

# INSTALLATION INSTRUCTIONS

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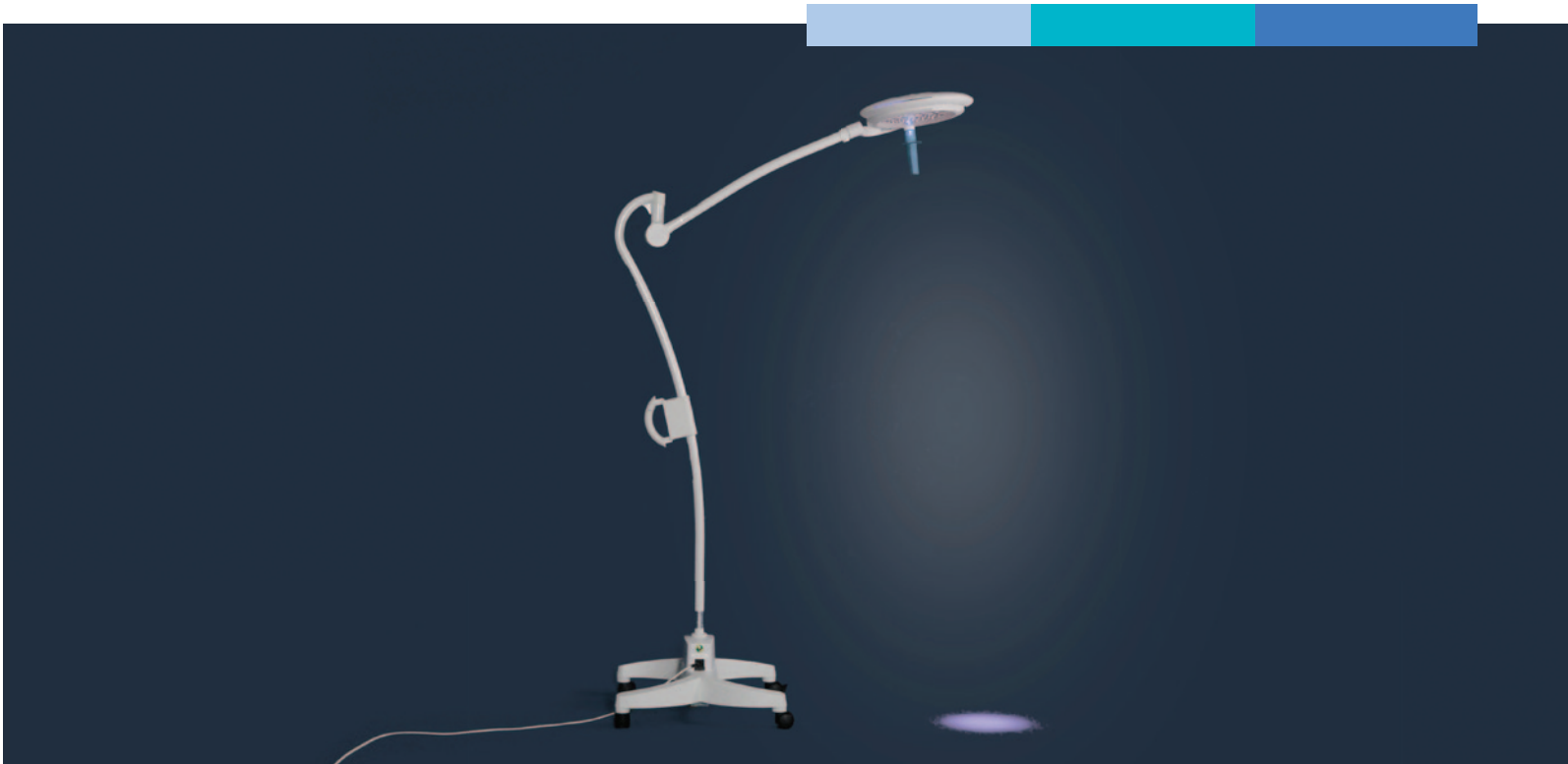


MOBILE STAND FOR

**MIMLED 600**

**MIMLED 1000**

VALID FROM MAY 2016



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## INSTALLATION INSTRUCTIONS

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# 1 INSTRUCTIONS FOR SAFE INSTALLATION

## SPECIFIC PURPOSE

- The devices are exclusively used to support and position the MIMLED 600 and MIMLED 1000 heads as well as supply the devices with power.
- The devices are suitable for continuous operation.
- The devices are not suitable for the field of home care.




