



Examination Lights ML 101 / ML 201 / ML 201⁺







Mounting, Operating and Service Instructions

CE

V. 1.4-EN (03.12)

KLS martin
GROUP

Symbol explanation

| | |
|--|--|
|  | Symbol for "CE MARK" |
|  | Symbol for "Protection class: I (acc. to IEC 60601-1)" |
|  | Observe safety instructions for this product! |
|  | Symbol for "OBSERVE INSTRUCTIONS FOR USE!" |
|  | Symbol "Warning: Hot surface!" |
|  | Symbol "Warning: Dangerous electric voltage!" |

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1 Product Liability and Warranty

1.1 General Information

We thank you for having decided to buy a KLS Martin product. This product carries the CE mark, which means that it satisfies the essential requirements laid down in the EC Directive concerning medical devices.

We are the manufacturer of this product:

Gebrüder Martin GmbH & Co. KG

A company of the KLS Martin Group

Ludwigstaler Str. 132 · D-78532 Tuttlingen · Germany

Postfach 60 · D-78501 Tuttlingen · Germany

Tel. +49 7461 706-0 · Fax +49 7461 706-193

info@klsmartin.com · www.klsmartin.com

1.2 Intended Use

These lights may only be used for the specific purpose for which they have been designed:

Illumination of an examination field by surgeons, physicians and adequately trained assistant personnel.

These examination lights may only be operated in medical-use rooms whose electrical installation complies with DIN / VDE 0100 Part 710 requirements (the German standard in force since Nov. 1, 2002) or with the corresponding local regulations of the country in which they are used!

1.3 Warranty

Gebrüder Martin warrants the products described in this user manual to be free from any defects in material or workmanship for a period of two years from the date of delivery as specified on the delivery slip, provided they are used as intended. This warranty shall not cover consumables such as lamps and sterile handles or potential software updates. In any other respects, our General Conditions of Sale as updated from time to time shall apply.

Under this warranty, we will remedy free of charge any defects due to faulty workmanship or the use of faulty materials, either through our Customer Service or directly at the factory.

Important Notices

The product may only be repaired by Gebrüder Martin or a qualified person or firm expressly authorized by Gebrüder Martin to perform such work.

If the repair is carried out by a person or firm specially authorized by Gebrüder Martin, the operator of the product is required to obtain from the repairer a certificate with details about the nature and scope of the repair work done. This certificate must be dated and signed and include the firm's details.

In all cases where a party other than the product manufacturer performed the work, repaired products must be additionally marked with the repairer's ID label.

Improper interventions or alterations performed by third parties during the period of limitation shall void any and all warranty claims. Unauthorized actions performed on the product shall invalidate any liability claims vis-à-vis Gebrüder Martin.

1.4 User's Inspection

Immediately upon receipt, the goods must be checked for completeness and potential damage in transit. Notice of any such damage must be given immediately.

1.5 Hotline

- Should you have any questions on how to handle the unit / product or question on its clinical application, please do not hesitate to contact the Product Management

Tel: +49 7461 706-243

Fax: +49 7461 706-190

- Should you have any technical questions, please do not hesitate to turn to our Martin Service Center:

Tel: +49 7461 706-343

Fax: +49 7461 706-203

E-Mail: msc@klsmartin.com

Our service representatives are available Monday through Friday from 8 a.m. to 5 p.m. (CET).

Should you have any questions concerning maintenance contracts or training courses, please contact our Technical Service Manager at +49 74 61 706-332, or send an e-mail to: msc@klsmartin.com.

NOTICE

To answer your technical questions as efficiently as possible, our service technicians require the serial number of the product. Therefore, please have this number at hand when contacting our hotline. It is part of the information provided on the type plate attached to the transformer housing.

NOTICE

Approved light sources

ML 101 max. 20 watts IRC

ML 201 / 201⁺ max. 35 watts IRC

2 Notices Concerning this Document



Non-observance of these Operating Instructions can lead to serious or even lethal patient injury!

Be sure to read, understand and follow the instructions given below!

- Every user is required to read this document completely and follow its instructions.
- In particular, be sure to heed all cautions, warnings and danger notices.
- Keep this manual accessible to users at all times.
- It is the user's responsibility to inform the patient on all the application, cautionary, warning and danger notices contained herein and to ensure that he / she has understood them.

2.1 Symbols Used in this Document

Throughout this manual, important information (such as general or safety-related notices) is marked with the following symbols and signal words:

WARNING

Danger of death or serious injury!

Indicates a situation which, if not avoided, **could** result in death or serious injury!

CAUTION

Danger of minor injury!

Indicates a situation which, if not avoided, could result in minor or moderate injury!

NOTICE

Risk of material damage

Indicates a situation which, if not avoided, could lead to material damage (loss of time, data losses, device / machine failure, etc.)!

3 Safety Instructions

It is not permitted to use the examination lights in hazardous areas (potentially explosive atmospheres).

Do not put any additional weight on the lights.

All KLS Martin examination lights are high-quality products that have been designed and manufactured in accordance with recognized technical rules and standards. At the time when they leave the factory, they fully meet all safety-related requirements. In order to preserve this condition, you as the user are requested to avoid and prevent all actions that may have an adverse influence on the safety of the lights.

