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MODEL 300C OEM VARIABLE FREQUENCY OPTICAL CHOPPER

Version A



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1 INTRODUCTION

The model 300 OEM optical chopper consists of a remotely mounted chopping head connected by a user supplied cable to a control unit.

2 WARNING

Power voltage is tracked across the PCB. It is the users responsibility that it is not possible for any operator to touch these tracks.

It is also important that the power supply to the board is fused with a 1A fuse.

3 UNPACKING

When the Model 300 OEM is shipped, the control unit PCB, motor, boss and chopping disc are individually packed. Please unpack with extreme care.

4 LOW VOLTAGE CONNECTIONS

The motor should be connected between terminals 1 (or 2) and 18. Positive connection to terminal 1 (or 2). Negative connection to terminal 18.

A power on LED can be connected between terminals 3 and 4. Source voltage is 26v with a 3.3K resistor in series.

A 20K speed control potentiometer needs to be connected between terminal 5, 6 and 7 with the wiper connected to terminal 5. With the wiper turned so it is shorted to terminal 7 the motor will be stationary. With the wiper turned so it is shorted to terminal 6 the motor will turn at maximum speed. (The maximum speed of the motor can be adjusted through the turning of the trim pot mounted on the PCB. Care must be taken not to over drive the motor.)





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The opto switch should be connected to as follows:

- LED Anode and Photo Detector +5v to Terminal 9
- LED Cathode to Terminal 16
- Photo Detector 0v to Terminal 18
- Photo Detector Output to Terminal 14

A buffered TTL output reference is available from terminal 12 and an inverted version from terminal 13.

If required a second opto switch can be connected as follows:

- LED Anode and Photo Detector +5v to Terminal 8
- LED Cathode to Terminal 17
- Photo Detector 0v to Terminal 18
- Photo Detector Output to Terminal 15

A buffered TTL output reference for the second opto-switch is available from terminal 10 and an inverted version from terminal 11

5

POWER SUPPLY VOLTAGE CONNECTIONS

WARNING

Power voltage is tracked across the PCB. It is the users responsibility that it is not possible for any operator to touch these tracks.

It is also important that the supply to the board is fused with a 1A fuse.

The live power supply connection should be made to terminal 19. The neutral power supply connection should be made to terminal 22.

For 115v operation connect terminal 19 to terminal 21 and terminal 20 to 22.

For 230v operation connect terminal 20 to terminal 21





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6 OPERATION

6.1 Chopping Frequency

The model 300C OEM chopper is controlled by a user supplied 20K potentiometer. The maximum speed attainable can be modified by the trim pot on the PCB.

Do not over rev the motor.

The maximum speed allowed for the 300 motor is 6000 rpm. Please ensure that this speed is not exceeded.

6.2 Reference

The reference signal is output from terminal 12 of the control PCB. This signal is a HCT TTL square wave at the chopping frequency and has a constant phase relative to the chopping action.

6.3 Frequency range

The following table gives the maximum usable frequency range for each blade.

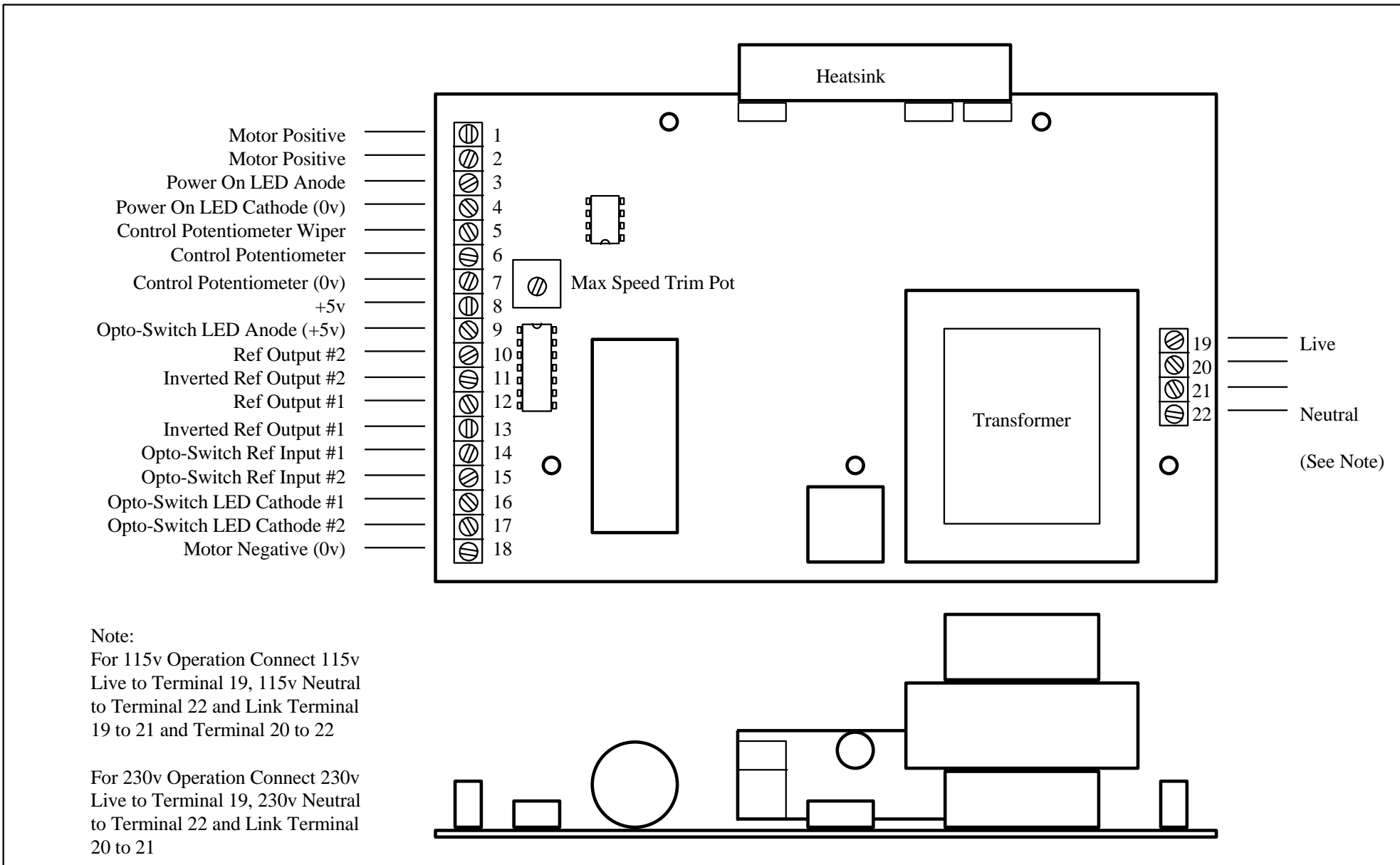
2 slot blade	5 to 200 Hz
5 slot blade	12 to 500 Hz
10 slot blade	25 to 1000 Hz
30 slot blade	75 to 3000 Hz
200 slot blade	500 to 20000 Hz

