

INSTRUCTIONS

Analogue Tachometer conversion board EXTERNAL

General

This module was originally designed to fit the Smiths RVI tachometers made around the 60s and 70s. But will work with other tachometers with moving coil movements from 5 to 100 mA fsd. It uses the identical circuit layout as our popular and proven internal kit, but has been mounted in a separate case making it suitable for other than Smiths Tachometers as well as positive earth vehicles.

Protected against reversed polarity, Suitable for positive or negative earth vehicles

Installation

a) Dismantle tachometer.

If you have an ultrasonic cleaner, this is the time to clean the movement
My advice is to use clean water only and thoroughly dry the unit before proceeding

Find the point where the internal electronics connect to the movements
Disconnect any wires connected to the movement

DO NOT LUBRICATE THE BEARINGS

b) Connections.. (see over)

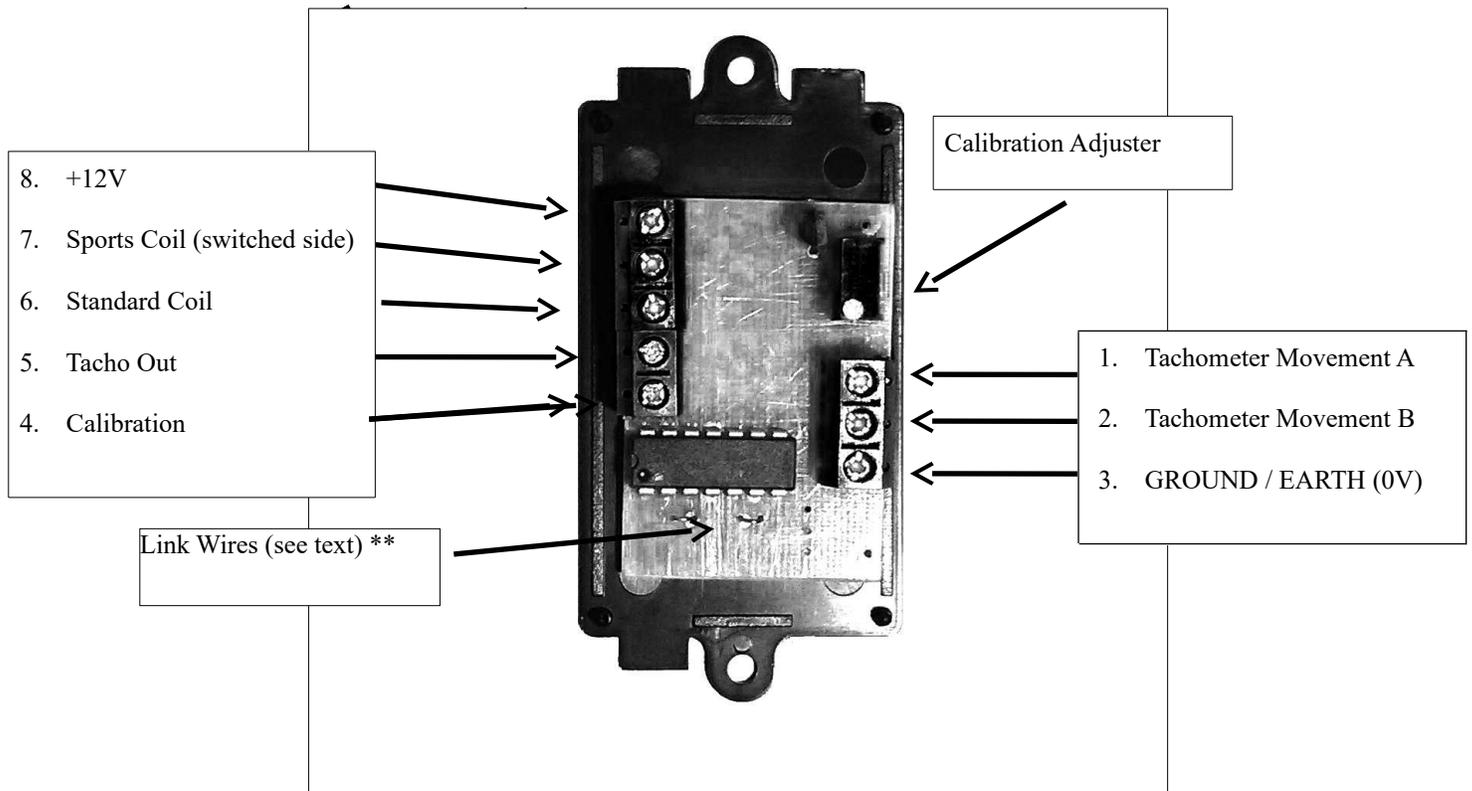
There are 8 possible connections, numbered 1 to 8, clockwise from the adjuster screw.

1. Terminals 1 & 2 should be connected inside the tachometer to the wires that drive the movement itself ***
2. Any other wires connected to the movement should be disconnected.
3. Negative Power (on a negative earth car this will be ground. On a positive earth car, this will be a switched power connection.
4. For calibration using an audio source as described in this document, or using a signal generator.
5. For connection to the "Tacho Out" of an ECU this terminal accepts TTL level signals as well as signals from the "W" terminal of an alternator.
6. Coil switched side terminal, this is for connection to the switched side of a standard ignition coil. If the tachometer does not operate properly on this terminal, the connection may be made to the "Sports Coil connection which is a little less sensitive. On a negative earth car, this will be the coil negative (-) terminal, on a positive earth car, this will be a positive (+) coil terminal
7. Sports Coil switched side terminal this is for connection to a "low Ohm" Coil.
8. Positive Power (on a negative earth car, this will be a switched live, On a positive earth car, this will be ground)

Only one connection should be made to terminals 4,5,6,7 at a time

** Note – When using an Alternator "W" terminal as the signal source, the frequencies can be significantly higher than with an ignition signal. If you find that the tachometer will not respond to high enough frequencies (eg it runs out of steam at higher rpms) find the two small link wires on the circuit board and carefully cut them. This increases the frequency response of the circuit, but at loss of very low (lower than tickover) rpm sensitivity.

*** Note – On a Smiths RVI tachometer, "A" is red



Calibration

Calibration should be done with the tachometer in the orientation it will be in when mounted in the vehicle

Connect +12V to terminal (8) (use a battery or smoothed supply, not an unsmoothed battery charger)

Connect ground to terminal (3)

Connect the calibration cable WHITE to terminal (4)

Connect the calibration cable GREEN wire to terminal (3)

Connect the other end of the cable to the headphone out socket of your computer or laptop

Download the correct audio file from <https://www.spiyda.com/tacho-calibration-information>

Play the audio file at **full volume** with (if applicable) treble and bass turned full, and adjust the tachometer adjust screw (the small screw on the blue component) until the tachometer shows the appropriate rpm (it can turn up to 22 turns) .

Further Information

More detailed instructions on calibration are on our website as well as various wiring diagrams and an FAQ.

Note, the movement in some GM tachometers is very sensitive and may need desensitising to work well with the module. Add a 27R resistor in parallel with the movement, and a 200R resistor in series . See our website for further details.

www.spiyda.com