

Xenon lamp



Instruction Manual

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Xe-Lamp

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1. Description of the Xe- Lamp- house

A sketch of the lamp house can be found in fig. 1 and fig. 2.

The side where the collimator is fixed is the front of the lamp housing.

With the small lever (No. 1) the lamp house can be opened.

There are 3 screws on the side of the lamp housing (Nos: 2,3,4) which can be used to position the Xe-lamp correctly. The 4 screws on the back side of the housing (Nos: 5,6,7,8) are used for the adjustment of the reflector in the rear of the lamp.

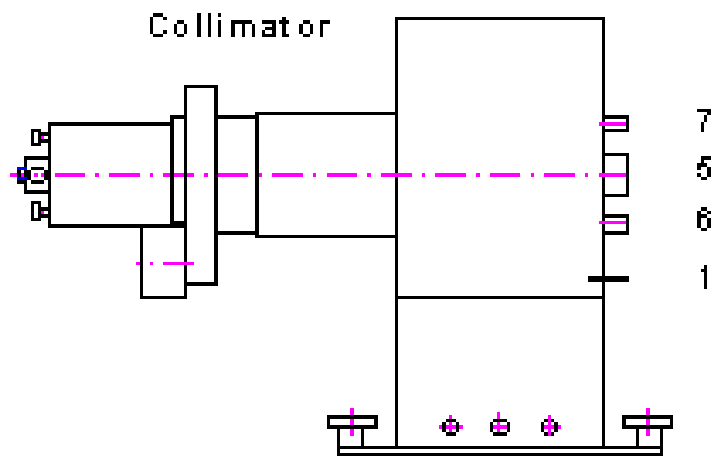


Fig . 1

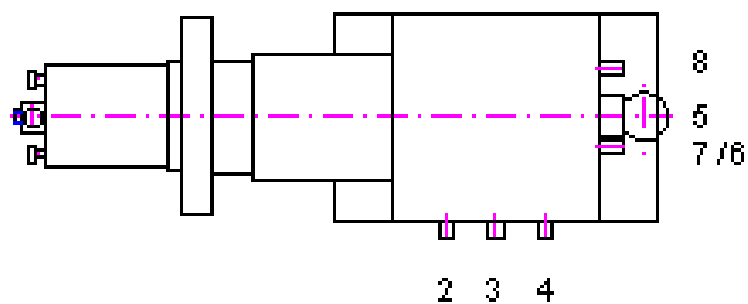


Fig . 2

(top view)

2. Safety Considerations

2.1 Radiation

The high intensity UV and VIS radiation of the arc lamps can permanently damage the eye, even causing blindness. UV radiation can also cause painful sunburn, and with prolonged exposure, serious burns. Therefore:

- Never look directly into the output beam from the arc lamp housing
- Do not look at the specular (mirror) reflection of the beam.
- Always wear UV protective eyewear or face mask, and gloves. (If your arms will be in and out of the beam wear long sleeves.)

2.2 Lamp Explosion

The pressure inside the lamp when it is cold is around 8 atmospheres (110 lb. per sq. in.), when the lamp is hot the pressure can reach 30 atmospheres (420 lb. per sq. in.).

In normal operation lamp explosions are rare and only occur after many hundreds of hours of use.

However, the lamp may explode (even when they are cold) due to internal strain or stress like improper mounting of the lamp.

Contaminants like fingerprints left on the lamp cause a deterioration of the quartz envelope during operation and may lead to lamp explosion.

Therefore:

- Do not handle a bare arc lamp without safety goggles and adequate protection for exposed areas of skin
- Do not apply torque to the lamp envelope during installation or removal.
- Do not touch the lamp envelope with your fingers.
- If there are contaminants of the envelope clean the envelope after installation in the housing with alcohol or a dilute solution of detergent and water.

2.3 Electrical

A high transitory voltage (around 20 kV) is used to ignite arc lamps. The lamp terminals have a potential difference of up to 200 V prior to lamp start.

- Do not touch the exposed terminals.
- Before changing lamps or working on the system, disconnect input power wait some time to be sure that the internal capacitors are fully discharged.
- Make sure all connections are securely made (and check the polarity) before starting a lamp.
- Do not handle lamp leads during lamp ignition.

2.4 Heat

The lamp housing and the lamp will get very hot during operation.

