SUPPLEMENT TO PIPELINE MANUAL

Type	Laser Specific Application Note
Laser Model	IPG YLP Pulsed Fiber Laser
Requirements	NT Pipeline Controller - model PL-1
	Laser Control Cable - NT p/n 50-0161 (C-IPG-YLP)
	USB Cable
	NT Collimator Mount for 35mm - NT p/n 80-0159 (LMK-IPG-35)
	NT Shutter Assembly or Mounting Bracket for scan head
	NT WaveRunner Scan Control Software
	NT 2 or 3-Axis Scan Head and power supply
	XY2-100 Cable
	IPG Pulsed Fiber Laser w/ Type B or Type D Interface and power supply
	PC w/ Windows 2000 or Windows XP (customer supplied)

STARTUP PROCEDURE

Section 1: Hardware and Connections

Provide suitable mounting for the scan head mounting bracket or shutter assembly.

Attach scan head to the output side of the mount.

Note: Depending on the scan head model, there may be an additional adaptor used between the head and the shutter or mount.

Install lens mounting ring and lens if applicable.

Attach fiber collimator mount to the input side of the mount.

Insert fiber collimator into the collimator mount and tighten clamp screw.

Connect power supplies to the scan head and laser; DO NOT turn on power supplies.

Section 1: Hardware and Connections (continued)

Connect 25 pin XY2-100 data cable to the scan head and to the Pipeline Controller.

Connect the laser controller cable to the laser (25 pin D connector) and the Pipeline (37 pin D connector).

Connect the USB cable to the Pipeline and to the PC.

Supply AC power to the Pipeline and to the PC.

Section 2: Software Setup

Start the PC and install WaveRunner Scan Control Software.

Turn on the power to the Pipeline Controller only. DO NOT apply power to the laser or scan head.

Start the WaveRunner program. There are three possible behaviors at startup:

1) Software is in Demo Mode; the Pipeline hardware is not recognized.
   Check power to Pipeline and USB connection.
   Check that the USB driver is correctly installed in Windows.
2) License code is not recognized
   Enter 16-24 digit license code for the Pipeline in use.
3) Normal operation

Once the WaveRunner loads and operates normally, it is required to set it up for the IPG YLP laser.

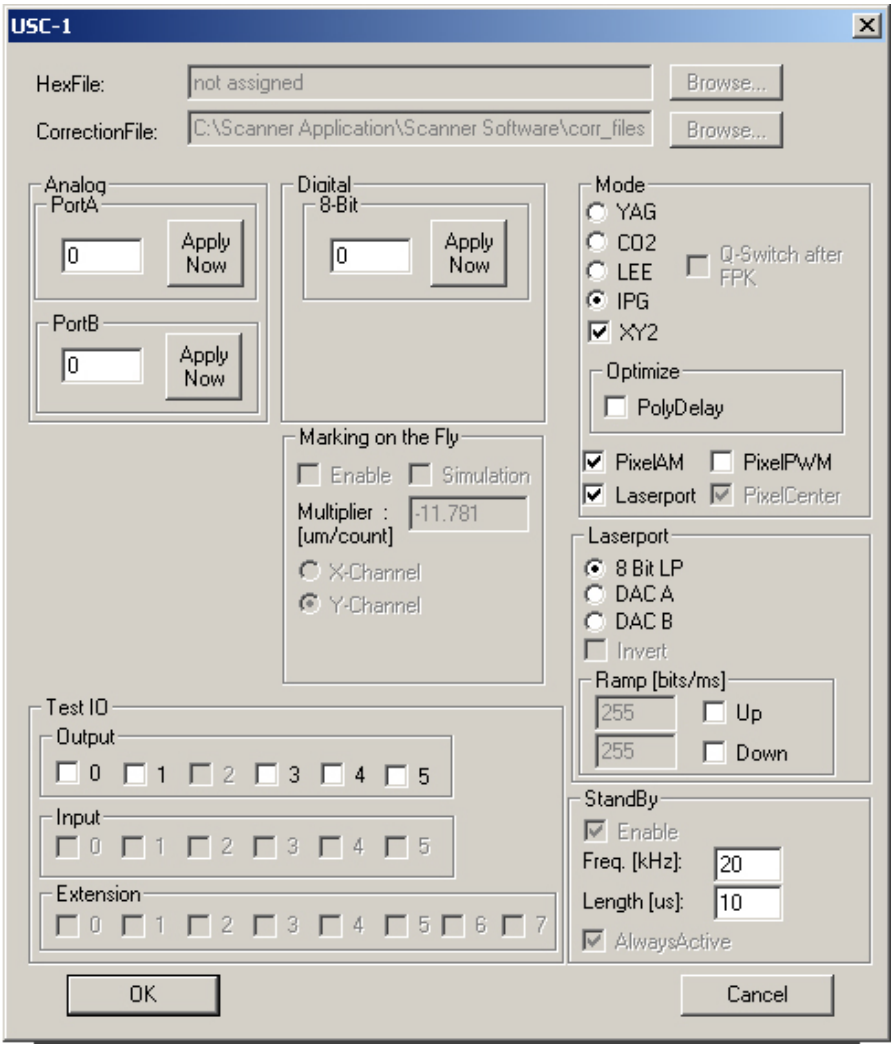
Software Setup for IPG YLP Laser Interface

Go to **Settings** tab and select **System**.