Damaged lights could pose a life- or health-threatening hazard to users as well as patients. Therefore, never put defective lights into operation! Instead, withdraw them from service immediately to prevent any consequential material damage or personal injury and contact the supplier of the system(s) as soon as possible!

Be sure to follow the information provided in these user instructions whenever you handle the lights or put them into or out of operation!

The installation of fixed-mounted lights and light repair in general may only be carried out either by the manufacturer itself or by a person or firm explicitly authorized by the manufacturer to perform such work! If an authorized person or firm performed the work, the operator of the light must be issued a certificate with details on the type and scope of the repair work done.

This certificate must include the following information:

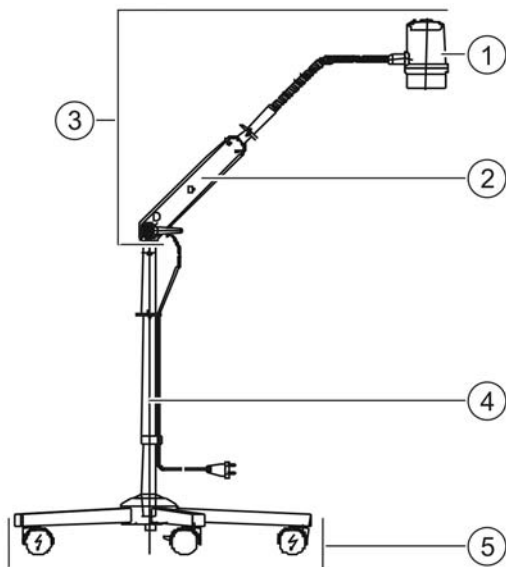
- the date of performance,
- the type and extent of the service work done,
- the details of the entity performing the work,
- the signature of the service technician.

If the repair has been carried out by a third party (not by the manufacturer itself), the respective light(s) must be additionally marked with the repairer's ID label.

Once the mounting or service work has been completed, the service technician is required to perform a comprehensive functional check to ensure that the lights as well as the power supply units are in perfect working order and safe to operate.

4 Assembly, Installation and Putting into Service

4.1 ML 101



Overview

- 1 Light head
- 2 Transformer housing
- 3 Light
- 4 Stand tube
- 5 Stand base

4.1.1 Assembling the Stand Base with Stand Tube

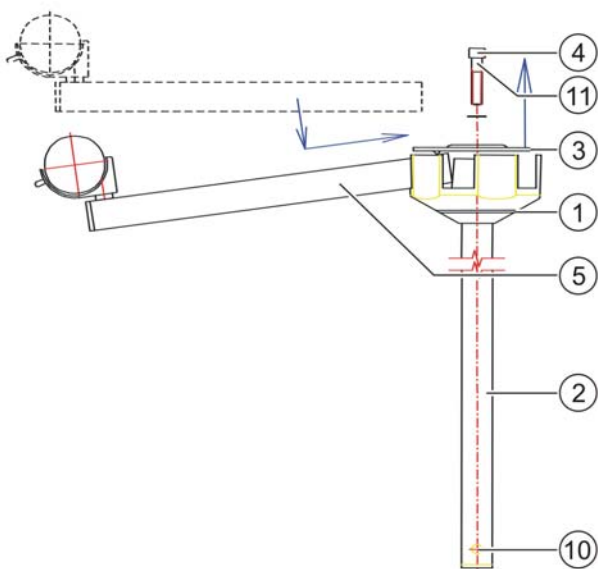


Fig. 4-1

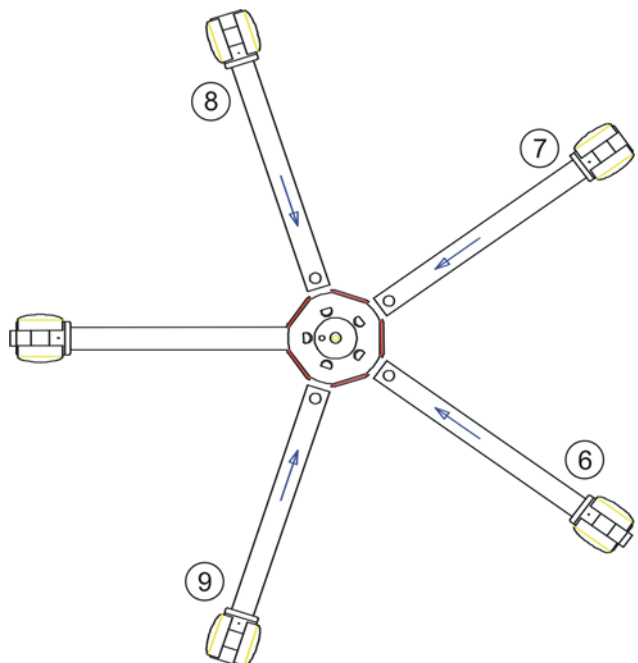
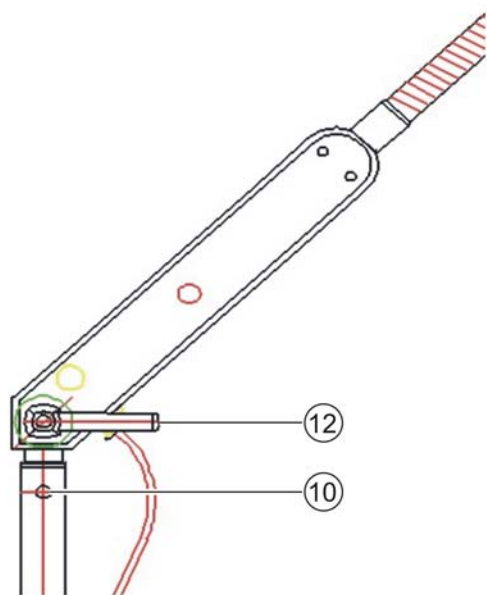


Fig. 4-2

- Plug the center piece (1) in place on the stand tube (2). As press fit (no play) is required, you need to apply a little force.

