



Filter- and Cuvette-Holder with Attenuator and TTL-Shutter FHSA-TTL

Installation and Operation Manual

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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.– 6 p.m. (Mon – Fri) ET

Ocean Optics GmbH

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)
	Sales@OceanOptics.eu	(GmbH sales inquiries)
	OrderDesk@OceanOptics.eu	(Questions about orders)
	TechSupport@OceanOptics.eu	(Technical support)



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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 *Filter- and Cuvette-Holder with Attenuator and TTL-Shutter Installation and Operation Manual* updates the product photo, contact information, and package contents.

Document Summary

Chapter	Description
Chapter 1: Setup	Contains package contents and instructions for unpacking, setting up and adjusting the optical power of your FODS unit.
Chapter 2: FHSA-TTL Specifications	Contains operating specifications and pinout information.

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

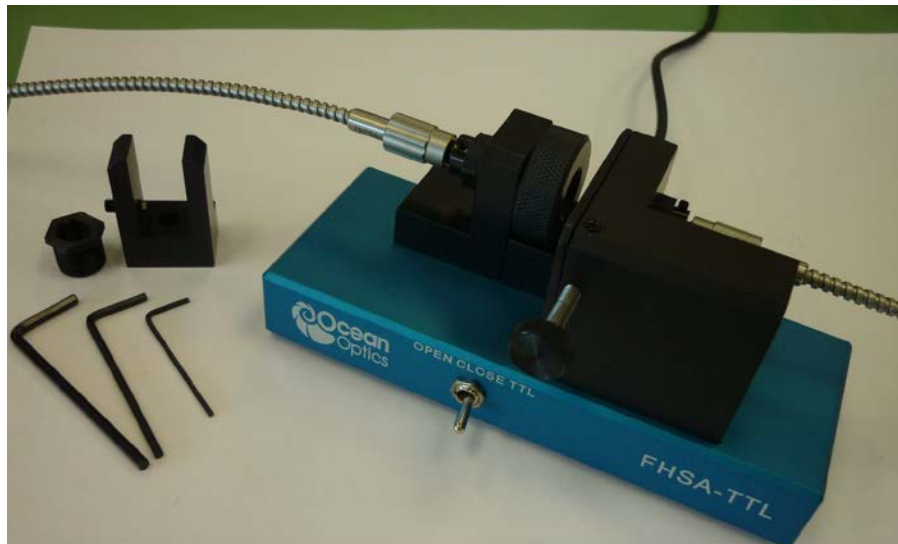
Occasionally, you may find that you need Ocean Optics to make a change or an upgrade to your system. To facilitate these changes, you must first contact Customer Support and obtain a Return Merchandise Authorization (RMA) number. Please contact Ocean Optics for specific instructions when returning a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

Chapter 1

Setup

Overview

The following sections provide instructions on unpacking, setting up and adjusting your Filter- and Cuvette-Holder with Attenuator and TTL-Shutter (FHSA-TTL).



Unpacking the FHSA-TTL Unit

► Procedure

1. Unpack your new equipment carefully. 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.

Contents

Your package should contain the following:

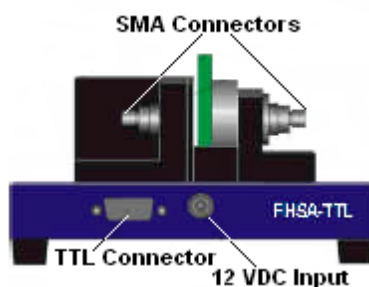
- ❑ FHSA-TTL device
- ❑ One IC-DB15-2 interface cable for shutter operation
- ❑ Power supply 12 Vdc @ max. 1500 mA
- ❑ Allen wrench key (SW1.3, SW2.0 and SW2.5)
- ❑ Cuvette holder
- ❑ 74-UV-mount for cuvette holder

Setup

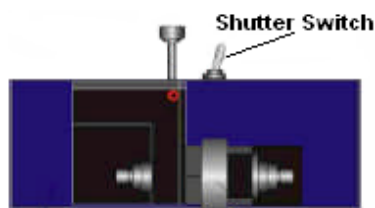
► Procedure

To set up your FHSA-TTL device,

1. Plug the power supply into the main connection.
2. Plug the connector of the power supply into the 12 VDC Input connector of the FHSA-TTL device.
3. Remove the SMA connectors protection caps.
4. Attach the SMA connectors on your fibers to the SMA plugs.
5. Plug in the IC-DB-15-2 cable into the TTL connector for automatic TTL-operation (cable included).



6. Set the operating mode using the shutter switch.

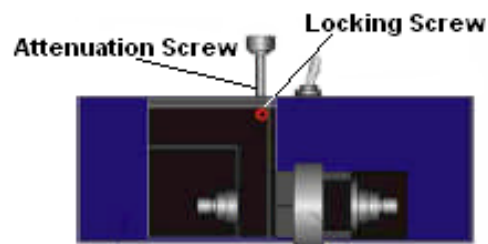


Shutter Switch Positions

Switch Position	Action
OPEN	Shutter open
CLOSE	Shutter closed
TTL	Operation by external TTL signal: <ul style="list-style-type: none"> • HIGH = Open • Low = Closed

Adjusting Optical Power

The FHSA-TTL is adjusted at the factory for maximum power. If lower optical power is required, you can adjust it by turning the attenuation screw clockwise to decrease the power down to 0%.



