



Congratulations on your purchase of the MicroTech Equalizer Staging System and thank you for making MicroTech your manufacturer of choice. With 20+ years of EFI development and racing experience, MicroTech take great pride in our customers success in various forms of motorsport look forward to helping each every one of our customers exceed their performance goals using our products.

Please read these instructions carefully before beginning installation. We recommend this product be installed by a qualified automotive technician. If you have any doubts as to your ability to install this product **DO NOT** attempt installation. Take your vehicle to a suitably qualified MicroTech technician or contact out tech department at [tech@microtechefi.com](mailto:tech@microtechefi.com) for technical assistance.





# **Installation and Users Manual**

- 1. Description**
- 2. Included Components**
- 3. Installation Instructions**
  - 3.1 Equalizer Box Mounting**
  - 3.2 Wiring Information**
  - 3.3 Wiring Information**
  - 3.4 Transmission Pressure Sensor Mounting**
- 4. Using the Equalizer**
- 5. Fault Finding and Diagnostics**



## 1. Description

### ***Equalizer:***

The MicroTech Equalizer allows the racer to roll their car into pre stage, bring it up on the transbrake and then “bump” into full stage on full power ready to launch with the simple press of a button.

The distance the car moves with each bump is fully adjustable to suit each individual car and driver preference using the MicroTech Handset.

The Equalizer is triggered by an externally mounted, normally open, push button momentary switch mounted to the steering wheel.

### ***Equalizer Pro:***

The Equalizer Pro has the same functions as the standard MicroTech Equalizer, but has the addition of a temperature and pressure sensor input to allow monitoring of transmission temperature and line pressure, both can be viewed via the MicroTech Handset.

For the serious racer, the Equalizer Pro can be connected to the MicroTech LTC Dash Logger via the MicroTech CAN system. This will allow the transmission temperature, line pressure and bump time to be displayed and logged via the LTC Dash and viewed through the MicroTech Dash Manager Software.

Transmission Temperature and Pressure Sensors must be purchased separately from your MicroTech Dealer.

## 2. Included Components

The MicroTech Equalizer is shipped with the following components.

- MicroTech Equalizer Box
- Wiring Loom
- Wiring diagram
- Equalizer sticker

If any of the above components are missing please contact the place of purchase ASAP.



## 3. Installation Instructions

### 3.1 Equalizer Box Mounting

The Equalizer box should be mounted inside the cabin of the vehicle (away from excessive heat and moisture) in a position where the handset port is easily accessible and the diagnostic LED's are easily visible.

In race car applications where excessive vibration may be experienced it is recommended the box be mounted using the MicroTech anti vibration mount kit (part # VIBKIT).

### 3.2 Wiring Information

The Equalizer has 3x separate wiring connectors which are easily identified. (8 Way Connector, 6 Way Connector & 4way Connector)

#### 8 Way Connector

The 8 way connector is used for the power supply, ground and switch inputs for the Equalizer box. All wires in the 8 way connector will need to be hard wired to the vehicle.

**RED WIRE** = Switched ignition on +12v with inline fuse (unit turns on/off via the ignition switch). The correct fuse size is determined by the type of transbrake solenoid the Equalizer will be controlling. The fuse size will need to be 5amps higher than the transbrake solenoid current draw. For example if you are using a 10 amp transbrake solenoid you would wire in a 15 amp fuse.

**BLACK WIRE** = Ground to engine block. It is very important the earth point is free from paint, rust or any other material that could prevent proper grounding.

**YELLOW WIRE** = Input wire from negative side of transbrake solenoid. On a 2 wire transbrake solenoid where the earth wire would usually ground to the transmission case, it will now go to ground via the Equalizer.

**PINK WIRE** = Equalizer push button activation switch. The other side of the activation switch must be connected to a +12v ignition on source (so when the button is pressed +12v will be fed into the Equalizer). The activation switch must be purchased separately and must be a normally open, push button momentary type switch.



### 6 Way Connector (Used on Equalizer Pro only)

The 6 way connector is used for the transmission temperature and transmission pressure inputs on the Equalizer Pro version only.