6.4 External Control

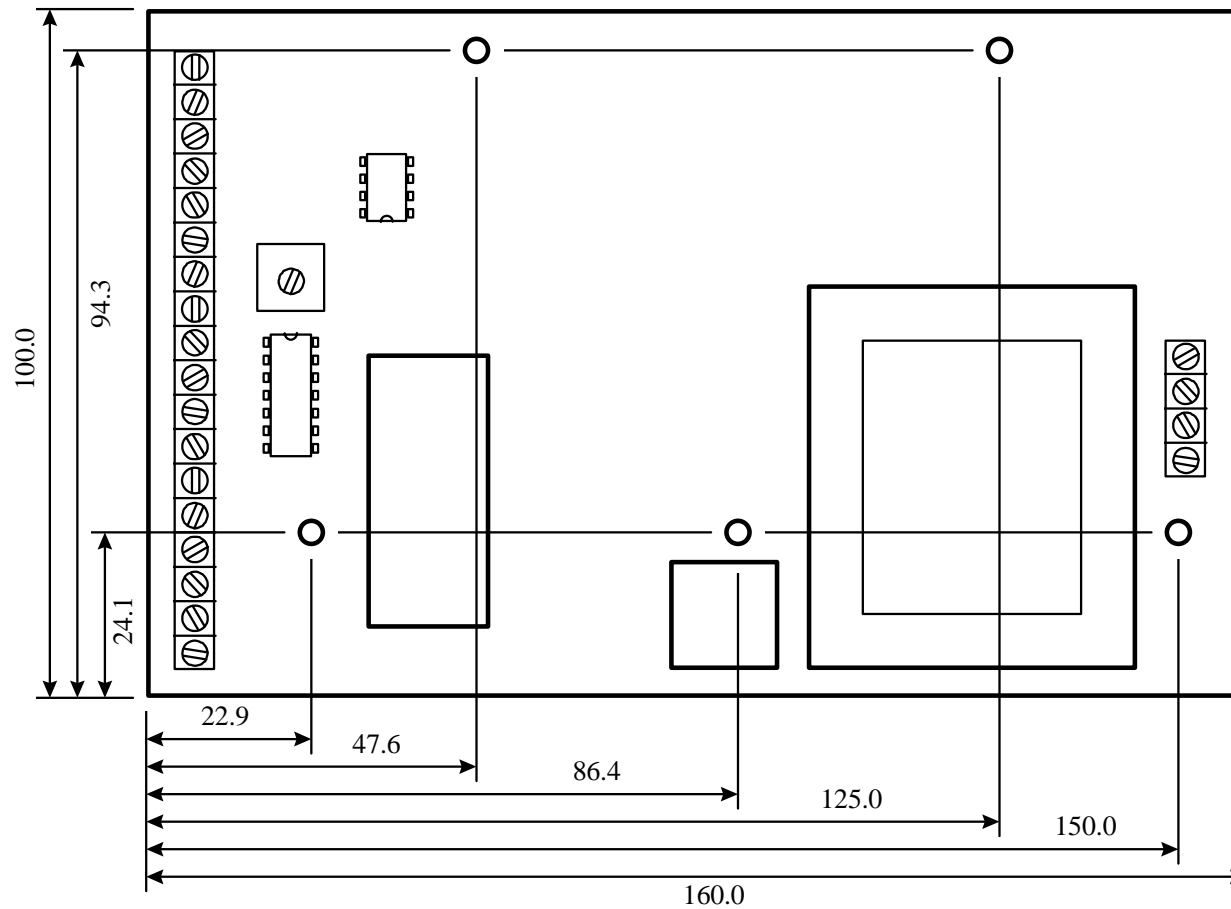
The instrument can be externally controlled by disconnecting the wire between the control potentiometer and terminal 6. By driving the potentiometer connection with an external voltage the chopping frequency is then controlled by this voltage. Maximum input voltage is 15v, input impedance is 20 k Ω . In this mode the control potentiometer is used to set the proportionality between the input voltage and chopping frequency.

