



### Adjustment.

Before setting the voltage adjust VR1 all the way down (anticlockwise). For very low current motors such as the Maxon motor it is recommended to bypass the motor terminals with a resistance of approximately 1 k to give the Widlar current mirror some idle current which improves its linearity.

Use the dip switches and resistors to select the working range of the potentiometer to suit the voltage adjustment required for the motor speed. The circuit is arranged so that the two sets are selected via the toggle switch, the toggle of which "points" to the selected adjustment potentiometer. The left hand pot uses the rear set of resistors / DIP switches, the right hand pot uses the front. The DIP switches short the resistors in the "on" position. If all the resistors are shunted the potentiometer has a working range of 100%. If resistors are selected in to give a total of 50k the potentiometer has a working range of 10% thus giving finer speed control.

To set the range, select resistors to give the centre point of the potentiometer at the required voltage, the full scale output of the controller being 10.0 volts. For say 7.5 volts we would need the pot centred at 12.5k / 37.5k so we would select 10k plus half the pot above the set point and 20k, 10k, 4k75 plus half the pot below. The DIP switches would thus be set to 1,0,1,1,1,0,0,0.

Before adjusting the current compensation measure the resistance of the motor as presented at the terminals on the board (including any shunt resistance as above). Take an appropriate adjustable resistance (eg a 100 ohm multiturn trimpot) and make a compensation resistance by adjusting the value as close to the resistance of the motor as you can get, using the same measurement device. Disconnect one lead of the motor wiring from the terminal, turn the controller on, measure and note the output voltage at the board terminals. For best accuracy this should be done with an output voltage above 5 volts. Turn the controller off.

Insert the compensation resistance in series between the (disconnected) board terminal and motor lead. Turn the controller on and measure the voltage present at the motor. Adjust VR1 until this voltage equals the voltage noted in step 1 above. For best accuracy this should be done with the motor loaded with a consistent load (eg running the turntable) and the board terminal voltage must be below 10 volts. Turn the controller off, remove the compensation resistance and reattach the motor wiring to the board terminal.