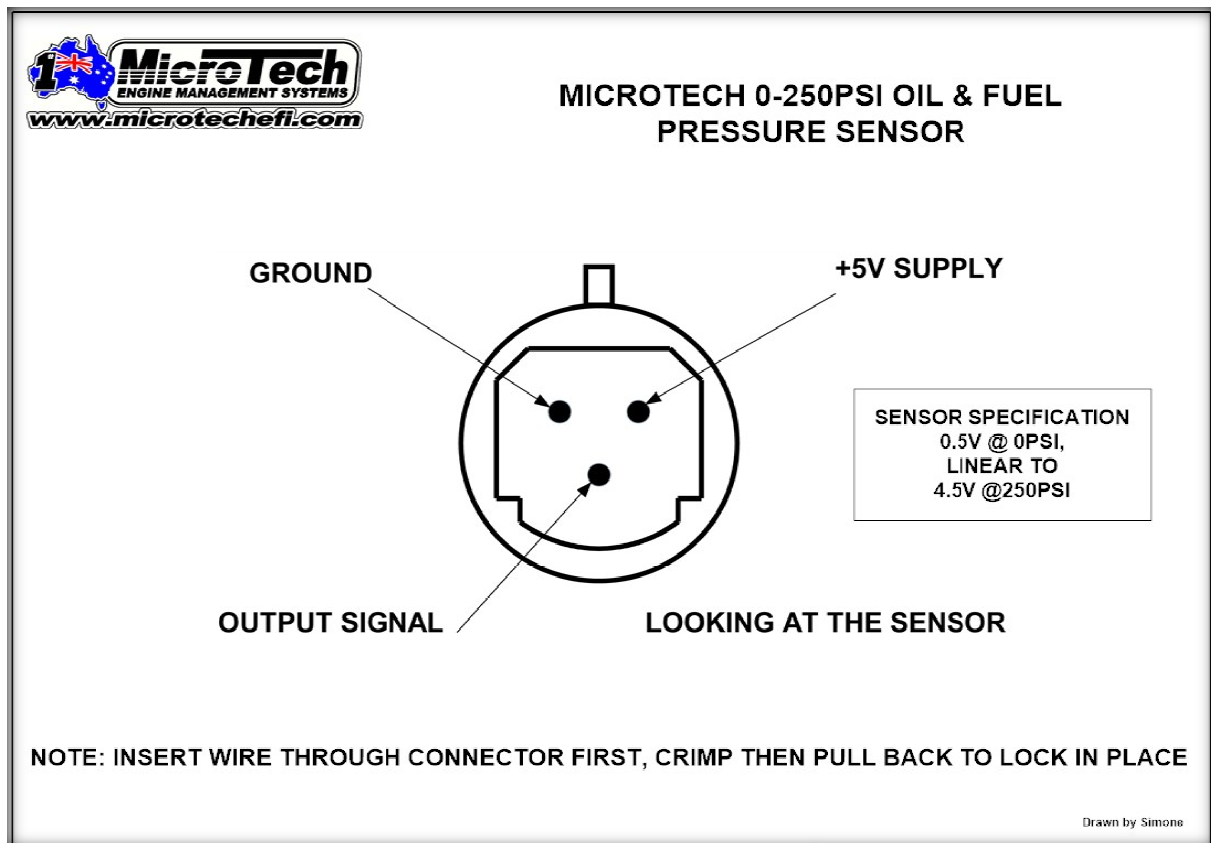
**RED WIRES** = +5v supply voltage for sensors

**BLACK WIRES** = Ground for sensors

**PURPLE WIRE** = Signal wire for transmission temp sensor

**GREEN WIRE** = Signal wire for transmission pressure sensor

The Equalizer Pro is calibrated to work with the MicroTech 0-250psi Pressure sensor and MicroTech Fluid Temperature sensor. The Pin out diagrams for the pressure sensor is illustrated below. The Fluid temp sensor is not polarity dependent so can be wired either way.





#### 4 Way CAN Connector (Used on Equalizer Pro only)

The 4 way connector is used when connecting the Equalizer Pro to the MicroTech LTC Display Dash via the CAN output. By connecting the Equalizer into the MicroTech CAN system it makes the transmission temperature, transmission line pressure and bump time data available to be logged and viewed via the MicroTech LTC Dash and Dash Manager Software.

The CAN wiring loom supplied with the Equalizer Pro is pre wired with a 4 pin connector on either end of the loom. One end plugs directly into the Equalizer Pro and the other end plugs into any of the 6 available ports on the MicroTech CAN hub.

Note: CAN hub (Part # CANHUB) must be purchased separately.

### 3.3 Transmission Temperature Sensor Mounting

The Transmission temperature sensor must be mounted in the oil pan of the transmission. The oil pan must be drilled and tapped to accept the MicroTech fluid temp sensor. The recommended drilling size is 10.5mm. Tapping size is M12 x 1.5mm.



To avoid transmission damage from metal shavings remove the oil pan from the transmission **BEFORE** drilling tapping.

### 3.4 Transmission Pressure Sensor Mounting

The MicroTech 0-250 psi transmission pressure sensor features a 1/8" NPT thread designed to be fitted to the main line pressure port on most commonly used Automatic Transmissions.

The transmission pressure port location varies depending on the type of transmission being used in the vehicle. For correct mounting position of the pressure sensor for your particular transmission please consult your transmission builder before beginning the installation.



## 4. Using the Equalizer

Programming of the Equalizer is done via the MicroTech Handset which connects into the DB9 communications port on the side of the Equalizer box.