Therefore allow the housing to cool before touching the exterior or before accessing the interior after switching off the lamp.

2.5 Ozone

The ultraviolet light can decompose molecular oxygen with subsequent formation of Ozone. Relatively low concentrations can cause nasal dryness, a burning sensation in the throat and headaches. Long term effects are not well documented.

Work only in well ventilated areas with ozone generating Xe-lamps or exhaust the ozone with a fan.

3. How to remove the Xe-lamp for shipping

Before changing the Xe-lamp, switch off the lamp, disconnect the input power and let the lamp house cool down (approximately 30 min).

Don't touch the Xe- lamp without gloves!

Always wear a face mask, and gloves. See picture 1.

Tools for loosening the screws: Allen key, torx wrench



picture 1



picture 2

3.1 Instruction

1. Open the lamp house with the lever.
The lever is on the right side of the door.



picture 1

2. Use an Allen key and lose the stabilizing screw at the cathode body at the bottom of the Xe- lamp. See picture 2.



picture 2

1. Grap carefully the anode cooling element at the top and take the anode cooling element including the bulb out. See picture 3.



picture 3

4. Turn the anode cooling element upside down and loose the fixing screw. See picture 4.



picture 4

5. Separate the Xe- lamp from the anode and put it very carefully in a well padded box. As shown in picture 5



picture 5

6. Place the delivered dummy in the anode holder in a reverse order. See picture 6.



picture 6

4. Control Cabinet SE 800

4.1 Remove Xe- lamp power supply for shipping

Switch off the whole system.

There are two possible locations of the power supplies in our systems.

Version 1:

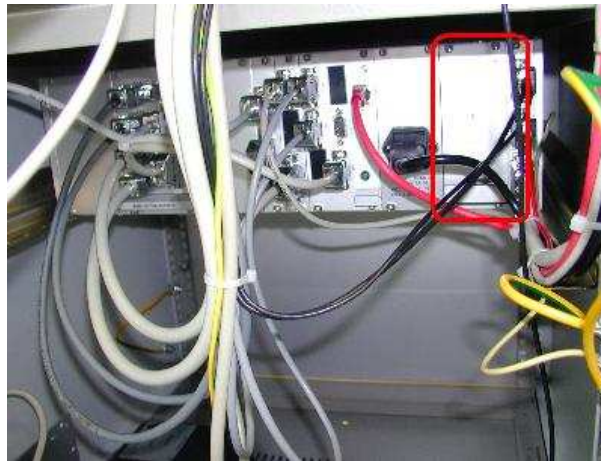


picture 7

This picture shows the position of the Xe- lamp power supply in a red marker. Loose the four screws of the cover plate and pull out the power supply. See picture 7.

Version 2:

This picture shows the position of the Xe- lamp power supply inside the control cabinet.
Loose the four screws and pull out the power supply. See picture 8.



picture 8

Dispatch the lamp house with the connecting cable and the power supply and the bulb to our company.

Address:

**Sentech Instrument GmbH
Schwarzschildstraße 2
12489 Berlin
Germany**

Adjusting the new XE-lamp



The screws 2-4 are used for the lamp adjustment. (See picture 9)
The screw (2) tilts the lamp in the direction of the light beam. The screw (3) moves the lamp up and down. The screw (4) tilts the lamp perpendicular to the beam direction.

The screws 5-8 are used for the adjustment of the reflector behind the lamp. The screw (5) moves the whole reflector in the beam direction. The screws 6-8 tilt the reflector.

Mounting the XE lamp

- Turn the anode cooling element upside down and put the XE lamp in the holder and fix the screw with an Allen screw driver.



- Grap carefully the anode cooling element at the top and take the anode cooling element including the bulb in.



- Use an Allen key and fix the stabilizing screw at the cathode body at the bottom of the Xe- lamp.



