

**Augment Automotive
Technical Manual**

Title: Augment Automotive
Breakout Box Manual

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Author: Tom Barker
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Introduction

This technical manual covers the usage of the Augment Automotive Breakout box for use with AugTronic ECU's. The breakout box is used to provide communications and input output connectivity to AugTronic ECU's. It features the following:

- USB Communication Interface
- Bluetooth Communication Interface
- Bluetooth/USB Communication selector switch
- AFR Input (Analog 1)
- Additional Analogue Input (Analog 2)
- Knock Input
- 3 Digital Inputs/Outputs used for wasted spark ignition (Digital 1-3)



Figure 1: Breakout Box Top View



Figure 2: Breakout Box Side View

Connecting the Breakout Box to the AugTronic ECU

The breakout box must be correctly connected to AugTronic ECU to function correctly.

WARNING Failure to properly connect the breakout box could result in damage to the breakout box and the AugTronic ECU. If you are not sure contact Augment Automotive Ltd for Support.

Two ribbon cables connect the breakout box to the AugTronic ECU. They should be connected as follows. The ribbon cables are identical. The lid is removed by removing the 4 screws in the base of the breakout box and the 6 removable terminal connectors before gently removing the lid.



Figure 3: Breakout Box Without a Lid

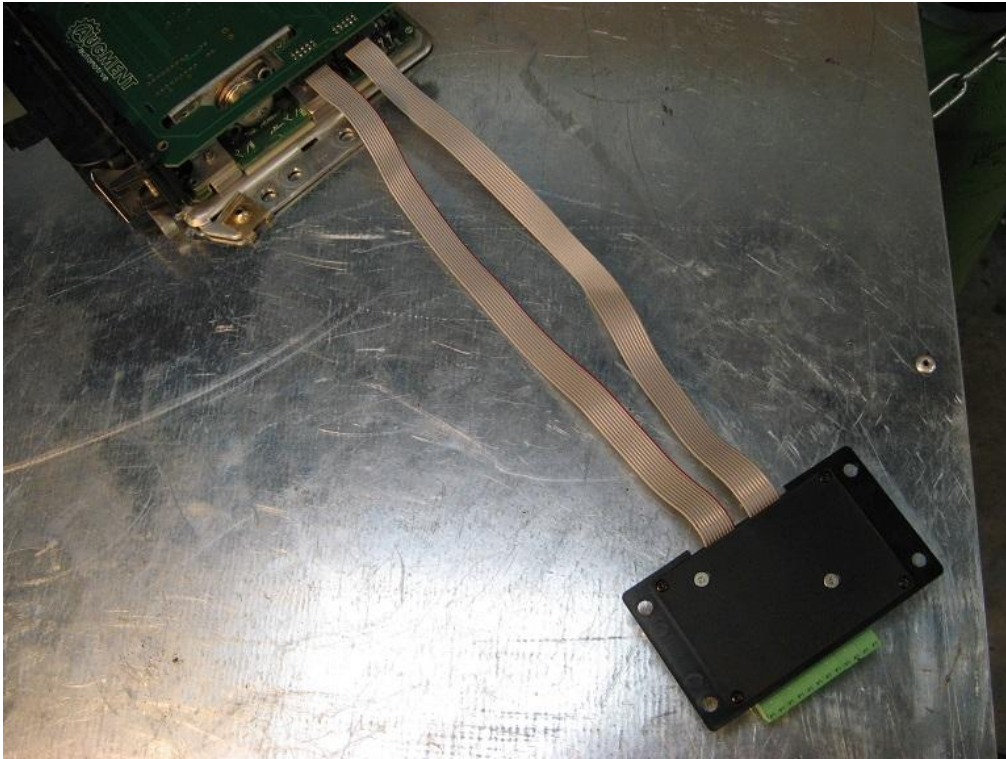


Figure 4: Breakout Box Connected To AugTronic

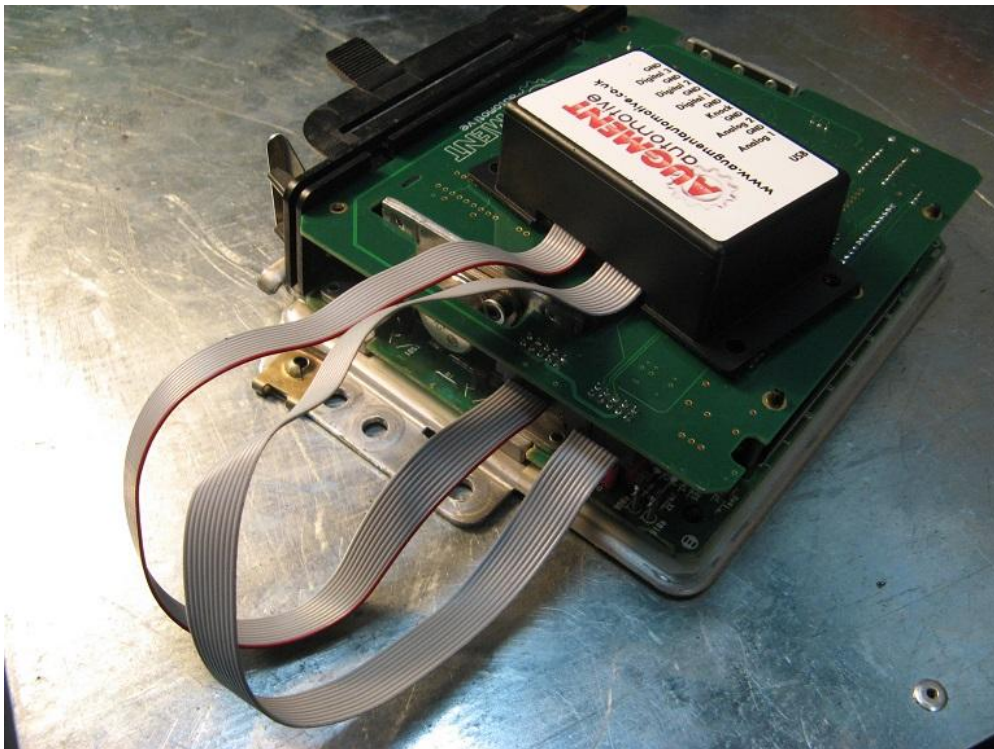


Figure 5: Breakout Box and AugTronic 2

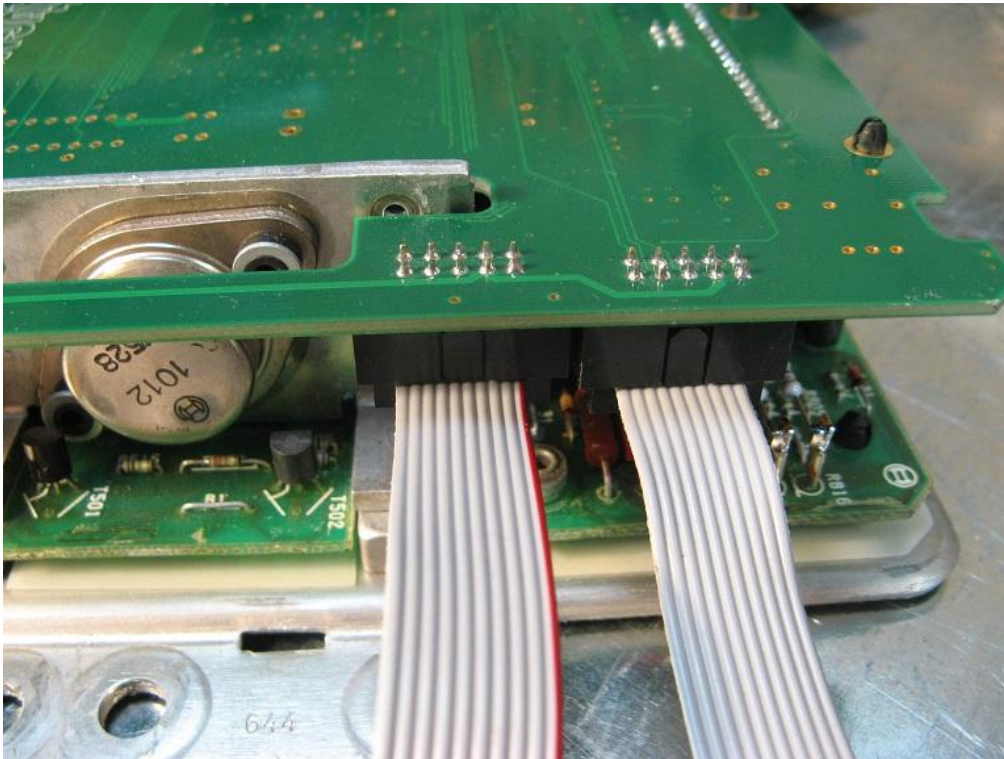


Figure 6: AugTronic Breakout Box Connections

These pictures show how the breakout box should be connected to the AugTronic ECU. Once connected the lid should be placed back on the Breakout Box and the AugTronic ECU.

