

# INSTRUCTIONS

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**U-RFL-T**  
POWER SUPPLY FOR  
MERCURY BURNER

**U-RX-T**  
POWER SUPPLY FOR  
XENON BURNER

Optical Microscope Accessory

To ensure the safety, obtain optimum performance and familiarize yourself fully with the use of this module, we recommend that you study this manual thoroughly before operating it.

This product is applied with the requirements of standard IEC/EN61326-1 concerning electromagnetic compatibility.

- Immunity Industrial and basic electromagnetic environment

Emissions exceeding the level required by aforementioned standards may occur if this product is electrically connected to other equipment.



In accordance with European Directive on Waste Electrical and Electronic Equipment, this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately.

Refer to your local distributor in EU for return and/or collection systems available in your country.

**NOTE:** This product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**FCC WARNING:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the product.

**For Korea only**

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

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# IMPORTANT





The U-RFL-T power supply for mercury burner is designed exclusively for our lamp housing for 100 W mercury burner, and the U-RX-T power supply for xenon burner is designed exclusively for our lamp housing for 75 W xenon burner.

## SAFETY PRECAUTIONS

1. Do not light the mercury or xenon burner while it is not mounted on the microscope. The UV rays in their light are harmful to your eyes. Never look at the direct light output from the lamp housing.
2. Always use the lamp housing designated by us for the power supply.
3. Make sure that the burner and connection cable are attached before setting the main switch of the power supply to “**I**” (ON).
4. Do not attempt to disassembly the power supply because it includes high-voltage parts inside.
5. Always use the power cord provided by us. If no power cord is provided, please select the proper power cord by referring to the section “PROPER SELECTION OF THE POWER SUPPLY CORD” at the end of this instruction manual. If the proper power cord is not used, product safety and performance cannot be guaranteed.
6. Always ensure that the grounding terminal of the wall outlet is properly grounded/earthed. If the equipment is not **grounded/earthed**, we can no longer warrant the electrical safety performance of the equipment.
7. Replace the burner when the hour counter on the power supply indicates the end of burner service life. Using a burner after its life has expired may result in the burner burst.
8. The power supply has ventilation openings on both sides. Install the power supply by leaving a space of more than 10 cm on each side, and do not let a metallic object enter the unit through the openings (to prevent electric shock or malfunction).

### **Safety Symbols**

The following symbols are found on the power supply. Study the meaning of the symbols and always use the equipment in the safest possible manner.

Symbol	Explanation
	Be careful against high voltage applied inside the unit.
	Before use, carefully read the instruction manual. Improper handling could result in injury to the user and/or damage to the equipment.
	Indicates that the main switch is ON.
	Indicates that the main switch is OFF.

## 1 Getting Ready

1. This manual pertains only to the handling of the power supply. For other information, please refer to the instruction manuals for the lamp housing and microscope used in combination with the power supply so that you can understand the comprehensive operating procedures of the system.
2. Do not use the unit where it is subjected to direct sunlight, high temperature and humidity, dust or vibrations. (For the operating conditions, refer to chapter 4, "SPECIFICATIONS" on page 7)
3. Turning the burner on/off frequently shortens its service life considerably. When you are going to interrupt observation for a short period of time, it is recommended to leave the burner on and screen the light with the shutter, etc.
4. The power cord is also used to shut off the power supply in case of an emergency. Install the power supply so that the power cord connector or the wall power outlet is easily accessible from the operator.

## 2 Maintenance and Storage

1. If any part of the equipment gets dirty, with it with a clean cloth.  
If the part is extremely dirty, do not attempt to use organic solvents to clean it; instead, use a soft, lint-free cloth slightly moistened with a diluted neutral detergent.
2. When disposing of the power supply. Check the regulations and rules of your local government and be sure to observe them.  
If you cannot dispose of a used mercury burner yourself, please contact us.

