

INSTALLATION INSTRUCTIONS

mimsal



CEILING AND WALL INSTALLATION FOR

MIMLED 600

MIMLED 1000

VALID FROM MAY 2016



mimsal

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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 installation 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
	ELECTRIC SHOCK: This warns against an electric shock which can lead to serious injury or even death.
	FALLING OF THE SUPPORT ARM SYSTEM: This warns of the sudden crash of the support arm system caused by exceeding the maximum payload.
	SNAPPING UP OF THE SPRING ARM: This warns of the sudden snapping up of the spring arm when disassembling the end terminal.

OTHER PICTOGRAPHS:

SYMBOL	DESCRIPTION
	FOLLOW INSTRUCTIONS FOR USE: 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.
	OBSERVE MAXIMUM PAYLOAD: This warns against exceeding the approved maximum payload on the support arm system, the adaptation or the end terminal.

2 INSTALLATION/DISMANTLING

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

ENVIRONMENTAL CONDITIONS

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

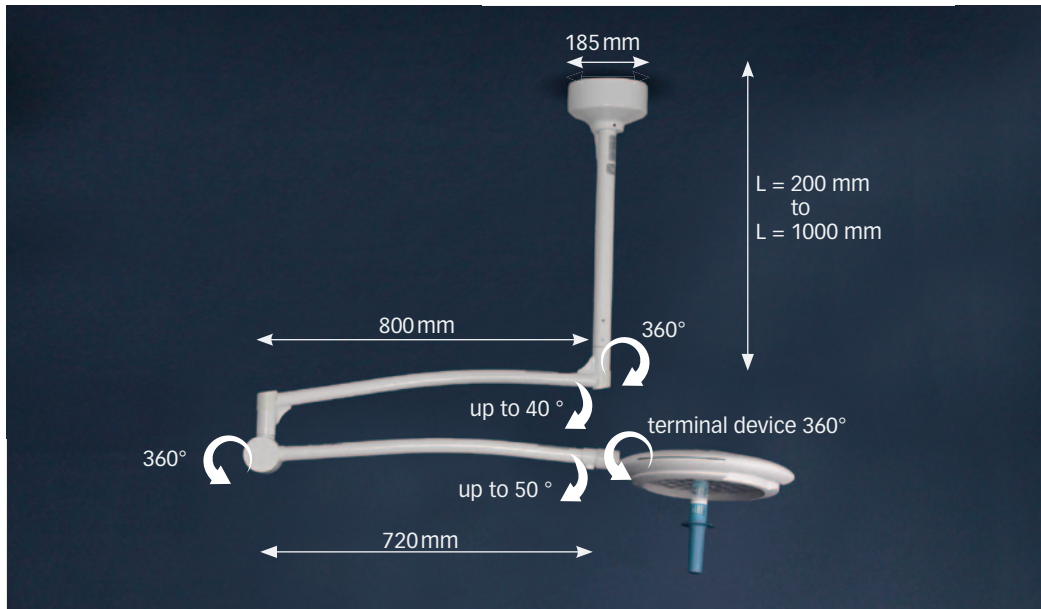
Ambient temperature:	10 °C to 40 °C
Relative humidity (non-condensing):	30% to 75%
Air pressure:	700 hPa to 1060 hPa

