

EV5000
VIBRANCE®
UV LED black light
OPERATING MANUAL



Part Number 624673

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MAGNAFLUX

A Division of Illinois Tool Works Inc.

3624 WEST LAKE AVENUE ■ GLENVIEW, ILLINOIS 60026
TEL 847.657.5300 ■ FAX 847.657.5388
www.magnaflux.com

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1 MANUFACTURER INFORMATION

If you have a question about the purchase, operation or servicing of a VIBRANCE® EV5000 UV-LED Black Light, please use the contact information provided below.



3624 West Lake Avenue, Glenview, Illinois 60026 USA

Telephone: (847) 657-5300

Fax: (847) 657-5388

Web: www.magnaflux.com

E-mail: cs@magnaflux.com

2 USER INFORMATION

2.1 Purpose of The VIBRANCE® EV5000 UV-LED Black Light

The VIBRANCE® EV5000 UV-LED Black Light has been designed for use in NDT testing applications to aid in the visual inspection and identification of cracks, inclusions and other forms of surface defects in components undergoing fluorescent liquid penetrant and magnetic particle inspection. It is also extremely effective in identifying proper rinsing during the NDT inspection rinse process.

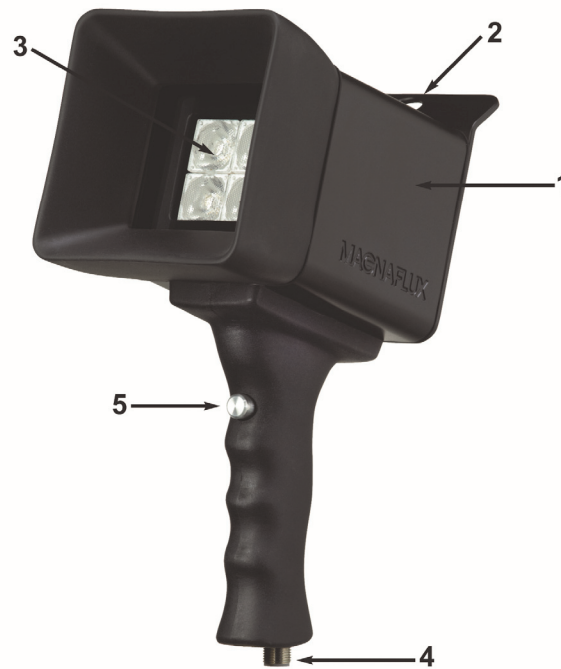
3 DESCRIPTION OF THE VIBRANCE® EV5000 UV-LED Black Light

3.1 Intended Use

The VIBRANCE® EV5000 UV-LED Black Light is intended for use in non-destructive testing applications. The operating safety of the light can only be assured if the device is used for the purpose it is intended.

If you have any questions concerning the optimal use of the device, please do not hesitate to contact the manufacturer.

3.2 Design



Design of the VIBRANCE® EV5000 UV-LED Black Light

- [1] Durable aluminum/PU casting resin housing
- [2] Mounting hole
- [3] High performance UV-LEDs with filter glass
- [4] Socket output 24 V DC
- [5] Switch-on push button

3.3 Technical Data

Application Data

UV source	4x High performance UV-LEDs, ready for immediate use and having an expected lifespan of approximately 50,000 hours
Wavelength	Between 365 - 370 nm
UVA intensity (at 15" distance)	Exceeds industry requirements
UVB	0 W/m ²
UVC	0 W/m ²
Surface temperature of lamp housing (additional cooling by natural convection)	<104° F (40° C)

Electrical Power

Operating voltage	24 V DC
Power supply	115 volt AC/60 Hz /1 phase
Power consumption	< 15 W
Duty cycle	Relative duty cycle: 100%

Ambient Conditions

Operating temperature	41 - 113° F
Storage temperature	41 - 131° F
Humidity during operation	Maximum 90% relative humidity (non-condensing)
Air humidity, storage	Maximum 90% relative humidity (non-condensing)

Emissions

UV radiation	The lamp does not generate any UVB or UVC radiation.
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Light Dimensions and Weight

Dimensions	9.5" x 6.5" x 4"
Weight	Approximately 2 lbs.

3.4 Function of The VIBRANCE® EV5000 UV-LED Black Light

The VIBRANCE® EV5000 UV-LED Black Light generates ultraviolet radiation with a wavelength that is outside the spectrum visible to the human eye and shorter than the wavelength of blue-violet lights that is visible to humans.

