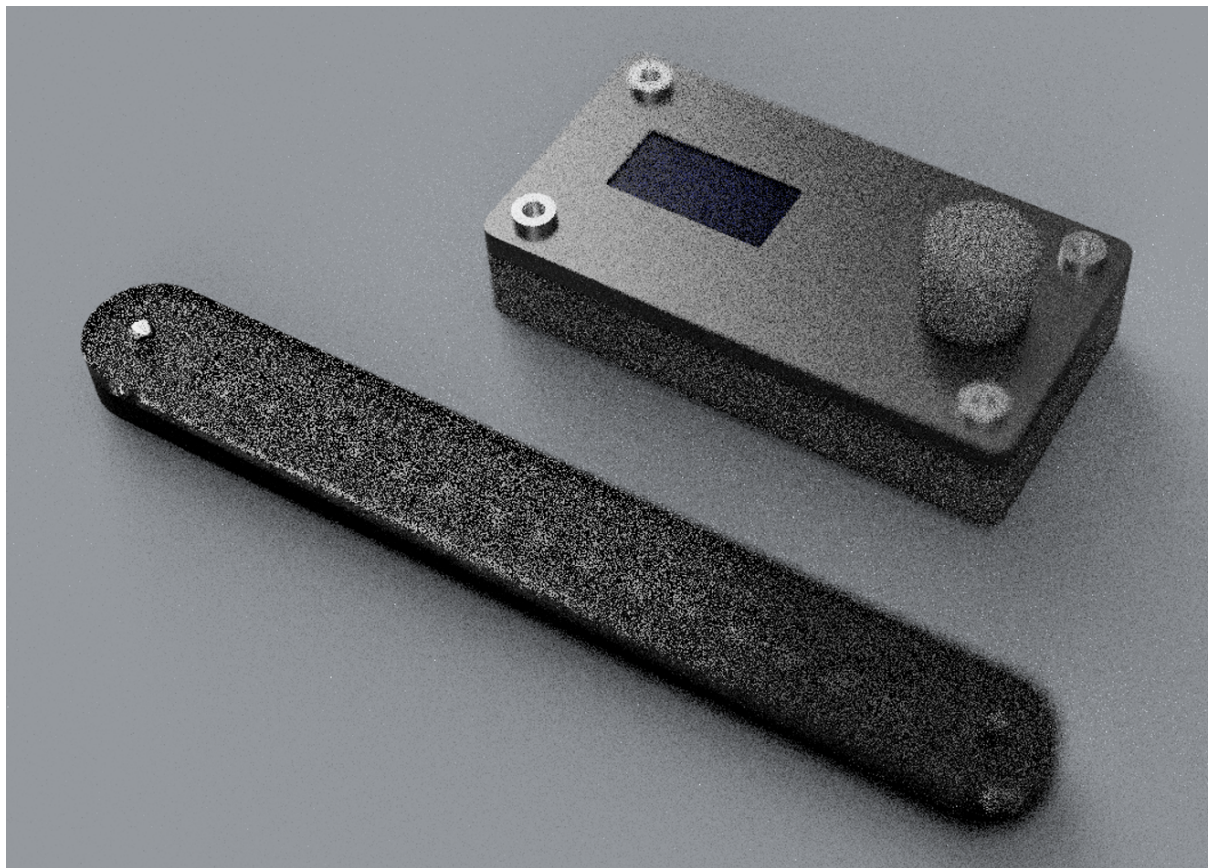# PowerTune Digital.com

CANSHIFT 1.2

Owner's Manual and Installation Guide

Package Contents

Thank you for your purchase. It is important to verify the contents of your new purchase. Please confirm that you have received the following items.