A common fault is to have the control potentiometer set to its minimum when applying an external voltage. With the pot in this position the motor will not turn, no matter what the applied voltage. The usual position for the control pot when in external mode is turned clockwise to its maximum.





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		TITLE: 300 OEM PCB Layout Ver A	SHEET 1 OF 2
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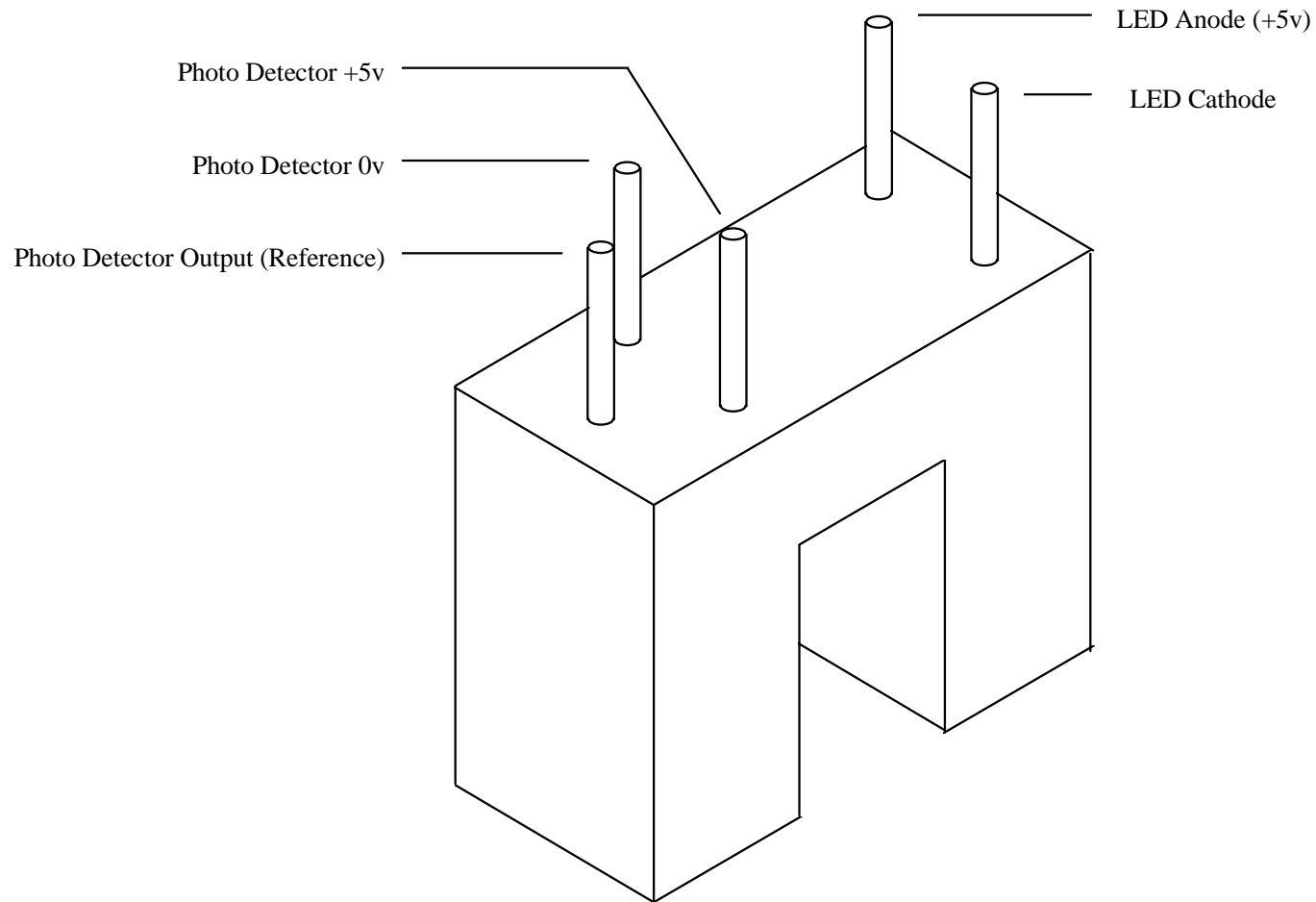
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