



Leica Lamp housing and mercury burner lamp

User Manual

Leica
MICROSYSTEMS

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1. Safety concept

- 1.1 Description** The Leica 106 z lamp housing is the light source for the fluorescence stereomicroscope Leica MZ16 FA as well as the fluorescence module for Leica stereomicroscopes. The Leica lamp housing is used with 100W or 50W mercury burners, their corresponding supply units and stray-light protection.



In particular, please note

- the safety instructions in this user manual
 - the safety instructions for handling electrical devices in the user manual M2-105-0 (M series) and M2-116-5 (Leica MZ16 FA)
 - the user manual and safety instructions for the ebq 100 supply unit
 - the user manual and safety instructions provided by the lamp manufacturer, and, in particular, the section on how to proceed if a lamp breaks and releases mercury.
- 1.2 Safety precautions**
- The stray-light protection on the lamp housing prevents irradiation of the hands.
 - UV protection screen in front of the object level prevents the user from looking directly into the UV rays.
 - UV filters in the observation beam path protect the eyes.
- For the Leica MZ16 FA**
- Automatic shutter locking during rotation of the filter changer, observation without fluorescence and removal of the filter holders prevents UV radiation from reaching the eyes.
 - Filter holders without transponders in the free positions of the rapid filter changer prevent direct UV radiation from reaching the eyes.

1. Safety concept

1.3 Safety instructions **Lamp housing**

The Leica MZ16 FA fluorescence stereomicroscope and the fluorescence module for Leica stereomicroscopes may only be used in combination with the Leica lamp housing for 100W or 50W mercury burners, their corresponding supply units and stray-light protection.



Leica Microsystems accepts no liability for damages resulting from the use of lamp housings from other manufacturers.

High-pressure mercury burner

- To minimize the risk of explosion, replace a discolored high-pressure mercury burner promptly when it has reached the end of its rated life. Follow the manufacturer's specifications and the minute meter on the supply unit!
- Allow the high-pressure mercury burner to cool off before replacing it to prevent the possibility of severe burns:
Burn hazard
- Dispose of used mercury burners as hazardous waste.
- Follow the user manual and safety instructions provided by the lamp manufacturer, and, in particular, the section on how to proceed if a lamp breaks and releases mercury.
- Do not remove the mercury burner's dust cover until after you have installed the lamp. Be very careful to avoid getting fingerprints on the lamp.
- After installing the mercury burner, adjust it exactly as described. Never let the bright tips of the electric arcs, the focal spots, cross when projected:
Hazard of explosion from overheating
- When transporting the equipment, remove the high-pressure mercury burner, transport it in its original packaging and protect moving parts in the lamp housing using the transport anchors (which should be stored in a safe place for future use).



Leica Microsystems assumes no liability for incorrectly installed or improperly used high-pressure mercury burners.

Supply units

The 100W mercury burners are powered by the ebq 100 supply unit.



Read the separate instruction manual provided with this supply unit.

The supply unit for 50W mercury burners is described in this manual.



For the ebq supply unit: only fuses of the specified type with the listed rated current may be used. Using other fuses or bridging the fuse holder is not permitted. Danger of fire!

Always unplug the power plug of the supply unit from the power supply:

- when installing and disassembling the lamp housing
- before opening the lamp housing
- when replacing the high-pressure mercury burner and other parts, such as the heat-absorbing filter or the collector
- during maintenance work on the supply unit.



After switching on the supply unit, new mercury burners must be adjusted immediately. There is a danger of overheating for mercury burners that are not adjusted. Danger of explosion.



Notice of dangers

- Never open the lamp housing when the lamp is switched on. **Eye hazard.**
- Never open the lamp housing when it is energized. Disconnect the power supply.
- Disconnect the lamp housing from the power supply when assembling it. Disconnect the power plug and power supply. **Danger of explosion, UV radiation, danger of blinding.**
- Before opening the lamp housing, allow it to cool off for at least 15 min. **Danger of explosion, danger of burns.**
- Never cover the air duct on the lamp housing. **Danger of fire!**

1. Safety concept

- Use the stray-light protection.
Danger to eyes from UV radiation.
- During assembly work on xenon burners, always wear the protective gloves and face protection provided.
Risk of explosion
- Electrical components must be assembled at least 10 cm away from the wall and from flammable substances.