Note:

- The glass nose has to be out of the beam pass
- The nose has to look in the direction from the door !!!
- Close the door
- Unscrew the fiber carefully

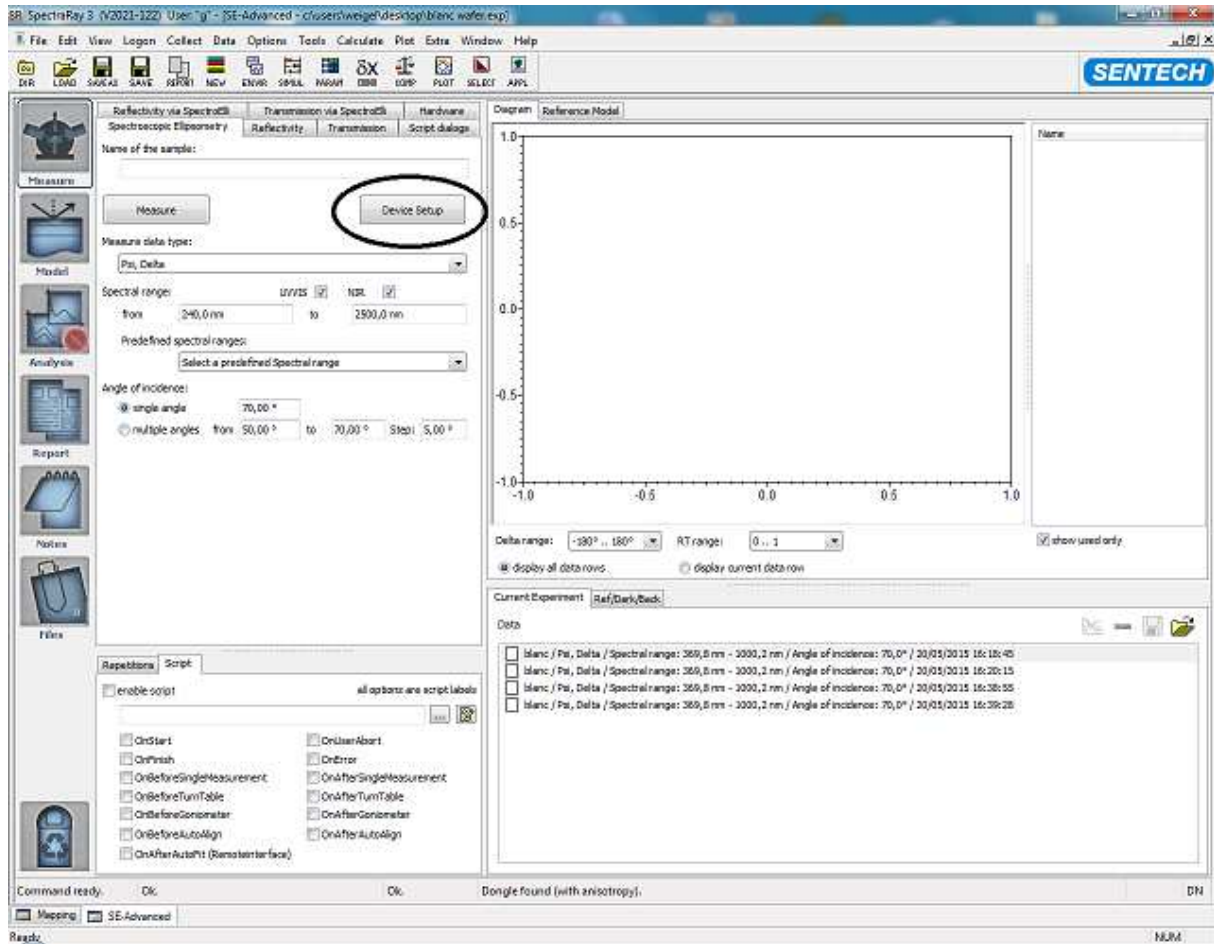
- The first step lamp is preadjusted.
 - This is necessary if there is almost no intensity measured.
 - For that purpose the beam coming out of the collimator is observed on a white sheet of paper/ wall in a distance of around 30 cm in front of the lamp house. The preadjustment is finished if a uniform illuminated circle can be observed.
-
- The light spot should be looking like the picture below



