready for use!



TURBOSMART EWG WIRING DIAGRAM



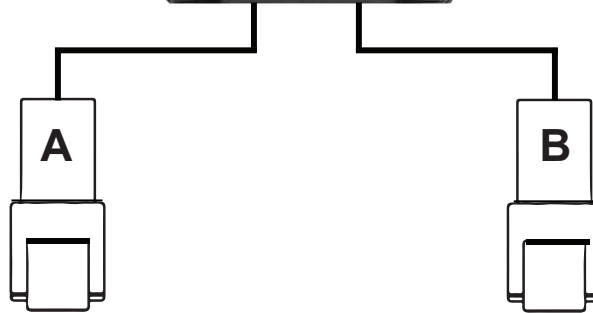
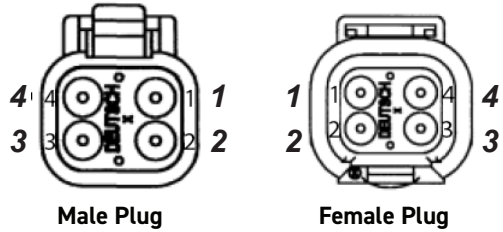
NOTE: Ensure the EWG is installed in accordance with Turbosmart instructions.

Deutsch DT/DTM Connector Assembly

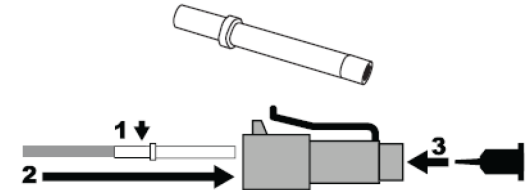
The DCMD includes spare connectors and pins, giving you the ability to create your own sub-harness for an E-Gate installation.

Along with the visuals provided below, please visit our YouTube channel for a thorough walkthrough of building DTM connectors: www.youtube.com/c/haltech

DT Connector Diagram (Wire Side)

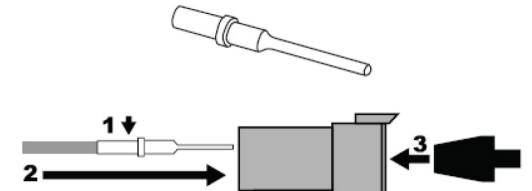


Male Plug (Utilises Female Pins)



1. Crimp pin to wire.
2. Insert pin/wire into harness side of plug.
3. Insert wedge to lock pins in connector.

Female Receptacle (Utilises Male Pins)



1. Crimp pin to wire.
2. Insert pin/wire into harness side of plug.
3. Insert wedge to lock pins in connector.

Connector A - DCMD Side

20A Switched +12V IGN



Battery Ground



Any Spare DPO from ECU (Motor A Control)



Any Spare DPO from ECU (Motor B Control)



Connector B - DCMD Side

Motor A to E-Gate



Motor B to E-Gate



E-Gate Connections - ECU Side

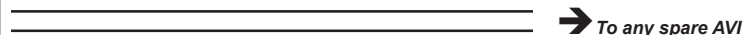
ECU Sensor +5V



ECU Sensor Ground



Any spare AVI from ECU



Any spare AVI from ECU



E-Gate Connections - Gate Side

ECU Sensor +5V



ECU Sensor Ground



Valve Position Sensor to ECU



Temperature Sensor to ECU



20A Switched +12V

The 20A Switched +12 volt connection directly powers the DCMD device. This should come from a 20A rated fused source such as your vehicle's power distribution module.

This connection is pre-terminated within a 4-Pin DT Connector.

Battery Negative (-)

The Battery Negative is your main ground connection for the DCMD. This should go directly to the battery negative terminal or another suitable ground source.

This connection is pre-terminated within a 4-Pin DT Connector.

ECU DPOs (Motor Control A/B)

The Digitally Pulsed Outputs from any Elite or Nexus series ECU can control the DCMD.

Control is Active State: Low
 0V on Control A = 0V on Motor A
 Pull Up Resistor not required.
 Can be controlled from a DPO, Ignition, Injection, Stepper or DBW ECU output.

Please note that additional programming in NSP may be required if using devices not directly supported in the software.

This connection is pre-terminated within a 4-pin DT Connector.

Motor A

The Motor A connection is supplied by the 2-pin DT connector located on the DCMD. This connection will drive the first "channel" or "motor". It can supply 8A of power continuously at a maximum speed of 2.2 kHz.

Motor B

The Motor B connection is supplied by the 2-pin DT connector located on the DCMD. This connection will drive the second "channel" or "motor". It can supply 8A of power continuously at a maximum speed of 2.2 kHz.

EWG TUNING TIPS

Haltech has designed the Electronic Wastegate Control strategy to simplify and speed up the end user's tuning process.

Existing boost control strategies may be used with minor adjustments, and the tuning process should be similar to existing closed loop boost control systems.

When using an EWG, the "Boost Control Function" retains its existing Duty Cycle range of 0% to 100%. Where 100% will request maximum flow through the turbo and 0% will request minimum flow through the turbo (mimicing solenoid based boost control systems).

However, when using an EWG as your Boost Control output type, the Boost Control Function automatically converts boost output duty cycle into a target wastegate position.

NSP takes into account the different flow characteristics of the EWG across multiple valve positions. This means the relationship between Boost Control output duty cycle and the Wastegate Flow will be linear.

Tuners should take into consideration the increased response time of an EWG when compared to a pneumatic based system. This may require different approaches to tuning the Boost Control Function.

Haltech has provided extended tuning tables for some Boost Control settings, eg Control Offset, in order to further simplify the tuning process for different Boost Control scenarios.



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 in tact) 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 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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