1 x CANSHIFT Control Module

1 x LED Shiftlight Module & mount

1 x CAN BUS Module

1 x 30cm Power Cable (Red, Black, Yellow)

1 x 100cm Shiftlight Cable (Red, Yellow, Black, Green)

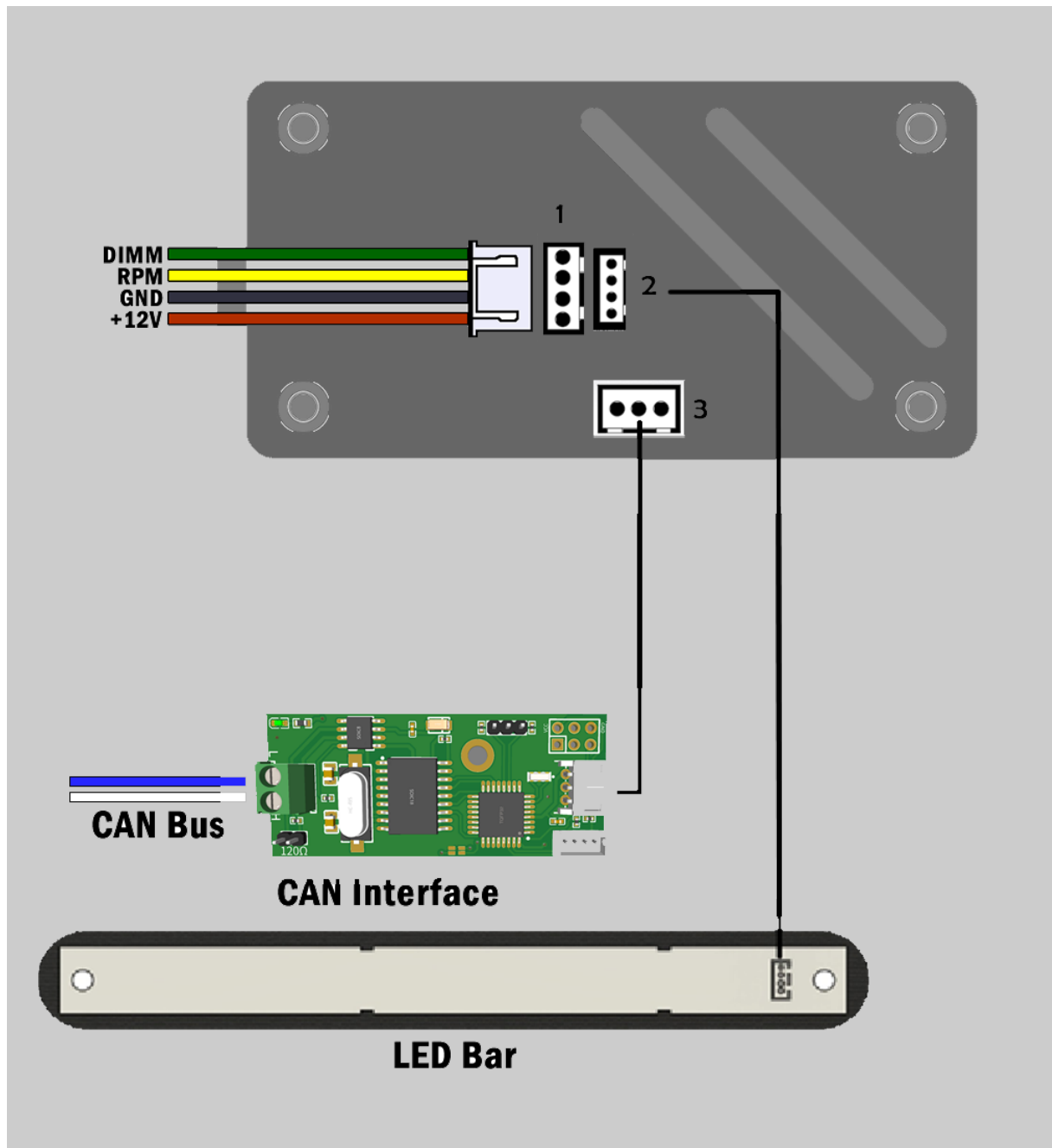1 x 30cm Interface Cables (Yellow, White Grey)

It is recommended that your CANSHIFT is installed by a trained professional. Incorrect installation can result in damage to your vehicle, electronics or components. Vehicles & vehicle components are not considered part of Powertune Digitals warranty repairs.

