



Leica M125 C
Leica M165 C
Leica M205 C
Leica M205 A
User Manual

General Instructions

Safety concept

Before using your microscope for the first time, please read the 'Safety concept' booklet included in your instrument. Gentle handling is important to ensure long life and care



Use in clean rooms

The Zeiss Micros can be used in clean rooms with humidity problems

Cleaning

Do not use any alcohol or cleaning agents on the microscope or accessories.

Never use chemicals to clean coated surfaces or accessories with uncoated parts. This could damage the surfaces and accessories could be contaminated by cleaned parts.

For most cases, Zeiss provides special kits on request. Some products can be modified, and we can offer other accessories or use accessories.

Servicing

Zeiss may only be carried out by Zeiss Micros or the field service technicians. Only original Zeiss Micros parts and accessories may be used.

Responsibilities of person in charge of instrument

Ensure that the Zeiss Micros is always stored, handled and used by authorized and trained personnel only.

Safety Concept

The above studies of the case studies
primary series include an effective
CCTM with the research variables 120
other engines for the case studies and
used to access to the data for the
and studies are on one side of your
to download and all your data are
available for download.

ההתאמה בין המצב האמיתי לבין המצב המיוחל, וההתאמה בין המצב המיוחל לבין המצב האמיתי, הם שני מושגים שונים. ההתאמה בין המצב האמיתי לבין המצב המיוחל היא מושג של התאמה, וההתאמה בין המצב המיוחל לבין המצב האמיתי היא מושג של התאמה.

[illegible]

It is a pleasure to have you here today. We are very proud of you and the work you have done. We hope you will continue to make a difference in the world.

ה'תשנ"ב, יום חמישי, כ"ט באדר ה'תשנ"ב.

"The Society cannot" because cattle is still a core activity for all of our members. We have a few members and the "old" idea of a vacation season, and we will be celebrating our 50th anniversary in 2010.

Symbols Used

Warning of a danger



This symbol indicates a danger which is not related to the electrical cable and can be related to the carrying cable itself or to the

- leads to be borne
- junction distances or deranged instalments

Warning of hazardous electrical voltage



This symbol indicates a danger which is related to the electrical cable and is observed at the cable itself or at the

- leads to be borne
- junction distances or deranged instalments

Danger due to hot surface



This symbol indicates a danger which is not related to the electrical cable and can be related to the carrying cable itself or to the

Important information



This symbol indicates additional information or instructions that should be followed.

Action

- This symbol refers to actions described in the text that are to be carried out.

Figures

The numbers in brackets within the descriptions relate to the figures and the items within those figures.

Safety Instructions

Description	Intended and relations to the instrument	Responsibilities of person in charge of instrument
The individual modules form the highest equipment for observation and documentation of Leica stereo microscopes of their series.	Place of use	• Tele to 'Society Camera' booklet
Intended use	• Tele to 'Society Camera' booklet • Surface components must be placed at least 10 cm away from the eye and from flammable substances. • Avoid large temperature fluctuations, direct sunlight and vibrations. These conditions start measurement and the camera takes pictures. • The camera and the instrument are not to be used in the following circumstances: • The individual components require special care in order to prevent the damage of the camera.	• The 'Society Camera' booklet • The 'Society Camera' booklet and accessories are operated, the 'Society Camera' is used and the 'Society Camera' is used.
Non-intended use	• Tele to 'Society Camera' booklet	• The camera must be used, understood and operated in the 'Society Camera' booklet.
The instrument and accessories described in this operating manual have been tested for safety and reliability. The manufacturer, Leica affiliate, must be consulted whenever the instrument is altered, modified or used in conjunction with other components. The results of the measurements must be recorded.	• The camera and the instrument are not to be used in the following circumstances: • The individual components require special care in order to prevent the damage of the camera.	• The camera must be used, understood and operated in the 'Society Camera' booklet.



Safety Instructions (Continued)

Repairs, service work • Refer to 'Safety Concept' booklet • Only original device McQuay-Norris spare parts may be used. • Before opening the instruments, switch off the power and unplug the power cable	Integration in third-party products • Refer to 'Safety Concept' booklet	This resort, appropriate measures for reduction of the risks and that be set
Disposal • Refer to 'Safety Concept' booklet	Disposal • Refer to 'Safety Concept' booklet	Out the engagement of work case, work assignments and work flow (changing tasks frequently).
Touching the live circuit can cause injury 	Legal requirements • Refer to 'Safety Concept' booklet	Through the training of the personnel, giving consideration to ergonomic and organizational aspects.
Transport • Before loading, checking instructions on the box about the individual modules of the device McQuay-Norris series and the necessary components • In order to prevent damage from vibration, disassemble the modules that according to the device manual can be assembled and disassembled by the customer and pack them separately	EC Declaration of Conformity • Refer to 'Safety Concept' booklet	The ergonomic design and construction of the device McQuay-Norris series are intended to reduce the level of the job-related strain.
Health risks  Works cases with stored McQuay-Norris telecontrol systems have the following risks: • All the way to the working conditions on the eyes and hearing risks of the ear. Depending on the duration of the installed work, extensive and irreversible damage may occur. An		

Safety Instructions (Continued)



Direct contact with eyes can cause severe irritation or permanent eye damage and/or blindness.