## IMPROPER USE

- The devices must not be loaded with additional weights in addition to the light body.

## CONTRAINDICATION

- The support arm system should not be located in the vicinity of strong magnetic fields.
- Only lights of the type MIMLED 600 and MIMLED 1000 may be connected to the support arm system.

## ADDITIONAL SYMBOLS TO THE SAFETY INFORMATION:

SYMBOL	DESCRIPTION
	<b>STROMSCHLAG:</b> This warns against an electric shock which can lead to serious injury or even death.
	<b>FALLING OF THE SUPPORT ARM SYSTEM:</b> This warns of the sudden crash of the support arm system caused by exceeding the maximum payload.
	<b>SNAPPING UP OF THE SPRING ARM:</b> This warns of the sudden snapping up of the spring arm when dismantling the end terminal.

## OTHER PICTOGRAPHS:







SYMBOL	DESCRIPTION
	<b>FOLLOW INSTRUCTIONS FOR USE:</b> Please read these Instructions for Use carefully before you first use the support system. This will allow you to get all of the advantages which the support system offers and avoid possible injury and property damage.
	<b>OBSERVE MAXIMUM PAYLOAD:</b> This warns of exceeding the approved maximum payload (load capacity) on the mounting arm system, the adaptation or the end terminal.

TABLE 1: Symbol legend

## 1.1 INSTALLATION/DISMANTLING

SYMBOL	DESCRIPTION
	<p><b>CAUTION – ELECTRIC SHOCK:</b>  <b>To avoid risk of electric shock, the device may only be connected to supply mains with a protective earth conductor.</b>            The device must be connected so that it can be completely (all poles) and, at the same time, disconnected from the mains.</p>
	<p><b>AIR PRESSURE:</b>            This shows the allowed air pressure values from 500 hPa to 1060 hPa for transport and storage.</p>
	<p><b>HUMIDITY:</b>            This shows the allowed humidity from 10% to 75% for transport and storage.</p>
	<p><b>AMBIENT TEMPERATURE:</b>            This shows the allowed ambient temperatures from -25 °C to 70 °C for transport and storage.</p>

## 1.2 ENVIRONMENTAL CONDITIONS FOR STORAGE AND TRANSPORT

Different ambient conditions apply for operation and intermediate storage of the device.

ENVIRONMENTAL CONDITIONS FOR THE STORAGE AND TRANSPORT	
The following storage conditions apply for up to 15 weeks after the date of delivery:	
Ambient temperature:	-25 °C to 70 °C
Relative humidity (non-condensing):	10% to 75%
Air pressure:	500 hPa to 1060 hPa
AMBIENT CONDITIONS FOR OPERATION	
Ambient temperature:	10 °C to 40 °C
Relative humidity (non-condensing):	30% to 75%
Air pressure:	700 hPa to 1060 hPa

## 2 INSTALL CASTORS



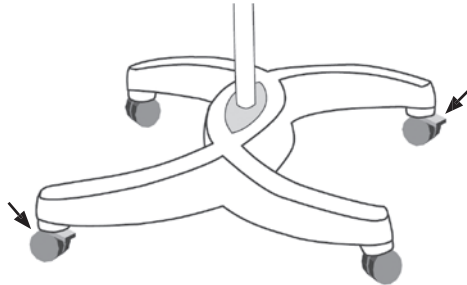
**WARNING – STATIC ELECTRICITY**

Without installation of the PE-cable, static charging of the mobile stand can occur and can discharge on patients. Install the PE-cable.

