Installing the Model 610034 LASERPULSE Synchronizer

Sections

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Installing the Model 610034 LASERPULSE Synchronizer

This section gives instructions on how to install the Model 610034 LASERPULSE Synchronizer and how to connect it to the computer and external devices.

The Synchronizer is the imaging system's timing and control module. It connects to the Computer, Frame Grabber, Camera, Laser, Image Shifter, External Trigger, and External Devices. A system may have some or all of these components and the Synchronizer connects to all these devices and synchronizes their operation.

Since there are a number of components, each with unique features, that can be connected to the Synchronizer, detailed instructions on how to connect them are provided in the individual installation manuals for each of these components. Refer to these manuals for further details.

The Synchronizer is controlled through the INSIGHT software.

Manufacturer's Declaration of Conformity

TSI Incorporated hereby certifies that, to the best of its knowledge and belief,

- ❑ The product documented in this manual meets the essential requirements and is in conformity with the relevant EC Directive(s).
- ❑ The CE Marking has been affixed on the device.
- ❑ The Declaration of Conformity certificate is included with the instrument.

Refer to the *About This Manual* section for details on safety labels.

Scope

After completing this section, you will have done the following:

- ❑ Installed the Synchronizer.
- ❑ Connected the Synchronizer to the computer.

Unpacking and Checking the Packing List

Carefully unpack the Model 610034 LASERPULSE Synchronizer making sure it arrived in a good condition. Do ***not*** discard the case. If the Synchronizer needs to be shipped back to TSI for repair or service, it ***must*** be returned in this case.

If there are signs of damage, contact the nearest TSI sales office or representative or the Fluid Mechanics Division at TSI. See “Service Policy” on the Warranty page at the beginning of this manual for further details.

Compare all the components you received with those listed in Table 1. If any parts are missing, contact TSI. See "Getting Help" in *About This Manual* section for the address and phone number.

Table 1
Packing List for the Model 610034 LASERPULSE Synchronizer

Qty	Model Number	Description	Part Number
1	610034	LASERPULSE Synchronizer System *including*	
		1 RS-232 9-Pin, 12-ft Cable	1303236
		1 Power Cord	1303053

Assumptions

At this point in your system installation, TSI assumes you have completed these steps:

- ❑ You have set up your computer system and installed and tested the INSIGHT software
- ❑ The Frame Grabber is installed and tested.

WARNING

Do *not* turn the laser on during any of the steps given in this section of the PIV systems manual.

Installation Overview

To install the Synchronizer, you need to complete the following steps:

Step A. Connect the computer to the Model 610034 LASERPULSE Synchronizer.

Step B. (*Optional*) Connect any external devices you may be using in your experiment, to the Synchronizer.

Caution

If the Model 610034 LASERPULSE Synchronizer is used in a manner *not* specified by TSI, the protection provided by the equipment may be impaired.

Step A: Connecting the Computer to the Synchronizer

This step involves connecting the Synchronizer to the computer through an RS-232 interface.

1. Check the fuse in the back panel of the Synchronizer and make sure it is correct for your electricity. Refer to Appendix A for information on how to check the line voltage and fuse.

Caution

After making all the connections, make certain the line cord is plugged into a grounded power outlet. Make sure the main power is switched off when you plug or unplug the line cord.

2. Plug in the power cord into a power source. The Synchronizer has an auto-sensing power supply that detects the line voltage. Electricity from 100 V to 240 VAC, 50 Hz to 60 Hz can be used.

Note: *The Model 600066 Frame Grabber uses an auxiliary input with a 9-pin D-connector for the frame grabber trigger. In the following step, do not attach the RS-232 cable to the Frame Grabber trigger.*

3. Turn off the power to the Synchronizer and computer. Attach one end of the RS-232 cable to **COM 1** or **COM 2** on your computer. These serial ports are usually 9-pin D-connectors. However, some computers use a 25-pin D-connector and you will need a 9-pin to 25-pin adapter to make the connection.

4. Record the RS-232 computer port information. You will need to enter this information in the INSIGHT software to complete the connection between the Synchronizer and the computer.

5. Attach the other end of the RS-232 cable to **RS- 232 Port A** on the back panel of the Synchronizer.

6. Turn on the power to the Synchronizer.

7. Turn on the power to the computer. Open the Windows program and double-click on the INSIGHT icon to start the program.

8. Setup the Com Port you connected for the Synchroizer in INSIGHT software.

10. View the Status bar at the bottom of the dialog box for any error messages. If the Synchronizer and Computer are properly connected, the status bar displays the Synchronizer's revision number and the message, **`Synchronizer Ready`**.

If the connections are not made properly, the error message, **`Synchronizer Not Responding`** appears. Check the connections again

11. Save the settings by pressing the **Apply** button in the bottom of the Synchronizer Setup dialog box.

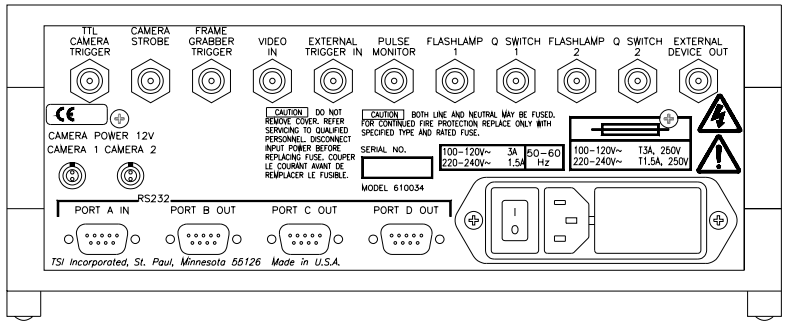

Figure 1
Synchronizer Back Panel

Step B: Connecting an External Device to the Synchronizer (Optional)

Connect any external device, such as a seeder to **the External Device Output** on the Synchronizer.

Review the following information if you are using an external device in your PIV system:

- The signal from the External Device Output is a TTL signal that goes active before the start of an image capture sequence and stays active for duration of the laser pulsing. You can use this, for example, to turn the seeding system on just before a sequence of images are acquired and then to turn it off.
- The External Device Output signal is designed to just trigger an external device and does not have enough current to run the device. Make sure any external devices you are using are powered by a relay circuit.
- You can activate or deactivate the External Device Output signal in the INSIGHT software screen. Refer to the INSIGHT software manual for further details.
- You can set the polarity of this output in the INSIGHT software:

Option	For
+	TTL High
–	TTL Low

Next Step

Once the Synchronizer is installed, the next step is to install the Laser. Refer to *Laser Installation* for details.

If you have ordered additional components, also refer to *Options/Additional Components.*