OtO Photonics
Light Source Datasheet

Description

OtO Photonics provide many kinds of light sources to meet customer's need. Our light sources offer the stable and wide-band spectral output and proper for UV, visible and near infrared region measurement. These light sources are designed for transmittance and absorbance measurement with color information, which is especially suitable for scientific applications on research and development. Moreover, it also can be used in production line and quality control (QC) field.

All light source series are designed to be used in the standard measurement package develop made by OtO. The package contains a robust measurement platform and easy for users to fulfill their light measurement. If user needs to control the light ON/OFF, this light source provides the external I/O which can be controlled by the spectrometer or other host devices. When ON/OFF control is applied, user should consider the warm-up condition of the light source in order to get accurate measurement.

Base on different lamps and optical filtering technique, we offer variety light sources model as below.

Balance Light Series
LS-BA

Halogen Light Series
LS-HA

Deuterium-Halogen Light Series (LS-DH Series)
LS-DH-2

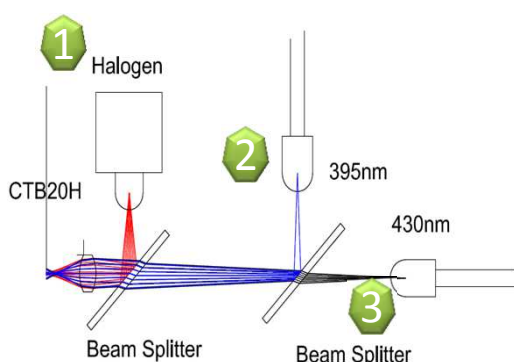# OtO Photonics

Light Source Datasheet

■ Balance Light Series_LS-BA

The balance light source is designed for transmittance and absorbance measurement with color information. Halogen Light source provides the stable and smooth wide-band spectral output. It's proper for most visible to near infrared range measurement. The efficiency of blue region will be enhanced by extra two blue LEDs (as shown in the pictures below).
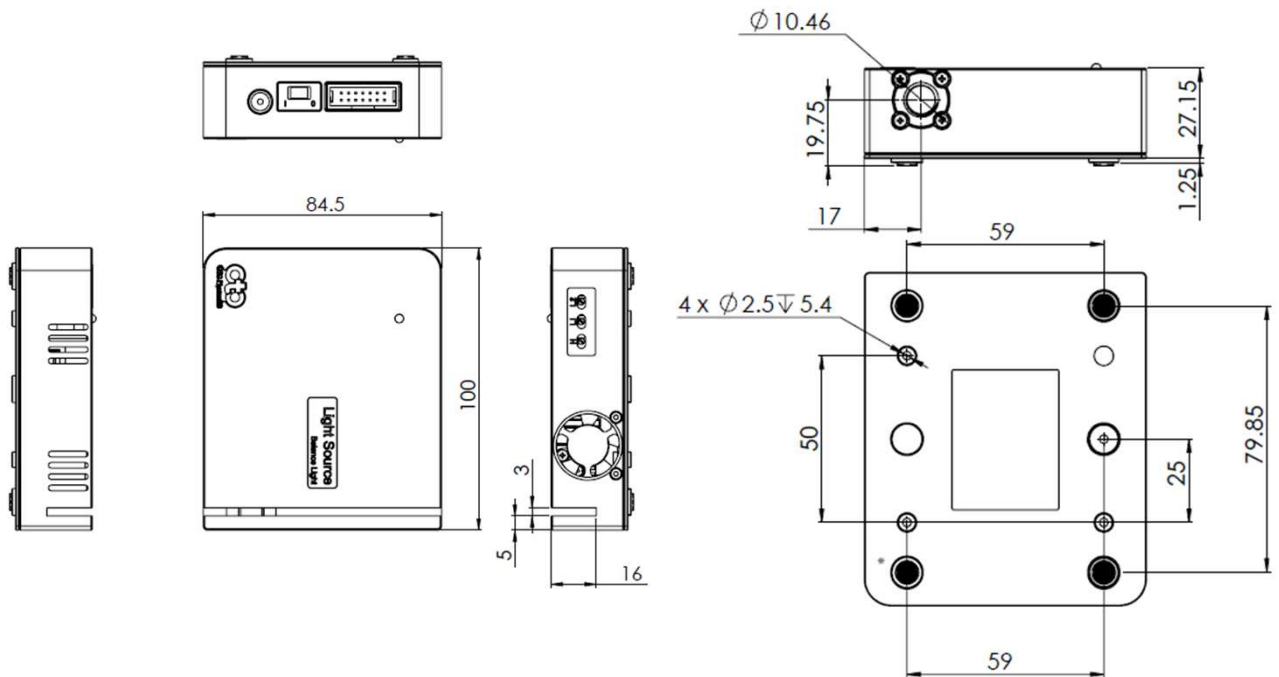