## 3 Caution

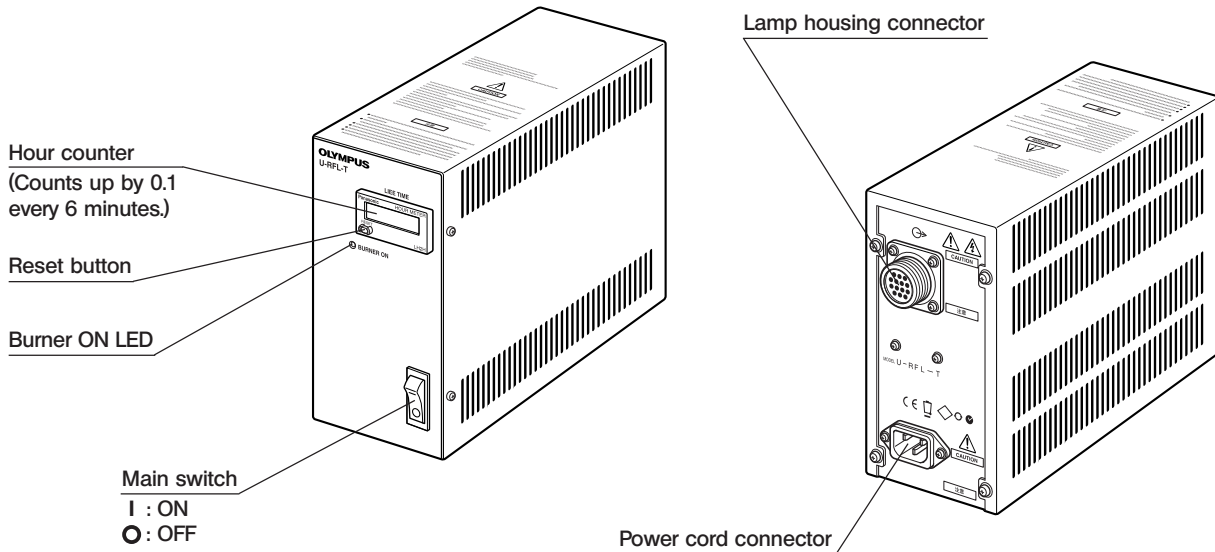
If the power supply is used in a manner not specified by this manual, the safety of the user may be imperiled. In addition, the equipment may also be damaged. Always use the equipment as outlined in this instruction manual.

The following symbols are used to set off text in this instruction manual.

- ▲ : Indicates that failure to follow the instructions in the warning could result in bodily harm to the user and/or damage to equipment (including objects in the vicinity of the equipment).
- ★ : Indicates that failure to follow the instructions could result in damage to equipment.
- ◎ : Indicates commentary (for ease of operation and maintenance).