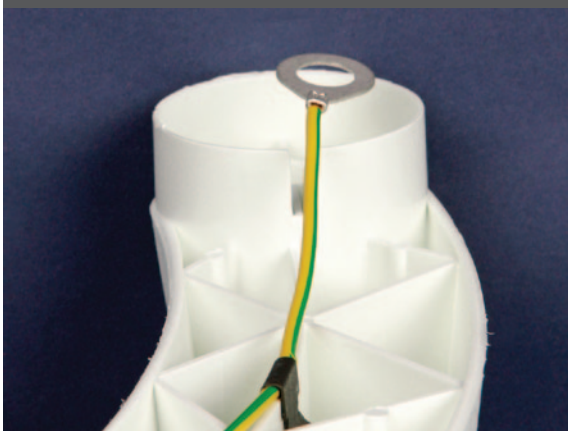


**CAUTION**

Always attach the braked castors diagonally, otherwise tilt/slipping risk.



**INSTALL CASTORS**



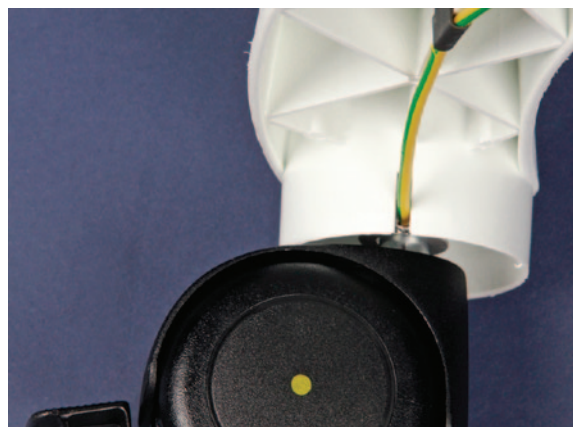
1. Ring terminal of the PE-cable.



2. Guide two anti-static castors with brakes through the ring terminal of the PE-cable.



3. Press on the two anti-static castors with brakes.



4. Completely insert into the mobile stand.  
5. Completely insert two castors without brakes  
6. Check for the secure seating of the castors.

FIGURE 1: Install castors

### 3 INSTALL MOBILE STAND TUBE

**BE CAREFUL – DAMAGE TO THE DEVICE**

When the nose lock is not arrested and the stand pipe is not bolted, the stand will fall down. Snap the nose lock into place and thoroughly tighten the screw with spring washer.




As described in Section 3 take the caster feet and install as follows:

INSTALL MOBILE STAND TUBE	
	<p>1. Unscrew screw with spring ring from the caster base.</p>
	<p>2. Loosen the Cross-head screw so that canopy can be moved.</p>
	<p>3. Observe recess on the caster base for correct positioning on the mobile tube</p>
	<p>4. Insert mobile tube so that the recess in the tube sits in the nose of the mobile stand base and cannot be turned.</p>



**INSTALL MOBILE STAND TUBE**



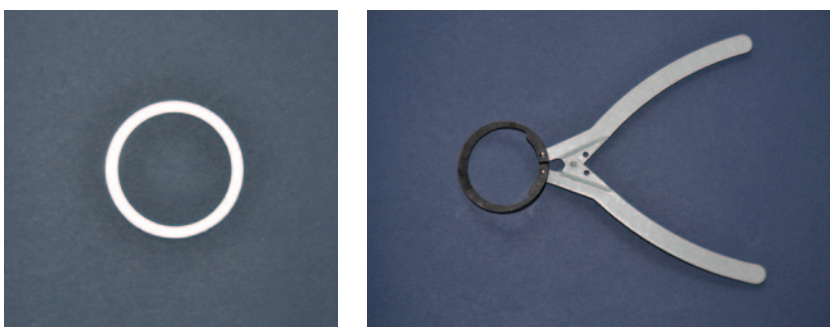
5. Check for proper seating.

6. Screw in screws with spring ring and tighten again.

7. Press plastic half-rings with seal ring into the stand base. Screw Cross-head screw tightly and check for secure seat.

FIGURE 2: Installation of mobile stand pipe

## 4 SPRING ARM MOUNTING



Provided accessories:  
 Washer (left),  
 Snap ring picked up with  
 collet chuck (right)

FIGURE 3: Accessories spring arm



**CAUTION – DAMAGE TO THE DEVICE**

Without a mounted washer, the snap ring will be turned up and the spring arm falls out of the connection. Always mount the washer.



