3000A+ SERIAL INTERFACE SPECIFICATION

GENERAL

The Optoelectronics 3000A+ Frequency Counter is equipped with an RS-232C asynchronous serial interface which allows the unit to be connected to a personal computer for the purpose of reading frequency information. The three-wire interface is accessible via a miniature stereo phone jack located on the top of the panel, and consists of Receive Data (TIP), Transmit Data (RING), and Signal Ground (SHIELD). Using an appropriate cable, the 3000A+ serial interface can be directly connected to an RS-232C serial interface on a personal computer.

ELECTRICAL SPECIFICATIONS

The following electrical parameters are specified relative to Signal Ground (SHIELD).

Receive Data to 3000A+ (TIP)

LOGIC "0": +3 to +25 VDC
LOGIC "1": -3 to -25 VDC
INPUT IMPEDANCE: 3 kΩ min., 5 kΩ typ.

Transmit Data from 3000A+ (RING)

LOGIC "0": +9 VDC (nominal, into 5 kΩ load)
LOGIC "1": -9 VDC (nominal, into 5 kΩ load)

COMMUNICATIONS PARAMETERS

The following communications parameters are used for both Receive Data (TIP) and Transmit Data (RING).

Data Rate:	4800 bps (+/- 2%)
Start Bits:	1
Data Bits:	8
Parity:	NONE
Stop Bits:	1

DATA PROTOCOL SPECIFICATIONS

In order to read frequency information from the 3000A+, the host computer must send an ASCII Carriage Return <CR> character (0DH, or 13D) to the counter via the Receive Data (TIP) signal.

The 3000A+ will then respond by sending twelve ASCII characters to the host computer via the Transmit Data (RING) signal, corresponding to the most recent successful counter measurement. The first eleven characters will consist of the ten-digit count, plus an ASCII Period <.> character (2EH, or 46D) to mark the position of the decimal point. This sequence is followed by an ASCII Carriage Return <CR> character as a terminator. Leading zeroes of the counter result are blanked by replacing them with ASCII Space <SP> characters (20H, or 32D). See the examples below.

GATE SETTING	FREQUENCY	SERIAL INTERFACE OUTPUT
1	162.55 MHz	<SP><SP><SP><SP><SP>162.55<CR>
2	446.35 MHz	<SP><SP><SP><SP>446.350<CR>
3	2435.5 MHz	<SP><SP>2435.5000<CR>
4	162.55 MHz	<SP><SP>162.55000<CR>
5	446.35 MHz	<SP>446.350000<CR>
6	144.52 MHz	144.5200000<CR>

In conventional frequency counting mode, the serial interface output data represents the most recent frequency measurement. When FILTER mode is selected, the serial interface output data represents the most recent frequency measurement which passed the filter.