-Never short-circuit the wires of the vehicle's wiring loom or the inputs/outputs of the CANSHIFT.
- All modifications to the vehicle's wiring must be performed with the positive terminal of the battery disconnected.
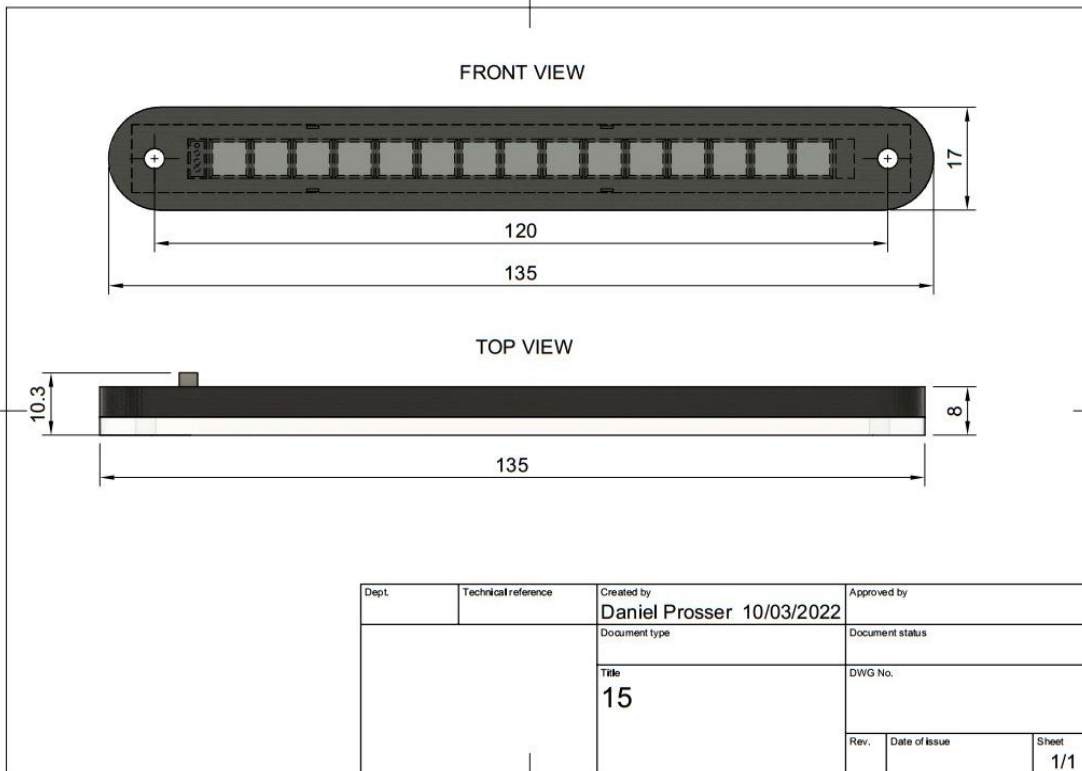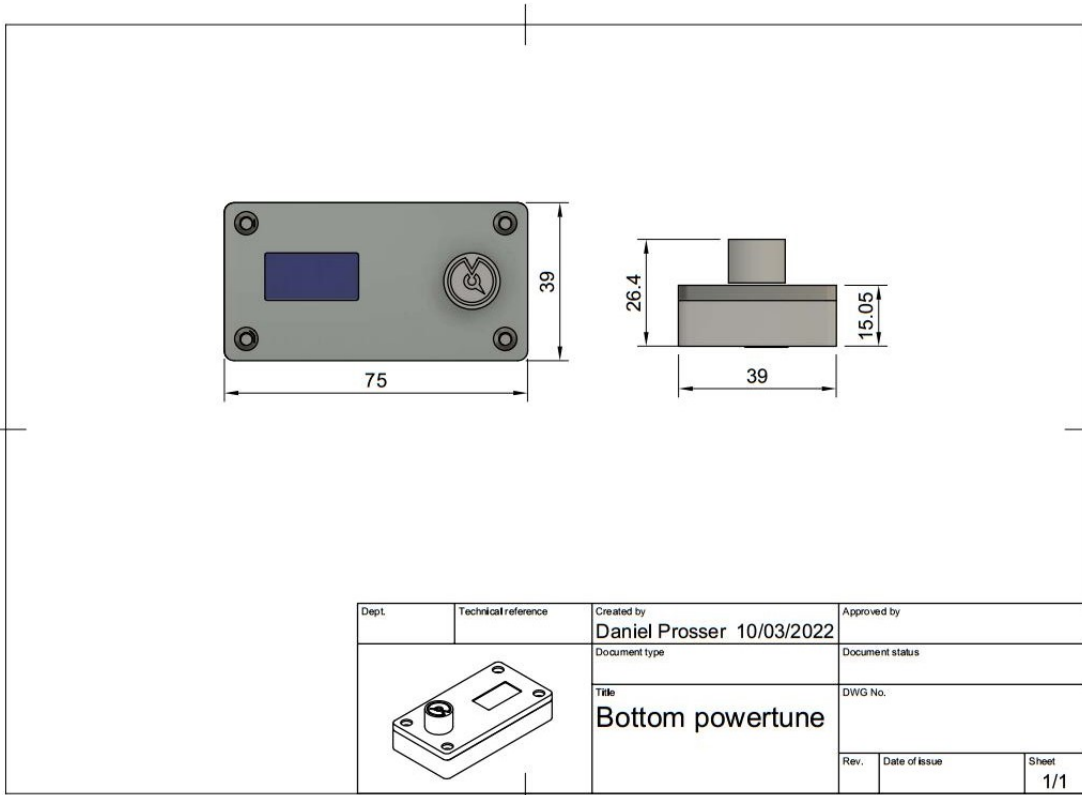**-It is critical that all connections in the wiring are properly insulated and that no metal wiring is left exposed after installation has been completed.**

