TTMC 2.2A FOUR QUADRANT LINEAR OUTPUT MOTOR DRIVER

Specification

Supply Voltage:	10V to 35V DC	
Maximum Output Voltage:	±27.5V DC or 6V below I/PV	
Maximum Output Current:	±2.2A	
Current Limit:	Adjustable, 125mA ±10% to 2.2A -0% + 10%	
Short Circuit Protection:	Inherent in current limit	
Thermal Protection:	Trips when base plate temperature exceeds 50°C and LED lights. Interrupt power to reset	
Reverse Voltage Protection:	Internal series diode	
Speed Control:	Internal POT	MODE 1
	External POT	MODE 2
	External VOLT	MODE 3
Independent Speed and Direction Control:		MODE 4

Temperature Rise

The base plate temperature cannot be predicted since it is a function of voltage dropped (Vin - Vout), motor current and duty cycle. For many applications the base plate will provide sufficient heatsinking. However if thermal tripping does occur, then the module should be bolted to a metal surface or proprietary heatsink.

Controller Set Up

1. Set **gain** potentiometer fully counter clockwise (CCW).
2. Set **Imax** potentiometer fully clockwise (CW).
3. Adjust **Nmax** potentiometer for low motor speed.
4. Apply a load to the motor shaft, then adjust **gain** control CW until the motor speed remains constant with varying load. If too much **gain** is applied and motor oscillation occurs, back **gain** control off until motor is stable. (If set up is done with an Oscilloscope this oscillation can clearly be seen).
5. Adjust the **Nmax** potentiometer over its full range and make a final adjustment to the gain potentiometer for the best overall speed regulation.
6. Connect an ammeter in series with the motor, set the **Imax** pot fully CCW, set the **Nmax** pot for medium speed and stall the motor. Adjust **Imax** until the motor current is equal to its **maximum continuous current** value or a desired current limit. Check that limiting occurs at the same current value (±10%) when the motor is reversed.

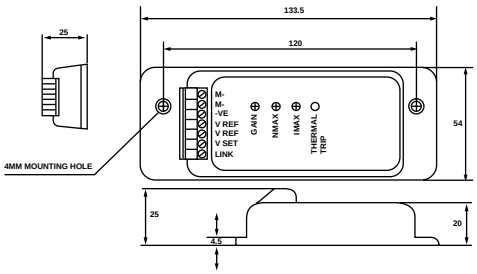
Input Connections

The input voltage can be in the range +10V to +35V but to minimise the base plate temperature increase, the voltage should be kept as low as possible - consistent with optimum speed regulation (1.5 x motor winding nominal voltage).

Analogue Voltage Control

This is only possible with an isolated power supply (as shown in Fig 3). The reference input voltage must not exceed half of the controllers supply voltage, i.e. with a controller supply of 30V, the reference input voltage range is 0-15V.

Outline Drawing



Standard Connection

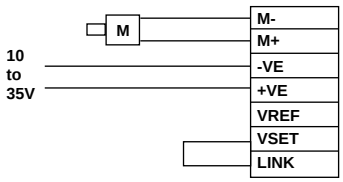


Fig 1

Optional Control Arrangements

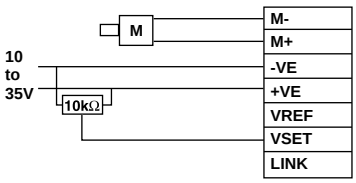


Fig 2

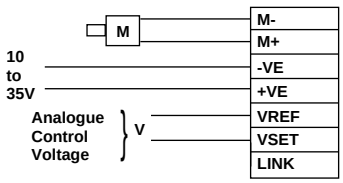


Fig 3

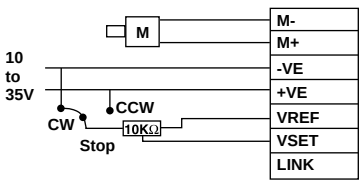


Fig 4

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