UV radiation warning

UV radiation can harm the eyes.

- Never look into the light spot on the object level without a UV protection screen.
- Never look directly into the beam path (danger of blinding).
- Always fill all filter positions with filter holders.
- Do not select a white, strongly reflective background for the object.
- Never open the lamp housing when the lamp is switched on.
Danger of explosion, UV radiation, danger of blinding!

1.4 Recommendations, instructions

- Avoid switching the lamp on and off frequently, as this reduces its life.
- Hot mercury burners light only after they have cooled down.
- If possible, allow a new mercury burner to burn-in for 1–2 hours without interruption.
- Install the mercury burner very carefully, and without applying pressure.
Burners can burst very easily.
- Never touch the glass parts of the mercury burner with your hands. Fingerprints are burned on and reduce the light quality. If necessary, carefully wipe off dust and fingerprints using an alcohol-soaked cloth, then wipe dry.

2. High-pressure mercury burner

The Leica Microsystems 106 z lamp housing is used.
If the 105 z lamp housing model is available, it can also be used.



Follow the safety instructions!

The following gas discharge lamps can be used. They require different types of lamp mounts.

Order No.	Typical Life
500 137 50W high-pressure mercury burner (alternating current)	100 hrs.
500 138 100W high-pressure mercury burner (direct current, stabilized/not stabilized)	200 hrs.
500 321 100W high-pressure mercury burner (direct current, stabilized/not stabilized) (Type 103 W/2)	300 hrs.

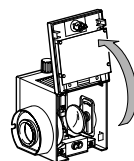
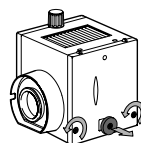
* Please follow the burner manufacturer's datasheets.

2.1 Installing/changing the mercury burner

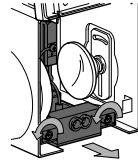
The mercury burner is delivered in separate packaging.
– Without identification code or with identifying code L1 for lower current/higher voltage,
– Identification code L2 higher current/lower voltage.

- ▶ Unscrew the 2 hexagon-head screws.
- ▶ Pull the contact plug partially out (do not rotate).

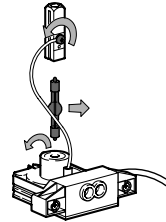
- ▶ Lift the cover.



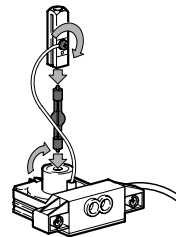
- ▶ Unscrew the 2 hexagon-head screws.
- ▶ Carefully pull out the base with lamp mount and connecting cable.



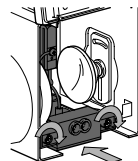
- ▶ Unscrew the top Phillips screw.
- ▶ Pull up the cooling element and pull it to the side.
- ▶ Unscrew the bottom clamping system.
- ▶ Remove the transport anchor and store it for later transport.
- ▶ When replacing burners, remove the used mercury burner and dispose of it as hazardous waste.



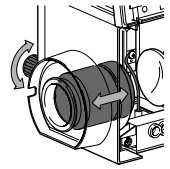
- When inserting the new mercury burner, the mark on the metal mount must be upright.
- ▶ Carefully insert the mercury burner into the bottom mount.
- ▶ Rotate the mercury burners with seal point so that it is located to the side of the beam path.
- ▶ Carefully set the flexible power supply on the top metal mount of the mercury burner.
- ▶ Very carefully tighten the top and bottom screws.



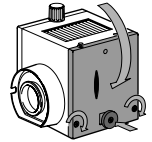
- ▶ Guide the lamp mount with the mercury burner into the rail of the lamp housing.
- ▶ Tighten the screw.



- ▶ Adjust the collector on a trial basis using the focusing knob.
- During this process, the collector may not come into contact with the flexible power supply.
If necessary, bend the power supply away from the collector.