Choose the **Optic** tab and select **Advanced**.

SOFTWARE SETUP FOR IPG YLP LASER INTERFACE (CONTINUED)

Under **Mode**, select **IPG** and check **XY2**; under Laserport, select **8 bit**.

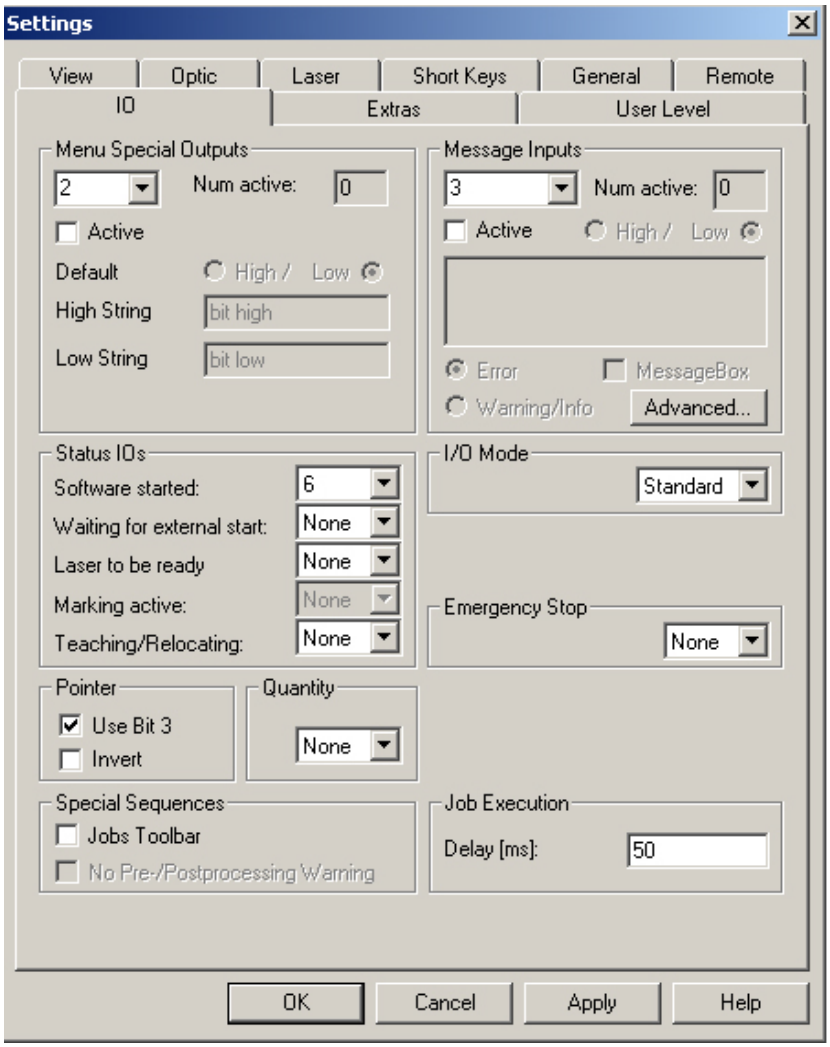


The Standby modulation enabled setting is required for IPG pulsed lasers. However, the user may select the frequency and pulse width. The default values are shown.

Press **OK** to return to the **Optic** tab.

SOFTWARE SETUP FOR IPG YLP LASER INTERFACE (CONTINUED)

Under **Optic**, select the **I/O** tab.



The settings for the Pointer are shown above.

Press **OK**.

The system is ready for use with the IPG YLP laser.

FOLLOWING ALL SAFETY INSTRUCTIONS FOR THE SAFE USE OF LASERS, YOU MAY NOW TURN ON THE SCAN HEAD AND LASER POWER SUPPLIES.

ADDITIONAL NOTES:

Interlock

In order for the laser to fire, a safety stop connection must be made between pins 8 and 15 of the I/O connector on the Pipeline. Refer to the Pipeline manual for more information.

Key Switch

In order for the laser to fire, the key switch on the Pipeline must be in the ON position. ***There is a 5-second delay before the laser will be enabled.***

Pointer

In order for the main laser to fire, it is necessary for the pointing laser to be switched off. This can be done automatically in the WaveRunner software. On the Mark menu, the feature **Switch Off During Mark** must be selected to use this functionality.

Opto Output 3

When using this type of laser, Opto Output 3 is dedicated to control the pointer function. It is not available for user programmable functions.

Correction File

The correction file for the lens type in use must be set; see the **Settings/System/Optic** tab.

Shutter

It is the responsibility of the customer to provide current to the shutter assembly when it is safe for the shutter to be open. To open the shutter, supply 15-24 volts to the pins indicated. (See document 82-0117 schematic on the next page.)

SCHEMATIC OF CONNECTIONS FROM PIPELINE TO IPG YLP LASER