SPRING ARM MOUNTING



1. Unscrew the cross-head screw.



2. Remove cover to the front and lift it off.



3. Insert spring arm pin.



4. Insert to stop.

SPRING ARM MOUNTING	
	<p>5. Install washer and secure with the snap ring. Snap ring must be snapped into the pin groove. This should be checked.</p>
	<p>6. Establish an electrical connection.</p>
	<p>7. Introduce connection carefully into the tube.</p>
	<p>8. Put on the cover.</p>
	<p>9. Screw cap on with the cross-head screw.</p>

FIGURE 4: Spring arm installation

## 5 INSTALL END TERMINAL DEVICE



Accessories: Locking segment

FIGURE 5: Accessories end terminal

### INSTALL END TERMINAL DEVICE



1. Unplug mains plug and secure against reconnection
2. Remove protective cap from the spring arm opening.

**WARNING – DANGER OF INJURY**

The spring arm which is pressed downwards can snap back up and cause injury. During the installation of the end terminal, no people should be located within the swivel range of the spring arm.



3. Push the plastic sleeve on the arm so that the two slots are covered.



4. Insert the terminal's swivel arm end (remove protective grease cover before).

**INSTALL END TERMINAL DEVICE**



5. Insert the locking segment completely into the slot so that the locking segment can be guided into the groove.



6. Rotate plastic sleeve by 180° and tighten the slot screw.

7. Check for secure seating of the end terminal.

FIGURE 6: Installation end terminal

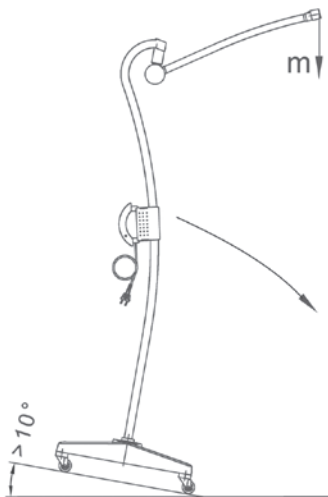


FIGURE 7: Mobile stand tilt test

**CAUTION – DAMAGE TO THE DEVICE**

After the installation of the end terminal, perform tilt test according to DIN EN 60601-1.

## 6 ADJUST THE SPRING FORCE

As with any technical component, springs are subject to natural wear. Thus the spring force can decrease after extended operation and must be readjusted.

**Adjust spring force so that the spring arm with the end terminal remains in any desired position.**

### CAUTION – DESTRUCTION OF THE SPRING ARM

The adjusting of the spring force is done in the upper end position.



1. Remove the left joint cover on the spring arm in the direction of the end terminal. Carefully pry the joint cover out of the groove in the spring arm joint with a narrow flat-blade screwdriver.

2. Position end terminal in the upper end position.



3. Insert flat-blade screwdriver into the hole.



4. Adjust the spring force.



5. Install and snap joint cover into place.

FIGURE 8: Adjust spring force

### CAUTION: DESTRUCTION OF THE SPRING ARM

If the brake screw is tightened too much, the spring arm will be destroyed. Only tighten the brake screw carefully under repeated monitoring of the braking force control.

#### If the spring arm lowers – the spring force is too low:

- The adjusting screw must be rotated to the left (counter clockwise).

#### If the spring arm rises – the spring force is too high:

- The adjusting screw must be rotated to the right (clockwise).



## 7 REPLACEMENT OF FUSES



**WARNING – ELECTRIC SHOCK**

For all maintenance work on the device, disconnect the power supply, pull out the mains plug and secure against being switched on again.

**CAUTION – DAMAGE TO THE DEVICE**

Only the specified fuses may be used!

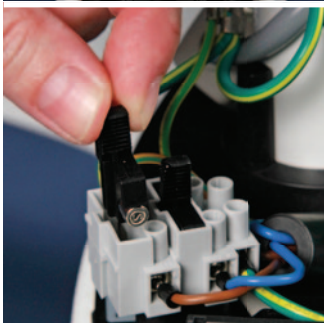
**REPLACE THE FUSES IN ACCORDANCE WITH THE FOLLOWING WORK STEPS:**



1. Loosen cross- head screw but do not remove.



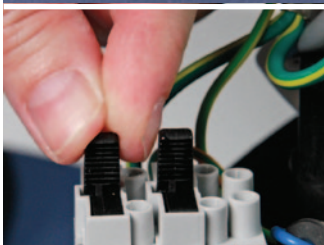
2. Loosen clamping ring, seal and housing but do not pull out completely.



