

# Encoder Tester Calibration For Part No: ENC-IET05

The encoder tester will be delivered to you calibrated to the voltages shown on the voltage selector buttons, however all settings can be altered to suit individual company test procedures. For example you may wish to test below the operating voltage of your equipment, just to guarantee that the encoder will always run even if the supply voltage is reduced.

To gain access to the adjustments, it is necessary to turn the case on to its face, and remove the rear cover/base plate. The rear of the printed circuit board can then be viewed. On the top right corner are five potentiometers used for final calibration of the instrument.

**Voltage Adjustment:** There are three potentiometers marked 'SET 5V', 'SET 12V' and 'SET 24V', the 5V must be set first, as the other two voltages use this as their reference point. The open circuit protection prevents the voltage being applied to the output terminals without a load, therefore before a voltage can be read, it is necessary to place a temporary load resistor across the supply voltage terminals, so the voltage selected will stay switched on.

A 500 ohm 1.5 watt resistor will provide sufficient load to allow switching between each of the three voltages without the unit closing down because of over or under current. To commence the calibration place the resistor and volt meter across the voltage quick release wiring terminals on the front, then operate the 5 Volt selection button to turn on the voltage. To change the voltage turn the trim potentiometer marked 5V. Next select the 12V and adjust the 12V trim pot, then select the 24V output and adjust the 24V pot.

**Current Adjustment:** There are two ways to adjust the current settings. The first method is to place a 100 ohm resistor across the voltage terminals, then select 5V and adjust the 'Gain' potentiometer until the LCD display on the tester reads 50 mA.

The second method is to place a load, not less than 10 mA and not more than 150 mA, across the quick connect voltage terminals, with a current meter in series. Then adjust the potentiometer to read the same as the amp meter.

**LCD Display:** The display will have been set at the time of assembly to best contrast, however further adjustment can be made to suit the user. The potentiometer marked Angle is used to vary the contrast of the LCD display. NOTE: if turned to the extremes of adjustment the display can be completely blanked or fully black.

**NPN/PNP Load Resistor:** The standard test instrument is delivered with a 4.7K load resistor on each of the output channels, the NPN/PNP selector switches the common of these resistors between the positive and negative supply rails, plus for NPN and minus for PNP. The six resistors are housed in one 4.7K network which is plugged into an eight pin SIL socket. This can be removed, or replaced with another value, however be sure to always insert with the polarity dot on the top side, when the PCB is viewed from the rear as shown in the picture below.

**NOTE:** Some encoders have a reverse voltage protection diode in series with the positive power supply input. When 5 Volt power is applied and PNP input mode is selected, this can prevent the positive signal from reaching the voltage required for a valid positive input signal, to operate the counters in the tester. If this is a problem there is provision on the circuit board to lower the positive signal threshold by half a volt, so the low positive signals with 5 Volt power input can still count correctly. To implement this reduction in threshold, take a small drill, minimum 2mm Dia. and drill away the pad link marked "5 Volt Threshold", this will place a diode in series with the input measuring network.

