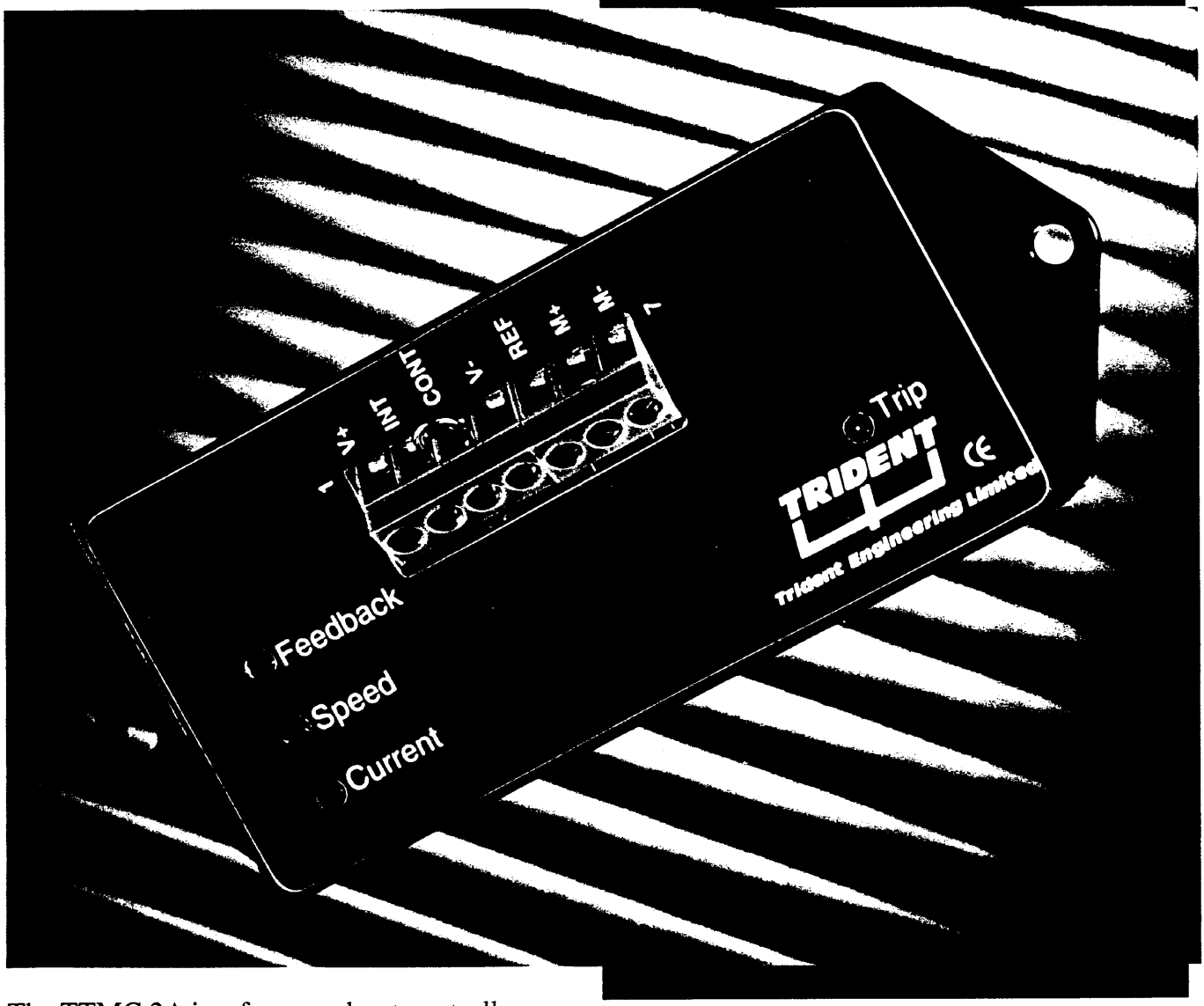
904 - 907

TRIDENT

TTMC 2A



The TTMC 2A is a four quadrant controller ideally suited for small DC motors and gear motors up to 60W:

4 QUADRANT, LINEAR OUTPUT MOTOR DRIVER

- ❑ Linear control minimises electrical noise
- ❑ Single polarity supply gives bi-directional control
- ❑ Armature feedback provides variable control over a speed range up to 50:1
- ❑ Control by potentiometer, DC control voltage or FSR hand control

TTMC 2A FOUR QUADRANT, LINEAR OUTPUT MOTOR DRIVER

Specification

Supply Voltage:	10V to 35V DC
Maximum Output Voltage:	±26V DC or 6V below I/P V
Maximum Output Current:	±2A
Current Limit:	Adjustable, 125mA ± 20% to 2A -0% + 20%
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:	This can be by potentiometer. I/P resistance 200kOhm. The internal speed control potentiometer can be used if preferred

Supply Voltage and Heat Sinking

The supply voltage can be in the range +10 to +35V, but in order to keep the base plate as cool as possible, the voltage should be kept as low as possible - consistent with satisfactory speed regulation (say, 1.5 x motor voltage rating).

