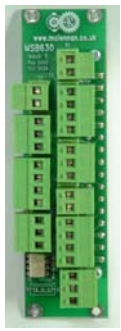
MSB630 Motherboard



- Rack mounting MSB motherboard interconnects MSE570 Classic and Evo 2 Stepper drives to other units
- Simplifies external connection
- Ideal for system users and builders
- All connections via solder-free terminations that require no special tooling
- Up to 12 motor axes can be fitted to a single 19” rack unit

MSB series motherboards have been designed to simplify user connections of systems that incorporate Mclennan drive and control modules. The MSB630 motherboards are designed to fit at the rear of a 19” Eurorack and enable the PM570 stepper drives to be readily fitted in the rack.
All external connections are easily made without the need for special tools.

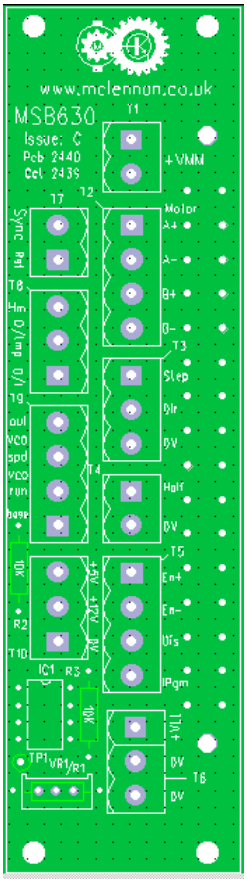


Figure 1 – PCB Layout

Options

If the oscillator components are fitted to the MSE570 then the control connections to this oscillator can be made using the MSB630.
The MSB630 comes fitted with an opto-coupled enable circuit. This opto-coupler must be activated to remove the *disable* input signal to the MSE570 drive. If this facility is not required, then IC1 can be removed to solely use the MSE570’s standard *disable* input. This *disable* input then reverts to its state whereby the drive output is ON by default.
The motor phase current can be set to values other than are available using the MSE570’s current setting switch. A trim pot (VR1) or a fixed value resistor (R1) can be fitted to allow this adjustment.

MSB630 Motherboard

Connections

Figure 2 shows the basic connections that are required to control a stepper motor using a position controller such as the PM600 with a MSE570 drive.

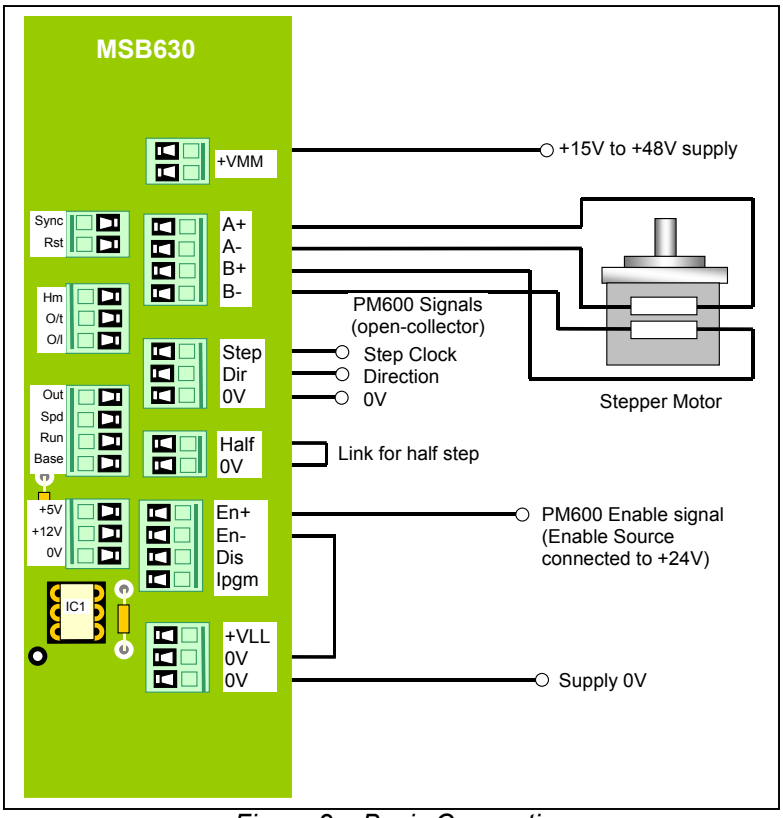


Figure 2 – Basic Connections

Figure 3 shows how the MSB630 can be used to connect to the MSE570's manual speed oscillator.