3. Remove defective fuse.



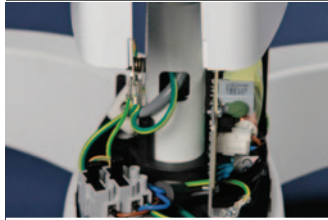
4. Replace defective fuse.



5. Insert new fuse.

FIGURE 9: Replacement of fuses



**REPLACE THE FUSES IN ACCORDANCE WITH THE FOLLOWING WORK STEPS:**

6. Slide down clamping ring, seal and housing.



7. Tighten cross-head screw.

**NOTE – REPLACEMENT OF THE CONNECTION LINE**

The connection cable must only be replaced by an authorised mechanic personnel.

## 8 EQUIPOTENTIAL BONDING CONDUCTOR

An equipotential bonding cable is an additional conductor (accessory; not included in the scope of delivery), which establishes a direct connection between the electrical device and the potential equalising bus bar of the electrical installation. The mobile light on the mobile stand as well as the wall-mounted lights have an equipotential bonding connector on the housing of the mobile stand or on the wall mounting so that possible differences in voltage which can occur as voltage sources, are avoided in the patient environment; also in connection with the parallel use of other devices. Such voltage sources can cause currents over the body resistance, which not only flow over the patient but can also affect doctors and nurses or even endanger them. Currents flowing through such active medical devices can lead to malfunctions.

In rooms used for Class 2 medical purposes, all external conductive parts within the patient environment are (electrically connected with each other and) connected to the earthing conductor busbar in addition to the protective measures according to DIN VDE 0100 Part 410. This means protective bonding conductors must be connected to a potential equalizing busbar.

In particular when using the lights in connection with critical procedures such as e.g. examinations near the heart and procedures to the heart, it must be ensured that the value for the maximum permissible contact voltages of 10 mV is not exceeded ( $\Delta u \leq 10\text{mV}$ ). On the side of the lights, this is supported e.g. by the existing equipotential bonding connector in connection with the equipotential bonding conductor (see accessories).

In ceiling-mounted lamps, a protective bonding conductor must be connected for installation in medical rooms of Class 2 with the respective ceiling slabs, as listed in the corresponding instructions for installation.



FIGURE 10:  
Equipotential bonding connector on mobile stand with equipotential bonding cable



FIGURE 11:  
Equipotential bonding conductor



## 9 ELECTRICAL AND OTHER TECHNICAL DATA

LIGHT HEAD	MIMLED 600	MIMLED 1000
Nominal voltage	24VDC ± 10%	24VDC ± 10%
Nominal current	1.1A @ 24V max.	1.4A @ 24V max.
Protection class	IP42	IP42

TOTAL SYSTEM	MIMLED 600	MIMLED 1000
Power consumption	25W	33W

	CEILING MODEL	WALL MODEL	MOBILE LIGHT
Fuse type	Primary 250V; T 800 mA L; 5x20 mm		Primary 250V; T 800 mA L; Secondary 250V: M2AL each with 5x20 mm
Protection class	I	II	I
Designed for continuous operation	X	X	X
Nominal voltage	100-230VAC	100-230VAC	100-230VAC
Nominal frequency	50/60 Hz	50/60 Hz	50/60 Hz
Maximum possible power consumption of power pack	60W	70W	60W

TABLE 2: Technical data

## 10 ELECTROMAGNETIC COMPATIBILITY



**Despite of all measures there may be interferences and/or EMC problems. Therefore, please observe the following tables!**