- With the cams pointing inwards, screw the clamping plate (3) loosely in place with the toothed lock washer (11) and the M8 cheese head screw (4), making sure that the legs (5) can still be easily plugged into the center piece of the base.
- Plug the first leg (5) into the center piece while keeping the clamping plate in place with your hand.
- Plug the other four legs (6–9) into the center piece, proceeding in the order shown in Fig. 4-2. The legs are held in place by the cams of the clamping plate.
- Install the two locking castors (legs 5 and 6) and the two electrically conductive castors (legs 7 and 9) as shown in Fig. 4-2.
- Now screw the clamping plate fully in place with a size-6 Allen wrench, applying a force of approx. 15 Nm. Verify that the cams of the clamping plate correctly engage with the bore holes provided in the legs to ensure that each leg is securely clamped in place with the stand tube and the center piece. At the same time, the cams protect the legs from being pulled out accidentally.

4.1.2 Installing the Light on the Stand Tube



- Loosen screw (10) of the stand tube to the extent that the neck of the light arm can be easily inserted into the stand tube.
- Insert the neck of the light arm into the stand tube.
- Re-tighten the screw (10) until you feel slight resistance.
- Tighten the clamping screw (12) to fix the light arm in place.

Fig. 4-3

NOTICE

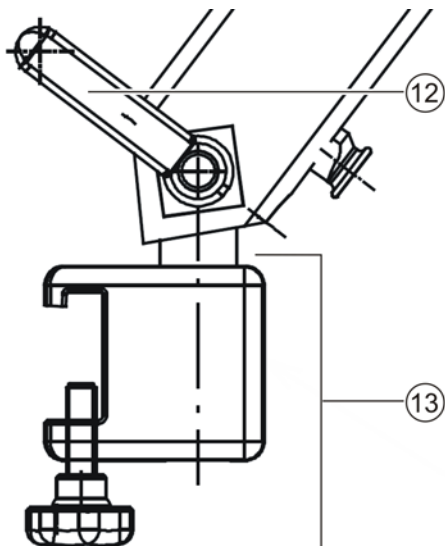
Risk of material damage!

The screw (10) is a braking device that additionally prevents the light arm from being pulled out accidentally.

4.1.3 Adjusting Light Arm Inclination

- Clamp the light arm in place at the desired inclination angle using the clamping screw with handle (Fig. 4-3, item 12).

4.1.4 Fitting the Light to a Standard Mounting Rail



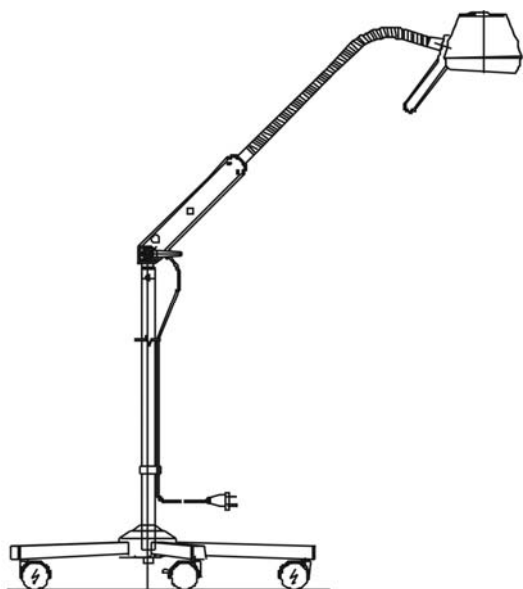
The clamping light is identical with the stand version down to the transformer housing. It differs from the stand version merely in that the neck of the light arm (see section 4.1.2 "Installing the Light on the Stand Tube", page 9) is fitted to the claw of a standard mounting rail (13).

- Note that only the fixing elements supplied may be used for this purpose.
- Tighten the clamping screw (12) to fix the light arm in place.

4.1.5 Connecting the Light to the Power Supply System

Connect the mains plug to a properly installed socket-outlet that provides the correct voltage and type of current (230 VAC, 50 / 60 Hz). Be sure to check compliance with the corresponding information provided on the type plate!

4.2 ML 201 / 201⁺ with Stand



The mounting procedure is the same as for the ML 101 light.

The flexible light arm as well as the inclination angle-adjustable light arm allow you to position the light precisely.

The handle provided on the light head is intended to facilitate the positioning process.

The locking castors of the stand allow you to immobilize the light.