In order to align these three light spots well, the light sources are adjusted accurately. Besides the light spots are optimized, the intensity of each light source is adjusted in balance. It can provide the better measurement result. In some applications, the light source provides the flexibility to compensate the efficiency of the spectrometer.

	Model	LS-BA
Halogen Lamp	**Rated Voltage(V)**	5
	Current(A)	0.97
	Life(hr)	10000
	Color Temperature (k)	2800
LED1	**Forward Voltage(V)**	3.5
	Forward Current(mA)	50
LED2	**Forward Voltage(V)**	3.8
	Forward Current(mA)	30
Power Adapter	**AC input range(V)**	100~240
	DC output voltage(V)	5 (max. 2A

OtO Photonics

- **Drawing**

- **Spectrum**
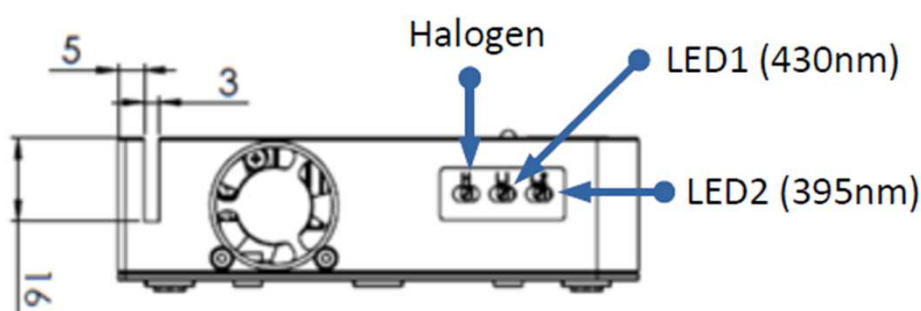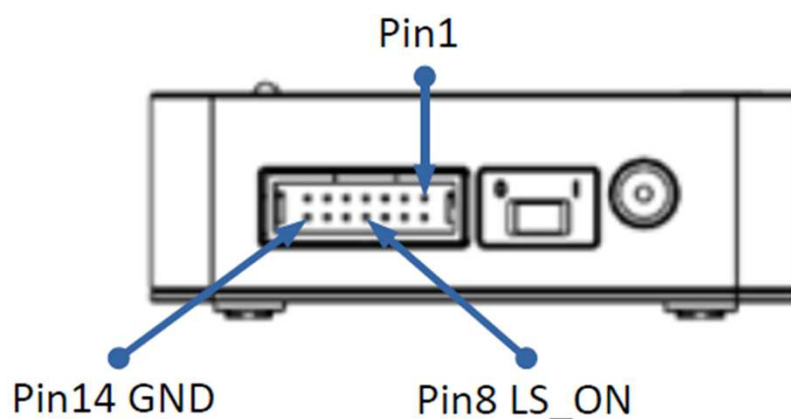
LS-BA

- **Features**

  ➤ Potentiometer Adjustment

  The potentiometers are adjusted in OtO production line to provide the balanced spectrum. The spectrum is related to the measured spectrometer. But if the user needs to adjust it to get another spectrum response, this function is still flexible.