FHSA-TTL Top View

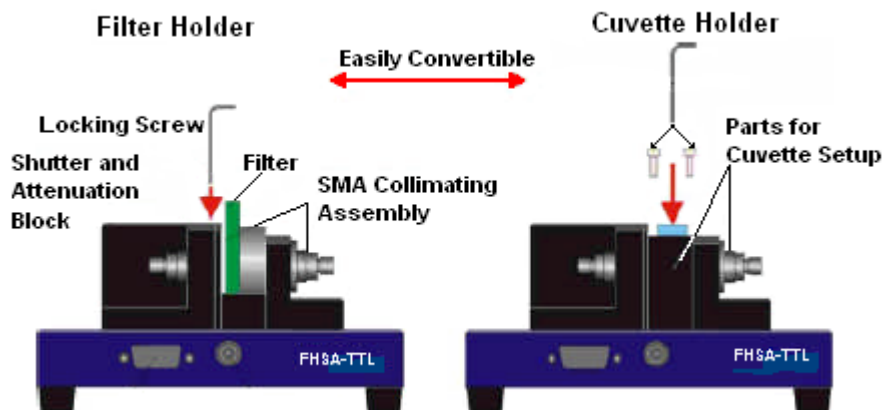
► Procedure

Follow the steps below to adjust optical power:

1. Move the shutter switch to the OPEN position to open the shutter.
2. Connect a fiber optic spectrometer or an optical power meter to one side of the FHSA-TTL.
3. Loosen the locking screw with a hexagonal socket screw key (SW 2.0 mm).
4. Turn the attenuation screw clockwise to decrease optical power.
5. Tighten the locking screw when the optical power has been properly adjusted.

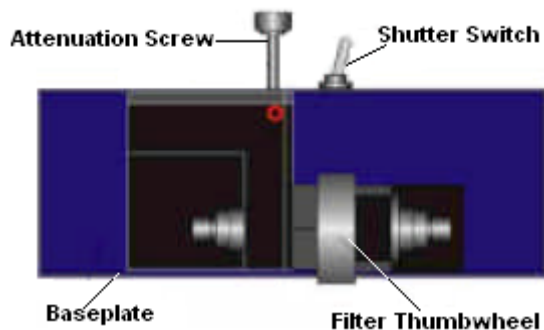
Converting from Filter Holder to Cuvette Holder

The FHSA-TTL device can be used as either a filter holder or a cuvette holder. To convert the unit from filter holder to cuvette holder, use the following procedure.



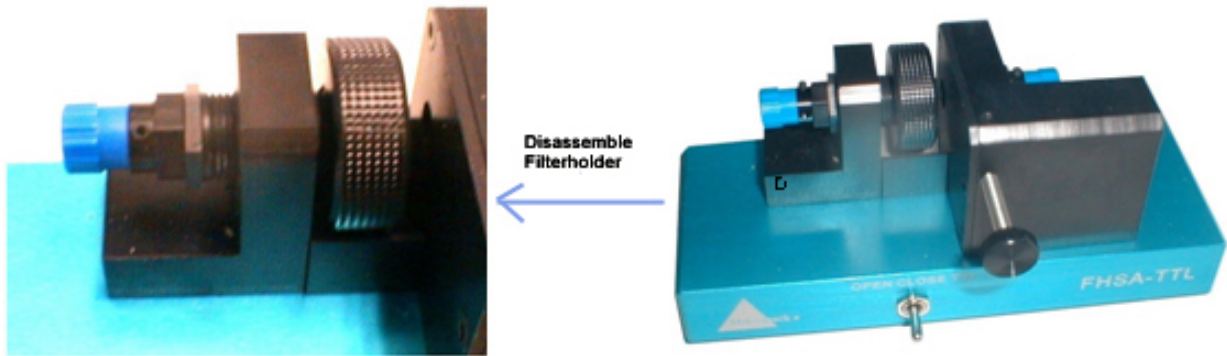
► Procedure

1. Turn the filter thumbwheel all the way to the end.



Filter Holder – Top View

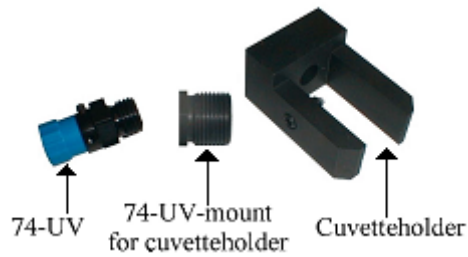
2. Loosen the 74-UV-mount screw and unscrew it out along with the collimating lens.



