

Pre-Installation Guide for Sirah Matisse®



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Table of Contents

Introduction	3
When the System Arrives.....	4
Inspection.....	4
Review Instruction Manuals.....	4
Laser Safety Considerations	4
Diagnostics	4
Pre-Installation Considerations.....	5
Location and Environment.....	5
Pre-Installation Considerations (Continued).....	6
Physical Description	6
Utility Requirements	6
Computer Requirements.....	6
Pre-Installation Checklist	7
Physical Locations:	7
When Your System Arrives:	7
Maintenance Agreement	8
Cooling Mixture.....	8
Filter	8
Chiller Fluid	8
General Procedures	8
Required Maintenance	9
Laser measurement equipment.....	9
Service Box	9
Required Maintenance (Continued)	10
Service Box (Continued).....	10
Preventative Maintenance.....	10

Introduction

Thank you for purchasing a Sirah Matisse. This brochure describes the pre-installation information for your laser system. Within one week of your delivery date, you will receive a call from one of our factory trained Customer Service Engineers.

Some preliminary planning is essential to avoid unnecessary delays during installation and to ensure easy operation and access to your system. You are requested to carefully consider your operating environment prior to installation. Proper water, power, and room temperature are required for each system.

A detailed checklist of pre-installation considerations is provided in this brochure. You are responsible for meeting these requirements prior to installation, with due consideration given to all applicable building and safety codes.

We at Spectra-Physics intend to provide you with responsive support so that you can derive great satisfaction and value in using our systems for your applications. We are available to you at 1- 800-456-2552 or service@spectra-physics.com for Technical Support.

When the System Arrives

Inspection

When the system arrives, any sign of damage to the shipping crates should be brought to the attention of the delivering freight company and noted on the invoice before signing the invoice. A claim must be filed with that commercial carrier (usually within 30 days).

Immediately notify the originating Spectra-Physics office of any shipping damage. Open any damaged packages to inspect the contents only at the direction of Spectra-Physics. Equipment damage due to abuse in shipping is not covered by Spectra-Physics.

Your packing list will show all items that you have ordered. Check the received items against your packing list. Multiple items may be contained in the same box. Each item should be verified at the time of installation. Do not open the packaging to look for components.

Please report any missing or damaged items to Spectra-Physics at 1-800-456-2552 or service@spectra-physics.com. You should also contact your Spectra-Physics Field Sales Engineer at 1-800-775-5273 or sales@spectra-physics.com.

Review Instruction Manuals

Each system comes with a User's Manual. Please read the manual to get vital information about your system. Familiarize yourself with the system. You are encouraged to spend as much time as possible reviewing the system manual before your Spectra-Physics' Customer Service Engineer arrives for the installation and training.

Laser Safety Considerations

In addition to reviewing the sections in the manual regarding laser safety, be sure to have the proper safety glasses available for ALL lab personnel present during the installation and testing of your system. For more information, please call Spectra-Physics at 1-800-456-2556.

Diagnostics

During installation, power measurements will be demonstrated on all the standard wavelengths. Your Customer Service Engineer can identify any other specifications that will be demonstrated and the equipment necessary to conduct the tests. A non-standard system will require special consideration.

To have other published specifications demonstrated, consult with your Customer Service Engineer prior to system installation, to determine whether additional diagnostic equipment will be required.

Basic diagnostic equipment such as a power meter and spectrometer are required to maintain the laser system. We recommend that you obtain this basic diagnostic equipment before the system is installed. For assistance in the selection of the proper diagnostic equipment, please contact Newport at 1-800-222-6440 or sales@newport.com.

