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**MODEL 300 OEM VARIABLE FREQUENCY
OPTICAL CHOPPER
(Version B)**



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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 board is fused with a 1A fuse.

A voltage select switch is mounted on the board. Please select the correct voltage before applying power.

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

All motor and opto-switch connections are made via a 9 pin D-Type connector.

The motor should be connected between pins 6 and 9. Positive connection to pin 6. Negative connection to pin 9.

The opto switch should be connected as follows:

- LED Anode and Photo Detector +5v to pin 4
- LED Cathode to pin 5
- Photo Detector 0v to pin 8
- Photo Detector Output to pin 2

The control unit PCB has the facility to drive a second opto-switch. The components required to drive this opto-switch are not normally fitted. If they have been fitted then the associated reference output BNC will be fitted at the rear of the board beside the 9 pin connector. The





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process to upgrade the PCB to accept a second reference is fairly simple - please contact Scitec Instruments for instructions.

The connections for the second opto-switch are as follows:

- LED Anode and Photo Detector +5v to pin 4
- LED Cathode to pin 7
- Photo Detector 0v to pin 8
- Photo Detector Output to pin 3

A buffered TTL output reference is available from the bottom left hand BNC connection.

A buffered TTL output reference for the second opto-switch is available from the top left hand BNC connection if fitted.

5 POWER SUPPLY VOLTAGE CONNECTION

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 board is fused with a 1A fuse.

The live power supply connection is made via the IEC connector on the top edge of the board.

A voltage select switch is mounted on the board. Please select the correct voltage before applying power.

6 OPERATION

6.1 On/Off

Power to the control unit is controlled by the ON/OFF switch located on the front right hand side of the PCB. The model 300C OEM is fitted with a red LED indicator beside the switch which lights when the unit is switched on.

6.2 Chopping Frequency

The model 300C OEM chopper control PCB is fitted with a 10 turn pot to control the motor speed. The speed is directly proportional to the position of this pot. The maximum speed attainable can be modified by the trim pot on the PCB.





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The motor will only turn if the internal/external switch is set to internal. See below for controlling the speed of the motor externally.

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.

6.3

Reference

The reference signal is output from a BNC socket on the front panel 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.

6.4

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

6.5

External Control

The instrument can be externally controlled via the BNC control input. For this mode of operation the EXT/INT switch must be placed in the EXT position. The chopping frequency is then controlled by an externally applied voltage. Maximum input voltage is 15v, input impedance is 20 k Ω . In this mode the frequency control is used to set the proportionality between the input voltage and chopping frequency.

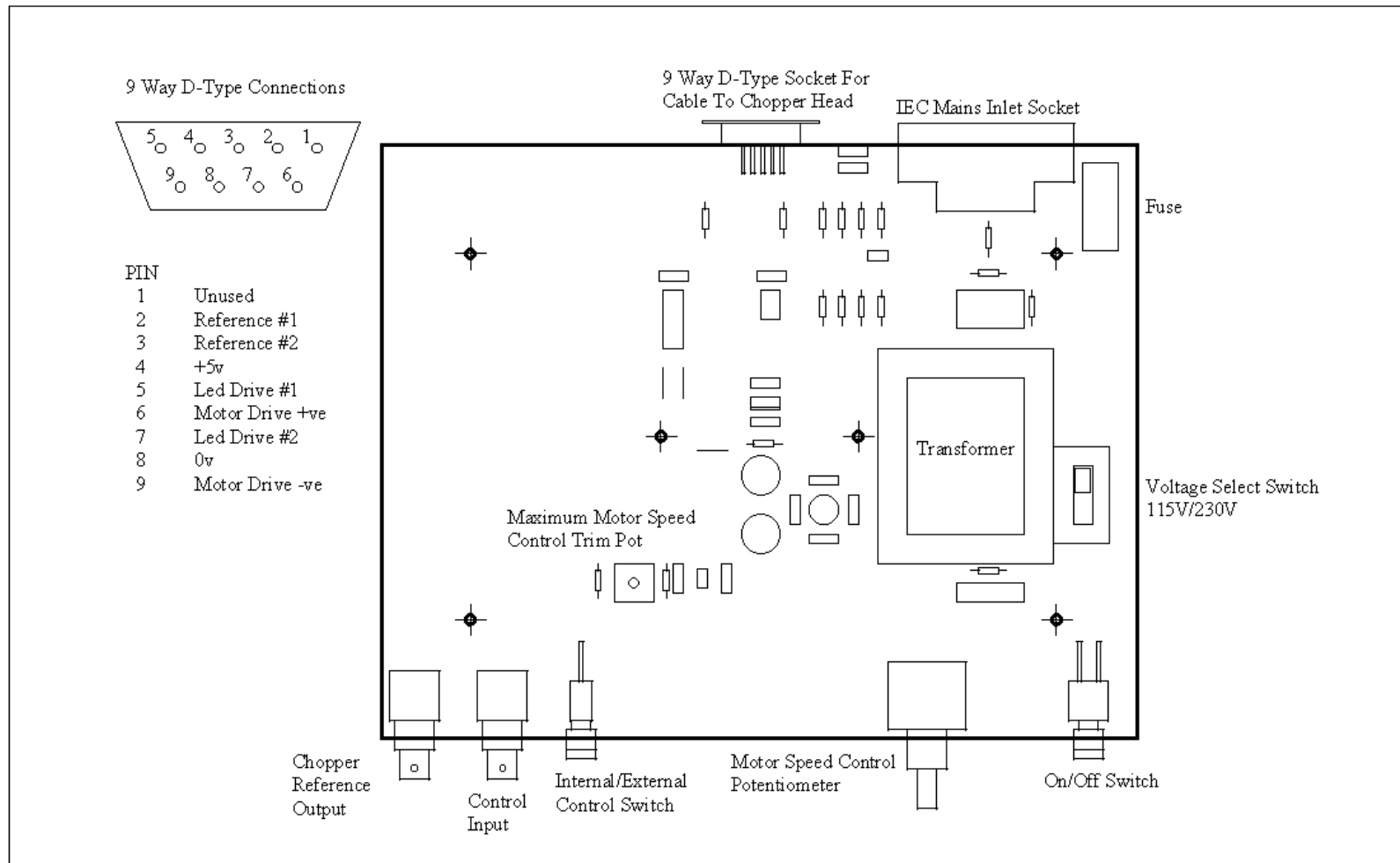
A common fault is to have the frequency control pot set to its minimum when applying an external voltage. With the pot in this position the motor will not turn, no matter what the applied voltage. The usual position for the control pot when in external mode is turned clockwise to its maximum.

