Pulsed Mode Operation

The laser has the capability of operating in either CW or pulsed mode. Pulsed mode is achieved by applying a TTL level (0 to 5 V) signal to the appropriate pin on the External Interface connector. Pulse rates from 0 to 40 Hz are possible. Refer to section *Remote Control Methods* for further details.

⚠ **Warning**: Operating the laser at repetition rates greater than 40 Hz may damage the device and will void the warranty.

Laser power output is as follows:

- TTL Low (< 3.0 volts DC): Laser Off
- TTL High (≥ 3.0 volts DC): Laser On

Remote Control Methods

There are two methods for controlling the laser remotely. This is accomplished via either the External Interface connector or the RS-232 connector on the front panel of the Power Supply.

External Interface Connection (Front Panel)

⚠ **Warning**: If pin 5 and pin 7 are used to simulate the key switch, the key *must* be fully removed from the front panel key switch. These pins override the key switch and render the switch non-functional. Failure to do so will result in not being able to shut off power to the system.

The External Interface connector (female DB-15) on the front panel of the Power Supply Unit allows the laser system to be controlled remotely by external devices. Table 2 describes the External Interface pin out.

Table 2. External Interface Pin Descriptions

Pin	Description
1	TTL Level Pulse Input
2	Laser On Button (+12 V; momentarily ground to Pin 13 to turn laser on)
3	Safety Interlock (connect to Pin 11 through interlock loop)
4	Laser Emission LED (+5 V; return to GND)
5	Key Switch Laser Enable/Disable (connect to Pin 7 for Laser Enable. Disconnect for Laser Disable. See *Warning* above.)
6	Reserved for Future Use
7	Key Switch Laser Enable/Disable (connect to Pin 5 for Laser Enable. Disconnect for Laser Disable. See *Warning* above.)
8	Reserved for Future Use
9	Reserved for Future Use
10	Laser Off Button (+5 V; momentarily ground to Pin 13 to turn laser off)
11	Safety Interlock (connect to Pin 3 through interlock loop)
12	Main Power LED (+12 V; return to GND)
13	GND
14	Reserved for Future Use
15	Reserved for Future Use

The TTL logic is enabled by connecting pins 1 (TTL input) and 13 (ground) on the front panel External Interface connector to a 0 to 5 volt DC signal source. The TTL logic will turn the laser off when it sees a voltage level below 3 volts.

RS-232 Connector

The RS-232 connector (male DB-9) on the front panel of the Power Supply Unit allows the laser to be controlled remotely by external devices, specifically via a personal computer serial port. Table 3 describes the RS-232 pinout.