

User manual with the microscope LED lamp for

LEICA model DM LB / LB2 (30w).

TDKK

Technische Dienst Koekange



Mounting of the LED lamp is an easy job. Lift the black cover of the lamp housing at the back of the microscope.

Take out the halogen bulb with a tissue. Now place the LED lamp in the vacant space. (see image) Replace the black cover, mind the clips.

The LED lamp uses the electronic supply and the light regulation system of the microscope.

By using the principle not to change anything

on the microscope, all parts of the microscope work the same as you are used to, but now with LED light. If needed the halogen bulb can be reinstalled with ease

The maintenance of the LED lamp is not different from a halogen bulb,

“Keep your fingers away from the glass”.

The “glass” of the LED lamp is made of a soft plastic that easily collects fingerprints and dust. Clean the glass, if necessary, carefully with a little wet, clean-water dipped cotton swab. Leave the glass moist.

Even a LED lamp can get warm if used for a **longer time** on **maximum** Voltage.

The temperature can reach a maximum of approx. 80°C. This is still a lot “cooler” than the halogen bulb. The power consumption is than about 3 watt. This is only 10% of the consumption of the halogen bulb.

Avoid the maximum values if possible, take polarisation- and other filters out of the light path after use. By doing so, the warmth production and power consumption drop to a minimum, and the life expectancy will increase to almost endlessly.

Paste the LED sticker at a visible position on the microscope to indicate the presence of the LED

NOTE

Some adjustment of the position of the lamp may be needed to get the best result, for a homogeneous lit image. Change the position of the LED by pulling it a bit further out of the socket or pushing it up or down a little, repeat until satisfied. (use a 5x or 10x magnification to check) or place a piece of paper on the base lense of the microscope to see the light projection.



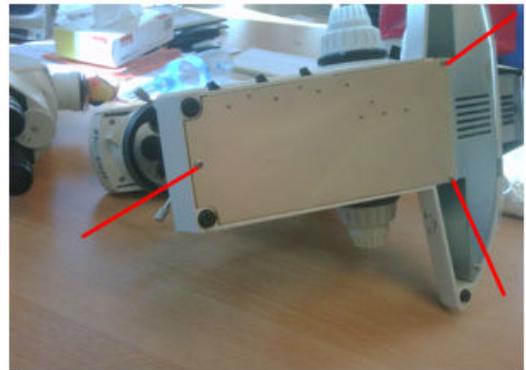
NEVER LOOK STRAIGHT IN THE UNCOVERED BEAM OF A HIGH POWER LED

(chance on eye damage)

* Possibly the LED light will be too blue, there is (always) a daylight filter mounted in the bottom of the microscope, we have to reposition that.

All actions have to be done with much care!

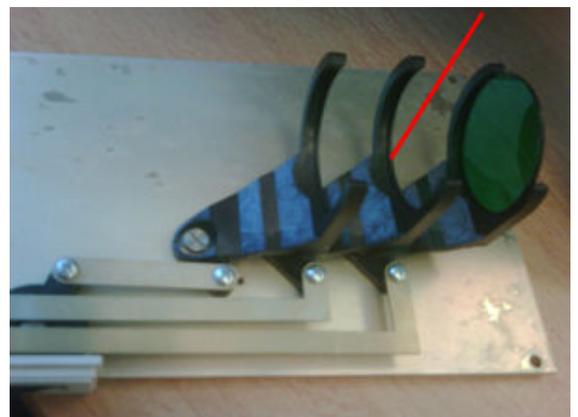
Remove the head of the microscope (3 mm Allen key) and lay the microscope at its side. The cover plate of the bottom is mounted with 3 screws, take these out, using a screwdriver.



When the cover is off you see two (plastic) diffuser filters, the "blue" one is the one in the middle (in the black diaphragm module) carefully take this out, without scratching or breaking.
Leave the diffuser in the back at its place!

You can keep this "blue" diffuser filter and the halogen bulb in a safe place (outside the microscope)

Or if there is a filter changer bottom, you can put the "blue" diffuser filter in an open position. Glossy side in front, so you can still use it



Replace the bottom, put the microscope upright again and mount the head back on the microscope.

Your microscope is now ready to be used with the new LED light

The LED lamp and CE mark.....

However CE marking is an ideal indicator, which tells you that the marked goods have been made by, and meet requirements of safety, according to European directives, is the LED lamp no subject to these rules.

(Electrical equipment designed for use within certain voltage limits.

Directive 2006/95/EC-L374/10 , which is available at TDKK)

Tension: In the first article of this directive is written that these rules apply for equipment that is designed for use with voltages starting at 50 volt and higher. The LED is made for max. 12 volt

EMC : Devices that could produce Electro Magnetic Interference, or react to that, need to be shielded for that radiation. The LED lamp is only a passive member.

Danger: Electrical equipment needs to be constructed in accordance with good engineering practice, to not endanger the safety of persons, domestic animals or property. The LED is made like this, see for instance the heat reduction, thus low temperature .

TDKK has made sure that , even without a CE label, you get a safe and reliable LED lamp for your microscope.

Be sure to read the manual.

TDKK GIVES 1 YEAR WARRANTY ON THIS LED From 05-03-2015, serial number 323

This LED is produced by TDKK

This LED is in category 0 for electrical equipment (isolated, no earthing)

Connection voltage max 12 volt, current max 200 mA, Temperature max 80°C

Model number 8092019

Absolute max ratings 24 Volt 500 mA for a very short while (seconds)

There is a small chance that the supply inside the microscope switches over to an audible frequency, if this should happen please contact TDKK for instructions (from BZ:01)

NOTE

Some elder models of DM LB have a "standard" (semi electronic) regulator.

These regulators tend to produce a flickering in the LED light.

Take a look at the type indicator sticker of the microscope, to see if this model is a BZ 00 type. (higher BZ numbers should work without problems with a LED)

If this is the case you need an extra filter module to remove the flickering in the light. (available at TDKK) Filter may also be used with halogen bulb mounted.

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