



Blue LED Pulsed Light Source LS-475

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Offices:

Ocean Optics, Inc.

830 Douglas Ave., Dunedin, FL, USA 34698

Phone 727.733.2447

Fax 727.733.3962

8 a.m.– 8 p.m. (Mon-Thu), 8 a.m.– 6 p.m. (Fri) EST

Ocean Optics Mikropack

Maybachstraße 11, D73760, Ostfildern, Germany

Phone +49 (0)711 34 16 96-0

Fax +49 (0)711 34 16 96-85

| | | |
|----------------|------------------------------------|------------------------------------|
| E-mail: | Info@OceanOptics.com | (General sales inquiries) |
| | Info@Mikropack.de | (Mikropack sales inquiries) |
| | Orders@OceanOptics.com | (Questions about orders) |
| | TechSupport@OceanOptics.com | (Technical support) |

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Important Safety Notices

1. Do not remove or modify any installed safety device on this equipment. Doing so will void your warranty and create an unsafe operating environment.
2. Dangerous voltages are present in this device. There are NO user serviceable parts inside.
3. Only allow qualified personnel to service this unit.
4. Do not use the unit if it is damaged in any way. Contact your dealer for repair or replacement information.

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About This Manual

Document Purpose and Intended Audience

This document provides you with an installation section to get your system up and running.

What's New in this Document

This version of the *Blue LED Pulsed Light Source LS-475 Installation and Operation* updates the logo and the contact information.

Document Summary

| Chapter | Description |
|---|--|
| Chapter 1: Setup | Contains a list of package contents and unpacking instructions. |
| Chapter 2: LS-475 Specifications | Contains operating environment specifications, as well as other physical details of the product. |
| Chapter 3: Operating Instructions | Provides instructions for setting the LS-475 to operate in Continuous and Pulsed Mode. |

Product-Related Documentation

You can access documentation for Ocean Optics products by visiting our website at <http://www.oceanoptics.com>. Select *Technical* → *Operating Instructions*, then choose the appropriate document from the available drop-down lists. Or, use the **Search by Model Number** field at the bottom of the web page.

You can also access operating instructions for Ocean Optics products on the *Software and Technical Resources* CD included with the system.

Engineering-level documentation is located on our website at *Technical* → *Engineering Docs*.

Upgrades

Occasionally, you may find that you need Ocean Optics to make a change or an upgrade to your system. To facilitate these changes, you must first contact Customer Support and obtain a Return Merchandise Authorization (RMA) number. Please contact Ocean Optics for specific instructions when returning a product.

Chapter 1

Setup

Overview

The following sections provide instructions on unpacking and setting up your LS-475 Blue LED Pulsed Light Source.

Before using the LS-475 for the first time check for transport damage. Be sure to adhere to all warnings on the unit and in this manual.



Unpacking the LS-475

► Procedure

1. Unpack your lamp assembly carefully. Although the blue LED lamp is rigidly mounted, dropping this instrument can cause permanent damage.
2. Inspect the outside of the instrument and make sure that there is no damage. Do not use the instrument if damage is present. Contact your dealer for repair or replacement information, if necessary.
3. Use this instrument in a clean laboratory environment (see [Operating Environment](#)).

Contents

Your LS-475 package should contain the following:

- ❑ LS-475 Blue LED Pulsed Light Source
- ❑ One IC-DB15-2 interface cable for shutter operation

Additionally, you will need an approved power supply for the LS-475, such as the Mikropack PS-12V/1.25A power supply.

General Configuration

► Procedure

To set up your LS-475,

1. Plug the power supply into an outlet and into the back of the LS-475
2. Screw an optical fiber onto the SMA connector on the front of the light source.

Chapter 2

LS-475 Specifications

This section provides information on the operating environment and physical components of the LS-475.

Operating Environment

The following table provides information on optimizing the operating environment of your LS-475.

| Operating Environment | The LS-475 Unit . . . |
|-------------------------|--|
| Moisture | Is designed for operation in dry rooms only. |
| Ventilation | Should be situated so that its location or position does not interfere with proper ventilation. |
| Heat | Should be situated away from any device that emits excessive heat. |
| Object and Liquid Entry | Should be positioned so that objects do not fall on top of the unit. Additionally, ensure that no liquids are spilled into the enclosure through openings. |
| Power Sources | Should be connected to an approved power supply, such as the Mikropack 12 VDC 1250mA analog regulated power supply (PS-12V/1.25A) |

LS-475 Components

The following sections describe the components located on the front and rear of the LS-475 unit.