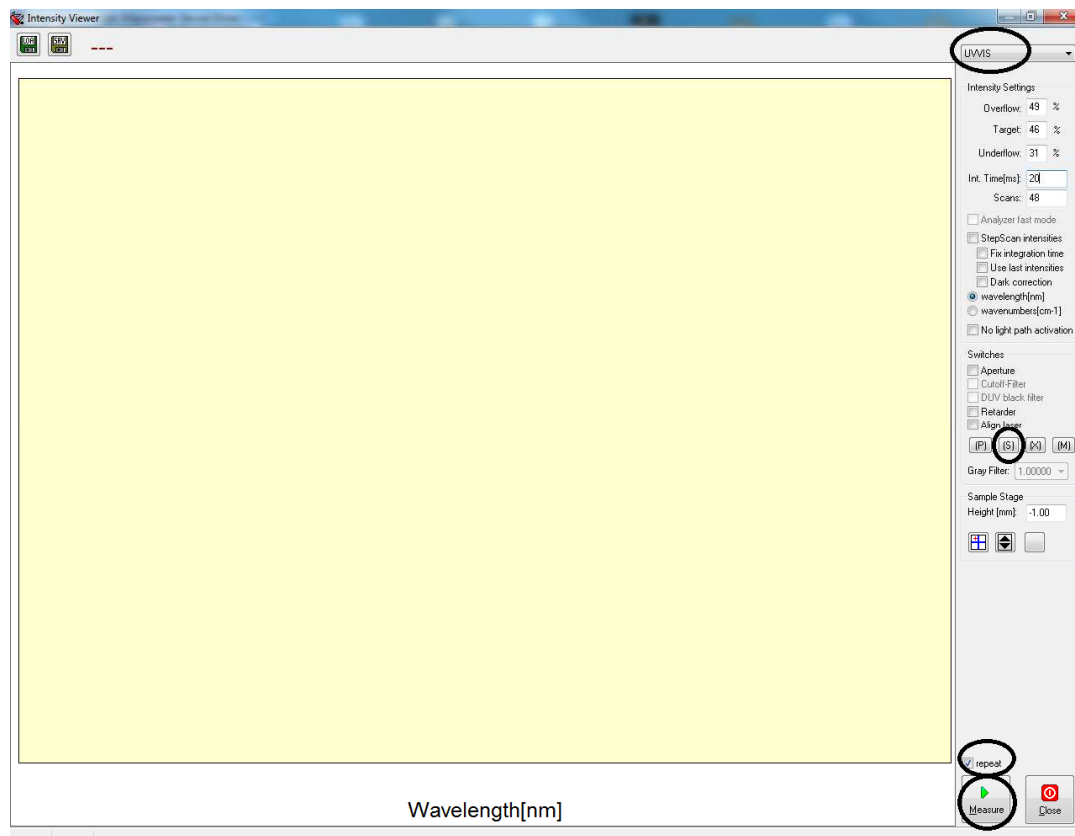
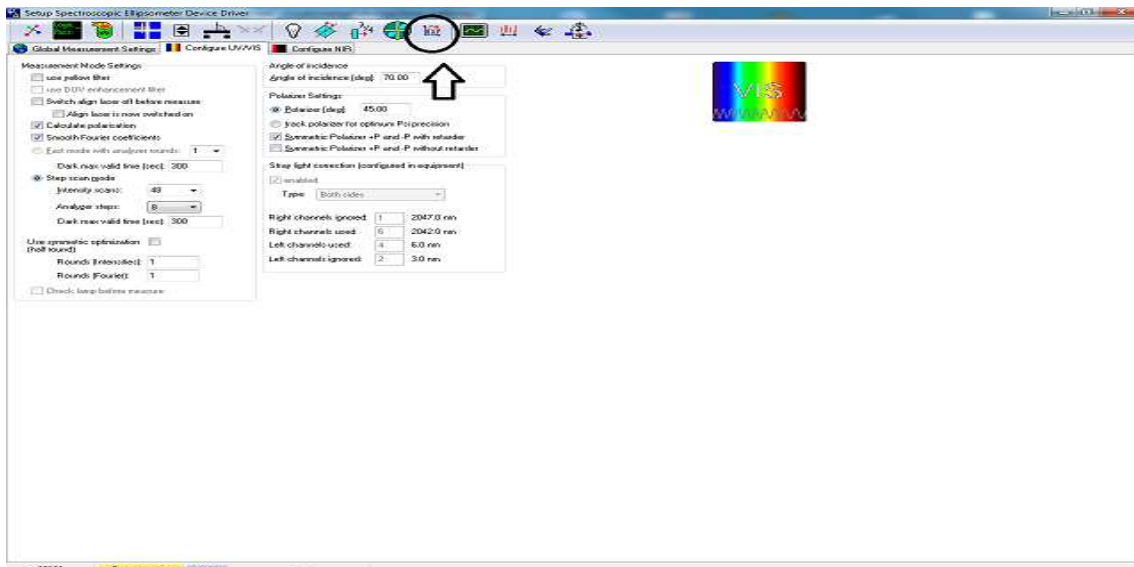
- The intensity should be high and intensive