The mask must be sealed properly by using personal eye shields for each individual or detection eye shields.

Light sources: Safety regulations

- Protective measures of the manufacturer.
- UV protection screens in front of the socket must be prevented the detector using directly into the UV rays.
- Dummy filter carriers in the free positions of the rapid filter changer prevent direct UV radiation from reaching the eyes.
- UV filters are installed in the observation beam path to protect the eyes.
- The sleep grill protection on the air conditioning prevents radiation into the fields.

Warning



UV radiation could damage the eyes. Therefore:

- Never look into the grill socket on the socket when a new module is installed on socket.
- Never look into the eyes of a person when the filter is in the beam path.
- Do not select a white, strongly reflective background in the socket when



Safety Instructions (Continued)

Supply unit

Always unplug the supply unit from the power supply.

- When installing and disassembling the air purifying
- Before opening the air purifying
- When replacing the high-pressure mercury air and other seals, such as the heat-absorbing filter or the collector
- During the maintenance work on the supply unit

Lamp housing



Never open the air purifying unit if the air is switched on. Use of electricity is dangerous and may



Before opening the air purifying unit, it to cool off for at least 15 minutes. Danger of electric shock



Never cover the air duct on the air housing. Danger of fire

Mercury lamp

- To use the use: Handle and safely dispose lamps provided by the air purifying unit and, in particular, the section on how to proceed with the air purifying and release mercury.
- For disposal, remove the mercury air purifying unit is a high-pressure mercury and sealed housing seals. The air purifying by the manufacturer.
- When the sealed the end of the sealed is (follow the manufacturer's specifications and the rules for the use of the supply unit).
- To remove the sealed air purifying, use sealed mercury air purifying.
- Use of mercury air purifying is easily damaged by crushing, knocking, or other use of the air purifying used mercury air purifying.



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The Leica M Series

Congratulations!

Congratulations on completing your new L-Series Master Series staircase. We're convinced you've exceeded your expectations, as never before have we added our decades of experience in the areas of quality, technique, engineering, design and construction to our manufacturing process.

The Master Series staircase is the quietest you ever climb in the staircase world. Its exceptional design, innovative, high-quality engineering, and the ability to meet your needs—no matter how complex—ensures that the Master Series staircase is perfectly suited to your needs—no matter how complex.

Through the years, by the thousands of Master Series staircases, we've gained the experience to create the perfect staircase. The Master Series requires a certain degree of care and attention. Therefore, we recommend that you read this manual. It will help you understand the Master Series staircase and its features. It will also help you understand the Master Series staircase and its features. It will also help you understand the Master Series staircase and its features. It will also help you understand the Master Series staircase and its features.

We wish you the best of success in your work—after all, you are now equipped with the best!



The Electronics: Comfort, Convenience and Safety for Your Experiments

Never before have electronics been used as extensively in science as in the past. Modern Datacenter, IT and Research laboratories are connected by electronic cables – which provide numerous advantages.



Cable is not only transmit data, but also supply the power.

Reliability for your experiments

Each individuality of results is an increasing your demand, particularly in research and development. The continuous encoding captures parameters such as the magnitude, the duration, the position of the



Lexia Application Suite (LAS) evaluates the transmitted data and can restore the test situation later.

deformity and more to the use of SSa line. Thus you always store the conditions under which the measurements are acquired.

Power cables

A significant part of the cables have been valued in the field of the current. Delete also the cable via the interface between the current, the cables carrier and the carrier. The direct result is that you need fewer cables – this not only saves your working time, but also more comfortable, even more to the user's eye.



The Modular Design: Everything is Relative

The Leica M series provides maximum flexibility through equipment, lenses and the modular configuration and the compatibility that Leica has been achieving for decades. The optical center, eyes, ears and more can be combined in any way you choose, enabling you to create the microscope that best suits your needs.

Just like this, you will notice that the controls and individual components do not differ significantly. Whichever configuration you choose, your query is guaranteed.

Have a special request? Let us know! Leica Microsystems enjoys a successful one-year term when it comes to designing customer-specific solutions. If you have a special request, please contact us. We will be happy to help you. We will be happy to help you. We will be happy to help you.



Maximum Compatibility

Sealing needs were met to ensure that the new M series – see its predecessor's – remains compatible with existing series. This means that objective bases, tubes and so on can be reused.

Objectives

All new objectives of the M series are parfocal, meaning that when used with the objective mount, they can be replaced with existing ones without refocusing.