### More information on electromagnetic compatibility:

- Medical devices are subject to special precautions regarding EMC and must be installed and commissioned according to the EMC information contained in the operating and installation instructions.
- Portable and mobile HF communication equipment may affect medical electrical devices.
- The use of stands and mounting systems that do not come from deliveries, as well as their components (such as spring arms and brackets), or the use of accessories such as power supply units and electric lines other than those described in the operating and installation instructions may result in increased emissions or decreased immunity of the lighting systems, and is therefore not permitted.
- The parts shown in the sections of the instructions for use for „small surgical lights“ entitled „Scope of delivery“ and „Mounting system and accessories“ and their accessories must only be used in combination with the MIMLED 600 and the MIMLED 1000 systems.
- The operation of the parts (or their individual components or accessories) presented in the sections of the instructions for use for „small surgical lights“ entitled „Scope of delivery“ and „Mounting system and accessories“ in combination with devices than other than the MIMLED 600 and the MIMLED 1000 systems may lead to increased emission or decreased immunity of the device.
- Comply with the advice given in instructions for use for „small surgical lights“ on the subject of EMC and
- Comply with the advice given in instructions for use for „small surgical lights“ on the subject of significant performance characteristics.

## 10.1 INTERFERENCE EMISSIONS

### GUIDELINES AND MANUFACTURER'S DECLARATION – ELECTROMAGNETIC EMISSIONS

MIMLED 600 and MIMLED 1000 are intended for operation in the electromagnetic environment as specified below. The customer or the user of MIMLED 600 and MIMLED 1000 should ensure that it is used in the specific environment.

Emission measurement	Compliance	Electromagnetic environment – guidelines
HF emissions according to CISPR 11	Group 1	The MIMLED 600 and MIMLED 1000 use HF energy only for internal functions. Therefore, the HF emissions are very low and it is unlikely that nearby electronic devices will be disturbed.
HF emissions according to CISPR 11	Class B	
High frequency emissions according to IEC 61000-3-2	Class A	MIMLED 600 and MIMLED 1000 are intended for use in all facilities including residential establishments and those directly connected to the PUBLIC VOLTAGE SUPPLY NETWORK which supplies buildings used for residential purposes.
Voltage fluctuation emissions according to IEC 61000-3-3	Complies	

## 10.2 INTERFERENCE IMMUNITY

### GUIDELINES AND MANUFACTURER'S DECLARATION – ELECTROMAGNETIC IMMUNITY

MIMLED 600 and MIMLED 1000 are intended for operation in the ELECTROMAGNETIC ENVIRONMENT specified below.

The customer or the user of MIMLED 600 and MIMLED 1000 should ensure that it is used in the specific environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidelines
<b>Electrostatic discharge (ESD) according to EN 61000-4-2</b>	air $\pm 8$ kV contact $\pm 6$ kV	air $\pm 8$ kV contact $\pm 6$ kV	Floors should be made of wood, concrete or ceramic tile. If the floor is covered with a synthetic material, the relative humidity must be at least 30%.
<b>Burst according to EN 61000-4-4</b>	Power supply $\pm 2$ kV Input and output lines $\pm 1$ kV	Power supply $\pm 2$ kV Not applicable	The quality of the supply voltage should be that of a typical business and hospital environment.
<b>Surge according to EN 61000-4-5</b>	$\pm 1$ kV voltage external conductor-external conductor $\pm 2$ kV voltage external conductor-earth conductor		The quality of the supply voltage should be that of a typical business and hospital environment.

**GUIDELINES AND MANUFACTURER’S DECLARATION – ELECTROMAGNETIC IMMUNITY**

Voltage dips, short interruptions, an voltage variations on power supply input lines according to IEC 61000-4-11

<5% UT (>95% dip of the UT) for ½ cycle  
 40% UT (60% dip in the UT) for 5 cycles  
 70% UT (30% dip in the UT) for the 25 cycles  
 <5% UT (>95% dip in the UT) for 5 seconds

Line power quality should be that of a typical business and hospital environment. If the user of the MIMLED 600 or the MIMLED 1000 requires continued operation during power supply interruptions, it is recommended that MIMLED 600 and MIMLED 1000 be powered from an uninterruptible power supply (UPS) or a battery.