Intensity Adjustment : Halogen、LED1(430nm)、LED2(395nm)

  ➤ I/O Extension Port

  There is one 14pin 2.54mm pitch connector in the balanced light source. This 14pin connector can be connected to SD1220 directly through the 14pin cable. For other spectrometer models, the user can use two pin cable to link the spectrometer and this light source. (Pin8&Pin14) Through the SpectraSmart software or SDK, the user can turn on/off the light source. But the user needs to consider the halogen lamp warm up and stable time.
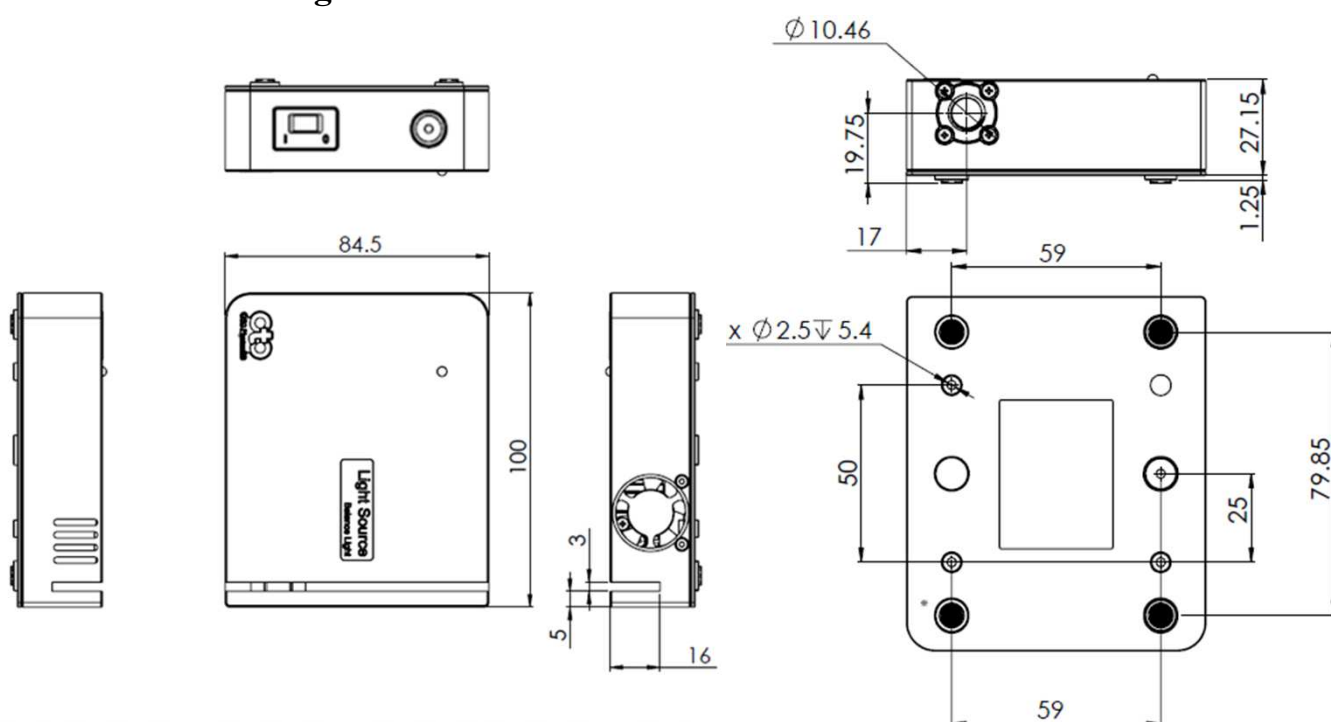
Halogen Light Source Series

Halogen Light source provides the stable and smooth wide-band spectral output. It's proper for most visible to near infrared range measurement. This light source is also designed to be used in the standard measurement package. It 's a simple and quick measurement platform.

Model	Halogen Lamp			
	Wavelength Range (nm)	Stability (AU)	Drift (%/hour)	Rated Voltage (V)
LS-HA	350-1700	0.5%	<0.3	5
	Current (A)	Life (hr)	Color Temperature (k)	Warming-up time
	0.97	10000	2800	0.5 hr

● **Drawing**

● **Spectrum**

Halogen Light Spectrum

The spectrum is measured by OtO Czerny-Turner SE1020-50-VNIR (350-1020nm) spectrometer. Electrical Dark and Linearity Calibration are enabled. Intensity Calibration is disabled.