In your case, you can continue to use the previous objective series. In this case, parfocality is no longer required.

Tubes

The interface between the objective and the tube has remained the same, so existing tubes fit the new M series. The new tubes are designed for eyepieces with field number 23, which is the predecessor's value only designed for field number 21, resulting in a smaller object field.

Eyepieces

However, the new M series eyepieces models have a standard length series to provide trimmed eye pieces in case of accidental adjustment.



On We Go

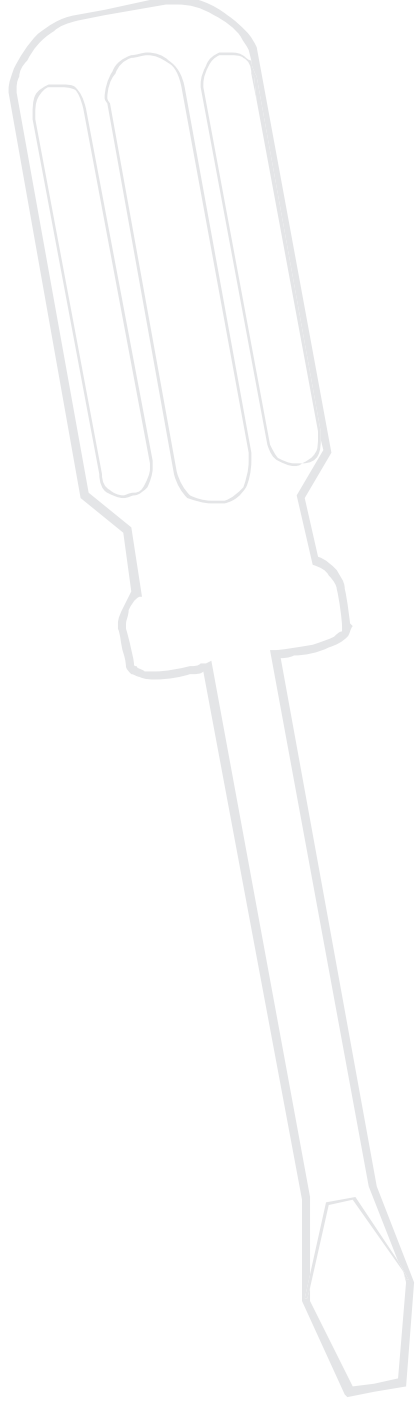
If your next letter exercise has already been asserted and confirmed by your letter consultant, continue to see through the table of illustrations and go directly to the Quick Start Guide on [page 53](#).



If, on the other hand, you're asserting the exercise you've confirmed in the 'assert-by-checklist' section as on [page 19](#),



Assembly



Base and Focusing Column

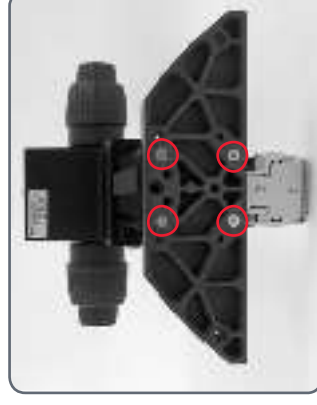
The first step is to connect the focusing column of the M series to the corresponding base.

Tools used

- Torx screwdriver, 3 mm

Assembling the column adapter

1. Securely fasten the column adapter on the column by the four included screws.



Assembling the focusing drive

2. Securely screw the focusing column to the base by the four included screws.



Optics Carrier

Tools used

- Torx screwdriver, 1mm

Assembling the optics carrier

1. Place the optics carrier on the focusing column so that the screw fits into the thread provided and the lug fits into the groove



2. Press the optics carrier downwards to the focusing column screw. Tightening your other hand



Tube

All intermediate tubes that fit between the optics carrier and the binocular tube are fitted in the same frame:

Tools used

- No tools required

Preparations

1. Fixate the positioning screw and remove the protective cover:



Assembling the tube

2. Push the tube (for example, the ocular tube) into the dovetailing end of the tube (sight) until the dovetailing end of the tube is firmly seated in the guide groove.



3. When holding the tube only with the left hand, the positioning screw is automatically brought to the correct position.



Eyepieces

Tools used

- No tools required

Magnification range

You can extend the overall magnification range

by using 10x, 16x, 25x and 30x wide-field eyepieces for persons wearing glasses.

Preparation

1. If you wish to use an ocular graticule, refer to [page 71](#).
2. Remove the dust cap guard.



Inserting the eyepieces

3. Push the eyepieces into the tubes as far as they will go and check to ensure that they fit tightly and accurately.



4. Securely tighten the eyepieces.



Objective

Tools used

- No tools required

Preparation

1. Remove the objective cap on the objective carrier during 1.



Attaching the objective

-  Hold the objective firmly during assembly and disassembly so that it does not fall onto the stage plate. This step is particularly for the 2x objective, which is very heavy. Remove the objective carrier first.