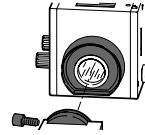


- ▶ Carefully close the lamp housing and make sure that the contact plug is set firmly in the socket.
- ▶ Gently push in the contact plug.
- ▶ Tighten the screws.
- ▶ Push in the contact plug until it stops (do not rotate).



3. Assembling the lamp housing

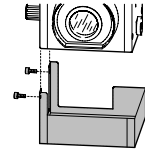
- ▶ Unscrew the hexagon-head screw on the adapter part using an Allen key.
- ▶ Insert the lamp housing into the adapter part and tighten the hexagon-head screw.



3.1 Stray-light protection

Between the lamp housing and the lamp base, there are gaps through which UV light escapes, and which can temporarily irradiate the hands of the user when handling objects under the lamp housing. The stray-light protection on the bottom of the lamp housing is designed to catch this stray light.

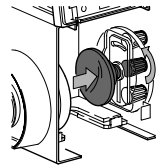
- ▶ Fasten the stray-light protection using 2 screws.



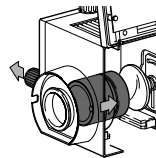
3.2 Replacing the collector and heat-absorbing filter

For cleaning, or in case of malfunction, the collector and heat-absorbing filter can be removed.

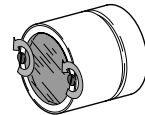
- ▶ Open the lamp housing and remove the lamp base.
- ▶ Move the reflector towards the right until it stops.



- ▶ Hold the collector in place and pull out the focusing knob.
- ▶ Remove the collector.

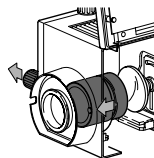


- ▶ Unscrew the 2 screws and remove the heat-absorbing filter on the collector.
- ▶ Screw a new heat-absorbing filter into place.

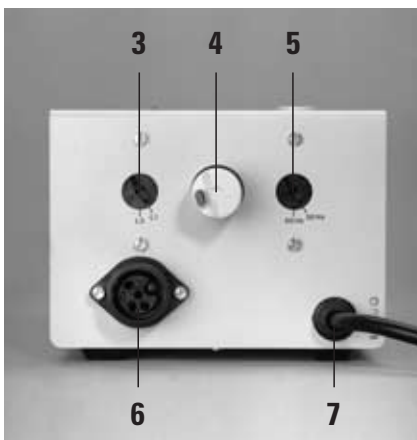
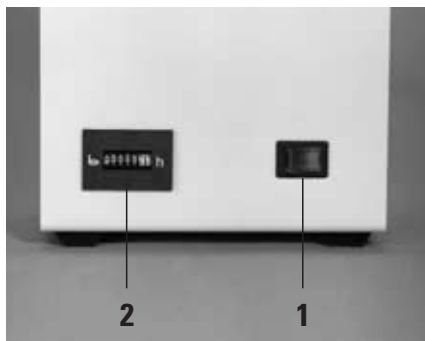


Insert the collector

- ▶ Pull the focusing knob outward.
- ▶ Carefully replace the collector and push it to the left until the focusing knob comes to a stop in the guide groove.
- ▶ Adjust the collector on a trial basis.
- ▶ Reinstall the lamp base and close the lamp housing.



4. Supply units



4.1 Supply unit for lamp housing 106 z with 50W mercury lamp

Type 301-185.003/10372

Input:

220V/240V $\pm 10\%$

220V ~ 50/60Hz

Hg 50W L1/L2

Osram No. 0-958

P. Max. 320VA

1. On/off switch
2. Operating time meter
3. Switching between L1 and L2 burners
4. Safety starter
5. Switching between 50Hz/60Hz
6. Lamp connection
7. Power cable



The supply unit is intended for power supply voltages of over 220V. For power supply voltages under 220V, an additional pre-transformer, such as 110V/230V, is required.



Follow the safety instructions!