4.3 ML 201 / 201⁺ with Wall Bracket

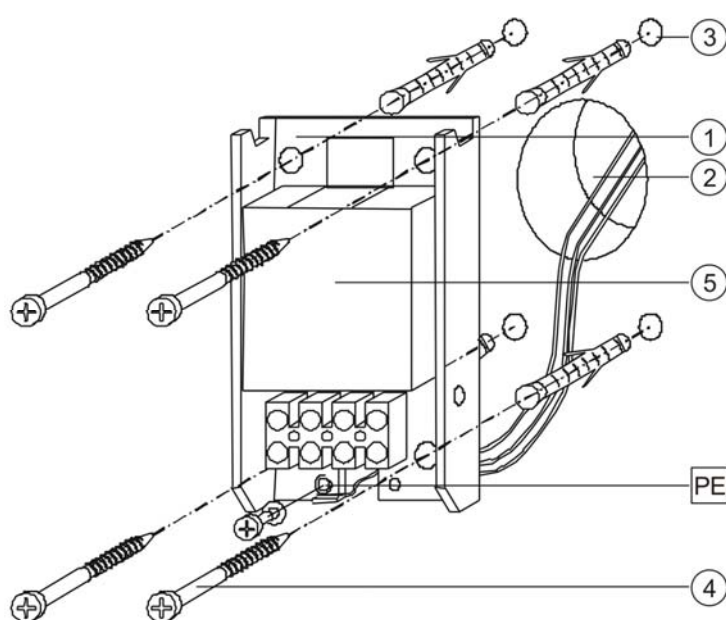
4.3.1 Installing the Wall Mounting Plate

⚠ CAUTION

Danger of injury and material damage!

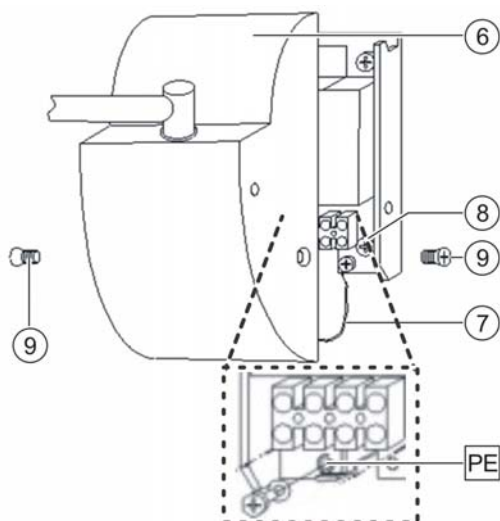
The wall mounting plate may only be installed by competent technical staff or the Technical Service. The same applies to making the required electrical connections.

A mains disconnection device (safety cutout) must be provided by customer as part of the building installation.



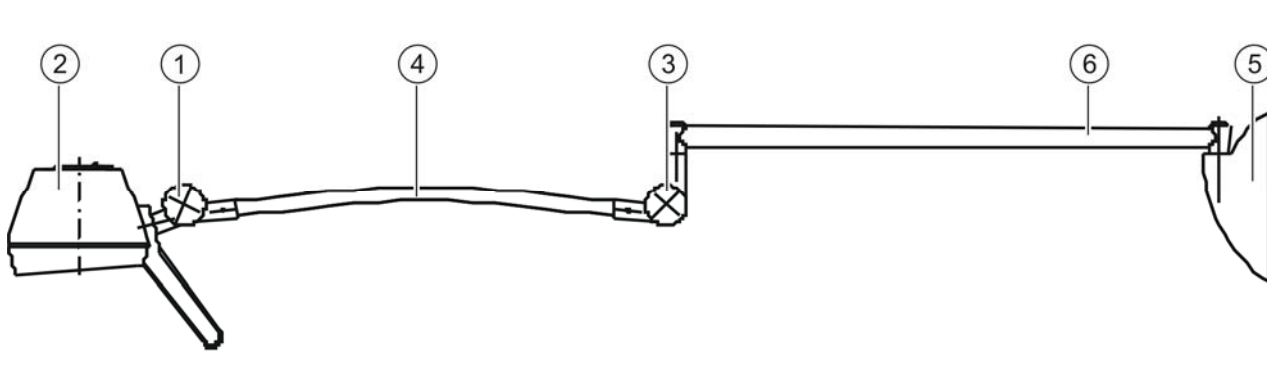
- Disconnect the mains power supply and secure against re-connection!
- Align the wall mounting plate (1) vertically over the socket-outlet (2) using a spirit level.
- Mark the spots for the four holes (3) to be drilled into the wall. Make sure that the cable cutout of the wall mounting plate is centered correctly over the socket-outlet opening.
- Drill the holes for the dowels, making sure you don't drill into the electric lines running through the wall.
- Align the wall mounting plate vertically on the wall and fix it in place with the screws (4).
- Connect the transformer (5) to the power supply system: connect P and N to 230 V and the protective conductor (PE) to the wall mounting plate. See the information provided on the transformer housing for guidance.

4.3.2 Installing the Wall-Mounting Light



- To connect the light with wall-mounting arm and wall bracket to the transformer, be sure to observe the instructions provided on the transformer housing:
 - Connect P and N to the 230 V on-site power supply.
 - Connect the protective conductor (PE) to the wall mounting plate. The PE cable (PE) must be connected to the right-side PE terminal (8).
- Connect the power supply cable of the light to the two unoccupied terminals of the lamp wire connector (transformer output).
- Hang the light in place on the wall bracket.
- Use the two special screws (9) to align the wall light vertically, then tighten the screws.

4.3.3 Joints



NOTICE

Risk of material damage!

T-head screws are designed for braking force adjustment and are NO locking screws!