OtO Photonics

■ Deuterium-Halogen Light Source Series

The LS-DH series is a combination of Deuterium Light source and Halogen light source. Deuterium light source is proper for UV range measurement and Halogen light source is proper for visible and near infrared region measurement. The light source output is standard SMA905 and can be attached to the fiber directly.

Besides the Deuterium light source and Halogen light source can be turned on/off independently, there is one mechanical shutter can be controlled. The user can manually control the light source or send the signal to control it by the software. When ON/OFF control is applied, user needs to consider the light source warm up condition in order to have accurate measurement. The typical warming-up time for Halogen light source is around 15~30mins.
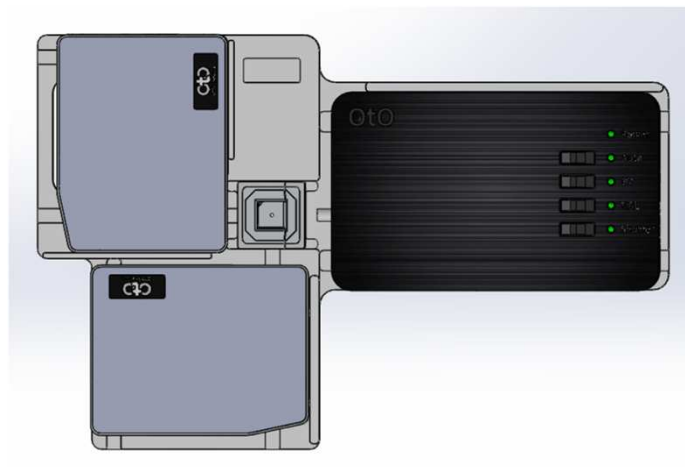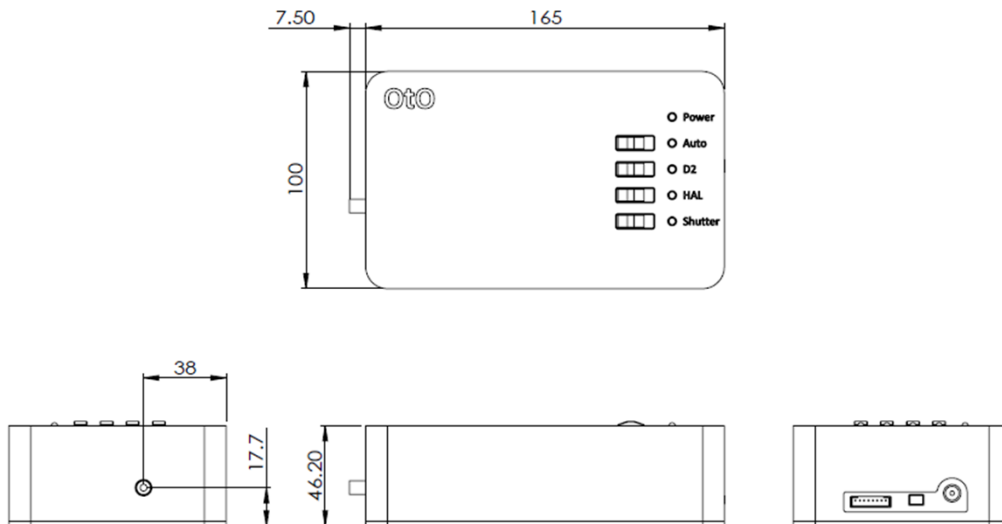
LS-DH series is also designed to be used in the standard measurement package. It 's a simple and quick measurement platform. There is one cuvette holder where user can put the cuvette or lens to do the measurement on the measurement platform.