- ▶ Connect the lamp housing cable to the supply unit.
- ▶ Switch on «L1» or «L2» according to the label on the lamp base.
- ▶ Switch on 50Hz or 60Hz.
- ▶ Connect the power cable to the power supply.
- ▶ Read the hour meter and note the number displayed.



To minimize the risk of explosion, replace a discolored high-pressure mercury burner promptly when it has reached the end of its rated life.

Follow the manufacturer's specifications and the minute meter on the supply unit!

► Switch on the supply unit.

The safety starter ignites the burner. If the burner does not ignite after several attempts, the burner could still be too hot or may be burned out, and the safety starter then switches off. Wait until the burner has cooled off or replace it with a new one. New start:

- Press the red button on the safety starter.
- The safety starter becomes operational once again.



**After switching on the supply unit, new mercury burners must be adjusted immediately.
There is a danger of overheating for mercury burners that are not adjusted.
Danger of explosion.**

Replacing the safety starter

► Turn the safety starter counterclockwise and remove it.

You can also use Osram safety starters for HBO 75W.

4.2 ebq 100 supply unit for 100W mercury burners

100W mercury burners must be powered by the ebq 100 supply unit.



Read the separate instruction manual and safety instructions provided with this supply unit.

5. Adjusting the mercury burner

After installing the mercury burner, adjust it exactly as described. Never let the bright tips of the electric arcs, the focal spots, cross when projected.



Danger of explosion from overheating

Adjustment is also important to obtain a homogenous light surface and good fluorescence.

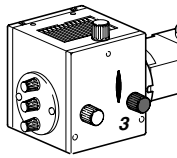


When adjusting the mirror image of the arc, never project it onto the electrodes for a longer period. Danger of explosion from overheating!

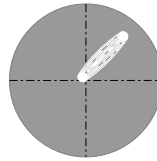
Both electrodes can be faintly seen in the extension of the symmetrical level of the arc.

- ▶ Switch on the supply unit. Wait for 2–3 minutes.
 - For the supply unit for 100W, you will hear a whistling sound.
- ▶ Swing away the UV protection screen.
 - You can work temporarily without the UV protection screen only when making adjustments!
- ▶ **For the Leica MZ16 FA:** Rotate the filter set into the beam path using the **F** button on the manual operation unit.
- ▶ Draw crosshairs on a piece of paper and place it in the middle of the illuminated circular area.
- ▶ Select the lowest magnification.
 - The arc is visible in the illuminated circular area. It is positioned approximately 45° diagonally to the drawn crosshairs (Fig. a).
- ▶ Look into the oculars and focus the crosshairs.
- ▶ With the naked eye, observe the arc on the paper and focus it using the focusing knob (3) (Fig. a).
- ▶ Move the arc using the positioning buttons (1 and 2) (Fig. b).
- ▶ Focus the second arc (mirror image) using the button (6) and position it symmetrically to the direct image using the knobs (4 and 5) (Fig. c).
 - For the 50W mercury burner, the arcs should contact each other.
 - For the 100W mercury burner, the arcs should cross.
- ▶ Readjust the lamp field using the focusing knob (3).
 - The light field should now be as large, round and uniformly illuminated as possible.
- ▶ Reposition the UV protection to protect the observer.

Fig. a: Focus the arc.



Hg 50W



Hg 100W

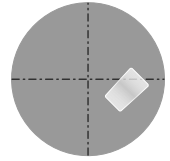


Fig. b: Position the arc at the crosshairs.

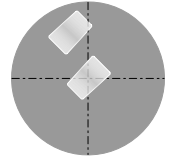
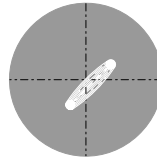
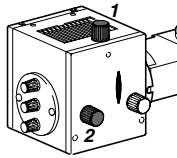
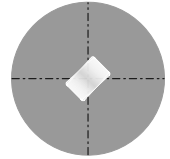
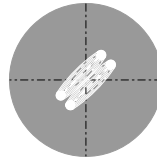
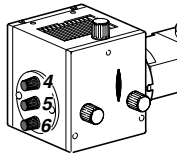


Fig. c: Focus and position the second arc.



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