- Adjust the braking force on joint (1) so that the light head (2) remains arrested in any position.
- Adjust the braking force on joint (3) so that the articulated arm (4) with the light head (2) remains arrested in any position.
- Adjust the braking force on joint (5) so that the articulated arm (6) remains arrested in any swivel position, providing the desired degree of resistance to be overcome when repositioning it.

5 Operation

CAUTION

Danger of minor injury!

The light emission side of the light must be kept at least 60 cm away from the body of the patient.

ML 101

- Operate the ON / OFF switch of the light housing.



ML 101

- Operate the ON / OFF switch of the transformer housing.



ML 201

- Operate the ON / OFF switch of the light housing.

ML 201⁺ with additional reading light

- Operate the switch provided on the light housing:

0 = off

1 = reading light on

2 = examination light on



6 Maintenance and Repair

All components of the light must be checked for proper functioning at least every two years. Check that

- mains cord is undamaged
- braking force setting of joints is adequate
- all movable connections are secured
- filter set or safety glass is undamaged
- switch and fuse are intact

In the case of mobile examination lights, the stability of the light is adequate (max. inclination angle: 10°).

In the case of examination lights clamped to a standard mounting rail, the light is securely held in place.

Make sure that the light cannot be accidentally disconnected, or break loose, from its accessory components.

Repair work may only be carried out by trained personnel or the Technical Service. Use only original spare parts!

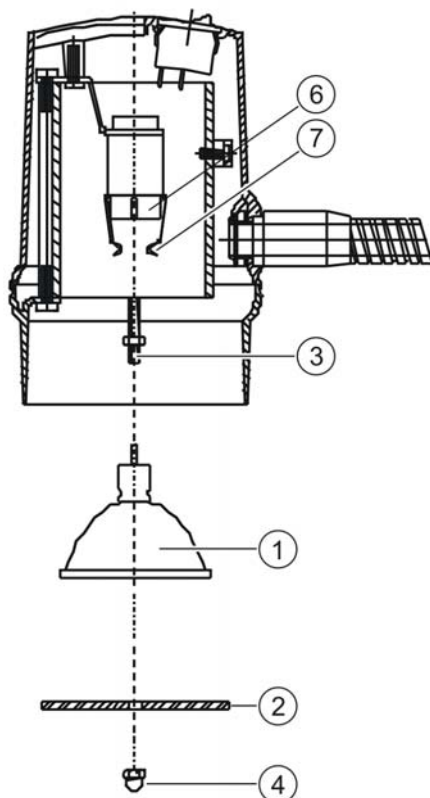
6.1 Replacing the Halogen Lamp

⚠ CAUTION

Danger of burns or injury from electric shock!

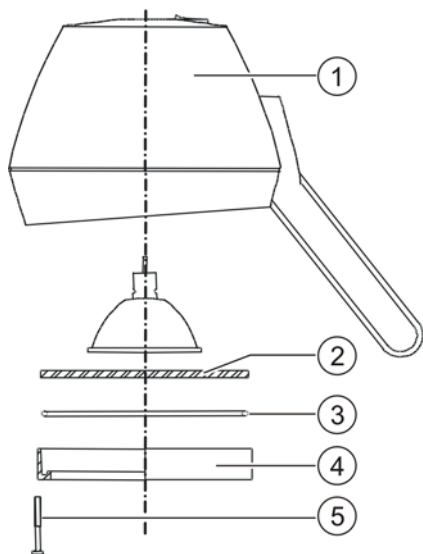
- Be sure to disconnect the light from the power supply before replacing the light source!
- Never touch the glass body of the lamp with your bare fingers!

ML 101



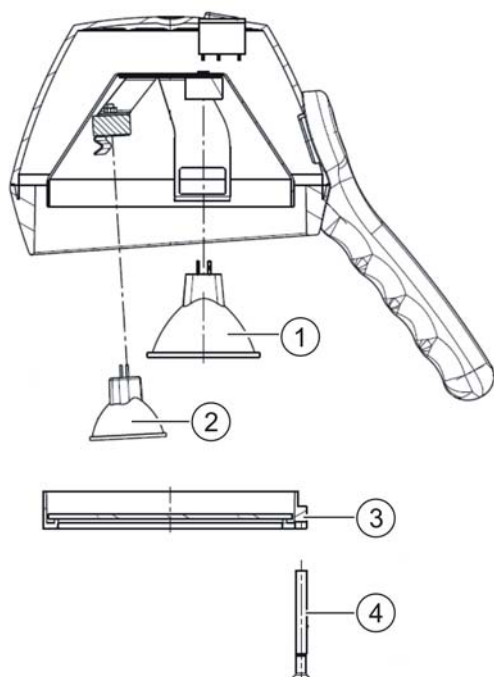
- Disconnect the light from the power supply using a mains disconnection device (e.g. safety cutout in the case of wall-mounting lights, or pull mains plug when servicing a stand or clamping version).
- Remove the cap nuts (4) from the setscrews (3).
- Remove the filter set or safety glass (2).
- Pull lamp (1) out of holding clamp (5) of socket (6).
- Insert new lamp with a GU 5.3 base into socket (6). Check that lamp is seated securely in the holding clamp (5).
- Re-install the setscrews and the filter set or safety glass.