2. Screw the objective clockwise into the objective carrier.



Alternative fastening options

- Using the objective washer: read the instructions on [page 25](#).
- Using the objective: read the instructions on [page 27](#).



Objective Nosepiece – Assembly

Preparations

 Hold the objectives firmly during assembly and disassembly so that they do not fall out of the stage plate.

- Move the drive shafts, the key joints and remove the objective nosepiece. These need to be installed.

Assembly

1. Tighten the hex bolt at the rear of the objective nosepiece.



2. Turn the rotating unit by 90° and attach the objective nosepiece to the drive rotating unit. 1. Screw the objective nosepiece firmly into place.



3. Tighten the three 21 mm screws on the objective mount of the objective nosepiece and remove the intermediate ring.



4. Screw the objective nosepiece onto the objective nosepiece. It makes no difference which side of the objective nosepiece.
5. Tighten the locking screws on both sides of the objective nosepiece.



You can't turn the objective by the rotation of the head stage.



Objective Nosepiece – Adjusting Parfocality

The following procedure may be required to achieve parfocality between both objective lenses. Once reaching the lowest magnification, focus on the specimen and rotate the objective nosepiece to the next objective. The specimen should be in focus.

This procedure may be repeated if you reach either the low objective or the high.

The following procedure ensures the parfocality of the 1X and 2X objective lenses. You are adjusting the objective carriage to reduce the 2X objective in the description with the objective with the stronger magnification.

Preparation

- Use the slide correctly.
- Set the distance correctly and the eyes are in focus.

Adjustment

1. Take the 2X objective into the center belt and set it to the lowest magnification.
2. Focus on the specimen.
3. Take the 1X objective into the center belt.
4. Turn the objective on the thread in both directions until the specimen appears sharp.
5. Toggle to the 2X objective.
6. Select the strongest magnification and refocus until the specimen appears sharp.

7. Toggle to the 1X objective.

8. Turn the objective on the thread in both directions until the specimen appears sharp again.

If there is a difficulty, check the series of the objective is correct. Repeat the check with the other objective. It is not correct, repeat the procedure.

9. Tighten the locking screws.



AX Carrier – Preparation

Tools

- Torx screwdriver, 2.5 mm

Preparing the AX carrier

Before the AX carrier is installed, it may first have to be prepared. In the AX carrier to be used, please M125C, M163C, and M205C1.

1. Check the selection position.



- The selection position corresponds to the AX carrier used, as in the following steps. Otherwise, proceed as follows:

2. Insert the two screws that hold the selection position.



3. Pull the hex socket valve into the desired position and reinsert it.



4. Insert the two screws that hold the hex socket valve into the desired position. Only this ensures that the hex socket is positioned correctly.



AX Carrier – Assembly

Tools

- Torx screwdriver, 2mm
- 2mm hex screwdriver

Once the AX carrier has been placed on the carrier standing on the carrier, the carrier table will

1. Move the side of the AX carrier into the position.



Wrong



Right

2. Place the AX carrier on the loading carrier.



3. Screw the side view of the AX carrier.



4. Fix the three fixing screws and remove the side view of the AX carrier.



5. Place the side view of the AX carrier.



Transmitted-light Base Leica TL ST

Unpacking the base

The base is delivered with the edometer plate installed. Make sure the device is placed on a flat, sufficiently dimensioned, and non-slip surface.

Focusing drive and column

1. Unlock the extension plate from the base using the 6 mm key provided.



2. Align your focusing drive column to the bottom using the 6 mm screws.
3. Reattach the edometer plate to its original position using the 6 mm screws.



Transmitted-light Base Leica TL BFDF: Before First Use

Removing the transport anchors

⚠ Before you can use the transmitted-light base for the first time, it is absolutely necessary to remove the two transport anchors to avoid damage.



Transmitted-light Base Leica TL BFDf

Standard delivery

The base is delivered with the adapter plate installed. The selected stage, substage or slide is stage 10 / 50 562i, and the focusing drive is delivered as standard.

Stage assembly

The TL 3000 tensile bed-grill base can be equipped with three different stages.

- Leica substage cross-stage
- Leica substage lateral cross-stage
- Slide stage 10 / 50 562

The selected stage is mounted on the base before carrying out any. You can switch between the stages at any time with just a few hand movements.

The focusing mechanism consists of the base with the stage mounted. Consequently, the selected reverse order of the focusing stages.

Standard stage

1. The glass plate for the 'rectangular' grid in the slide stage.
2. Rotation of the stage on the tensile bed-grill base in such a way that the four holes are aligned with the base.
3. Place on the stage to the base using the four screws provided.
4. The glass plate across the slide stage.



Leica TL RC / Leica TL RCi

The base is delivered with the adapter plate installed. The selected stage, 50° or cross stage or slide stage 10°/30/36/21, and the focusing drive will have to be mounted later.