6.6

Fuse

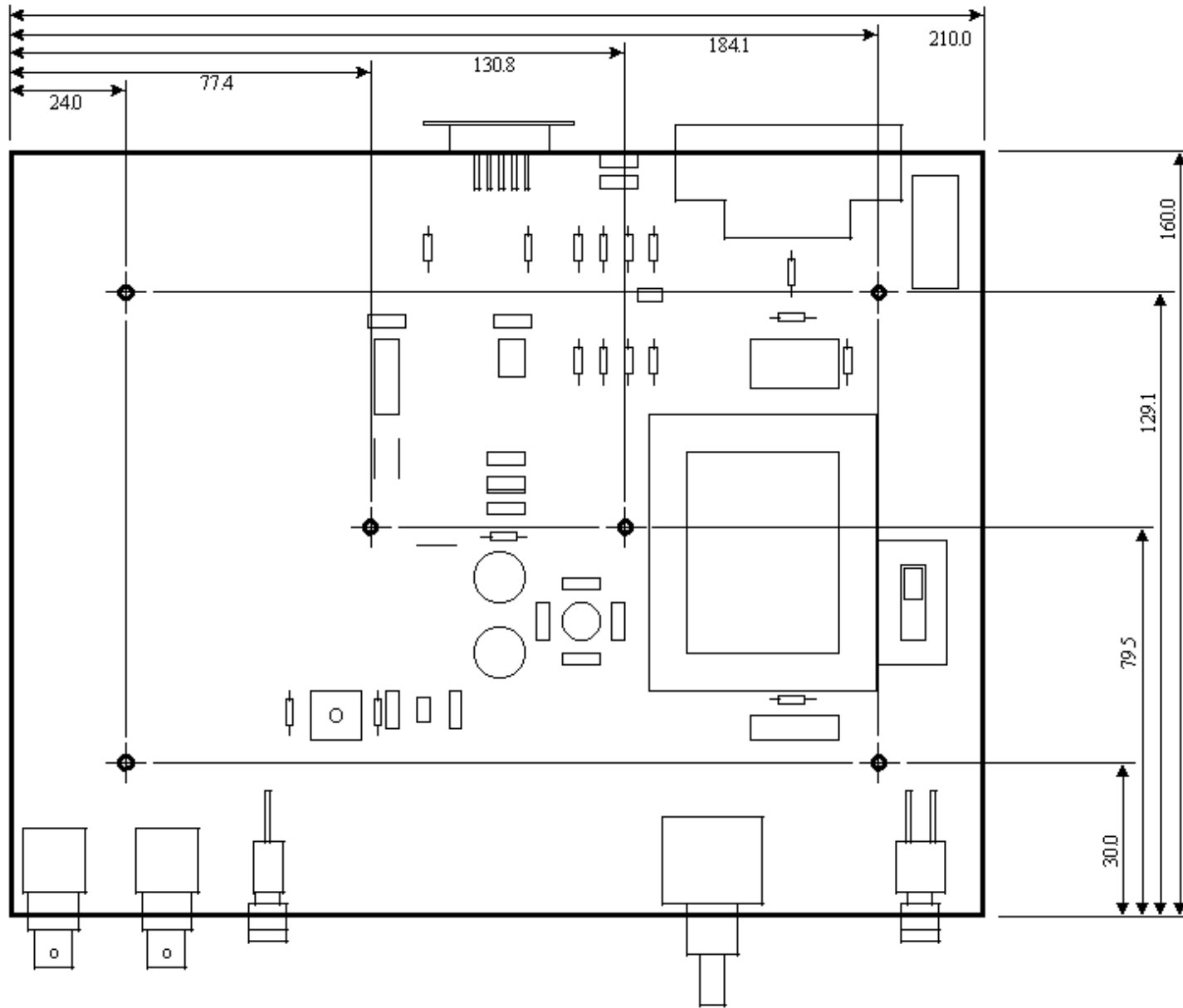
The line fuse in this instrument is mounted on the printed circuit board. Before changing the fuse, ensure that the unit is isolated from the line supply. Replace only with a 1 Amp 20mm x 5mm semi-delay fuse.