Basic Layout

DIMM
RPM
GND
+12V

1

2

3

CAN Bus

CAN Interface

LED Bar

Dimensions

39

75

26.4

15.05

39

FRONT VIEW

17

120

135

TOP VIEW

10.3

8

135

Wiring

So it's time to install, please protect yourself and your vehicle by isolating/ disconnecting the battery.

Knowing **your vehicles** electrical systems is important, before starting find some wiring diagrams on the internet; this will reduce the chances of damaging your CANSHIFT or your cars electrical systems.

Power Harness Wiring

1. Locate desired 12v power source and connect the RED wire from the CANSHIFT power harness.
2. Choose a good clean grounding location, the closer to the battery the better. Connect the BLACK wire from the CANSHIFT power harness to the chosen ground.
3. Connect the YELLOW wire to your TACH Signal
4. CANSHIFT dims the LED brightness when the headlights are switched on.
5. It is important to connect this feature, as the system would otherwise be too bright for night driving.
   Locate the circuit that dims the brightness of your interior lamps when the headlights are activated. Connect the GREEN wire on the CANSHIFT power harness to this circuit.

CONGRATULATIONS, the main harness is now connected.

Double check your wiring and if you are satisfied, proceed to re connect your cars battery and test. The unit should power on when the key is turned to ACC or ON.

CANSHIFT MODULAR RPM INTERFACE SYSTEM

Our modular rpm interface system allows the RPM of your vehicle to be obtained from a number of locations. This provides full flexibility, especially for classic cars that do not have a tacho. Currently CANSHIFT supports obtaining the RPM signal from the following locations.

1. Tachometer wire at the back of the gauge cluster.
2. ECU tachometer output.
3. Any tach signal square wave source.
4. Ignition coils from coil negative.

If you require an alternative method of obtaining your engines, RPM please contact us. A hall sensor/ reluctor module is in development as well as an optical module.

CANSHIFT ships with a hybrid tach/ignition coil module that will read RPM from the dash, ECU tach signal and ignition coils.

NOTE** By far the best way to pick up the RPM signal is the wire feeding the tach signal to your cars dashboard/instrument cluster. It is strongly recommended that you use this method if it is available to you. Please see diagram below.

Once the RPM interface is connected to the desired RPM source, cover it with heat shrink for protection. Only solder the RPM interface on the UNDERSIDE of the board.