The length of the “bump” is fully adjustable to suit each particular car and driver preference. The range of adjustment is 0-255 (0 being the minimum setting, 255 being the maximum setting). The higher the number, the longer the bump time.

Each individual car will require a different setting. We recommend starting with a setting around 30 and work from there. Trial and error is the only way to arrive at a setting that is perfect for you.

For accurate results test the car in full race trim on a prepared track. The results you get on street tyres on an unprepared surface will be totally different to what you will get on slicks and a prepped race track. Do a quick test in the workshop to ensure the unit is working correctly after installation, then take the car straight to the track for fine tuning.

Fitting a line lock to the vehicle is recommended to reduce the car rocking back and forth with each press of the Equalizer.



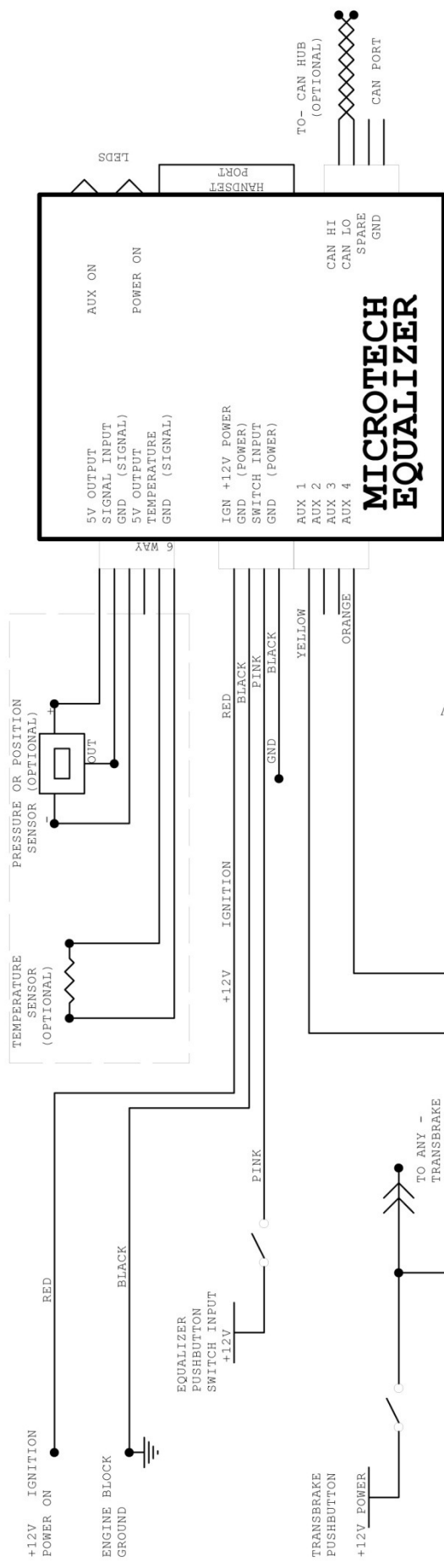
## 5. Fault Finding and Diagnostics

The Equalizer has 2x diagnostic LED's located on the end of the unit next to the handset port for diagnostic purposes.

**Red LED** = Illuminated with +12v Power on to the Equalizer unit

**Green LED** = Illuminates when the push button activation switch is pressed

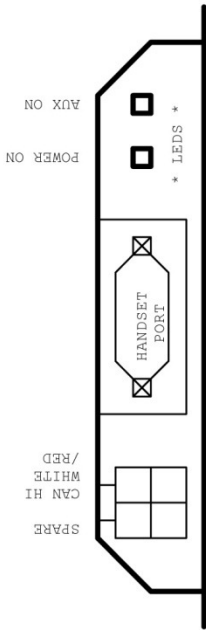
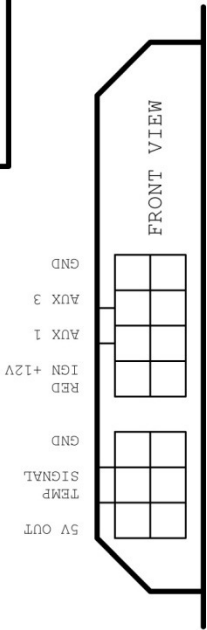




# MAIN SETUP -

TIME ADJUST  
PAGE # SCREEN #

CAN BUS NOTES -  
FORMAT = 2.0A 11 BIT  
SPEED = 1M BIT  
CAN ID = 01E  
UNIT HAS NO 120 OHM  
TERMINATING RESISTOR  
INSTALLED



# EQUALIZER

## PIN-OUTS

Title	Number	Revision
Size	A4	1
Date:	GROUND SWITCH	1
File:	26-Nov-2014	Sheet of
	C:\ADV\SCH\AUX2.S01	Drawn By: DOM