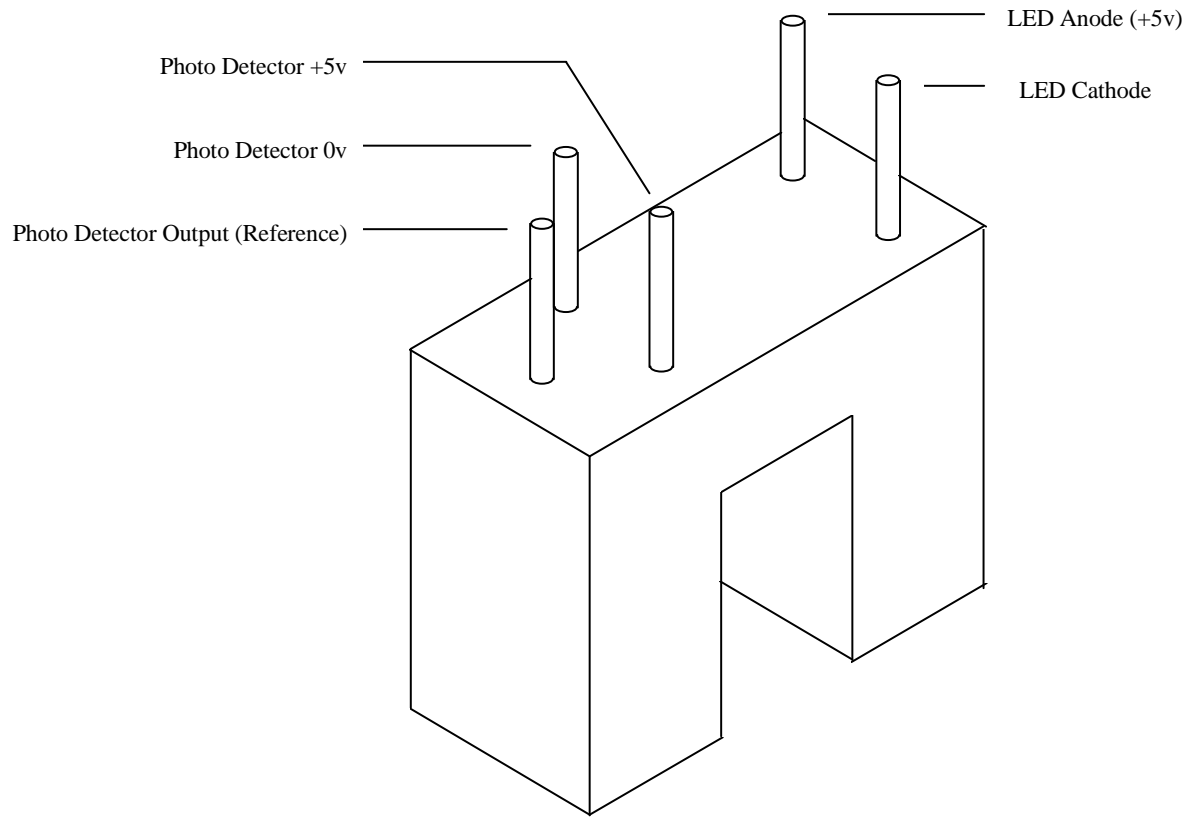




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SHEET 1 OF 1

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