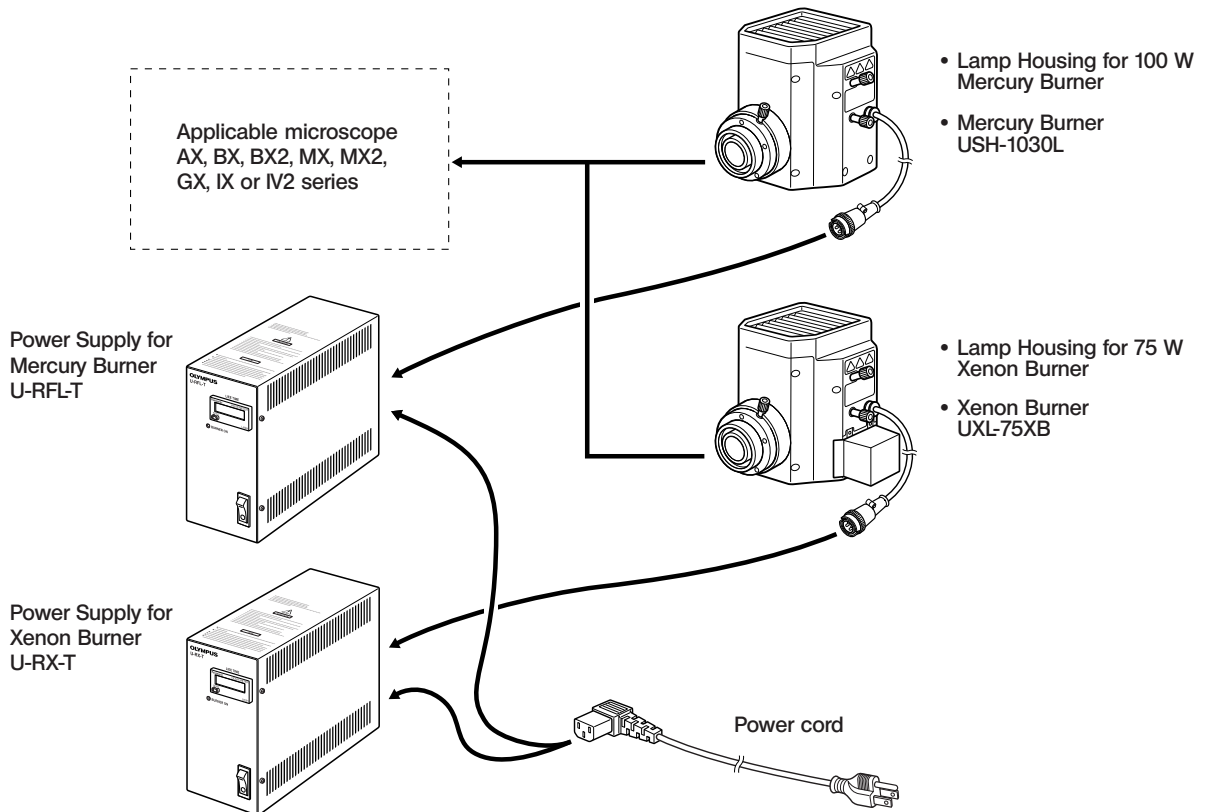
# 1 NOMENCLATURE

©The following illustration shows the U-RFL-T, but the appearance of the U-RX-T is identical.



# 2 ASSEMBLY

## 2-1 Assembly Diagram



## 2-2 Detailed Assembly Procedures

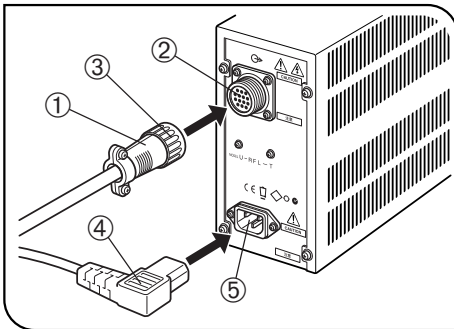


Fig. 1

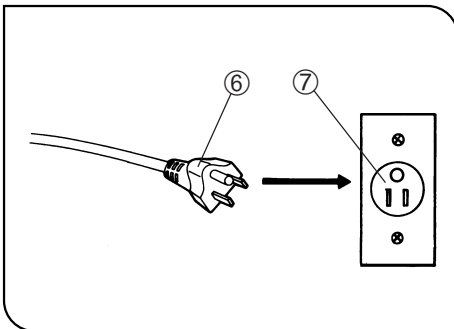


Fig. 2

### 1 Connecting the Cable and Power Cord (Figs. 1 & 2)

▲ The lamp housing cable and power cord are vulnerable to bend or twist. Do not apply excessive force to them.

▲ Be sure to set the main switch to “O” (OFF) before connecting the lamp housing cable and power cord.

1. Insert the cable ① from an applicable lamp housing into the lamp housing connector ② by aligning the connectors, and secure using the clamping ring ③ on the lamp housing connector.

▲ Always use the power cord provided by us. If no power cord is provided, please select the proper power cord by referring to the section “PROPER SELECTION OF THE POWER SUPPLY CORD” at the end of this instruction manual.