ML 201 with Base



- Disconnect the light from the power supply using a mains disconnection device (e.g. safety cutout in the case of wall-mounting lights, or pull mains plug when servicing a stand or clamping version).
- Loosen the three screws (5).
- Remove the glass retaining ring (4), the O-ring (3) and the safety glass (2).
- Replace the lamp (1).
- Put the glass retaining ring (4), the O-ring (3) and the safety glass (2) back in place.
- Tighten the three screws (5).

ML 201⁺ with Base



- Disconnect the light from the power supply using a mains disconnection device (e.g. safety cutout in the case of wall-mounting lights, or pull mains plug when servicing a stand or clamping version).
- Loosen the three screws (4).
- Remove the glass segment (3) (glass retaining ring, O-ring, safety glass).
- Replace the lamp (1 or 2).
- Put the glass segment (3) (glass retaining ring, O-ring, safety glass) back in place.
- Tighten the three screws (4).

ML 201 / 201⁺ with Wall Bracket

- Disconnect the light from the power supply using a mains disconnection device (e.g. safety cutout). Do not touch the patient.
- Replace the lamp as described in previous chapters "ML 201 with base" / "ML 201⁺ with base").

7 Cleaning and Disinfection

The lights can be cleaned with commonly used, non-flammable cleaners and disinfectants.

To prevent moisture from penetrating into the housing and keep the light absolutely dry inside, never spray the light components. Instead, just wipe them with a cloth moistened with cleaning or disinfecting agent.

8 Scope of Delivery and Spare Parts


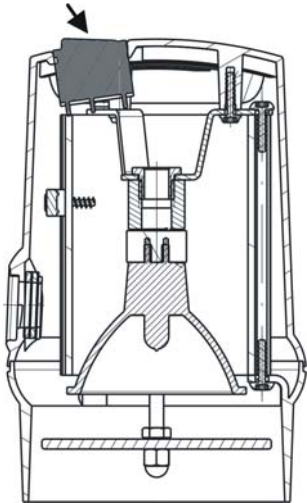
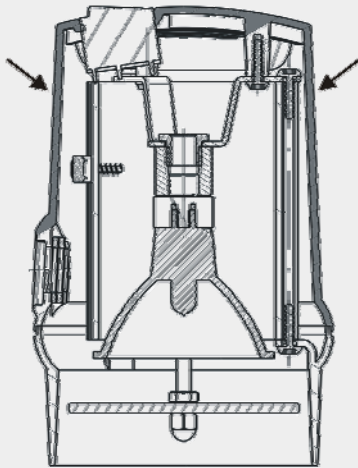
Scope of Supply for ML 101 / ML 201 / ML 201⁺ Lights

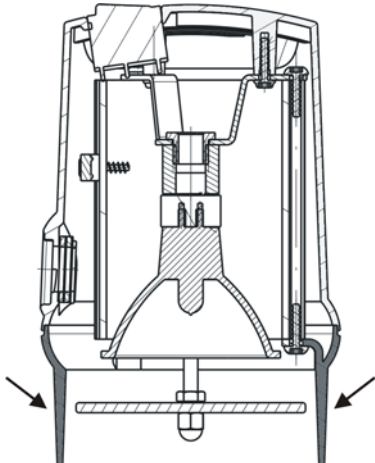
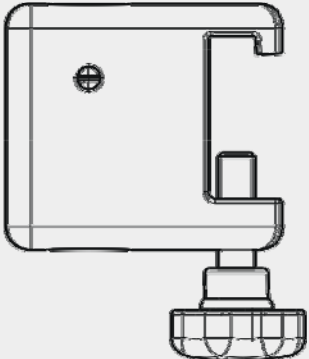
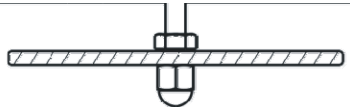
| Designation | Quantity |
|---|----------|
| Stand tube | 1 |
| Center piece of base (plastic) | 1 |
| Clamping plate with cams | 1 |
| Leg with lockable castor | 2 |
| Leg with electrically conductive castor | 2 |
| Leg with castor | 1 |
| M8 cheese head screw with toothed lock washer | 1 |
| Allen wrench | 1 |
| Light with light head and transformer housing | 1 |

Scope of Supply for ML 201 / 201⁺ Lights with Wall Bracket

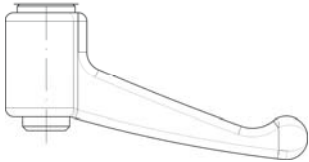

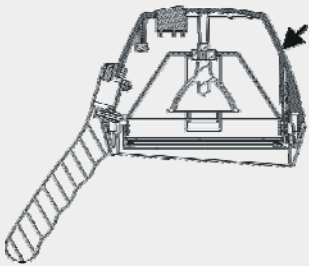
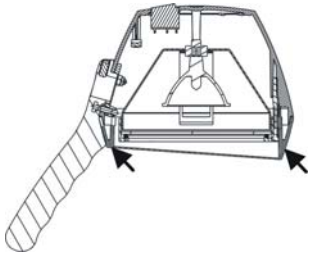
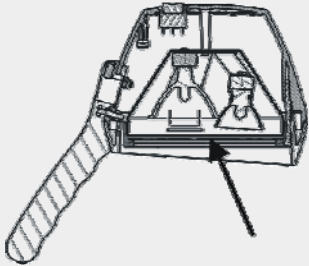
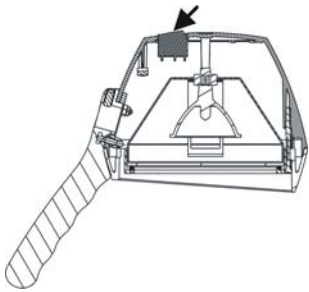
| Designation | Quantity |
|---|----------|
| Wall mounting plate with mounted transformer | 1 |
| Light with wall-mounting arm and wall bracket | 1 |
| Bag with screws and anchors | 1 |