3 WORKING RANGE OF SPRING ARM

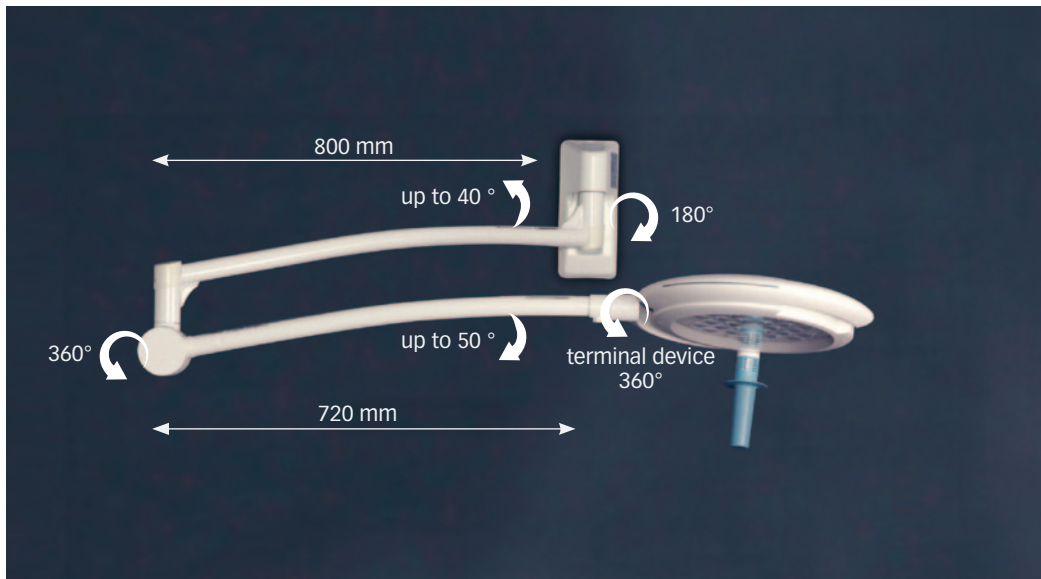
When installing the wall and ceiling models, it is important to ensure that the end terminal can be positioned in its desired workplace without the support arm system having to be constantly moved to the existing height limit stops or swing limit stops.

If this is not done, there is a risk that the support arm system will be damaged.

The swivel ranges of the ceiling and wall fasteners are shown in the following figures.



CEILING HOLDER OF THE MINOR SURGICAL LIGHTS



WALL HOLDER OF THE MINOR SURGICAL LIGHTS

4 STRUCTURAL CERTIFICATION

NOTE!

- The structural certification must be done before mounting on the wall or ceiling!
- The support capacity of the design must be planned, checked and certified by a structural engineer.
- The respective regional building codes are to be complied with.
- If the drill hole is improperly drilled, for example, by drilling through a reinforcing rod, the competent engineer must be involved because the sufficient static load distribution of the ceiling can be endangered!

ACCEPTANCE DECLARATION:

It is hereby confirmed that the load-bearing wall / ceiling and anchoring for the MIMLED 600X and MIMLED 1000 is safe and capable of holding loads.

Project

Anchoring (please mark applicable):

With counter plate

Other

PLACE:

Signature/Stamp: (Structural engineer/Building authority)

5 SELECTION OF THE FASTENERS

- The selection of the fasteners according to Table 1 „Load data“ and the secure execution of the mounting/installation is the responsibility of the person responsible for the mounting/installation.
- With lightweight walls, we recommend fastening with a counter plate (not included in delivery).

WARNING – LOAD DATA

- The load torque on the spring arm of the wall device must not exceed 30 Nm.
- The load torque on the spring arm of the ceiling device must not exceed 30 Nm.
- No safety factors are included in the specified load data. The required regional safety factors are to be included!
- The load data of the wall and ceiling devices can be taken from the following table.



LOAD DATA FOR WALL INSTALLATION

Load torque for wall installation	110 Nm
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Vertical weight force	97 N
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Pull-out force per anchor (total of 2 pcs.)	625 N
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LOAD DATA FOR CEILING INSTALLATION

Load torque for ceiling installation	85 Nm
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Vertical weight force	147 N
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Pull-out force per anchor (total of 4 pcs.)	405 N
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6 WALL MODEL

NOTE: The power connection needed for the wall-mounted device is a properly earthed outlet in the area of the connecting cable.

ACCESSORIES



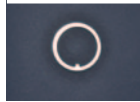
1x 4520.12r008/00 switching power supply



1x 4520.12-006/00 anti-kink sleeve white
 1x 4520.12-004/00 strain relief clamp 14.42.770
 2x 4520.20-007/00 connecting clamps 2pol. with lever
 2x 0606.01-004/00 hexagon nuts DIN EN 24035 M4-04
 1x 4510.20-014/00 split ferrite WE 74271131



Washers

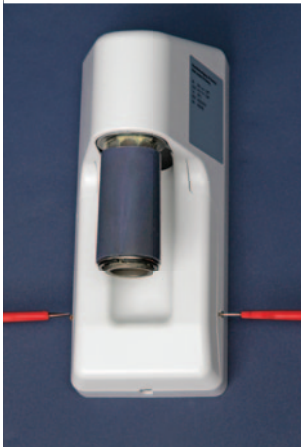


Washers with tabs



Snap ring supported on collet chuck

WALL INSTALLATION



1. Loosen side screws on plastic cover.



2. Remove the lower plastic cover.



3. Remove the upper plastic cover.

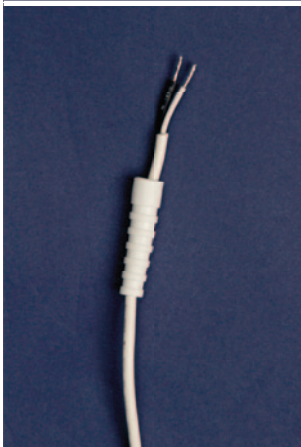
4. Mark according to drill hole template.