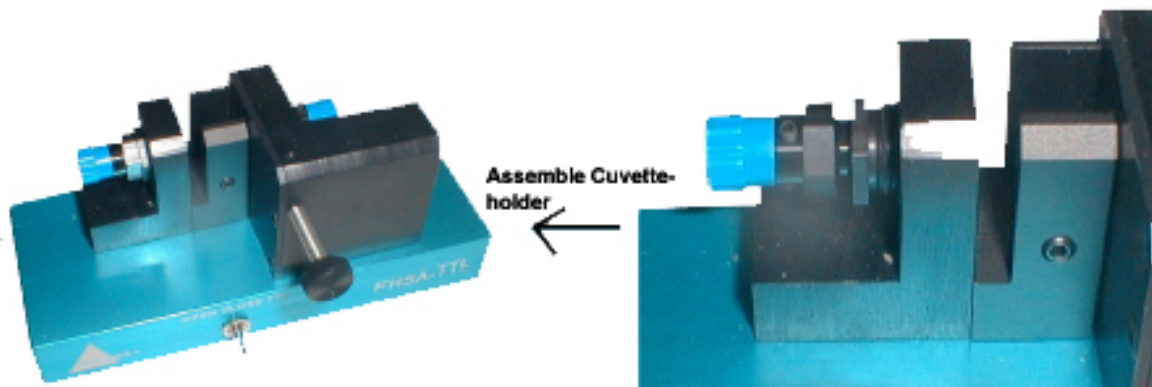
3. Unscrew the SMA Collimating assembly (74-UV, 74-UV-mount, filter thumbwheel, and filterholder) for the filterholder and remove it.



4. Screw in the 74-UV into the 74-UV-mount for the cuvette holder.

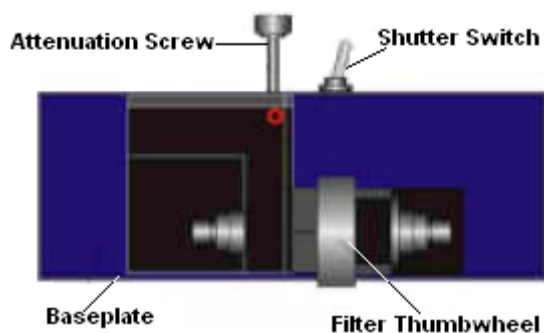


5. Screw the 74-UV-mount for the cuvette holder into the FHSA-TTL.



6. Dismount the filterholder by removing the screws.
7. Replace the filter holder with the cuvette holder.
8. Attach the cuvette holder to the unit with one of the screws.

Inserting the Filter into the Filter Holder

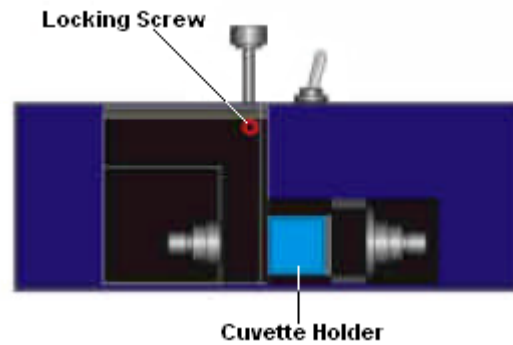


Filter Holder – Top View

► Procedure

1. Insert the filter into the filter slit.
2. Adjust the filter thumbwheel as desired.

Inserting a Cuvette into the Cuvette Holder



Cuvette Holder – Top View

► **Procedure**

1. Insert the cuvette into the cuvette holder.
2. Adjust the cuvette using the plastic-tipped screws.

Chapter 2

FHSA-TTL Specifications

This section provides information on the environmental and physical specifications of the FHSA-TTL. It also provides pinouts for the 15-pin connector.

Note

Modification of specifications and design to improve device performance are possible without notice.

Operating Environment

The following table provides information on optimizing the operating environment of your FHSA-TTL unit.

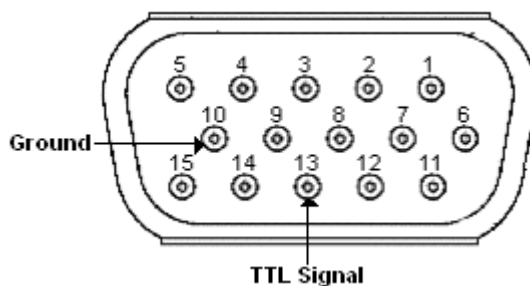
Operating Environment	The FHSA-TTL Unit . . .
Moisture	Is designed for operation in dry rooms only.
Ventilation	Should be situated so that its location or position does not interfere with proper ventilation.
Heat	Should be situated away from any device that emits excessive heat.
Object and Liquid Entry	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)

Specifications

Specifications	Criteria
Spectral Range	UV-VIS
Shutter Input	TTL maximum 5 Hz
Power Requirements	12 VDC
Power Consumption	Maximum 100 mA
Weight	Approximately 600 g
Size	140 x 50 x 50 mm
Filter Holder	Round or rectangular, width up to 7 mm
Cuvette Holder	Standard (10 x 10 mm)

Pinout Information

The following figure contains pinout information for the TTL connector:



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