Pre-Installation Considerations

Location and Environment

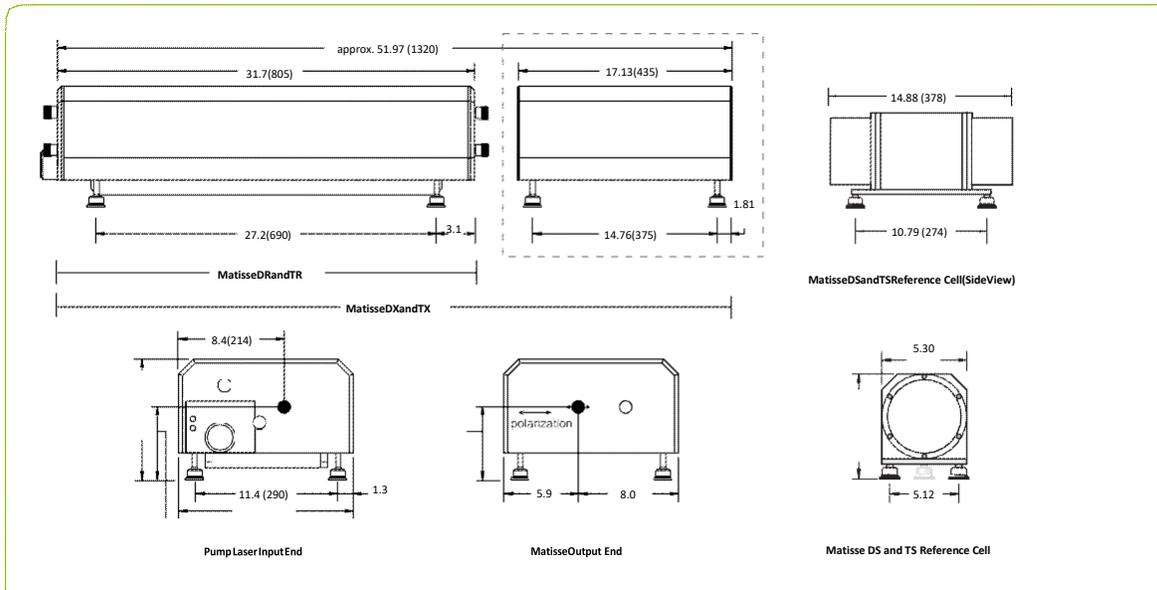
The system installation laboratory environment should provide the following attributes:

- A. A safe location that meets all applicable building codes.
- B. Easy access with adequate clearance around the instrument.
- C. An optical table that will meet the space requirement of the instruments to be installed.
- D. Proper laboratory temperature regulation, including sufficient air conditioning to remove the waste heat of the laser. For certain applications ambient room temperature changes may be an important factor for the laser system's performance. Air ducts should not blow directly on laser or optical path.
- E. To ensure stable day-to-day operation, the recommended minimum and maximum operating room temperature is 20 - 25°C. Ideal room temperature is 22°C. Room temperature fluctuations should not exceed $\pm 1^\circ\text{C}$ during any two-hour period. See specifications in Table 1-1 and table 1-3 in the User's Manual.
- F. In some applications vibration isolation may be required for your system. Structural integrity of the flooring could play an important role. Please evaluate any need for this, prior to system installation.
- G. Please note that the laser head is very heavy and requires a sturdy and stable optical table.
- H. The authorized pump laser and the Matisse[®] must be installed on the same optical table, to ensure correct operation.

Consider room requirements for future maintenance and upgrades by your Spectra-Physics' Field Service Engineer.

Pre-Installation Considerations (Continued)

Physical Description



Utility Requirements

CE Electrical Equipment Requirements

AC power input: 100 .. 240 VAC 50/60 Hz Power Consumption: max. 150 W

Computer Requirements

The Millennia GUI and Matisse Commander programs runs on Windows XP, Windows Vista 32/ 64bit / 7 32 /64bit and 8 32/64bit versions. Installing the program requires Administrator privileges. A USB port is needed to connect the laser to the PC.

First install the software by executing setup.exe in the Matisse Commander Installer subdirectory, then connect the laser to the computer. Windows should detect the new device and ask for a driver. Let Windows execute an automatic search.

The Matisse Commander is based on LabVIEW 2012, for device communications National Instruments' VISA software is used. Corresponding required software (LabVIEW runtime 2012, VISA runtime 5.3 or higher, etc.) will be installed or updated during the Matisse Commander installation, if no appropriate software is already present on the computer.

To use the Millennia GUI and Matisse Commander control programs, Microsoft Windows 7, 8, or 10, 32-bit or 64-bit based host computer must meet these minimum requirements:

Pentium processor or newer, 1 GHz or higher 1 GB RAM

30 MB available disk space for installation a mouse or other Windows-compatible pointing device

Pre-Installation Checklist

Before the arrival of your Spectra-Physics' Service Engineer please review the following pre-installation requirements. When all the requirements have been met, initial the boxes and fax a signed copy to the Spectra-Physics Service department at (408) 980-6921.

Physical Locations:

- A location with adequate clearance around system to conduct service and accessible by Spectra-Physics personnel.
- A temperature-controlled room.
- Utility services have been installed.
- Local building and safety codes are in compliance and have been verified.

When Your System Arrives:

- ✚ Check crates for damage.
(If damaged, file a claim with the carrier and notify Spectra-Physics.)
- ✚ Uncrate and place the system on your work surface.
(Two or more people may be required to lift some equipment.)
- ✚ Compare the packing list with your quotation. Call your Spectra-Physics office about any discrepancies.
- ✚ Check that all manuals were received.
- ✚ Save all packing and shipping material until the installation has been completed.
- ✚ Obtain the correct safety glasses and a power meter.