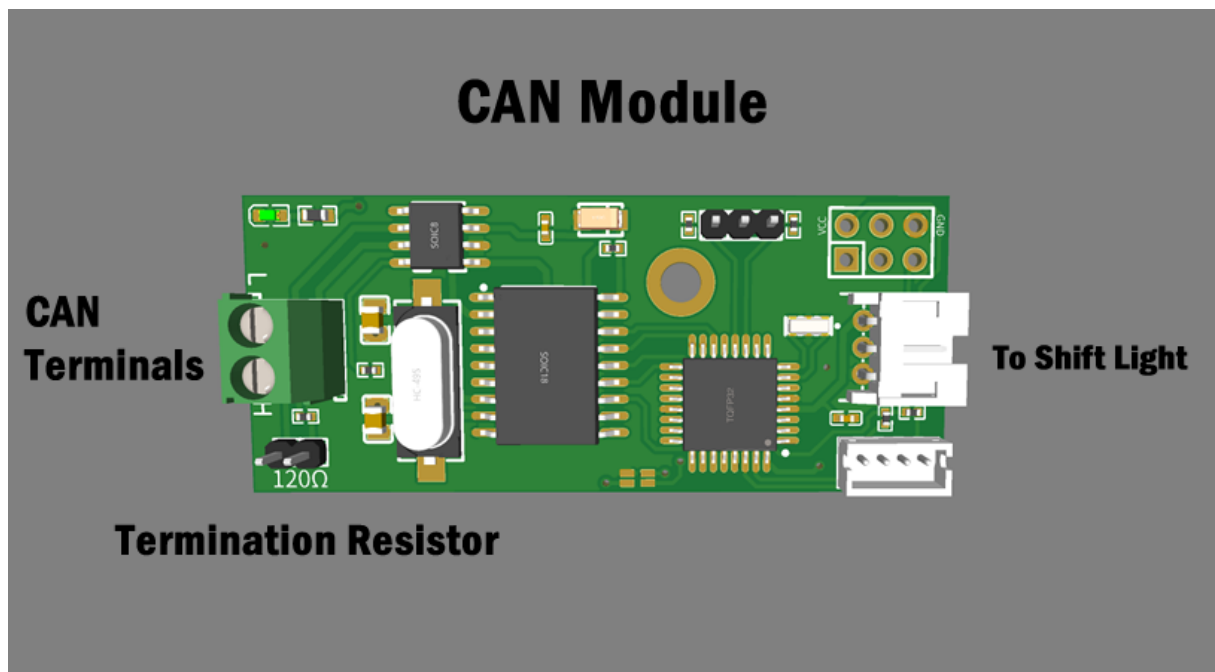## RPM from Coil on Plug Systems

For coil on plug ignition systems, connect a wire from the RPM Interface to the negative terminal on one of the ignition coils as shown below.

RPM from Traditional/Wasted Spark Systems

For traditional ignition coil systems, simply attach the RPM Interface Module to the coil negative wire as shown below.

CAN RPM CONVERTER

Connecting to PowerTune Digital Dash

THIS FEATURE IS ONLY NEEDED WHEN RELAYING RPM DATA TO A DIGITAL DASH. DO NOT USE THE CAN RPM CONVERTER IF YOUR DIGITAL DASH ALREADY HAS RPM DATA

The CAN RPM Converter can provide the RPM data to a PowerTune Digital Dash in the case of an analogue expander (standalone) installation.

ALL RPM BOARDS DEFAULT TO A SPEED OF 500KB. DO NOT COMPLETE THE BELOW STEPS UNLESS YOU NEED TO CHANGE THE SPEED, WHICH SHOULD BE RARE.

Please carefully follow the below instructions as there is no room for error.

1. First step is to find the CAN BUS speed of your dash. This IS NOT the CAN speed of your vehicle. This can be located in the main settings area of the dash in the "STARTUP" tab (see BAUD RATE)

   CAN SPEED HAS BEEN AUTOMATICLY SET

2. In the top left of the PCB is a CAN BUS termination resistor. This needs to be removed in some configurations. It is ON by default.

3. Wire the twisted CAN pair to the correct CAN_H and CAN_L terminals.
4. Connect CAN CONVERTER to any free interface port on the CANSHIFT. Cover with heat shrink for protection once complete.

5. Set CANID and configure dash settings for CAN RPM.

CAN ID & Dash Configuration

WARNING

If your PowerTune Digital Dash is connected to the CAN system of your vehicle DO NOT PROCEED unless you inherently know the CAN ID's of all the systems in your car.

