530 Main Street, Acton, MA 01720
Phone: (978)263-3584, **Fax:** (978)263-5086
Web Site: www.acton-research.com

30 Watt Deuterium / Tungsten Dual Light Source / Model TDS-429 Operating Manual

Ver. 2.1

Lamp Specifications:

Tungsten lamp: GE Part DZA

Deuterium Lamp: Hamamatsu part Number L591

Description:

The TDS-429 is a dual light source consisting of a deuterium (D2) lamp and a tungsten (W) lamp. Either lamp can be switched into viewing position by a control lever located on the end of the lamp housing. The deuterium lamp is a 30 watt lamp (Hamamatsu Part #L591). The tungsten lamp is a 30 watt lamp (GE Part #DZA). The lamp housing contains the lamps and a cooling fan. A deuterium power supply powers the deuterium lamp, and a tungsten/cooling fan power supply powers the tungsten lamp and the cooling fan.

Installation Instructions

TDS-429

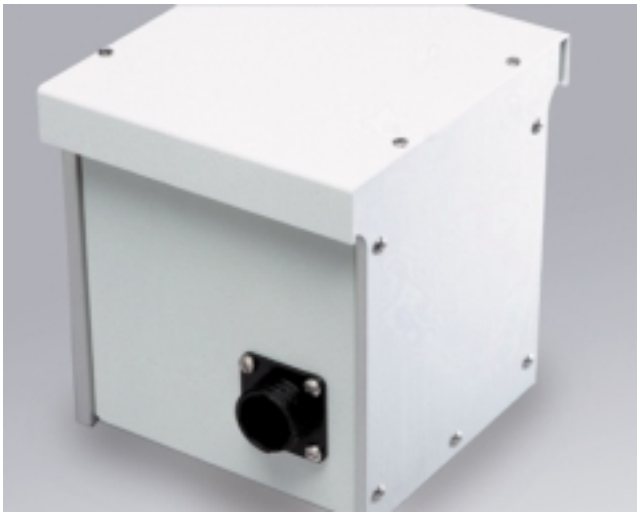
Important: **These instructions are valid for TDS-429 Light Sources bearing certain serial numbers.**

If the digits of the serial number that immediately follow 429 are 65 or greater please use these instructions. If the digits of the serial number that immediately follow 429 are less than 65 then disregard these instructions.

Your TDS-429 Dual Quartz Tungsten Halogen / 30 watt Deuterium Light Source is shipped with an installation kit which includes the following parts.

Part	Quantity	Description	ARC Part No.
Mounting Screws	3	8-32 X 1¼" Black Alloy	100-120-015
Mounting Screws	2	8-32 X ½" Black Alloy	100-120-010
Shoulder Screws	2	8-32 Attached to spacer	100-107-005
Spacer	1	¾"	8401-025-66
Spacer	1	¼"	8401-025-65
Hex Wrench	1	1/16"	700-025-002
Hex Wrench	1	9/64"	700-100-008

There are two variations for the installation of the **TDS-429**. One set up assumes the use of either of the two optional Filter Wheel Assemblies **FA-448** and **FA-448-2.** The other set up is designed for using the
TDS-429 without a filter wheel.



TDS-429

Light Source Installation (With Filter Wheel)

1) Be sure that there are no cable connections made to the TDS-429 Light Source and that is has had sufficient time to cool.

2) Insert the three 8-32 x 1 ¼" black alloy screws into the recessed holes of the ¼" Spacer as shown in step one.

3) Lay the ¼" Spacer against the Filter Wheel and push the screws through the holes provided in the filter wheel as shown in step 2.

4) Using the 9/64" Hex Wrench, tighten the Filter Wheel / ¼" Spacer combination onto the entrance slit of the instrument as shown in step 3.

5) Using the 1/16" Hex Wrench, remove the cover to the TDS-429. See step 5.

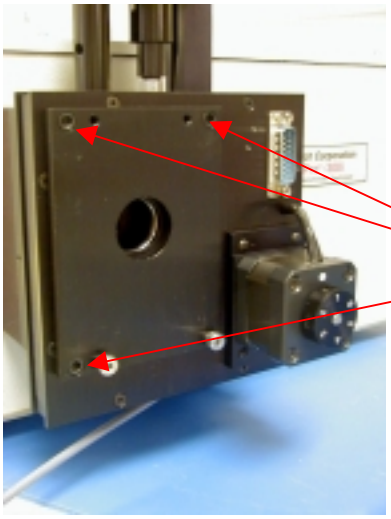
6) Align the TDS-429's shoulder screw slots with the shoulder screws that are now attached to the ¼" Spacer. Attach the TDS-429. See step 6.