USB and Bluetooth Connections

The USB port is on the side of the breakout box. If bluetooth is also installed there is a switch to swap between bluetooth and USB.

To locate the switch first remove the input terminals on the side of the Breakout Box. The Switch is located in the centre of the breakout box under the cutout for the terminals. In the left position USB is enabled and in the right position Bluetooth is enabled.

The pairing code for the bluetooth module will be one of:

- 0000
- 1234
- 1804

The drivers for the USB module can be found on the Augment Automotive website.

AFR, Knock, Analogue and Digital Inputs

The following connections are available.

- AFR Input (Analog 1)
- Additional Analogue Input (Analog 2)
- Knock Input
- 3 Digital Inputs/Outputs (Digital 1-3)

Connections must be wired correctly for proper functioning. Each input/output has a signal connection and a ground connection. The connections are labeled on the lid box:



Figure 7: Breakout Box Top View

Wire ends should be stripped and inserted into the appropriate terminal connection. A screwdriver must then be used to tighten the terminal until the wire is secure.

Analogue 2 is enabled by configuration of an internal jumper and will not function by default.

Digital pins 1-3 are used for wasted spark in operation mode 2 of the ECU's wasted spark configuration. Pins 1-3 corresponds to cylinder banks 1-3. On a 4cyl engine i.e. 944 pins 1 and 2 would be used. On a 6cyl engine i.e. 911 pins 1, 2 and 3 would be used.

The pins should always be aligned such that the digital pin makes use of the ground above it when aligned as in Figure 7. A ground wire is not always required. Figure 8 below shows which connector slots are used for wasted spark.



Figure 8 - Wasted Spark Connections