Magnetic field with the supply frequency (50/60Hz) according to IEC 61000-4-8	3A/m	30A/m	Power frequency magnetic fields should be at levels characteristic of a typical commercial or hospital environment.
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REMARK: UT is the network alternating voltage prior to application of test levels

**GUIDELINES AND MANUFACTURER DECLARATION – ELECTROMAGNETIC IMMUNITY**

MIMLED 600 and MIMLED 1000 are intended for operation in the specified ELECTROMAGNETIC ENVIRONMENT specified below. The customer or the user of MIMLED 600 and MIMLED 1000 should ensure that it is used in such an environment.

Interference immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidelines
<b>Radiated RF disturbance variables according to EN 61000-4-3</b>	80 MHz – 2.5 GHz, 3V/m	80 MHz – 2.5 GHz, 10V/m	Portable and mobile communications equipment should not be used in closer proximity to MIMLED 600 and MIMLED 1000 including the cable used than the recommended safety distance which is calculated from the equation applicable to the transmitter frequency.
<b>Conducted disturbance variables according to EN 61000-4-6</b>	150 kHz – 80 MHz 3Vrms	150 kHz – 80 MHz 10Vrms	<p><b>Recommended separation distance:</b></p> $d = 1.17\sqrt{P}$ $d = 1.17\sqrt{P} \text{ for } 80 \text{ MHz to } 800 \text{ MHz}$ $d = 2.34\sqrt{P} \text{ for } 800 \text{ MHz to } 2.5 \text{ GHz}$ <p>Where P is the rated output of the transmitter in watts (W) according to the information of the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey should be less than the compliance level in each frequency range.                      Interference may occur in the vicinity of equipment marked with the following symbol.</p>



## GUIDELINES AND MANUFACTURER DECLARATION – ELECTROMAGNETIC IMMUNITY

NOTE 1: With 80 MHz and 800 MHz, the higher frequency range applies. .

NOTE 2: These guidelines may not be applicable in all cases. Electromagnetic radiation is affected through absorption and reflection of structures, objects and people.

a The field strengths of stationary transmitters, such as, e.g. the base station of wireless telephones mobile radios, amateur radio stations, AM and FM radios and TV transmitters cannot theoretically be accurately predetermined. In order to determine the ELECTROMAGNETIC ENVIRONMENT with regard to the stationary transmitters, a survey of the electromagnetic phenomena on site should be considered. If the measured field strengths at the site used on MIMLED 600 and MIMLED 1000 exceeds the above-mentioned COMPLIANCE LEVEL, MIMLED 600 and MINOR SURGI-CAL LIGHTS 100 000 LX should be observed to verify intended FUNCTION. If unusual performance characteristics are observed, additional measures may be required, such as, e.g. a modified alignment or another location of MIMLED 600 and MIMLED 1000.

b The field strengths should be less than 3V/m over the frequency range of 150kHz to 80MHz.

### 10.3 RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF TELECOMMUNICATION EQUIPMENT AND THE DEVICE (NOT LIFE-SUPPORTING)

#### THE RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF TELECOMMUNICATION DEVICES AND MIMLED 600 AS WELL AS MIMLED 1000

MIMLED 600 / MIMLED 1000 is intended for use in an electro-magnetic environment where radiated RF interferences are controlled. The customer or the user of MIMLED 600 / MIMLED 1000 can help to avoid electromagnetic disturbances by maintaining a minimum distance between portable and mobile RF telecommunication equipment (transmitters) and MIMLED 600 / MIMLED 1000 – as specified below according to the output power of the telecommunication equipment

RATED OUTPUT OF THE TRANSMITTER (W)	SEPARATION DISTANCE ACCORDING TO THE TRANSMITTER FREQ. (M)		
	150 kHz to 80 MHz $d = 1.17\sqrt{P}$	80 MHz to 800 MHz $d = 1.17\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.34\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.69	3.69	7.38
100	11.67	11.67	23.33

For transmitters rated at a maximum output not given in the above table, the recommended separation distance  $d$  in meters (m) can be estimated using the equation in the respective column where  $P$  is the maximum rated output of the transmitter in watts (W) according to the manufacturer's specifications.

NOTE 1: With 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not be applicable in all cases. Electromagnetic radiation is affected through absorption and reflection of structures, objects and people.

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