The temperature of the base plate cannot be predicted since it is a function of voltage dropped (e.g. V in - V out), motor current and duty cycle. For many applications the base plate alone will provide adequate heat sinking. If overheat tripping does occur, then the module should be bolted to a metal surface or a proprietary heatsink.

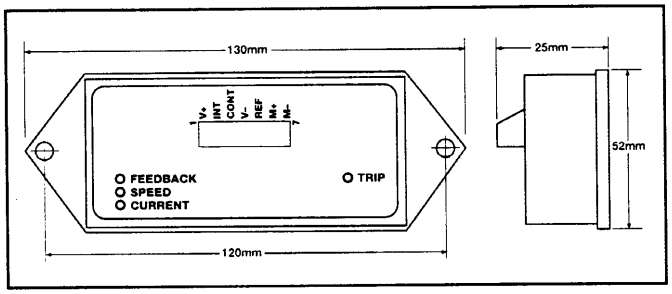
NOTE: Although designed for small motors up to 60W, the module can also drive higher power motors when lightly loaded.

Setting up

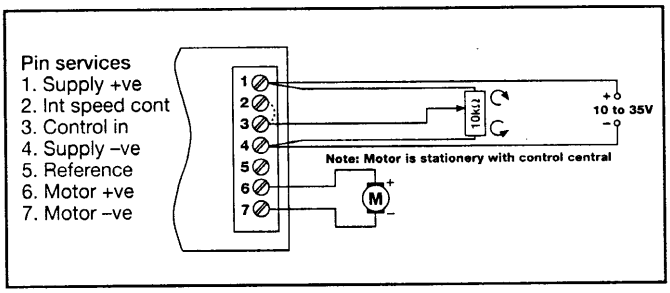
1. Set "Feedback" control fully counter clockwise (CCW).
2. Set "Current" control full clockwise (CW).
3. Select "Speed" control for a low motor speed.
4. Apply a load to the motor shaft, then advance "Feedback" control CW until the motor speed remains constant with varying load. If the control is advanced too far, oscillation will occur, in which case back off the control slightly. (If using an oscilloscope, the onset of oscillation can be clearly seen and the control can be set just below that threshold).
5. Adjust the "Speed" control over its full range and make a final adjustment to the feedback control for the best overall speed regulation.

   NOTE: Speed regulations at high speed is also dependent on adequate power supply voltage.
6. Connect an ammeter in series with the motor, set the "Current" control fully CCW, set the speed control for a medium speed and then stall the motor. Advance the "Current "control CW until the motor current is equal to its rated maximum continuous current (or a desire current limit). Check that limiting occurs at the same current (± 20%) when the motor is reversed.

Outline Drawing



Standard Connection

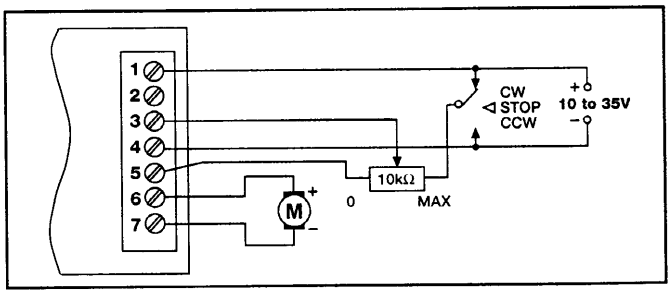


Optional Control Arrangements

1. Internal Speed Control Potentiometer:

When this is used terminal 3 is linked to terminal 2 and no other connection is made to either terminal.

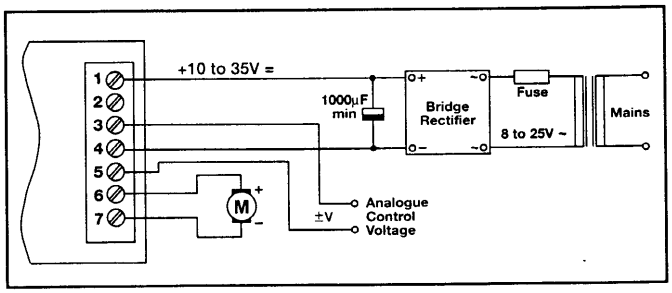
2. Independent Speed and Direction Control



3. Voltage Control:

This is only possible if an isolated power supply is used as shown below.

Note: The ±V in must not exceed half supply voltage and no terminal must be grounded other than terminal 5.



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