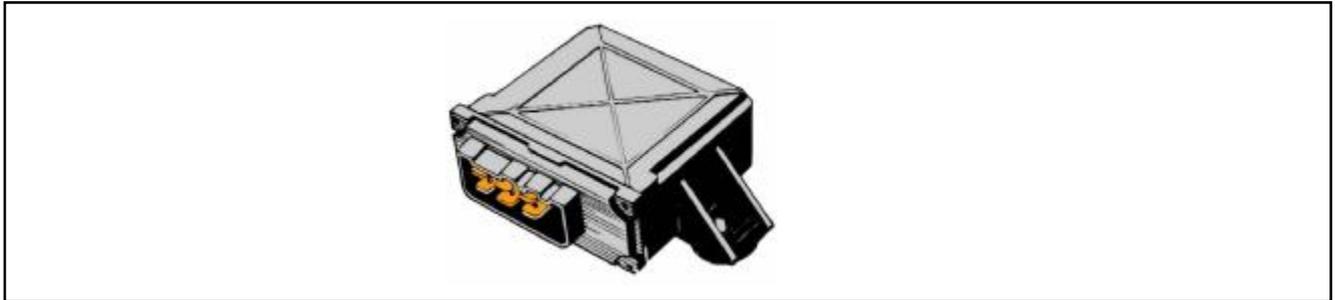


ELECTRONIC RATIO BOX

P/no. 411.105 - Installation Instructions for 12/24vdc module



GENERAL

The Electronic Ratio Box is designed to give a permanent fixed ratio signal output from a continuously varying input signal. This could be any variable frequency signal in an automotive, marine or industrial environment, eg/ Speedo - hall effect or transducer, Tachometer – magnetic pick up, alternator or hall effect.

The ratio is extremely easy to adjust and may even be performed, if necessary, without workshop instruments by a trial and error method explained in the settings section.

Standard output is a square wave with ~ 50% duty cycle and 0–10v p-p signal. An option available on the unit is a square wave output set to a peak to peak voltage matching the supply line. Some 24volt systems are looking for signals at this level.

Maximum output frequency is ~ 500 Hz regardless of ratio.

Minimum output frequency is ≤ 5 Hz regardless of ratio.

For setting ratios outside these parameters contact the manufacturer for availability of a special build.

Inputs are designed for standard hall effect at 0–10vp-p or standard magnetic pickup (inductive) from minimum of ~ 2.5v to 50v.

NOTE: This module is designed as a universal unit to suit as many automotive type applications as possible. However there may be some systems where the input or output signals are not compatible with this unit. The manufacturer is not responsible for incorrect fitting or damage caused by or during the fitting of this module.

FITTING INSTRUCTIONS

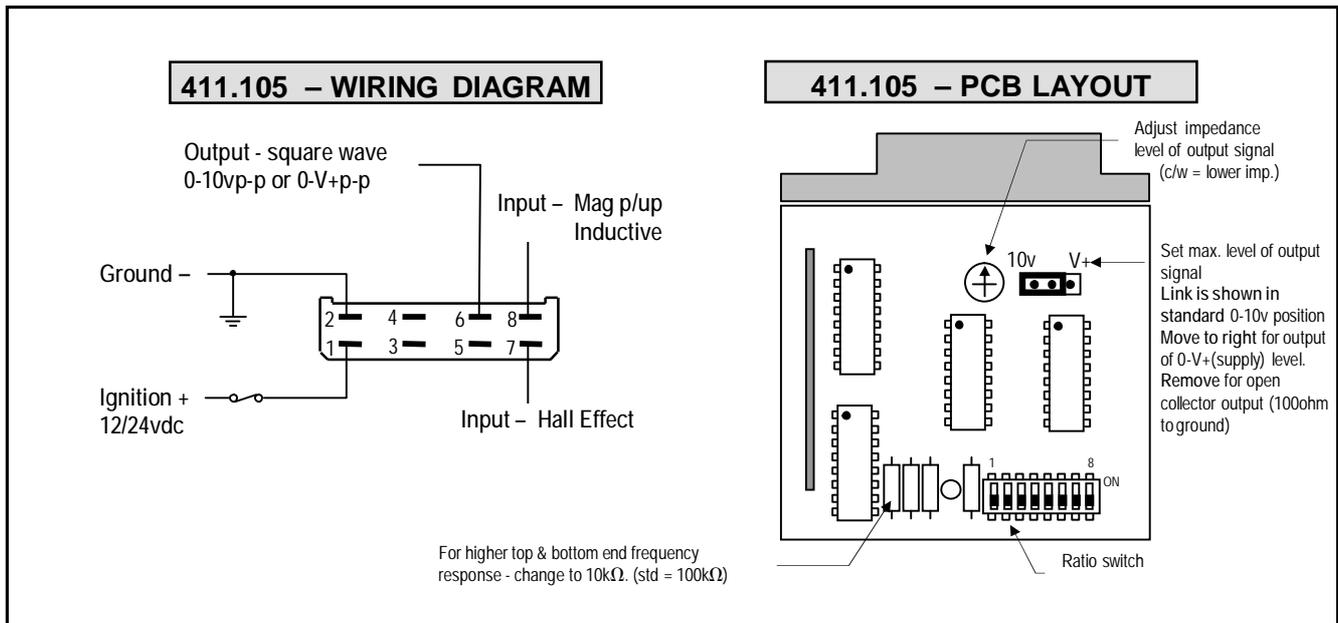
1. Locate a convenient mounting place in the instrument panel or under the dash near the fuse panel and mount the 411.105 Electronic Ratio Box. Screws (3/16" or 5mm), double sided tape, or silicon are all acceptable. Orientation is not critical.
2. Connect the "+" terminal (Term. No. 1) on the control module to your positive source or ignition switch via a 3 amp fuse.
3. Connect the "-" terminal (Term. No. 2) to a good earth or ground connection.
4. Connect terminal no. 7 or 8 (NOT BOTH) to your input signal.
5. Connect the output terminal (Term No. 6) as required (usually to a speedo or tacho input). Maximum output is normally set for 0-10volts. For an output with p-p voltage at V_{supply} levels then move the link on the PCB to be closer to the outside edge of the circuit board. Refer to the Connections and Wiring Diagram sections.
6. Adjust the ratio setting as required. Refer to Setting section.