Ensure that the instruments are attached and are evenly adequately fixed and mounted under any

Stage assembly

The motorised stage TL RC can be equipped with three different stages. The selected stage is mounted on the base before carrying on. You can switch between the stages at any time with just a few hand movements.

The focusing stage can also be used if the base without the stage is mounted. Consequently a pre-defined reverse order of the focusing stages

Standard stage

1. Take the glass plate from the "extinguish" glass of the slide and stage.
2. Push on the stage on the motorised stage base in such a way that the four screws go over from the base.
3. Align the stage to the base using the four alignment screws provided.
4. The focusing stage is selected via the slide and stage.



Leica IsoPro Manual Cross-stage: Assembly

isoPro Cross-stage

Before the isoPro cross-stage is mounted to the base, the axis controlling the control buttons is attached either on the left or the right side of the cross-stage.

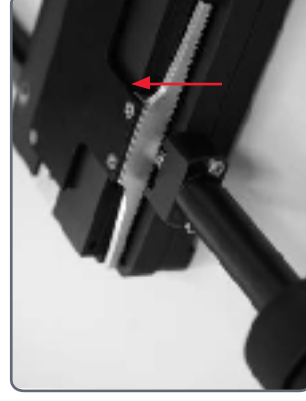
The controls are to be mounted on the left-hand side, the gear rod on the bottom side of the cross-stage must be unlocked and locked in reverse.

1. Take the gear rod from the cross-stage.
2. Turn the cross-stage around and place it on the base surface.
3. Change the gear rod from the left to the right-hand side.
4. Set the next two steps to mount the controls.

Before the isoPro cross-stage is mounted to the base, the axis controlling the control buttons is attached either on the left or the right side of the cross-stage.

Left or right operation

The controls are to be mounted on the left-hand side, the gear rod on the bottom side of the cross-stage must be unlocked and locked in reverse.



Leica IsoPro Manual Cross-stage: Assembly (Continued)

- | | Control assembly | Cross-stage assembly |
|--|--|---|
| 1. Tense the glass plate from the crossstage and turn it around. | 1. Tense the glass plate from the crossstage and turn it around. | 1. Place the crossstage on the base. |
| 2. Change the gear rod from the left to the right-hand side. | 2. Align the axis with the control buttons to the desk inside the tensioner's head into the crossstage magnetically. | 2. Put the upper section of the crossstage over the yoke of the desk, ensuring the axis is aligned with the bottom bed-grit base. |
| | 3. Align the axis with the two Allen screws provided. | |
| | 5. Align the cover plate to the crossstage. | |



Leica IsoPro Manual Cross-stage: Assembly (Continued)

- | | Focusing drive and column |
|--|---|
| 3. Screw the cross-stage evenly onto the free threaded rods. | 1. Insert the extension plate into the base using the 4-way key provided. |
| 4. Adjust the cross-stage to the way back using the coarse adjustment. | 2. Align your focusing drive column to the column using the free 4-way keys. |
| 5. Tighten the gross plate back into the slide deck stage. | 3. Tighten the edgeline plate to its original position using the free 4-way keys. |



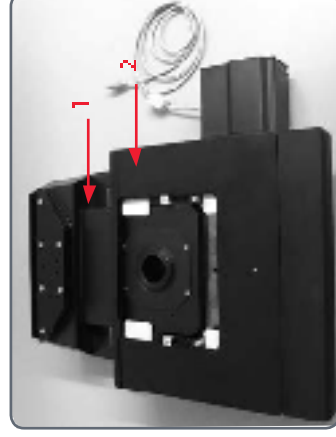
Leica IsoPro Motorized Cross-stage: Assembly

Basics

The motorized grill bases of the T₁ series (T₁-3707, T₁-T₁, T₁) are supplied with an table extension plate. The selected stage (IsoPro crossstage or standard stage 10/30/562), and the focusing drive will have to be mounted also.

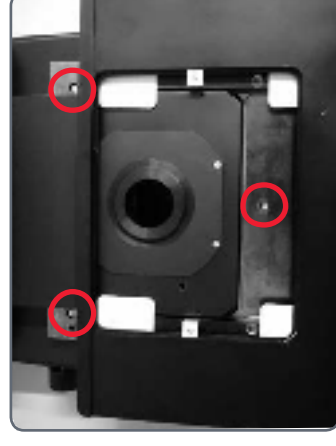
The motorized crossstage is a servo drive system. During table extension, avoid subjecting the stage to traction or severe pressure.