5. Drill two holes according to the information provided by the fastener manufacturer.

6. Insert fasteners flush.

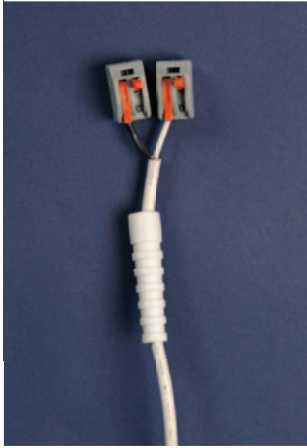
Note: Continue installation only after binder has hardened

7. Insert two fasteners in the two holes and screw onto wall perpendicularly so that the trunnion end faces the floor.

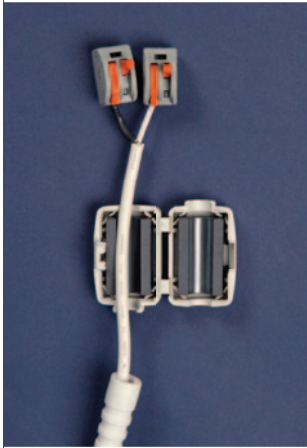


8. Slide white anti-kink sleeve over the power cable on the wall mains supply part.

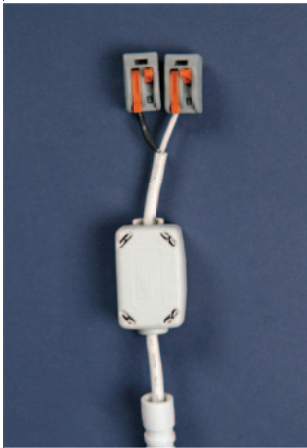
WALL INSTALLATION



9. Attach two-pole fastening clamps (with lever) so that there is one fastening clamp on the white and black cable end.



10. Open split ferrite and place one half of the cable in it.

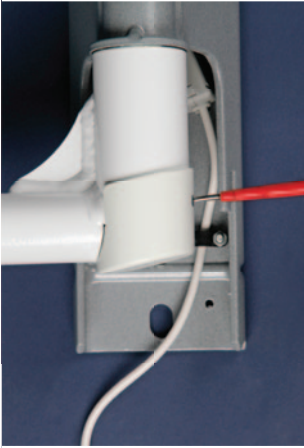


11. Close split ferrite.

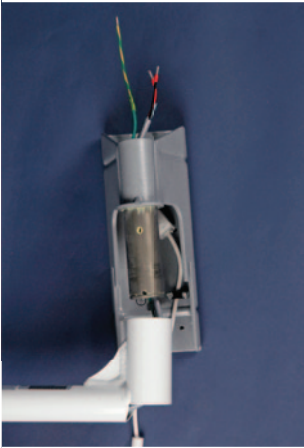


12. Mount wall mains supply cable with strain relief clamp to wall.

WALL INSTALLATION

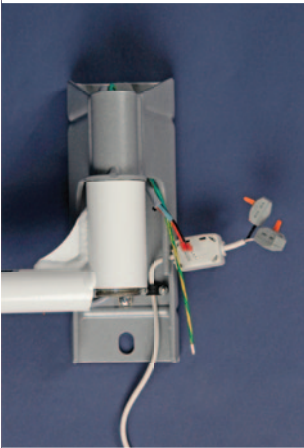


13. Unscrew Cross-head screws and slide cover cap to the front and remove in an upwards motion.



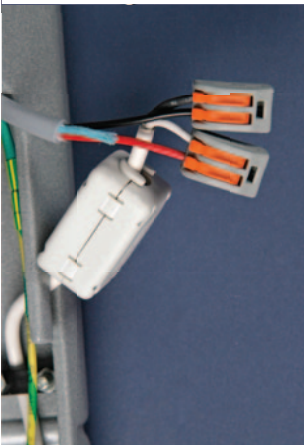
14. Slide the upper plastic cover over the cantilever arm and wall mains supply cable.