Model		LS-DH-2
Aperture		0.5
Spectral Distribution (nm)		200-2500
Drift		<0.25 % /hour
Deuterium Lamp	Power consumption (W)	5
	Stability (AU)	<0.1%
	Life (hr)	>1000
Halogen Lamp	RatedVoltage (V)	5
	Current (mA)	45
	Life (hr)	>2000
Power Adapter	AC input range(V)	100~240
	DC output voltage(V)	12 (max. 3.34A)

OtO Photonics

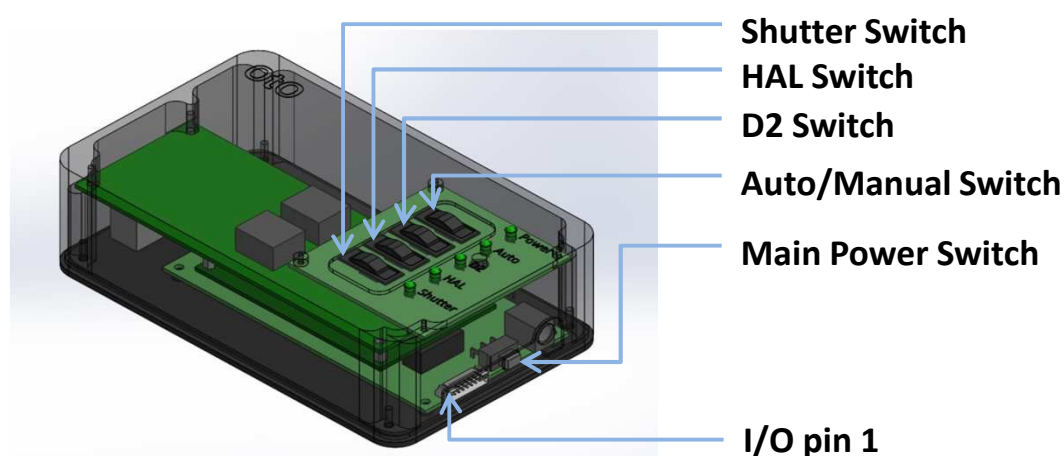## Light Source Datasheet

● **Drawing**

OtO Photonics

Light Source Datasheet

● **Features**

➢ Operation Selection

After plugging the +12V power to the LS-DH Series, the user can turn on the main power by the main switch. Then the user can select the manual mode switch. Once the manual mode is selected, the user can turn on/off the D2/ Halogen/ Shutter by the switches.

- Shutter Switch
- HAL Switch
- D2 Switch
- Auto/Manual Switch
- Main Power Switch
- I/O pin 1

➢ I/O Extension Port

There is one 8pin 2.0mm pitch connector in LS-DH Series. This 8pin connector can be connected to SE series spectrometer directly through the 8pin cable.
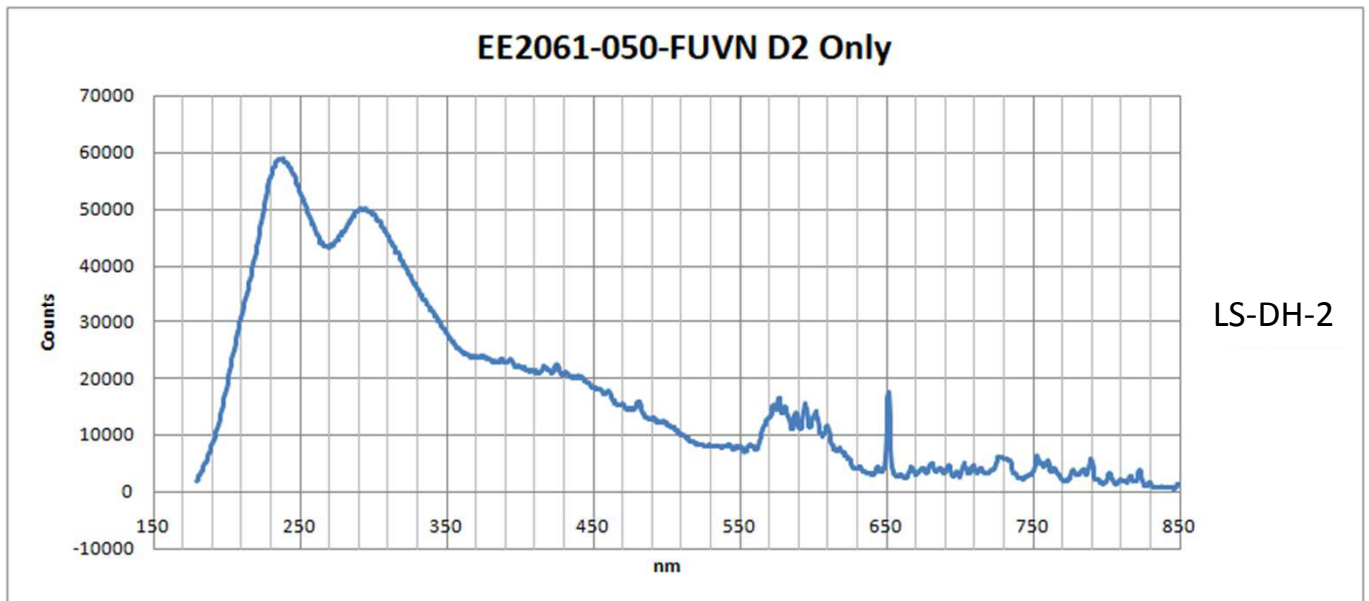
Once the operation mode is selected to Auto mode, D2/Halogen/Shutter function will be controlled by the I/O level. (3.3V/5V or 0V) Through the SpectraSmart software or SDK, the user can turn on/off the light source. But user needs to consider the warming-up and stable time for light source lamp.