CONNECTIONS

Terminal connections are as follows...

| | |
|------------|--|
| Term no. 1 | = Positive 12/24 VDC Supply |
| Term no. 2 | = Negative or Ground |
| Term no. 3 | = No connection |
| Term no. 4 | = No connection |
| Term no. 5 | = No connection |
| Term no. 6 | = Output Signal, Square wave, 0 – 10v, or 0 – V+ |
| Term no. 7 | = Input Signal, Hall Effect |
| Term no. 8 | = Input Signal, Magnetic Pickup |

WIRING DIAGRAM



SETTING

1. Measure the frequency reading currently being received from your signal source.
2. Calculate the ratio change desired. This is worked out by taking the desired frequency reading and dividing it by the actual frequency reading obtained in point 1. The frequency units are not important as long as they are consistent and linear.
Eg/ Tachometer signal frequency reads 250Hz. Desired reading is 400Hz. Ratio = $400/250 = 1.6$
Eg/ Speedo reads 80kmh. Desired reading is 70kmh. Ratio = $70/80 = 0.875$
3. Select this ratio from the attached chart and read off the switch setting from the column headed "binary".
4. Turn off power to the 411.105 and remove the 4 screws holding the unit together. Remove the PCB from the case and ensure it can not touch anything conductive, ie: metal seats, screwdrivers, tools, etc.
5. Adjust the ratio switch to the setting calculated in point 3. Note that a "0" means off or down, and a "1" means on or up.
6. Reassemble the module and test. The unit is now set.

ALTERNATE SETTING PROCEDURE

- 1) Set all switches OFF (down). Set switch 1 ON (up).
Note the coarsest setting is at switch 1 & the finest setting at switch 8.
- 2) Run the engine and see if you are above or below the desired reading
 - a) If reading is above, set switch 1 OFF, set switch 2 ON, and go to point 3.
 - b) If reading is below, leave switch 1 ON, set switch 2 ON, and go to point 3.
- 3) Run the engine again and see if you are above or below the desired reading
 - a) If reading is above, set switch 2 OFF, set switch 3 ON, and go to point 4.
 - b) If reading is below, leave switch 2 ON, set switch 3 ON, and go to point 4.
- 4) Follow the above procedure down all the switch numbers until you have the desired reading.
Note that if a new setting reads too high then set the last switch OFF and set the next switch ON.
Alternately, if the new setting still reads too low then leave the last switch ON and set the next switch ON.

SPECIFICATIONS

| | |
|----------------|---|
| Dimensions: | 68 x 30 x 73mm deep, overall box dimensions. |
| Mounting: | Hole centres...83mm, Mounted Height...35mm. Box with plug & wiring allow 110+mm depth. |
| Voltage: | 12/24vdc negative ground, 30mA typical current draw. |
| Range | Approx 5 – 500 Hz. May be modified to approx 30 – 3 kHz (see Wiring Diagram) |
| Adjustment: | $F_{OUT} / F_{IN} =$ adjustable between 0.0125 (divide by 80) & 3.1875 (multiply by 3.1875) |
| Output rating: | 0–10vp-p (=Hall Effect) or 0-V+ square wave at ~50% duty cycle. Select by internal link. for Open Collector to Ground – Remove internal Link |

For any queries, application data or technical information call your supplier or Continental Pty Ltd on 03 9468 1151

411105_r5c.doc rev: 24/07/2008 Printed: 18/09/2008