15. Slide the cable of the cantilever through the trunnion and insert cantilever arm with spring arm into the trunnion of the wall bearing.



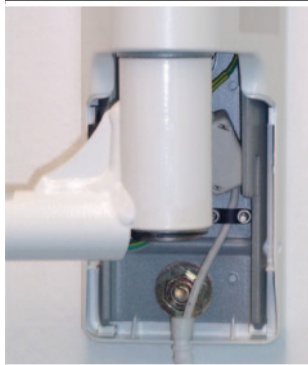
16. Install washers, then washers with tabs and then snap rings on the trunnion of wall bearing.

17. Push the cable ends of the cantilever arm through behind the trunnion in the direction of the floor.



18. Secure the red cantilever-side cable to the fastening clamp of the white wall mains supply cable. Correspondingly, secure the black cantilever-side cable to the fastening clamp of the black wall mains supply cable.

WALL INSTALLATION



19. Slide up and replace the upper plastic cover again.



20. Screw the green-yellow cable from the cantilever arm as well as the green-yellow cable from the PA line into the cover cap on the wall bearing mount.



21. Insert the anti-kink sleeve from the mains supply cable into the recess below on the plastic cover.



22. Replace housing cover and fasten tightly on the right and left with one Phillip's head screw for each.



23. Replace cover cap from cantilever arm and fasten tightly with a Phillip's head screw.

7 CEILING MODEL

A. INSTALL CEILING PLATE



WARNING: ELECTRIC SHOCK

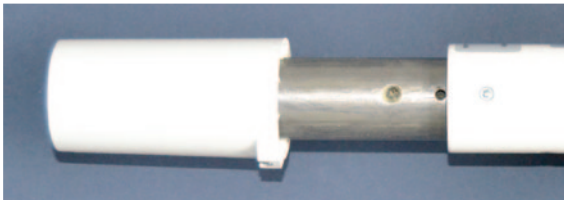
Disconnect the on-site power supply and protect it from being switched on again.

NOTE

If the ceiling should be inclined or bear unevenness restraining the horizontal alignment of the ceiling flange, we recommend the use of the "Basic ceiling alignment module", article no. 4500.91000.

Beyond the basic module, can be offered supplementing modules e.g. for covering larger distances between suspended ceiling and solid ceiling. Please contact your supplier.

CEILING MODEL: INSTALL CEILING PLATE

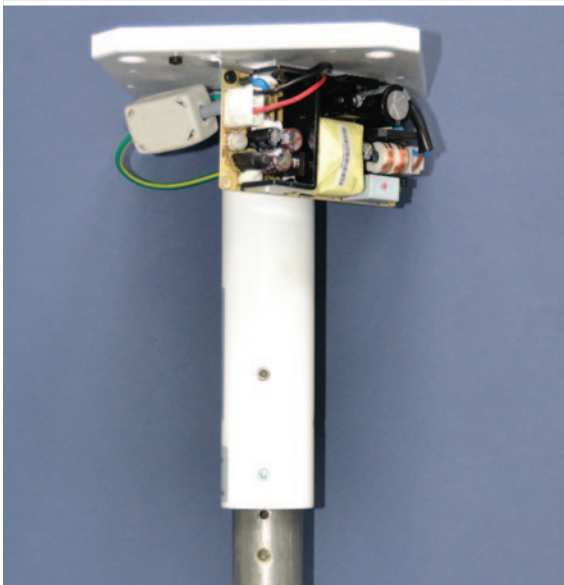


1. Remove protective cover.



2. Loosen three threaded screws.

3. Remove the canopy. Mark drill holes with the drilling template (on the last page).



4. Drill four holes according to the information provided by the fastener manufacturer.

5. Position fasteners flush with the ceiling.

NOTE: Continue installation only after binder has hardened.

6. Insert fasteners into the four drill holes and screw on ceiling plate

7. Align ceiling plate horizontally and check for secure seat.

8. If the ceiling should be inclined or bear unevenness restraining the horizontal alignment of the ceiling flange, we recommend the use of the "Basic ceiling alignment module", article no. 4500.91000



9. Slide the canopy on and secure with the three threaded pins

B. INSTALL CANTILEVER ARM WITH SPRING ARM

CEILING MODEL: INSTALL CANTILEVER ARM WITH SPRING ARM



1. Unscrew the cross-head screws.



2. Remove plug connector.



3. Slide the cantilever onto the trunnion of the spacer tube.



CAUTION – DANGER OF INJURIES

Without installed washer and washer with tab, the snap ring will come loose. The device can fall out of the connection and can lead to injuries.