1. Insert the crossstage into the transport packaging and position the transport bed-grill base.



1. Microscope base
2. Motorized crossstage

2. Secure the motor and crossstage to the base using 3 M4 screws.

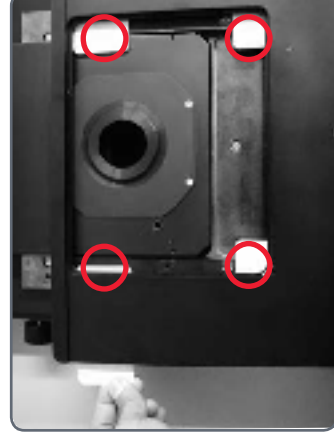
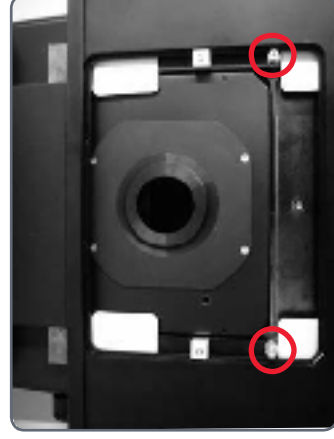
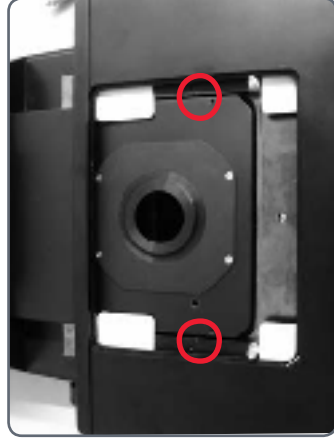


3 M4 screws



Leica IsoPro Motorized Cross-stage: Assembly (Continued)

3. Remove the two M3 screws and the rubber foot from the crossstage.
4. Remove the two W screws and the sleeve from the crossstage.
5. Remove the four stainless-steel fasteners from the crossstage.



! After removal, feed the Personal encoder in the basic bag or the Personal encoder.



Leica IsoPro Motorized Cross-stage: Assembly (Continued)

The bases

The T-330, T-70 and T0 motorized grilles can be equipped with three different sleighs: standard sleigh, travel and support armoured cross-sleigh. The selected sleigh is mounted on the base before carrying out the adjustment between the sleighs and the grille with a screwdriver.

The following diagram assumes use of the base without the sleigh mounted. Otherwise, it is performed in reverse order of the following steps.

Cross-stage and base

 Never move the sledge of the motorized cross-stage vertically in the X direction, as otherwise the reference system is deteriorated.

1. Place the cross-stage on the base.
2. Put the upper part of the cross-stage correctly toward the user, listening the answer on the horizontalised-grill base.
3. Screw the cross-stage evenly on the three threaded rods.
4. Put the cross-stage on the way back towards the camera.
5. Tighten the cross-stage back screws into the standard sleigh.



Leica IsoPro Motorized Cross-stage: Assembly (Continued)

Cross-stage for X-Y stage control module

1. Plug the C-2 plug of the crossstage motor into one of the free one of the C-2 interfaces.
 - The C-2 interface is one of the connected other components, such as the stage control kit (10 777 3981 or C-TC controlled) or stage (10 776 3521).
2. Plug the C-2 plug of the stage DC controller into the C-2 interface.
 - The C-2 interface is one of the connected other components, such as the stage control kit (10 777 3981 or C-TC controlled) or stage (10 776 3521).
3. Plug the connector into the socket provided and the grounded connector set.

- As sources of components have been plugged into the control box and lines been plugged into the board's J20 X, the crossstage motor and controller y drives to the third position.
2. Connect the DC and XY stage DC module to the J20 and J23 as well.

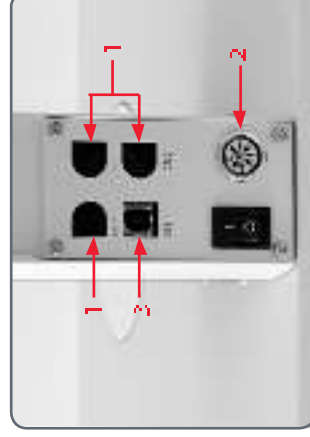
Cables: Terminals

The new base Model features extensive encoding with various or cascade data and settings can be read out. It is connected to the AC and reduced etc.

- The interface to the outside connection is on the bottom



The terminals



The connection to the AC and to other terminals is made using the terminals on the rear side of the control unit.

1. 300-2 terminals for any equipment such as the ring air heater, the base and other accessories with the base provided cable
2. Terminal for the power supply provided
3. USB terminal for the connection to the AC.



Cables: Cable Duct

The integrated cable duct in the camera enclosure has cable exits around the microscope. For example, the JS3 or T20W versions of the camera can be stored in the cable duct.