2. Insert connector ④ of the power cord into connector ⑤ of the power supply firmly.

▲ Always use the power cord supplied by us and connect it to a 3-conductor wall outlet with a grounding terminal. If the grounding terminal of the wall power outlet is not grounded/earthed, we can no longer warrant the electrical safety performance of the equipment.

3. Insert the plug ⑥ of the power cord into the wall power outlet ⑦.

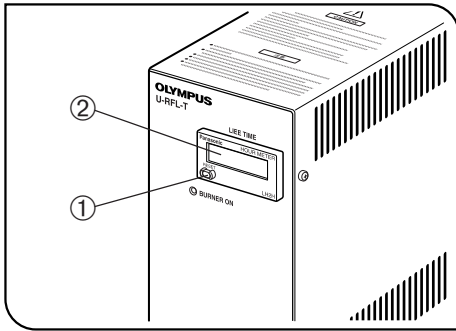


Fig. 3

## 2 Setting/Resetting the Hour Counter (Fig. 3)

1. Push the reset button ① inside the reset button guard so that the hour counter ② reads "0.0".

**▲Do not push the reset button ① until the next time the burner is replaced.**

2. Figure "0.0" represents the hour of use. The reading counts up by 0.1 every 6 minutes.

3. When the life counter indicates the end of service life specified for each burner, replace it for safety, even if the burner seems to be usable further.

**▲Using a burner after its life has expired may result in the burner burst.**

⊙ The burner light increases flickering when the end of its service life approaches. In this case, it is recommended to replace it earlier depending on the purpose of observation.

### Standard Burner Life

- Mercury burner USH-103OL: 300 hours\*
- Xenon burner UXL-75XB: 200 hours\*\*

\* Average life under a lighting condition of 2-hour on/30-minute off cycle. Turning the burner ON-OFF repeatedly in a shorter cycle decreases the burner service life considerably.

\*\* Average life under a lighting condition limiting every on period within 60 minutes. Turning the burner ON-OFF repeatedly in a shorter period decreases the burner service life considerably.

⊙ If you keep using the burner exceeding its life, the power supply unit may detect the abnormality and the burner may blink.  
In such a case, stop using the burner and replace the burner.



# 3 PREPARATION

## 3-1 Turning the Burner ON

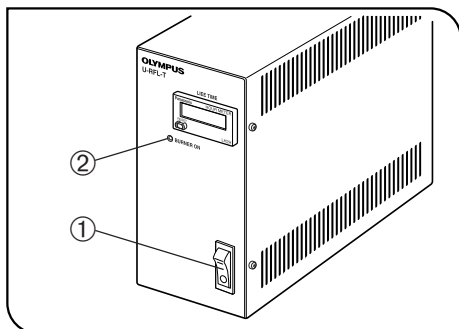


Fig. 4

1. Set the main switch ① of the power supply to "I" (ON).
2. The burner is ignited automatically by the auto ignition mechanism.  
If the mercury burner is not ignited even though passing 30 seconds or more after the main switch ① of the power supply unit is set to "I" (ON), set the main switch ① to "O" (OFF) once, and wait 10 seconds or more and set the main switch ① to "I" (ON) again.
3. The lamp on LED ② lights up when the burner is ignited.
4. After ignition, the arc image of mercury burner stabilized in 5 to 10 minutes and that of xenon burner stabilizes in 3 to 5 minutes.

### CAUTION

The mercury burner cannot be re-ignited immediately after extinction. After turning it off, wait for about 10 minutes, until the mercury vapor inside it cools down and liquefies.

## 3-2 Centering the Burner

For centering of the burner, refer to the description on the burner centration in the instruction manual provided with the microscope in use or an accessory module.

# 4 SPECIFICATIONS

## ■ Power Supply for Mercury Burner U-RFL-T

Item	Specification
Ignition method	Auto ignition
Hour counter	Accumulated display of on time (0.1 countup per 6 minutes.)
Input rating	100-240 V AC $\sim$ , 50/60 Hz, 1.6 A (Power consumption 150 W)
Dimensions & weight	90(W) x 180(H) x 270(D) mm, approx. 3 kg
Applicable lamp housing	Lamp housing for 100 W mercury burner
Applicable mercury burner	Ultrahigh-pressure mercury burner USH-103OL* (our product)

\*The USH-102D (Ushio) and HBO103W/2 (Osram) are also applicable. However, performance cannot be guaranteed when the HBO103W/2 is used.