The light's ultraviolet radiation is generated by special high performance UV-LEDs. The LEDs generate a UV light with a wavelength between 365 - 370 nm. This corresponds to UV radiation in the so-called UVA range. Since the UV-LED does not generate any dangerous UVB or UVC radiation, simpler and more cost-efficient filter glasses can be used.

Application for Non-destructive Material Testing

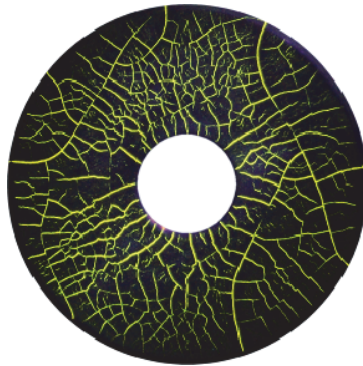
During non-destructive testing of components, fluorescent liquid penetrants are stimulated to glow through the UV-LED light causing cracks to become more visible to the observer and the image processing system.

Due to the very narrow spectral range of the UV-LED light, the generated UV light can be perfectly adjusted to the pigments in the liquid penetrant. This allows for a more accurate determination of cracks or faults compared to other UV sources, such as mercury vapor lamps.

Radiation Intensity and Radiation Area

Starting from a distance of approx. 15", the radiation intensity decreases as the light gets further away from the component. In the practice of non-destructive material testing, the distance from the UV light to the work piece should not exceed 15".

Even illumination of the test surface is important to ensure detection of cracks.



Picture above shows an evenly lit test object.

By using 4 High performance UV-LEDs, the VIBRANCE® EV5000 UV-LED Black Light provides an almost uniformly lit surface.

4 GENERAL SAFETY INSTRUCTIONS

4.1 Hazards When Using The VIBRANCE® EV5000 UV-LED Black Light

Improper use of UV light can have adverse effects:

- For the health of the operating staff
- For the light itself
- For other equipment

Knowing the safety instructions and information contained in this operating manual is the basis for handling the VIBRANCE® EV5000 UV-LED Black Light in a safe fashion and for ensuring trouble-free operation.

Severe injury to persons and damage may be caused by:

- Incorrect installation and assembly
- Incorrect use
- Unauthorized removal of covers or safety devices

Operating Manual

Always observe the safety instructions provided on the light and in the operating manual. The operation manual should always be kept at the place of use of the light and should be within easy reach of operators and maintenance staff.

Electrical Dangers

The light is operated via the Main voltage. Live parts within the light housing are not to be touched. Life-threatening electric shock or burns are possible. Electrical installation should only occur:

- With the device unplugged
- By electrically trained and qualified personnel
- According to standards applicable at the place of installation.

Observe the general safety instructions for work on electrical systems.

4.2 Danger Caused By UV Radiation

Important: Despite low radiation exposure, health risk cannot be excluded in cases of prolonged exposure to UV light, for example redness or increased pigmentation of the skin.

The assessment of the risk depends on the following factors:

- Exposure time
- Radiation intensity
- Spectrum of the UV-LED light

Due to the fairly low penetration of energetic optical radiation, health hazards at the workplace are predominantly confined to the eyes and skin. Particularly the hands and eyes of the inspector could be affected.

Ultraviolet radiation can cause damage to skin and eyes. See the following recommendations:

- Do not look directly into the UV-LED light beam.
- Never use optical focusing devices, such as magnifying glasses, telescopes or microscopes, to look into the light beam. (In this context, corrective glasses are not included in focusing optical devices.)
- Do not direct the UV-LED beam against other people.
- Always position the UV-LED light below eye-level.
- Avoid skin contact. Wear body-covering work clothes and suitable gloves or lotions with a high UV protection factor.
- Access to the light's zone of activity should be restricted to trained personnel.
- Wear suitable eye protection (UV safety glasses). Due to the reflection of UV-LED light, damage to the eyes can occur without looking directly into the lamp.
- Only authorized and trained personnel should be allowed within the work area.

The operator of the device should identify, document, and mark areas of increased exposure. He/she should ensure that:

- Only authorized and trained personnel are active within the area.
- Values defined for body part exposure are not exceeded.
- Personal protection devices are used in order to avoid over exposure.

4.3 Action To Be Taken In The Event of An Emergency

In case of an emergency, switch off the power supply to the light. The main operating switch disconnects the internal electronics from the power supply. However, parts of the light can still be carrying dangerous voltages, even if the main switch is OFF.

Switch off the external power supply of the light immediately if defects or damage have been detected to electrical equipment. Unplug the damaged light immediately and secure against further use.