Feeding the cables

1. Jockey the free screws on the cable duct



2. Remove the cover of the cable duct

3. Place the cables in the cable duct and secure the cover snugly.



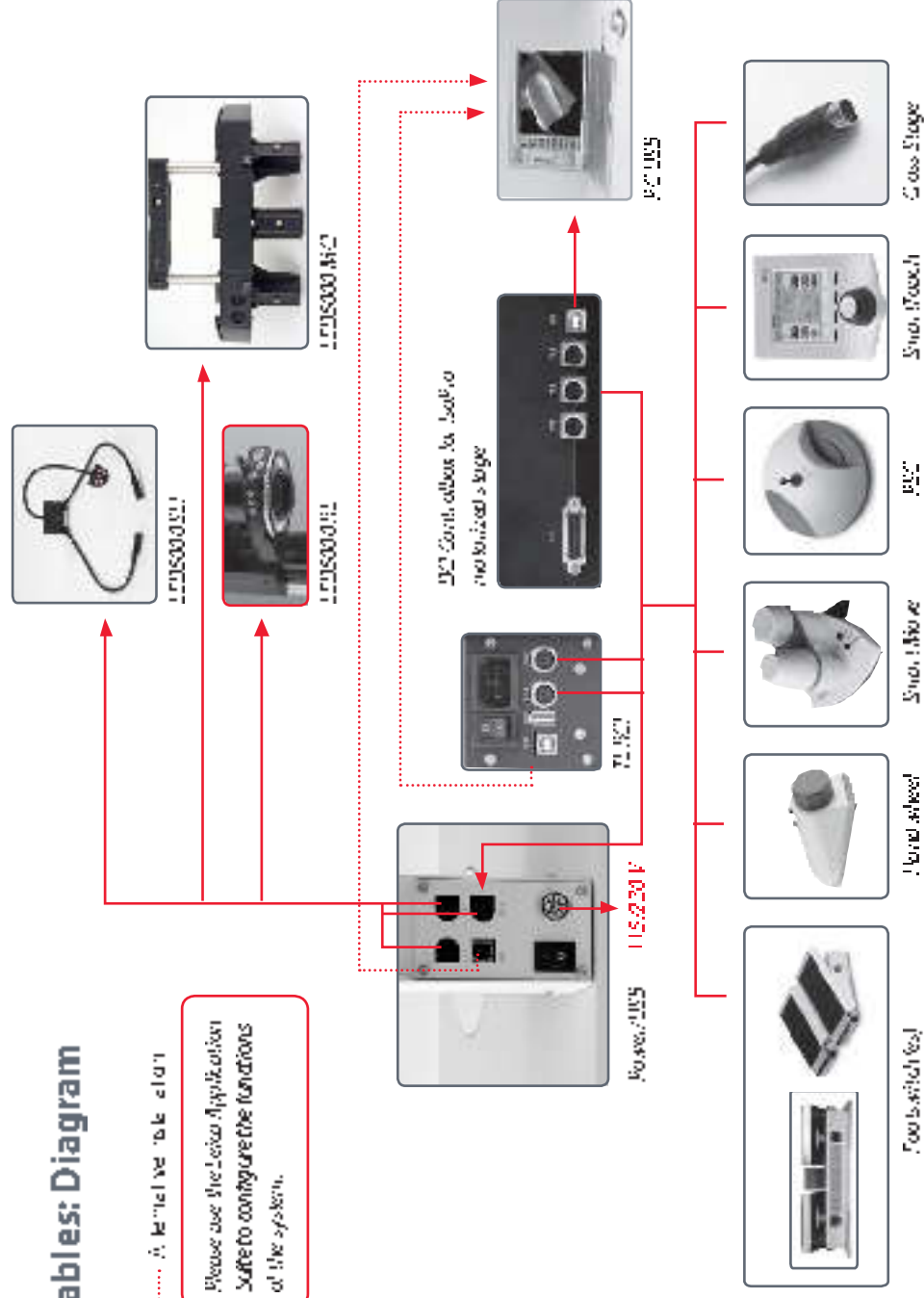
Tip: To make the length of the cable ends you will need before screwing on the cover. For thick cables, it is difficult to change the length without a key.



Cables: Diagram

..... Alternative cable

Please use the Lextia Application Suite to configure the functions of the system.



Leica LED5000 MCI

The Leica LED5000 MC for Multi Contrast illumination is available as two versions. For additional accessories, the accessories should be removed during table start, see [page 21](#).

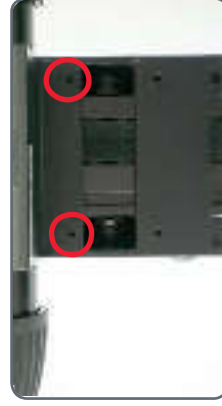


Constraints

The Leica LED5000 MC cannot be used together with the objective rings etc.

Assembly

1. Hold the LED5000 MC with one hand and plug the cable into the light source. The cable has a red and a blue ring, see [page 21](#).



