1.0 INTRODUCTION

Model 5250-2 is an open frame, current regulated power supply for use with Magtrol hysteresis brakes and clutches.

1.1 SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ranges</td>
<td>0–200 mA, 0–500 mA, 0–1000 mA</td>
</tr>
<tr>
<td>Current regulation</td>
<td>± 1% of full scale range</td>
</tr>
<tr>
<td>Compliance voltage</td>
<td>45 VDC</td>
</tr>
<tr>
<td>Control input</td>
<td>0–5 VDC</td>
</tr>
<tr>
<td>Current monitor output</td>
<td>0–200 mVDC</td>
</tr>
<tr>
<td>Brake fuse</td>
<td>1¼ Amp, UL/CSA, 5 × 20 mm</td>
</tr>
<tr>
<td></td>
<td>(1 Amp, IEC, 5 × 20 mm)</td>
</tr>
<tr>
<td>Line fuses</td>
<td>120 VAC-1 Amp, UL/CSA, 5 × 20 mm</td>
</tr>
<tr>
<td></td>
<td>(240 VAC-400 mA, IEC, 5 × 20 mm)</td>
</tr>
<tr>
<td>Power requirements</td>
<td>60 VA, 48–63 Hz</td>
</tr>
</tbody>
</table>

2.0 OPERATION

2.1 RANGES

Three current ranges are selectable by changing the position of two shunts on the header.
- For 0–200 mA, install shunts on J1 and J4.
- For 0–500 mA, use J2 and J5.
- For 0–1000 mA, use J3 and J6.

2.2 INPUT POWER

The 5250 can be set for 120 VAC or 240 VAC operation. Solder pad jumpers are located on the underside of the PC board near the power transformer. For 120 VAC, bridge solder over pads J7 and J9 only. For 240 VAC, bridge the pad marked J8 only. You will also need to use the appropriate input fuse type. Connect input power to terminals 1 and 2 of J10, labeled L1 and L2.

2.3 CONTROL

The 5250 provides smooth application of current from zero to maximum by either a ten-turn, 5 kOhm potentiometer, or by an external 0–5 VDC control signal.

For potentiometer control:
1. Wire the CCW side of the pot to terminal 5 of J10.
2. Wire the wiper to terminal 6.
3. Finally, wire the CW side of the pot to terminal 7.
If you wish to use an external signal to control the current level:
1. Connect the low side of the source (GND) to terminal 5 of J10.
2. Connect the high side of the source (positive going voltage) to terminal 6.

An input voltage of 0 VDC corresponds to 0 mA; 5VDC input to maximum current for the range selected.

### 2.4 OUTPUT

1. Connect one lead from the hysteresis brake to terminal 8 of J10.
2. Connect the other lead to terminal 9.

**Note:** Both terminals are above ground potential. Do not ground either terminal. Doing so will cause brake fuse F1 to open.

### 2.5 CURRENT METERING

If you wish to monitor the current level with an external voltmeter:
1. Connect the negative lead to terminal 3 of J10.
2. Connect the positive lead to terminal 4.
3. The voltmeter should be set to a 200 mV range. The actual current to the brake will be the millivolt reading * 10.

### 3.0 CALIBRATION

When using a potentiometer to control output current, the voltage applied to the CW end of the pot should be 5VDC. This voltage is obtained from the 5250.

To calibrate:
1. Connect the negative lead of a voltmeter to terminal 5 of J10.
2. Connect the positive lead to terminal 7.
3. Turn on the 5250 and adjust potentiometer R4 for a 5.000V reading on the meter.

If an external current monitoring is used, each range of the 5250 may be calibrated individually.
1. Connect a load resistor of sufficient rating to allow 1000 mA of current to flow (typically 20 Ohms, 20 watts).
2. Attach a Standard Ammeter in series with the load resistor.
3. Set the jumpers to the 1000 mA range.
4. Power up the 5250 and adjust the control potentiometer (or control signal) to produce about 1000 mA output current, as read on the Standard Ammeter.
5. Adjust potentiometer R20 until both meters read the same.
6. Reduce the current to zero, and change the current range jumpers to the medium range.
7. Adjust the control for approximately 500 mA, as read on the Standard Ammeter.
8. Adjust R21 for an equal reading.
9. Repeat this procedure for the low range, using R22 for calibration.
## A.0 APPENDIX A: PARTS LIST

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty.</th>
<th>Reference</th>
<th>Part Description</th>
<th>Magtrol P/N</th>
<th>Manufacturer's P/N</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
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<td>PC Board</td>
<td>78B189</td>
<td>78B189</td>
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<td>2</td>
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<td>SHCS 6-32 x ¼</td>
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<td>3</td>
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<td>Nut 6-32</td>
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<td>4</td>
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<td>Internal lockwasher</td>
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<td>5</td>
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<td>C1, Capacitor, 1000 uF, 50 V</td>
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<td>C8, Capacitor, 0.001 uF, Ceramic</td>
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<td>C7, Capacitor, 0.1 uF, 50 V</td>
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<td>C9, Capacitor, 47 pF, 50 V, 10%</td>
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<td>BR1, Bridge Rectifier</td>
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<td>HPE05</td>
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<td>12</td>
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<td>CR1,CR7, Diode</td>
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<td>CR3, Zener Diode, 6.2 V</td>
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<td>CR5, Zener Diode, 16 V</td>
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<td>18</td>
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<td>VR1, Voltage Regulator, +15 V</td>
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<td>L7815CV</td>
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<td>U1, Opamp, Dual</td>
<td>76L041</td>
<td>LM358A</td>
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<td>R4,R20,R21, Trimpot, 1 kOhm</td>
<td>77M007</td>
<td>RT24C2W102</td>
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<td>R22, Trimpot, 500 Ohm</td>
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<td>RT24C2W501</td>
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<td>22</td>
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<td>R7,R8, Resistor, 10 kOhm, ¼ Watt</td>
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<td>R3,R11, Resistor, 1.5 kOhm, ¼ Watt</td>
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<td>R1, Resistor, 560 Ohm, 1 Watt</td>
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<td>RS-1A</td>
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<td>R15,R25, Resistor, 1 Ohm, 3 Watt, 1%</td>
<td>80P032</td>
<td>RS-2B</td>
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<td>R19, Resistor, 2k Ohm, 1%</td>
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<td>R12, Resistor, 2.49 kOhm, 1%</td>
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<td>R18, Resistor, 8.45 kOhm, 1%</td>
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<td>R10, Resistor, 9.09 kOhm, 1%</td>
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<td>R16, Resistor, 90.9 kOhm, 1%</td>
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<td>R17, Resistor, 9.53 kOhm, 1%</td>
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<td>U1, DIP Socket, 8 Pin</td>
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<td>J10, Terminal Block</td>
<td>85F157</td>
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<td>Shunt</td>
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<td>F1-3, Fuse Clip</td>
<td>85F192</td>
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<td>J1-6, Post Header</td>
<td>85M193</td>
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<td>43</td>
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<td>T1, Custom Transformer</td>
<td>87V050</td>
<td>14A-56-1564</td>
</tr>
</tbody>
</table>
For 120V operation jumper J7 & J9 only
For 240V operation jumper J8 only

F1: 1-1/4A UL/CSA
     1A IEC

F2, F3: 1A UL/CSA (120V)
        400mA IEC (240V)
B.2 78B189 SILKSCREEN
B.3 MOUNTING BRACKET