

point (e.g. set the unit for 100Hz but the chopper locks to 150Hz). This might happen when changing the frequency after setting the phase to an extreme.

If this occurs, adjust the phase back towards the center of the adjustment range until the unit locks to the correct frequency. Then, you should be able to re-adjust the phase to the -180° or 180° setting.

Section 4.0 Serial Interface

The MC1000 comes standard with a RS-232 serial interface port for remote control and monitoring. The serial port can be connected to a PC running an ASCII terminal emulator program to remotely access the MC1000 features. The MC1000 has an interactive menu, which is accessible from the serial port to control the chopper. For experienced programmers, the chopper serial interface may be incorporated into a user program developed on a serial port system.

Serial Port Parameters

Baud Rate: 19,200
Data Bits: 8
Stop Bits: 1
Parity: none
Handshake: none

Serial Port Pin Outs

DB9F pin	Signal
1,7,8,9	no connect
2	TxD (from MC1000)
3	RxD (to MC1000)
4	connected to pin 6
5	Signal Ground
6	connected to 4

Serial Interface Command Screen

The MC1000 will echo the following screen to the serial port. The current setting is shown in parenthesis after each command. The user can select the various commands by typing the letter enclosed in parenthesis at the beginning of each line and the MC1000 will prompt for the user input. Typing the RETURN key will exit the input mode without changing the value.

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MC1000 Control Software - Revision x.xx (build xxxx)
Operating Menu
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(R)un motor           (on)
(E)cho panel          (off)
(B)lade               (B 10)
(I)nternal frequency  (500)
(N) Harmonic Multiplier (1)
(M) Sub-harmonic divider (1)
(X) External Reference (off)
(O) Reference Output   (outer)
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Serial Command Summary

Command:	R
Input Parameters:	none
Description:	Toggle the motor between ON and OFF
Command:	E
Input Parameters:	none
Description:	When the echo mode is on the current display on the MC1000 front panel will be sent to the serial port each time it is updated.
Command:	B
Input Parameters:	'0' for 10 slot, '1' for 15 slot, '2' for 30 slot, '3' for 60 slot, '4' for 2-frequency blade, '5' for 2 slot and '6' for 2 slot slave.
Description:	This programs the MC1000 for the chopper blade currently installed on the optical head.
Command:	I
Input Parameters:	20 to 1000 (10 slot), 30 to 1500 (15 slot), 60 to 3000 (30 slot), 120 to 6000 (60 slot), 14 to 700 (2-f blade), and 50 to 4950 (2 slot)
Description:	This sets the internal reference frequency. Note: the range is dependent on the blade.
Note:	The 2 slot blade must be set using the outer blade frequency. There are 100 outer slots and 2 inner slots with a 50:1 ratio. Therefore, to set the blade rotation to 10Hz, the set value must be $10\text{Hz} \times 50 = 500\text{Hz}$.
Command:	N
Input Parameters:	1 to 15
Description:	This sets the harmonic multiplier.
Command:	M
Input Parameters:	1 to 15
Description:	This sets the sub-harmonic divisor
Command:	X
Input Parameters:	none
Description:	Toggle between internal and external reference modes
Command:	O
Input Parameters:	'0' for outer (chopper wheel), '1' for internal synthesizer, '2' for SUM freq, '3' for DIFF frequency.
Description:	Set the source for the REF OUT signal. Note, the available options are mode-dependent