Always install the washer and the washer with the tab.



CEILING MODEL: INSTALL CANTILEVER ARM WITH SPRING ARM



4. Place washer.



5. Pick up washer with tab.



6. Insert washer with tab into drill hole and slide washer above the pipe.



7. Pick up snap ring with collet chuck.



8. Install snap ring.

9. Check the seat of the cantilever arm with the spring arm.

WARNING – ELECTRIC SHOCK
 Damaged electrical components (lines, connector plugs, etc.) can place the support arm system under electrical voltage. Touching live parts can lead to a fatal electrical shock.



10. Position the plug straight and with light pressure snap in the direction of the cantilever arm and in the direction of the tube.



11. Screw plug on tightly with the Cross-head screw.

8 INSTALL END TERMINAL

INSTALL END TERMINAL



ACCESSORIES: Locking segment

1. Disconnect the device from the on-site power supply and secure it from being switched on again.

WARNING – DANGER OF INJURY

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



CAUTION – DAMAGE ON DEVICE

If the spring arm is pulled past the lower/upper stop, it will be damaged. Hold the spring arm on the front end (not on rear end) and slowly pull downwards.



2. Hold the spring arm on the front end (not on rear end) and slowly pull downwards.

3. Remove protective cap from the spring arm opening.

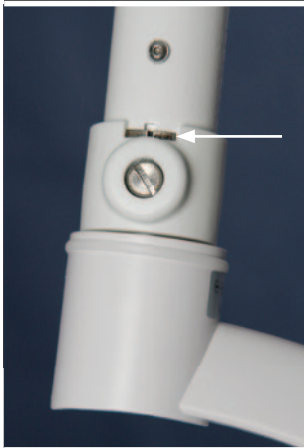


4. Push the plastic sleeve on the spring arm so that the two slots are covered.



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

INSTALL END TERMINAL



6. Insert the locking segment completely into the slot so that the locking segment is guided into the groove.



7. Rotate plastic sleeve by 180° and tighten the screw.

8. Check for secure seating of the end terminal.

9 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.

ADJUST THE SPRING FORCE



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.

ADJUST THE SPRING FORCE



5. Install and snap joint cover into place.

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).

10 FUSE REPLACEMENT IN THE CEILING BRACKET

FUSE REPLACEMENT IN THE CEILING BRACKET



1. Loosen the three threaded screws with a screwdriver.
2. Pull canopy down.



3. Remove and replace defective fuse.
4. Insert new fuse.
5. Pull canopy back upwards and tighten the three threaded screws with a screwdriver.

11 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.

12 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	Primär 250V; T 800 mA L; 5x20 mm		Primary 250V; T 800 mA L; 5x20 mm Secondary 250V: M2AL 5x20 mm
Protection class	I	II	I
Designed for continuous	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: Technical data

13 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 delivered, 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.

13.1 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 MINOR SURGICAL LIGHTS 100 000 LX 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	

13.2 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
Electrostatic discharge (ESD) according to EN 61000-4-2	air ±8kV contact ±6kV	air ±8kV contact ±6kV	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%.
Burst according to EN 61000-4-4	Power supply ±2kV Input and output lines ±1 kV	Power supply ±2kV Not applicable	The quality of the supply voltage should be that of a typical business and hospital environment.
Surge according to EN 61000-4-5	1 kV voltage external conductor-external conductor ±2kV 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 of the UT) for 5 cycles 70% UT (30% dip of the UT) for 25 cycles <5% UT (>95% dip of the UT) for 5 seconds		Line power quality should be that of a typical business and hospital environment. If the user of the ML1000 or the ML600 requires continued operation during power supply interruptions, it is recommended that MIMLED 600 and MINOR SURGI-CAL LIGHTS 100 000 LX 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.

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
Radiated RF disturbance variables according to EN 61000-4-3	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.
Conducted disturbance variables according to EN 61000-4-6	150 kHz – 80 MHz 3Vrms	150 kHz – 80 MHz 10Vrms	<p>Recommended separation distance:</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). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey^a should be less than the compliance level in each frequency range^b.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol.</p> <div style="text-align: center;">  </div>

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 SURGICAL 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.