ML 101 Spare Parts

| Illustration | Designation | Item Number |
|---|--|--------------|
|  | Flexible arm, ML 101, with grooved pin | 08-090-01-52 |
| | Halogen lamp, ML 101, 12 V, 20 W IRC | 86-901-01-04 |
|  | Rocker switch, ML 101 / ML 201 (15 x 21 x 18) | 08-084-00-02 |
|  | Cover, ML 101 | 08-063-00-37 |

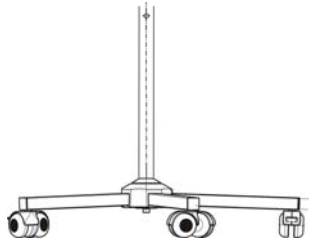
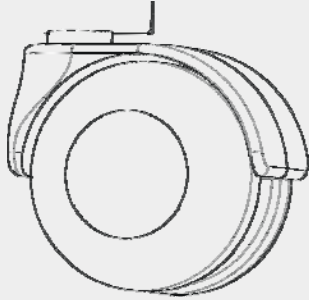
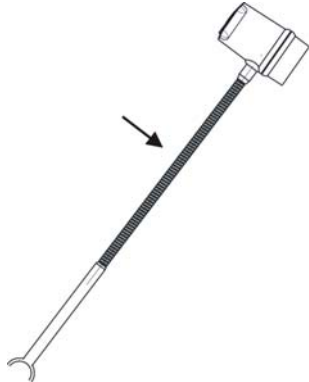
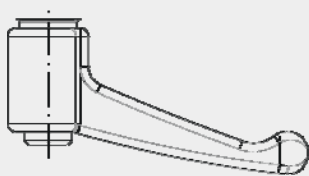
| Illustration | Designation | Item Number |
|---|---|--------------|
|  | Front glass ring, ML 101 | 08-090-00-23 |
|  | Standard mounting rail claw, ML 101 / 201 / 201 ⁺ | 08-092-00-22 |
|  | Mounting set for ML 101 front glass, consisting of: 2 nuts 2 cap nuts glass threaded rod | 08-090-10-01 |
| | Transformer housing half, ML 101 | 08-087-00-07 |

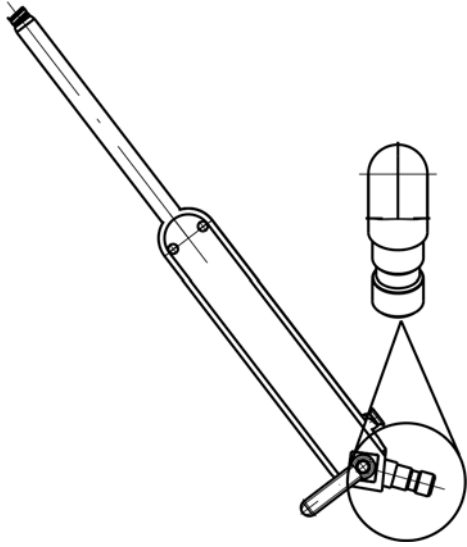
ML 201 / 201⁺ Spare Parts

| Illustration | Designation: 201 / 201 ⁺ | Item Number |
|---|---|--------------|
|  | Clamping lever with nut, ML 201 Ceiling/Wall, M8x0.75x22 mm fine thread | 08-068-00-19 |
| | Wall mount, ML 201 | 08-092-00-21 |
|  | Wall-mounting arm, complete, ML 201 / 201 ⁺ | 08-060-01-50 |
|  | Cover, ML 201 / 201 ⁺ | 08-063-00-34 |
|  | Front glass ring, ML 201 / 201 ⁺ | 08-090-00-21 |
|  | Front glass with mounting set, ML 201 / 201 ⁺ Set includes: O-ring glass glass retaining ring 3 oval head screws | 08-090-01-02 |
|  | Rocker switch, ML 101 / 201 (15 x 21 x 18) | 08-084-00-02 |

| Illustration | Designation: 201 / 201 ⁺ | Item Number |
|---|---|--------------|
|  | Halogen lamp, ML 201 / 201 ⁺ 12 V, 35 W IRC | 86-902-01-04 |
|  | Halogen lamp, ML 201 ⁺ , 12 V, 20 W | 86-902-02-04 |
|  | Rocker switch, ML 201 ⁺ | 08-084-00-04 |
|  | Transformer, ML 201 / 201 ⁺ wall/ceiling | 08-087-00-05 |
| | Transformer housing half, ML 201, with imprint | 08-087-00-06 |
|  | Transformer, ML 101 / 201 / 201 ⁺ mobile, w. standard mounting rail | 08-087-00-04 |