CAN ID Setup

Your CAN RPM module already has a CAN ID pre-programmed that will work with the default CAN ID of your PowerTune Digital Dash. This should be fine for most applications.

The CAN ID can be changed if needed. Please contact support for instructions on changing the CAN ID.

PowerTune Digital Dash Settings

To get CAN RPM talking to the Dash there are just a couple more steps.
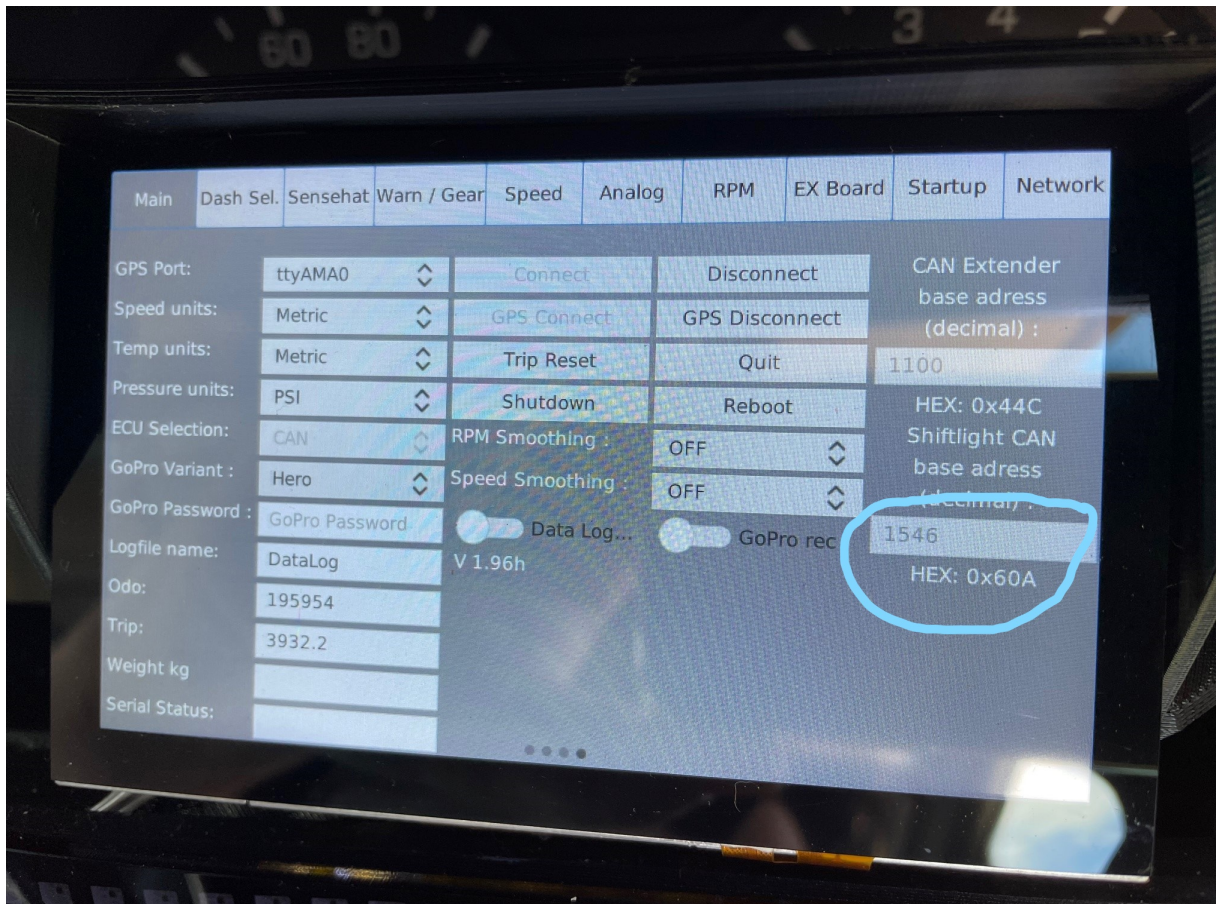
1. Update your dash to the latest version so the CAN RPM feature is available in the menus.
2. Press DISCONNECT at the top, then set CAN ID to 1546 (0x60A), this is critical as the CAN RPM ID is 1547 (0x60B). Then press CONNECT.
3. Now go to the EX Board tab, in the bottom left corner select the enable CAN RPM.
4. Calculate the number for your engine configuration and select it on the dash.
   Note; This number is usually half number of cylinders. Eg for a 4 cyl this number would be 2. For a 6 cyl this number would be 3. Things like wasted spark and other ignition setups may change this.
   RPM CORRECTION, if your RPM reads higher or lower than it should you can use rpm correction to compensate. EG; a v8 engines RPM is displaying 100rpm lower than it should. To fix this select number is .1 increments. 4.1 and go upwards till correct. Or 3.9 and downward to correct.