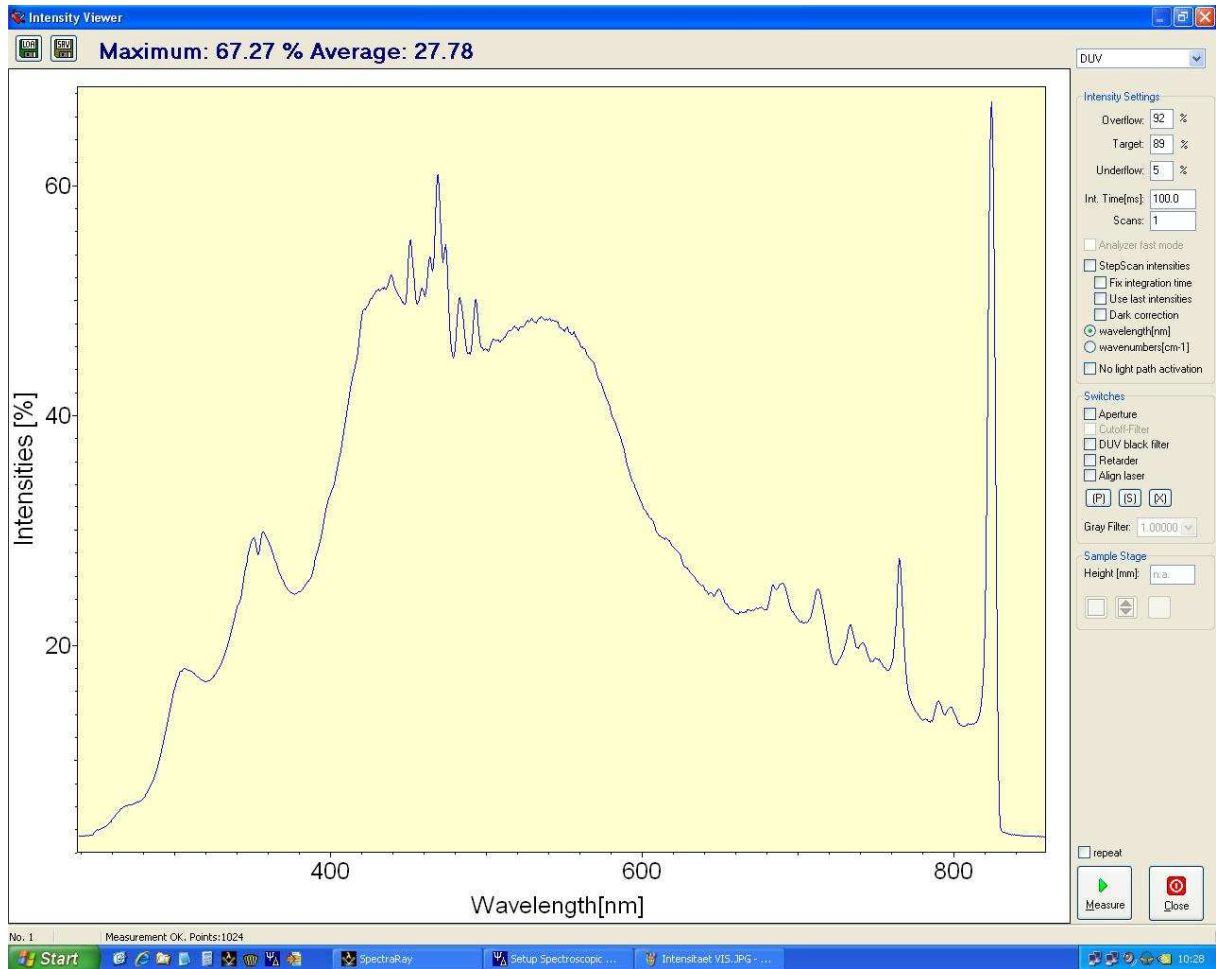
Intensity check in SpectraRay3

- Open SpectraRay 3



- Device Setup
- View and measurement





The spectrum should be looking like this picture between 60-80 %