## ■ Power Supply for Xenon Burner U-RX-T

Item	Specification
Ignition method	Auto ignition
Hour counter	Accumulated display of on time (0.1 countup per 6 minutes.)
Input rating	100-240 V AC $\sim$ , 50/60 Hz, 1.6 A (Power consumption 150 W)
Dimensions & weight	90(W) x 180(H) x 270(D) mm, approx. 3 kg
Applicable lamp housing	Lamp housing for 75 W xenon burner
Applicable mercury burner	75 W xenon burner UXL-75XB (Ushio)

## ■ Operating Environment

- Indoor use.
- Altitude: Max. 2000 meters.
- Ambient temperature: 5° to 40°C (41° to 104° F).
- Relative humidity: 80% for temperatures up to 31°C (88°F), decreasing linearly through 70% at 34°C (93°F), 60% at 37°C (99°F) to 50% relative humidity at 40°C (104°F).
- Supply voltage fluctuations:  $\pm$ 10%.
- Pollution degree: 2 (in accordance with IEC60664).
- Installation (overvoltage) category: II (in accordance with IEC60664)

# 5 TROUBLESHOOTING GUIDE

Under certain conditions, performance of the unit may be adversely affected by factors other than defects. If problems occur, please review the following list and take remedial action as needed.

Problem	Cause	Remedy	Page
a) Field of view is obscured, or field of view is not evenly illuminated.	The objective is engaged improperly in the light path.	Engaging the objective in the click position of the revolving nosepiece.	-
	The revolving nosepiece is installed improperly.	Push the revolving nosepiece all the way in.	-
	The field iris diaphragm is stopped down too much.	Open the field iris diaphragm.	-
	The burner is not centered.	Adjust the centering.	6
b) The lamp does not light even when the main switch is set to "I" (ON).	Connectors are inserted improperly.	Connect them firmly.	4
	The interlock mechanism of the lamp housing is activated.	Tighten the lamp socket clamping screw firmly.	-
	The temperature switch is activated by heating.	Remove any obstacle from around the ventilation openings, and wait until the unit cools down before setting the main switch to "I" (ON) again.	-
	The auto ignition mechanism is malfunctioning.	Set the main switch ① to "O" (OFF) once, and wait 10 seconds or more and set the main switch ① to "I" (ON) again.	6
	No burner is installed.	Install a burner. <b>★ Never turn the unit ON without installing a burner. It is extremely hazardous and may cause a failure.</b>	-
c) The burner light flickers or is dark.	Enough time has not elapsed since the burner ignition.	Wait until the arc stabilizes.	6
	The burner service life has expired.	If the hour counter indicates time above the service life, replace the burner.	5
d) The burner is extinguished in the middle of observation.	The temperature switch is activated because the ventilation openings of the lamp housing are blocked.	Remove any obstacle from around the ventilation openings, and wait until the unit cools down before setting the main switch to "I" (ON) again.	-

## ■ PROPER SELECTION OF THE POWER SUPPLY CORD

If no power supply cord is provided, please select the proper power supply cord for the equipment by referring to “Specifications” and “Certified Cord” below:
















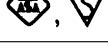



**CAUTION:** In case you use a non-approved power supply cord for our products, we can no longer warrant the electrical safety of the equipment.

### Specifications

Voltage Rating	125V AC (for 100-120V AC area) or, 250V AC (for 220-240V AC area)
Current Rating	6A minimum
Temperature Rating	60°C minimum
Length	3.05 m maximum
Fittings Configuration	Grounding type attachment plug cap. Opposite terminates in molded-on IEC configuration appliance coupling.