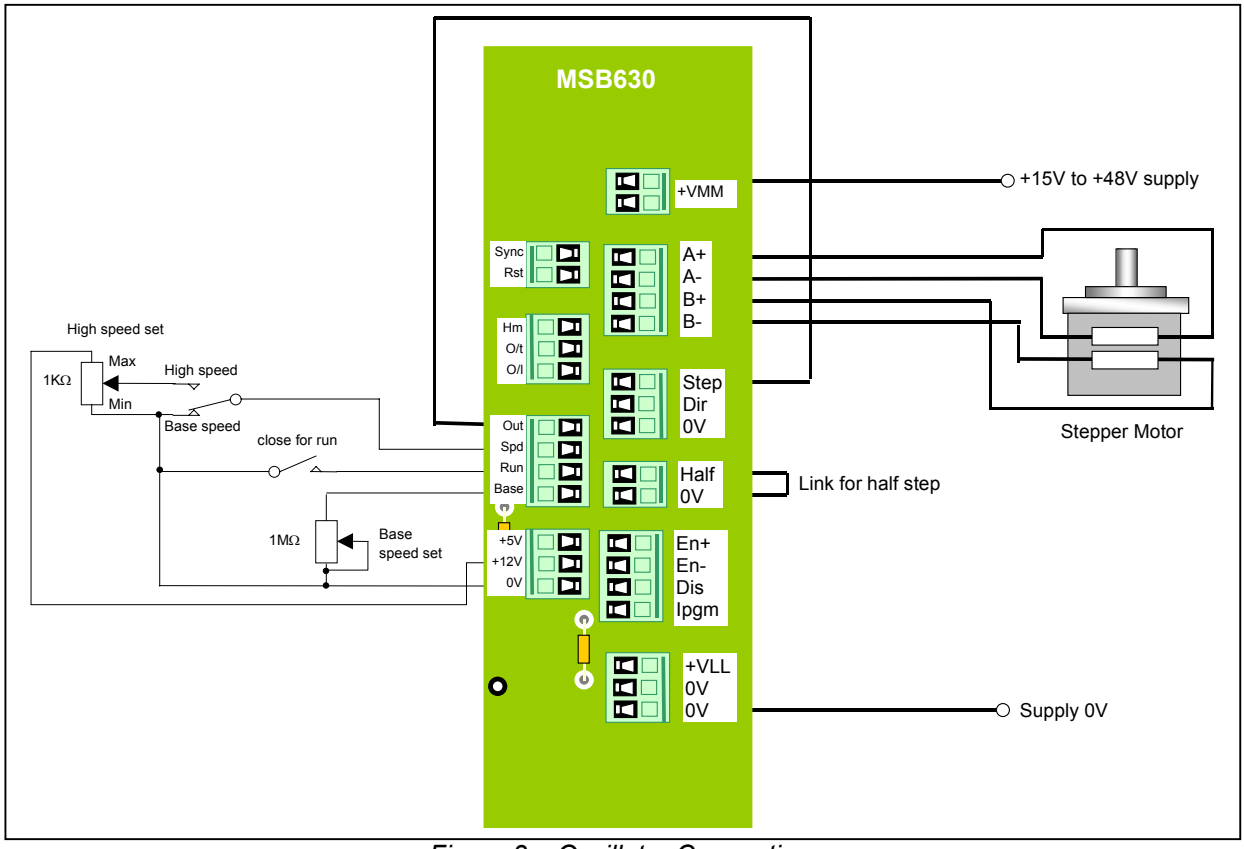


Figure 3 – Oscillator Connections

Current programming

The motor current may be reduced from the value set on the DIP switch by connecting a resistor from Current program input to 0V.
The external resistor should be selected to give a voltage on TP1 of approximately 0.47 x required current per phase.
The external resistor can be an external control, a trimmer (VR1) fitted to the MSB630, or a fixed value resistor (R1) fitted to the MSB630. The value of VR1 is typically 470KΩ. The various methods are shown in figures 4.1, 4.2 and 4.3.