7) Insert and tighten the two 8-32 X ½" black alloy screws into the mounting holes on the inside of the TDS-429. See step 7.

8) Replace the cover of the TDS-429.

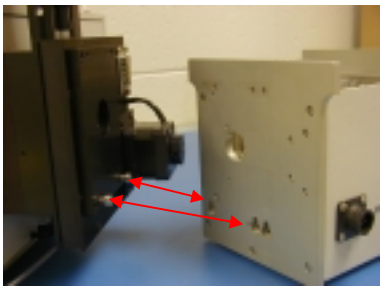
Step 1.

Step 2.

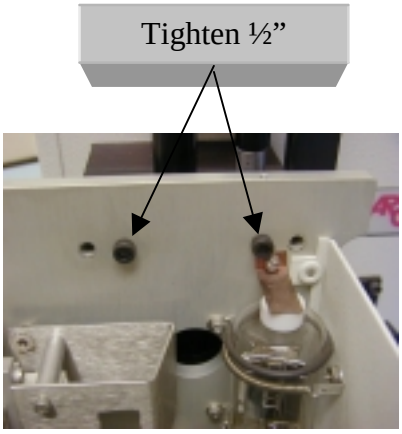


Step 3.

Step 4.



Step 5.



Step 6.

Light Source Installation (No Filter Wheel)

Perform all the above steps except substitute the ¾” Spacer for the Filter Wheel.

¾” Spacer

Mounting (for serial numbers following 429 that are less than 65 **ONLY**)**:**

The TDS-429 lamp housing is designed to mount directly to the entrance slit of ARC SpectraPro™ Series monochromators. To mount the lamp housing to the entrance slit, the following procedure is recommended:

1. Locate the two (2) shoulder screws and the two (2) 8-32 cap screws supplied with the TDS-429. Insert the shoulder screws into the two bottom outside tapped holes of the entrance slit of the monochromator and tighten. These are used to mount the lamp housing.

2. Remove the four (4) slotted screws from the top of the lamp housing, then remove the cover.

   CAUTION: DO NOT TOUCH THE LAMP (BULB) OR THE SURFACE OF THE FOCUSING MIRROR.

3. Carefully slide the two (2) "key hole" type slots of the lamp housing mounting flange over the shoulder screws in the entrance slit of the monochromator. Insure that the top two holes of the lamp housing mounting flange align properly with the top two tapped holes of the monochromator entrance slit.

4. Insert the two (2) 8-32 cap screws in the top two holes of the lamp housing mounting flange and tighten.

5. Replace the lamp housing cover.

6. Connect the interconnecting cables from the two power supplies to the lamp housing.

7. Assure the power switches on the front panels of the power supplies are "OFF". Connect the power supplies to a fused and properly grounded 120V 60Hz power source.

8. The TDS-429 dual light source is now ready for use.

Operation: (All Serial Numbers)

To operate the deuterium lamp, the following procedure is recommended:

1. Move the control lever on the end of the lamp housing to the "blue" dot position.

2. Turn on the "fan" power switch located on the front panel of the tungsten/cooling fan power supply.

3. Turn on the power switch on the front panel of the deuterium power supply. The deuterium lamp starts automatically after approximately 30 seconds delay. Refer to the OEM instruction manual enclosed for detailed operating instructions for the deuterium power supply.

4. To turn off the deuterium lamp, turn off the deuterium power supply and the fan switch on the tungsten/cooling fan power supply.

   CAUTION: THIS LIGHT SORUCE PRODUCES STRONG ULTRAVIOLET RADATION, AND MUST NOT BE VIEWED DIRECTLY WITHOUT PROPER EYE PROTECTION. ULTRAVIOLET RAYS WILL "SUN BURN" EXPOSED SKIN. EXPOSED SKIN SHOULD BE PROPERLY PROTECTED!

To operate the tungsten lamp, the following procedure is recommended:

1. Move the control lever on the end of the lamp housing to the "red" dot position.

2. Turn the "fan" power switch and the "W" switch on the tungsten / cooling fan power supply. The lamp should light immediately.

3. To turn off the tungsten lamp, turn off the "w" and "fan" switches on the tungsten / cooling fan power supply.

CAUTION

- THE COOLING FAN SHOULD BE "ON" DURING THE OPERATION OF EITHER LAMP

- ONLY ONE LAMP SHOULD BE OPERATED AT A TIME, AND SHOULD BE TURNED "OFF" WHEN NOT IN USE