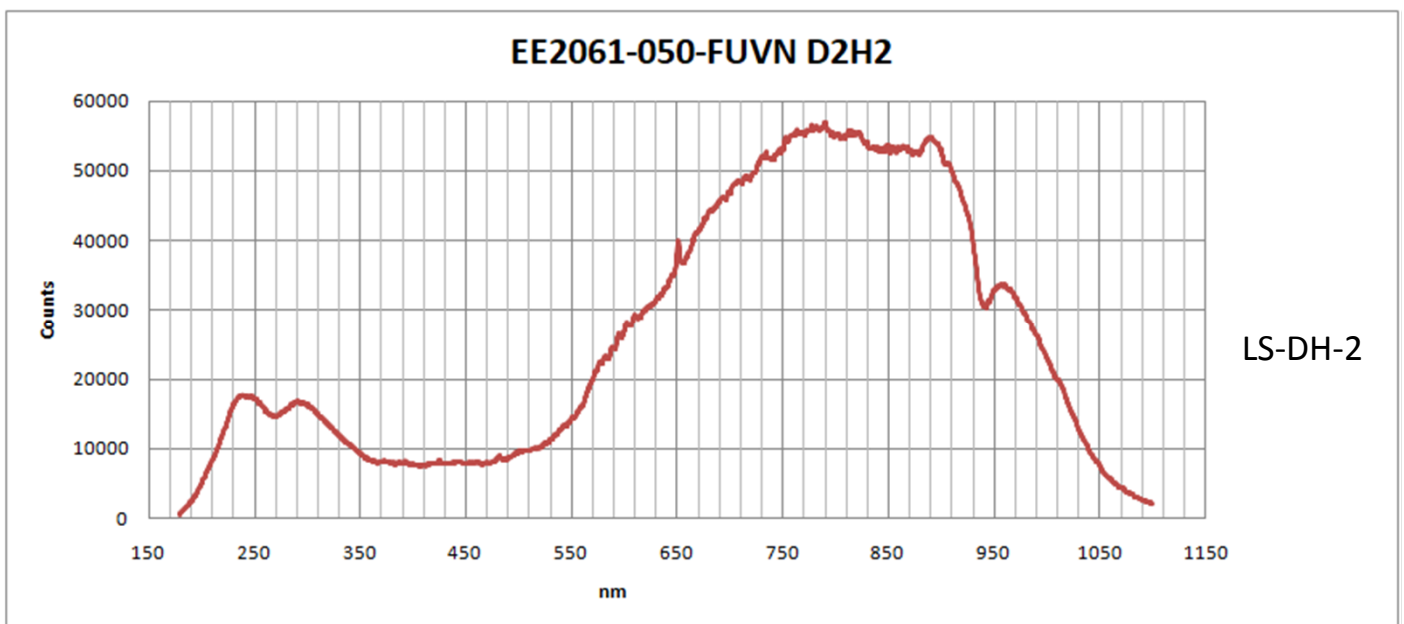| Pin No.	Direction	Pin Name	Function Description
1	NC	NC	NA
2	NC	NC	NA
3	NC	NC	NA
4	Input	Shutter	High: Open Shutter Low: Close Shutter
5	Input	D2_ON	High: Turn on D2 LS. Low: Turn off.
6	Input	HAL_ON	High: Turn on Halogen LS. Low: Turn off.
7	NC	NC	No connection inside the LS-DH-1.
8	GND	GND	GND