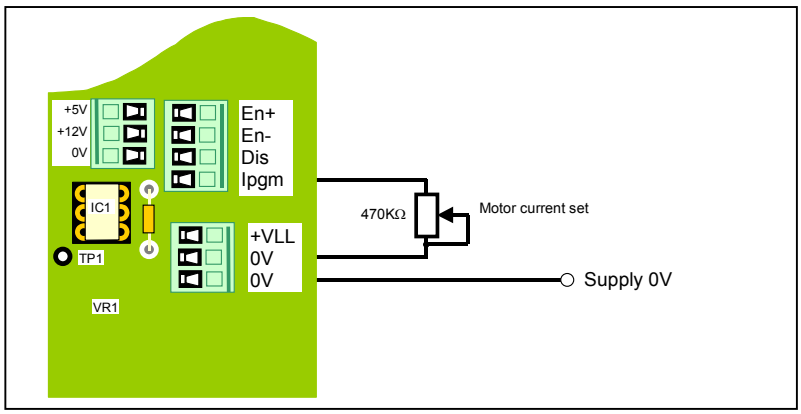


Figure 4.1 – Motor Current Programming Using External Control

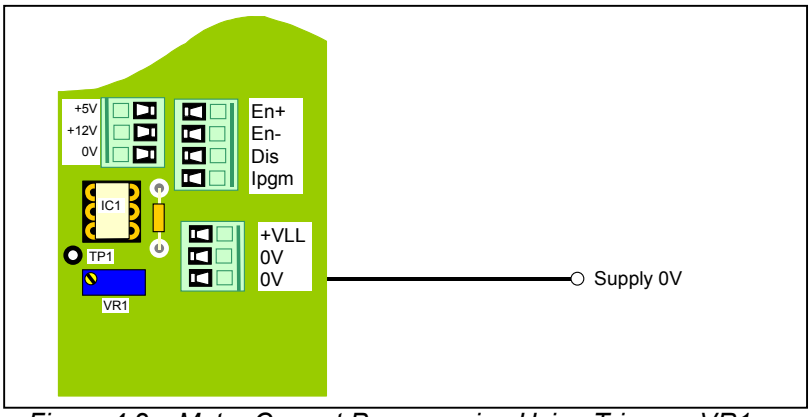


Figure 4.2 – Motor Current Programming Using Trimmer VR1

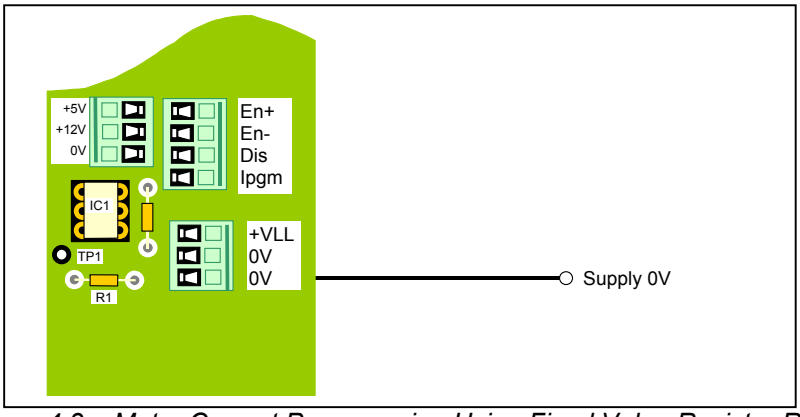


Figure 4.3 – Motor Current Programming Using Fixed Value Resistor R1

MSB630 Motherboard

Terminal Descriptions

Terminal	Identification	Function		Comment
T1	+VMM	+VE Supply		+15V to +48V
T2	Motor A+	Stepper Motor Phase A		Reverse connections to change direction
	Motor A-			
	Motor B+	Stepper Motor Phase B		
	Motor B-			
T3	Step	Step Input		+12V CMOS Inputs (see MSE570 manual for control options)
	Dir	Direction Input		
	0V	0V Reference for above		
T4	Half	Half step selection input		+12V CMOS Input – connect to 0V to activate
	0V	0V Reference		
T5	En+	Enable Input via opto-coupler		Connect +10V to +30V across EN+ and EN- to enable drive
	En-			
	Dis	Disable input		+12V CMOS Input – connect to 0V to disable drive. IC1 (see fig 2) must **not** be fitted.
	IPgm	Current program input		See figs. 4.1 – 4.3
T6	+VLL	+VLL Supply input		Not needed for MSE570 Evo 2
	0V	0V supply		
	0V			
T7	Sync	Synchronise Input/Output		Used to synchronise chopping frequency on multiple drives. (See MSE570 manual)
	Rst	Reset motor phase outputs to home state and reset fault detection		
T8	Hm	Motor phase outputs in home state		
	O/tmp	Drive over-temperature fault detected		Drive disabled if SW1-1 is on. Latched if SW1-2 is on.
	O/I	Drive overload fault detected		
T9	out	Oscillator	Output	Connect to T3-Step input
	VCO spd		Speed Input	
	VCO run		Run Input	Connect to 0V to activate
	base		Base speed input	Connect to Base speed potentiometer
T10	+5V	+5V Supply output		50mA max.
	+12V	+12V Supply output		50mA max.
	0V	0V Reference		

Please note:
The information contained in this data sheet is intended to show the connections required to install the MSE570 drive in a motion system. The user manuals for the MSE570 drive should be consulted for detailed information on the commissioning of the drive and the controller to ensure that the products are correctly utilised.