Customer Signature

Date

Phone Number

Fax Number

Email

Sales Order Number

Maintenance Agreement

Cooling Mixture

To maintain a valid warranty on your Spectra-Physics system, it is necessary for the customer to assume the responsibility and perform the routine maintenance program. Failure to do so may result in the warranty being voided.

Filter

The Rack Mount Chiller uses a 10 Micron Particle Filter (P/N 2604-0490). It should be inspected every 3 to 6 months and changed when dirty or no longer able to rinse clean.

Chiller Fluid

The chiller fluid level should be appropriate for the model laser and must meet Spectra-Physics specification requirements. Insufficient cooling could result in a decrease of performance or damage to the laser system. Steam distilled water should be used. An anti-algae additive may be used.

*NOTE: to restrict the growth of algae in the reservoir, it is recommended that the reservoir cover be kept in place and that all circulation lines be opaque. This will eliminate the entrance of light that is required for the growth of most common algae.

CAUTION: DO NOT USE DEIONIZED WATER

General Procedures

The chiller operation of the laser system should be checked once a week. The power output and the mode-locking of the system should also be checked once a week by verifying the output values.

If any of the output characteristics have changed, please call Spectra-Physics Technical Support at 1-800-456-2552.

Required Maintenance

Laser measurement equipment

The following equipment should be on hand when installing, or maintaining the system:

- ✚ • Infrared (IR) viewer, such as FJW Model “Find-R-Scope”
- ✚ • A spectrometer with the appropriate software, such as Ocean Optics Model USB2000+ spectrometer with grating #H4 (600 lines/mm, wavelength range 680- 1080 nm, 400 nm spectral range) with slit width of 25 μm and 400 μm NIR fiber with Model CC-3 VIS/NIR opaline glass cosine corrector.
- ✚ • Power meter and sensor are required to measure the laser output, such as the Ophir Juno+
- ✚ • USB Interface and sensor. BeamTrack series 10A-PPS laser measurement sensor is adequate to measure the optical power.

The StarLab application together with an Ophir meter turns your PC or laptop into a full-fledged laser power/energy meter.

Service Box

The following components comprise the Matisse laser system:

- Matisse* laser head
- Matisse* electronics box
- Matisse* Service Box
- Matisse* dye circulator system (only for dye laser version)

Further components may be supplied together with the laser system, according to the packing list.

Each *Matisse* laser is delivered together with a Service Box, containing some laser accessories and service tools for your everyday work with the laser, as well as some spare parts. The following items are included in your Service Box:

Installation Accessories

- 1 x Matisse Laser Manual
- 1 x Sirah DVD including the Matisse Commander installation package
- 1 x Mains cable
- 1 x USB cable
- 4 x Laser fixing clamps
- 1 x Filter for purging the laser head
- 1x Beam tube, to be installed in between pump laser and Matisse
- 2x Laser warning signs

Required Maintenance (Continued)

Service Box (Continued)

Service Accessories

- 1 x Set of metric Allen head keys 1.5, 2, 2.5, 3, 4, 5 mm
- 1 x Set of neutral density filters, for Matisse laser head diodes
- 1 x Tool 1 : Pump mirror pin- holes
- 1 x Tool 2 : Lyot filter dummy
- 1 x Tool 3 : **Piezo Etalon** dummy
- 1 x Tool 4 : Beam overlap tool
- 1 x Tool 5 : Pump beam filter (Ti:Sa laser only)
- 1 x Tool 6 : Mirror mount ring

Spare parts

- 1 x Set of spare O-rings, 25 mm x 1.5 mm and 25.1 mm x 1.6 mm, for mounting of mirrors

Additionally, depending on the configuration of your laser, the Service Box may contain further items, which are indicated in a list included in the box.

Preventative Maintenance

To keep your laser at optimal performance, the following steps should be taken approximately every 6 months;

- Check that Millennia pump in Matisse is making rated power at 100% current.
- To ensure pump is optimal, press the AUTO Tune to adjust temperature for optimal pump power, in Diagnostics tab. This function is available after the laser has been on for 30 minutes; a countdown is available.
- Chiller water and filter should be changed, and air filters should be cleaned.

Verify that the chiller is set to the appropriate temperature, and good coolant level.

Reference the Millennia and Matisse User's manual that came with your system. It is recommended you read the entire manual before operating the laser system.