OtO Photonics

Light Source Datasheet

- **Spectrum**

Deuterium light source on only (measured by OtO EE2061 spectrometer)

Deuterium and Halogen light source on (measured by OtO EE2061 spectrometer)

• Software Operation Features
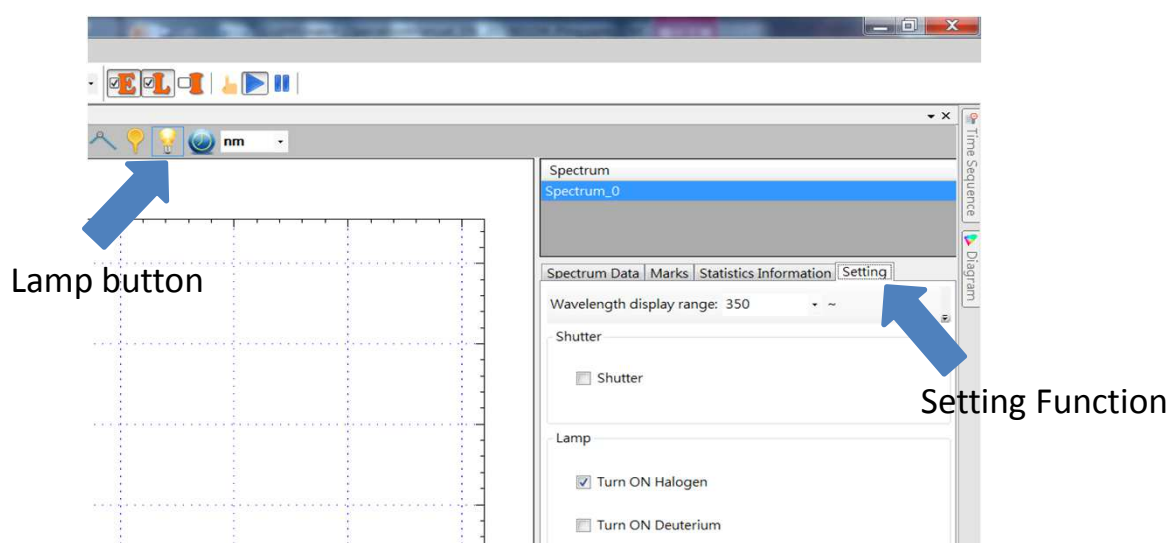
➤ SpectraSmart

Spectrasmart provides Setting function at the right column window:

1. Enable / Disable shutter of each scan.

2. Turn on Halogen if lamp button as

3. Turn on Deuterium if lamp button as

(Halogen and Deuterium lamp can be controlled independently)

Lamp button

Setting Function

➤ Software development commands
UAI_SpectrometerSetExternalPort and UAI_SpectrometerGetExternalPort can set the operation status of shutter, halogen and deuterium lamp.

GPIO	Item
GPIO 3	Shutter
GPIO 4	Deuterium
GPIO 5	Halogen

OtO Photonics

Light Source Datasheet

■ Appended description_
   To reduce the amount of light with pinhole

    We offer 3 kinds of pinhole for users to reduce the amount of light.
As the picture below, please put the pinhole into the sma905 before assemble the optic fiber.

Pinhole SPEC.
φ0.81mm
φ0.54mm
φ0.27mm

SMA905 Connector

Pin-hole(0.81, 0.54, 0.27)