Front Panel



Fiber Optic Connector
– SMA 905 Compatible

Rear Panel



Power Input 12VDC

SUB-D 15 Pin
Connector

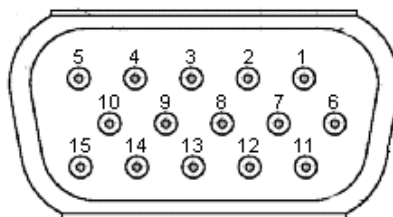
ON/OFF/TTL Switch

Pinout Information

The following table contains pinout information for the LS-475.

| Pin | Description |
|---------------------|------------------------------|
| 1 | na |
| 2 | na |
| 3 | na |
| 4 | na |
| 5 | na |
| 6 | na |
| 7 | na |
| 8 | na |
| 9 | na |
| 10 | Ground |
| 11 | na |
| 12 | na |
| 13 | TTL Signal – Shutter control |
| 14 | na |
| 15 | na |
| na = not applicable | |

Pinout Diagram



Operating Instructions

Overview

The following sections provide instructions on operating the LS-475 Blue LED Pulsed Light Source.

Using the Continuous Mode

Continuous Mode means that the light coming from the LS-475 is continuous (not pulsed).

► *Procedure*

To set the LS-475 for Continuous Mode operation,

1. Move the switch on the back of the LS-475 to the ON position.
2. Move the switch to the OFF position to turn the lamp off.

Using the Pulsed Mode

The pulsing of the LS-475 is controlled through the Ocean Optics S2000 Spectrometer.

► *Procedure*

To set up the LS-475 for Pulsed Mode operation,

1. Plug one end of the supplied IC-DB15-2 accessory connector cable into the back of the LS-475 and the other end into the S2000 Spectrometer.
2. Move the switch on the back of the LS-475 to the TTL position. This places the light source in Pulsed Mode.

Enabling Pulse Mode on an S2000 Spectrometer

► Procedure

To enable Pulse Mode on the S2000 Spectrometer,

1. Remove your spectrometer from its housing. Do not tamper with the optical bench.

Note

If you have more than one channel in your system, you may have to disconnect the channels from one another. The master spectrometer is always on the bottom of a multiple channel system.

2. Locate jumper block 3 (JP3) in the center of the green circuit board. Jumper Block 3 consists of 10 pins labeled by rows (/16, /14, /12, /10 and 2). The configuration of these pins control the pulse frequency on the A/D converter connected to the S2000. The default factory setting is /16.
3. Configure the jumpers in JP3 for the desired pulse frequency.

Table 1 illustrates the various configurations of JP3 pins and their associated pulses per second.

Table 1: JP3 Configuration and Pulse Frequency

| S2000 JP 3 Post # | DAQ 700 Frequency (Hz) | ADC500 / SAD500 Frequency (Hz) | ADC1000 Frequency (Hz) |
|-------------------|---------------------------|-----------------------------------|---------------------------|
| /16 | 98.0 | 488.0 | 976.0 |
| /14 | 24.0 | 122.0 | 244.0 |
| /12 | 6.1 | 30.0 | 60.0 |
| /10 | 1.5 | 7.6 | 15.2 |

For example, if you have an ADC1000 A/D converter, you have four choices for pulse frequency from the LS-475: 976, 244, 60 and 15. If you choose to configure 244 pulses per second, place a jumper over the pins next to the /14 label.

When using the pulsed flash mode, you must ensure that the number of flashes is constant for every integration cycle. To achieve a constant number of flashes per integration cycle, the integration time must be a multiple of that shown in Table 2. Integration times are set in the OOIBase32 software. See the *OOIBase32 Spectrometer Operating Software, Operating Instructions* for more information.

Table 2: A/D Integration Time Specifications

| S2000 JP3setting | Integration time for DAQ 700 Must be a multiple of: | Integration time for ADC500 / SAD500 Must be a multiple of: | Integration time for ADC1000 Must be a multiple of: |
|-----------------------------|--|--|--|
| /16 | 512 | 128 | 64 |
| /14 | 128 | 32 | 16 |
| /12 | 32 | 8 | 4 |
| /10 | 8 (with a min value of 24ms) | 4 | 4 |

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