**Table 1 Certified Cord**

A power supply cord should be certified by one of the agencies listed in Table 1, or comprised of cordage marked with an agency marking per Table 1 or marked per Table 2. The fittings are to be marked with at least one of agencies listed in Table 1. In case you are unable to buy locally in your country the power supply cord which is approved by one of the agencies mentioned in Table 1, please use replacements approved by any other equivalent and authorized agencies in your country.

Country	Agency	Certification Mark	Country	Agency	Certification Mark
Argentina	IRAM		Italy	IMQ	
Australia	SAA		Japan	JET, JQA, TÜV, UL-APEX / MITI	
Austria	ÖVE		Netherlands	KEMA	
Belgium	CEBEC		Norway	NEMKO	
Canada	CSA		Spain	AEE	
Denmark	DEMKO		Sweden	SEMKO	
Finland	FEI		Switzerland	SEV	
France	UTE		United Kingdom	ASTA BSI	
Germany	VDE		USA	UL	
Ireland	NSAI				

**Table 2 HAR Flexible Cord**

APPROVAL ORGANIZATIONS AND CORDAGE HARMONIZATION MARKING METHODS

Approval Organization	Printed or Embossed Harmonization Marking (May be located on jacket or insulation of internal wiring)		Alternative Marking Utilizing Black-Red-Yellow Thread (Length of color section in mm)		
			Black	Red	Yellow
Comite Electrotechnique Belge (CEBEC)	CEBEC	<HAR>	10	30	10
Verband Deutscher Elektrotechniker (VDE) e.V. Prüfstelle	<VDE>	<HAR>	30	10	10
Union Technique de l'Electricite' (UTE)	USE	<HAR>	30	10	30
Instituto Italiano del Marchio di Qualita' (IMQ)	IEMMEQU	<HAR>	10	30	50
British Approvals Service for Electric Cables (BASEC)	BASEC	<HAR>	10	10	30
N.V. KEMA	KEMA-KEUR	<HAR>	10	30	30
SEMKO AB Svenska Elektriska Materielkontrollanstalter	SEMKO	<HAR>	10	10	50
Österreichischer Verband für Elektrotechnik (ÖVE)	<ÖVE>	<HAR>	30	10	50
Danmarks Elektriske Materialkontroll (DEMKO)	<DEMKO>	<HAR>	30	10	30
National Standards Authority of Ireland (NSAI)	<NSAI>	<HAR>	30	30	50
Norges Elektriske Materielkontroll (NEMKO)	NEMKO	<HAR>	10	10	70
Asociacion Electrotecnica Y Electronica Espanola (AEE)	<UNED>	<HAR>	30	10	70
Hellenic Organization for Standardization (ELOT)	ELOT	<HAR>	30	30	70
Instituto Portages da Qualidade (IPQ)	np	<HAR>	10	10	90
Schweizerischer Elektro Technischer Verein (SEV)	SEV	<HAR>	10	30	90
Elektriska Inspektoratet	SETI	<HAR>	10	30	90

Underwriters Laboratories Inc. (UL)  
Canadian Standards Association (CSA)

SV, SVT, SJ or SJT, 3 X 18AWG  
SV, SVT, SJ or SJT, 3 X 18AWG

# *MEMO*



Manufactured by

**Evident Corporation**

6666 Inatomi, Tatsuno-machi, Kamiina-gun, Nagano 399-0495, Japan

Distributed by

**Evident Europe GmbH**

Caffamacherreihe 8-10, 20355 Hamburg, Germany

**Evident Europe GmbH – UK Branch**

Part 2nd Floor Part A, Endeavour House, Coopers End Road, Stansted CM24 1AL, UK

**Evident Scientific, Inc.**

48 Woerd Ave, Waltham, MA 02453, USA

**Evident Scientific Singapore PTE. LTD.**

#04-04/05, 25 Ubi Rd 4, UBIX Singapore 408621

**Evident Australia PTY LTD**

Level 4, 97 Waterloo Road Macquarie Park NSW 2113, Australia

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