ML 101 / 201 / 201⁺ Spare Parts

| Illustration | Designation: 201 / 201 ⁺ | Item Number |
|---|--|--------------|
|  | Stand with castors, complete, ML 101 / 201 / 201 ⁺ Set includes: 5-leg base stand tube | 08-090-01-04 |
|  | Set of castors, ML 101 / 201 / 201 ⁺ Set includes: 186498 (dual castor, lockable) 186470 (dual castor, non-lockable) | 08-090-02-04 |
|  | Flexible arm, RAL 9016, complete with shrink sleeve, cable and 2 pins | 08-060-01-23 |
|  | As set only: Clamping lever with nut, ML 101 / 201 / 201 ⁺ , M8x0.75x35 mm fine thread | 08-068-00-18 |

| Illustration | Designation: 201 / 201 ⁺ | Item Number |
|---|--|--------------|
|  | Hinge pin | 08-087-02-04 |
| | Mains cord, ML 101 / 201 / 201 ⁺ | 08-075-00-15 |
| | Socket, ML 101 | 08-063-00-32 |
| | Socket, ML 201 / 201 ⁺ , for main light source | 08-063-00-33 |
| | Socket, ML 201 ⁺ | 08-063-01-33 |

9 Technical Data

All values were determined in accordance with IEC 60601-2-41. Photometric values are subject to a measuring tolerance of 5%.

ML 101

| Feature | Value |
|---|---------------------|
| Supply voltage | 230 VAC; 50 / 60 Hz |
| Rated power | 60 VA |
| Protection class | II |
| Type of device | B |
| System of protection | IP 20 |
| Mains cable length | 4 m |
| Cold-light reflector halogen lamp: | |
| Voltage, wattage: | 12 V, 20 W IRC |
| Base | GU 5,3 |
| Life | 3,000 h |
| Illuminance at a distance of 0.5 m | 27,000 lux |
| Color temperature | 3,000 K |
| Light field diameter at a distance of 0.5 m | 90 mm |
| Electrical system complying with | VDI / IEC |
| Color until December 2007 | RAL 9002 |
| Color from January 2008 | RAL 9016 |

ML 201

| Feature | Value |
|---|---------------------|
| Supply voltage | 230 VAC; 50 / 60 Hz |
| Rated power | 60 VA |
| Protection class | II, I |
| Type of device | B |
| Mains cable length | 4 m |
| Cold-light reflector halogen lamp: | |
| Voltage, wattage: | 12 V, 35 W IRC |
| Base | GU 5,3 |
| Life | 3,000 h |
| Illuminance at a distance of 0.5 m | 45,000 lux |
| Color temperature | 3,000 K |
| Light field diameter at a distance of 0.5 m | 90 mm |
| Electrical system complying with | VDI / IEC |
| Color until December 2007 | RAL 9002 |
| Color from January 2008 | RAL 9016 |

ML 201⁺

| Feature | Value |
|---|---------------------|
| Supply voltage | 230 VAC; 50 / 60 Hz |
| Rated power | 60 VA |
| Protection class | II, I |
| Type of device | B |
| Mains cable length | 4 m |
| Cold-light reflector halogen lamp: | |
| Voltage, wattage | |
| Light source 1 | 12 V, 35 W IRC |
| Light source 2 | 12 V, 20 W |
| Base | |
| Light source 1 | GU 5,3 |
| Light source 2 | GX 5,3 |
| Life | 3,000 h |
| Illuminance at a distance of 0.5 m | |
| Light source 1 | 40,000 Lux |
| Light source 2 | 1,700 Lux |
| Colour temperature | 3,000 K |
| Light field diameter at a distance of 0.5 m | |
| Light source 1 | 160 mm |
| Light source 2 | 350 mm |
| Electrical system complying with | VDI / IEC |
| Colour until December 2007 | RAL 9002 |
| Colour from January 2008 | RAL 9016 |

10 Serial Number Structure

The serial number is part of the type plate fitted to the transformer housing. It is structured as follows:

| | | | | | | | | |
|------------------------------|--|---|------------------|------------------|----------------------------------|-------------------|---|--|
| ML | 201S ⁺ | U2 | 02 | 00 | 10 | P | 331 | |
| | | | | | | | Consecutive number per year of manufacture* | |
| | | | | | | Manufacturer code | | |
| | | | | | Year of manufacturing: 10 = 2010 | | | |
| | | | | Software version | | | | |
| | | | Hardware version | | | | | |
| | | Specification key combining electrical, optical and mechanical parameters | | | | | | |
| | Type: 101 or 201 / 201 ⁺ ; S = Stand (mobile), W = Wall | | | | | | | |
| KLS Martin examination light | | | | | | | | |

* Each year of manufacture starts with "0001" again.

Should you have any questions or need to file a complaint, please indicate your light's complete serial number.

11 Ecological Information

11.1 Disposal of Packing

Gebrüder Martin will, as a matter of course, take back the full packaging if so desired, to recycle as many parts of the packaging as possible.

If you do not wish to make use of this offer, you can dispose of the packaging with the normal paper or domestic garbage.

11.2 Disposal of the Unit

In designing the unit, we tried to avoid using composite materials wherever possible. This allows a high degree of recycling after the lifetime of the unit. We therefore offer to take the unit back for proper disposal and recycling.

The national regulations for waste disposal must be complied with!



Marking of electric and electronic equipment in accordance with Directive 2002/96/EC (WEEE Directive) and the German Electrical and Electronic Equipment Act (ElektroG)

This symbol on the product or its packaging indicates that the product may not be disposed of as normal household garbage.

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