13.3 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

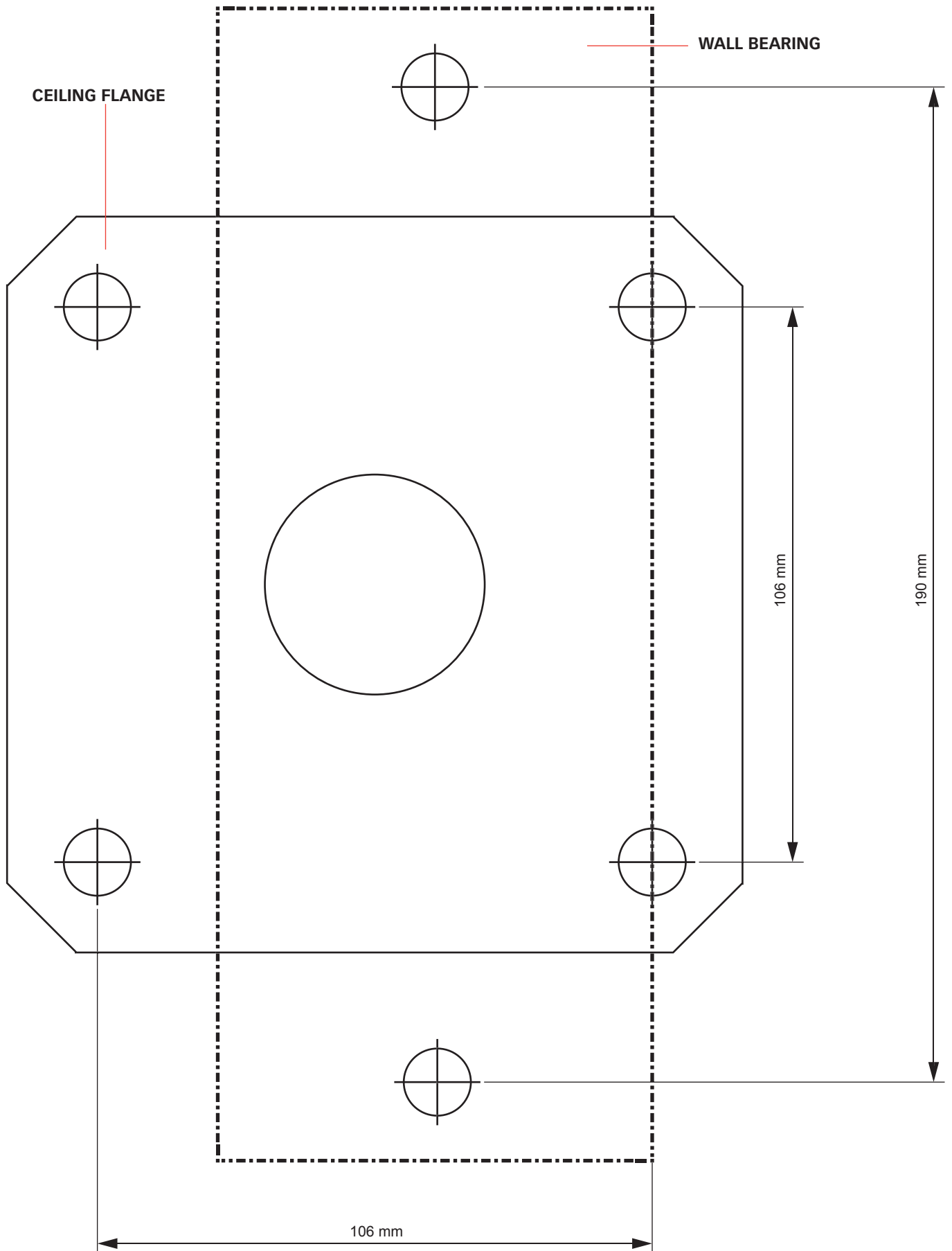
RATED OUTPUT OF THE TRANSMITTER (W)	SEPARATION DISTANCE ACCORDING TO THE TRANSMITTER FREQ. (M)		
	150 kHz to 80 MHz $d = 1.17\sqrt{P}$	80 MHz to 800 MHz $d = 1.17\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.34\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.69	3.69	7.38
100	11.67	11.67	23.33

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.

14 DRILLING TEMPLATES



MIMSAL

MIMSAL TRADE S.L.
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