5. Restart the system and turn your engine on, you should now have engine

speed displaying on your dash.

		0V Val. @ 5V	Temp. In	T1 (°C)	R1 (Ω)	T2 (°C)	R2 (Ω)	T3 (°C)	R3 (Ω)	100Ω J.	1K
EX AN 0	2	5									
EX AN 1	3	5									
EX AN 2		5									
EX AN 3	4	5									
EX AN 4	5	5									
EX AN 5		5									
EX AN 6	6	5									
EX AN 7	8	5									
Ex AN 7		0									

RPM CAN ...

Cylinders : ⌄

Enable

Select

Volt. divider jumpers

GPS Port: ttyAMA0

Speed units: Metric

Temp units: Metric

Pressure units: PSI

ECU Selection: CAN

GoPro Variant : Hero

GoPro Password : GoPro Password

Logfile name: DataLog

Odo: 195954

Trip: 3932.2

Weight kg

Serial Status:

Connect Disconnect

GPS Connect GPS Disconnect

Trip Reset Quit

Shutdown Reboot

RPM Smoothing : OFF

Speed Smoothing : OFF

Data Log... GoPro rec

V 1.96h

CAN Extender base adress (decimal) :

1100

HEX: 0x44C

Shiftlight CAN base adress (decimal) :

1546

HEX: 0x60A

Main | Dash Sel. | Sensehat | Warn / Gear | Speed | Analog | RPM | EX Board | Startup | Network

Menus

CANSHIFT has a very intuitive and easy to use UI.

When CANSHIFT is on its default screen, it will display the current engine speed in large font.

To enter the menu system, press down on the rotary dial to enter the main settings menu.

While you are in the menu system, your shift lights will not work.

To exit the menu system you must press the dial at the first screen, if you switch off the device instead scrolling to exit your settings will not be saved.

To navigate the menus, turn the dial clockwise to scroll to the right, counter clockwise to scroll to the left. Turning the dial is also what changes the values of each setting.

Menu Navigation; Press down on the dial

MENU – Press to Save and Exit

Brightness – Set the brightness of the shift lights

Dimmer – Dimm's the brightness of the shift lights when headlights are switched on.

Dimmer Logic – By default is low, will also be low for most applications.

Activation RPM – this is when the start of the shift light sequence begins. Set to desired RPM.

Shift RPM – this is the end of the shift sequence, set to desired shift RPM.

Smoothing – Enable this setting if you are experiencing erratic RPM readings.

Pulses Per Rotation – This filters out ignition pulses based on ignition system / engine size to get the exact rpm reading. Usually this number should be # of cylinders /2. Example, for a 6 cyl you would select 3, for an 8 cyl you would select 4. Things like wasted spark ignition systems can affect this. Adjust the number till the RPM reading is correct.

Number of LEDs – This tells the microcontroller how many LEDs are connected so animations display properly. As CANSHIFT ships with 15 leds, the default setting is 15. Contact us if you require a different amount of leds.

Colour Segments – Use this setting to create 3 distinct areas of colour on the shift light.

Animation Mode – Use this setting to change the animation sequence of the shift light.

Set Colour 1 – Set the colour of the first colour segment.

Set Colour 2 – Set the colour of the second colour segment.

Set Colour 3 – Set the colour of the third colour segment.

Shift Colour – Set the colour of the upshift indicator.

System Reset – Use this if you need to load default settings or are having issues with your CANSHIFT system.

Support

Contact Numbers:

Australia: 07 2102 4825 - select option 2, option 1

USA: 1888 421 2360 - select option 2, option 1

Worldwide: +61 721 024 825 - select option 2, option 1