4.4 Operator Responsibilities

It is the responsibility of the operator to ensure that the VIBRANCE® EV5000 UV-LED Black Light is only used by persons:

- Who are acquainted with the basic regulations concerning industrial safety and the prevention of accidents.
- Who have been trained in the operation of the light.
- Who have read and strictly follow this manual.

4.5 Training of Personnel

Only trained personnel should be entrusted to work with the VIBRANCE® EV5000 UV-LED Black Light. Personnel undergoing training should work with the light only under supervision.

Installation, maintenance and repair work should only be carried out by qualified and skilled professionals.

4.6 Personal Protective Equipment

Wear suitable eye protection (UV safety glasses) and cover your skin with suitable UV-proof clothes and gloves when operating the light.

4.7 Conversions or Modifications

Any additions or modifications to the VIBRANCE® EV5000 UV-LED Black Light without the written approval of the manufacturer will void the light's warranty. Please consult the manufacturer if you have planned any conversions or modifications.

4.8 Spare and Wear Parts

The use of spare parts and used parts from third party manufacturers may be hazardous. Only use original parts or parts approved by the manufacturer.

The manufacturer does not assume liability for damage caused by spare or used parts that have not been approved by the manufacturer and such use will void the light's warranty.

5 STARTING THE VIBRANCE® EV5000 UV-LED Black Light

- Connect the light to the power supply by way of the supply cable.
- Plug in the cord from the power supply to 115V/60 Hz/1 Phase receptacle.
- Press the handle-integrated on/off push-button. UV radiation commences immediately at full intensity.
- No warm-up required.

Operating the light only when required will increase the lifespan of the UV LEDs.

Free use of the light requires ventilation (natural convection).

WARNING

Do not use the UV-LED light without the protective filter glass in place.
Do not use the UV-LED light with a damaged filter glass.
Use the UV-LED light with care to avoid any damage to the filter glass.

6 PERIODIC MAINTENANCE

ALWAYS KEEP THE UV-LED LIGHT CLEAN.

Maintenance

Check the UV-intensity.
Check the condition of the filter.

Cleaning

Clean the UV-LED with a moist cloth, never use abrasive cleaning agents.
Clean with mild industrial cleaning agent, no solvent, acids or bases.

6.1 Replacing The UV-LEDs or Filters

Please contact manufacturer for procedure on replacing these components.

7 SPARE PARTS

Contact Magnaflux Customer Service at **(847) 657-5300** for spare parts, or email request to **cs@magnaflux.com**.

8 TRANSPORTATION AND STORAGE

8.1 Transportation

The VIBRANCE® EV5000 UV-LED Black Light may be comfortably stored and transported in the carrying case that it came in.

Avoid pulling of the connecting cable.

Always wind the cable to prevent it from getting tangled in knots.

Avoid objects hitting against the carrying case.

8.2 Storage

The VIBRANCE® EV5000 UV-LED Black Light can be stored in its carrying case without special measures according to the ambient conditions specified in the technical data.

9 DISPOSAL

9.1 Disposal of The VIBRANCE® EV5000 UV-LED Black Light

Prerequisites

Find out about local regulations relating to disposal.

Procedure

- 1 Decommission the UV-LED light.
- 2 Dismantle the UV-LED light.
- 3 Separate the components of the light by material.
 - Metals
 - Plastics
 - Composites
 - Electrical components
 - Consumables such as lubricants etc.
- 4 Dispose of all parts correctly in accordance with local regulations.

Please contact the manufacturer if you have any questions.

10 **WARRANTY**

10.1 **Warranty Coverage**

The VIBRANCE® EV5000 UV-LED Black Light carries a Limited Lifetime Warranty on the filter and LED's for the original purchaser. If the filter or LED's ever need replacing, Magnaflux will provide the parts at no charge as long as the light does not show signs of abnormal abuse, has not been modified, and does not contain replacement parts other than those provided or approved by Magnaflux.

10.2 **Free In-Service Loaner Light**

Should the VIBRANCE® EV5000 UV-LED Black Light be returned for approved warranty service by the original purchaser, a free loaner light will be provided for the period that the light is in service. Free loaner lights are based on availability and provided on a first come basis.

Failure to return a loaner light within 15 days of the original light's repair and return to purchaser will result in an immediate billing for the cost of the light.

Please contact Magnaflux Customer Service at (847) 657-5300 or via E-mail at cs@magnaflux.com if your VIBRANCE® EV5000 UV-LED Black Light needs repair.