2. Connect the cable to the light source. The flat part of the plug must be facing downwards.



3. Plug the other end of the cable into the light source. The cable has two sockets on the end.



Leica LED5000 MCI: Alternative Assembly

Under certain circumstances, the gill source that is not be moved along with the optical center of the camera is not a problem. In which the Z-axis changes with the angle of the device the gill that is in the center of the source. The LED 5000 MCI is directly installed to the column.

Installation on the column

1. Put the telescopic arm out of the LED 5000 MCI.



2. Screw the telescopic arm into the column at the top using the screwdriver. You tighten the screw, the telescopic arm is automatically moved into the correct position.



3. Push the LED 5000 MCI onto the telescopic arm.



Leica LED5000 RL: Assembly

Required tools

- None



The Leica LED5000 RL is installed on the objective using a ring screw. It has predrilled and preworked distance between 50 mm and 80 mm.

Constraints

The Leica LED5000 RL can be used only in conjunction with the teleactional 1X and teleactional 0.63X objectives. With the other objectives, the working distance is too small or inadequate for teleaction.

The ring adapter cannot be used together with the objective microscope.

Assembly

1. Connect the Leica LED5000 RL as described in the ring adapter.



2. Place the Leica LED5000 RL against the objective from below, push it as far as it will go and screw it into place.



3. Plug the other end of the cable into the external socket on the wall.



Continued on next page.



Leica LED5000 RL: Assembly (Continued)

 If you work with the remote focusing camera without integrated electronics, the Leica LED5000 RL must be supplied with power via an external power supply unit that is included in the delivery package. Moreover, the controller cannot be controlled via Leica Absolute Software in this case.

 To avoid unnecessary damage to the system, the charging controller should be installed with the cable being secured. Moreover, it is also possible to turn the charging controller's display, or external display, away from the Leica LED5000 RL system controller. In this case, the charging controller must be connected directly to the Leica LED5000 RL.



Leica LED5000 RL: Installing Optional Accessories

Installing optional accessories

- You can screw the optional base plate on set into place firmly using the metal plate provided.



- The optional base plate can be used and the light collected and screwed in the optional mounting bracket.



- The optional diffuser is attached and screwed in the optional mounting bracket.



Leica LED5000 RL: Use

! The grill of the Leica LED5000 RL can be very hot. Therefore, always switch on the grill before you start using the eyes and avoid touching it with the hands.

Switching on the focus column

1. Switch on the focus column using the sensor switch on the rear panel (see Leica LED5000 RL: Attachment).



Using the front keypad



- Use the **Power** key to switch the grill on and off.
- Use the **+** or **-** keys to adjust the grill temperature in 10 °C increments.
- Tap the **Power** key briefly to adjust the intensity of the grill segments. Hold one of the keys to change the intensity more quickly.

Using the side keypad

- Use the **Power** and **+** keys to toggle between the grill segments.
- Use the **Power** key to toggle between the cooking grill segments, turning the cooking grill, the cooking front-heat, or the cooking, always in the same direction.
- Use the **Power** and **+** keys to rotate the grill segments clockwise or counter-clockwise.



Leica LED5000 RL: Use (Continued)

- If you press  for 2 seconds, the segments will automatically turn off. If you press and hold these keys together, you change the segment using the  key. The automatic changeover is set. Pressing  briefly stops the changeover.
- Press and hold the  key for 2 seconds to select the "J" ring of the ring field:

 The active "J" ring segments are indicated on the front control panel by 8 LEDs arranged around the on/off key.



Leica LED5000 NVI: Assembly on High-Performance Stereo Microscopes (Leica M125 C / Leica M165 C / Leica M205 C)

Assembly of the Leica LED5000 NVI
(10.450.659)

1. The Leica LED5000 NVI factory configuration can be easily assembled in the extension plate for assembly on the side and rotated for adjusting the lateral
2. Place the Leica LED5000 NVI on the focusing column so that the screw fits into the thread provided and the lug fits into the groove
3. Press the Leica LED5000 NVI downwards to the focusing column screw. The Leica LED5000 NVI is ready for use.



Leica LED5000 NVI: Assembly on High-Performance Stereo Microscopes (Leica M125 C / Leica M165 C / Leica M205 C) (Continued)

2. Fixate the three screws on the digital camera and the digital camera and remove the mounting.



6. Note the wiring of the camera connector. Use original accessories and cable, etc. according to the corresponding user manual.
7. The focusing camera is equipped with integrated electronics, connect the LED5000 NVI to the focusing camera via the C-2 connection. Alternative: Connect the external camera supply unit 110/50 2661 to the LED5000 NVI.



Leica LED5000 NVI: Assembly on High-Performance Stereo Microscopes (Leica M125 C / Leica M165 C / Leica M205 C) (Continued)

3. Screw the objective to the stage LED5000 NVI front board:



- Add the recommended objectives that can be used with the Leica LED5000 NVI front board - the objectives:

10×/11.597 mm nominal objective = 100 mm
 10×/11.787 mm nominal objective = 150 mm
 10×/21.692 mm nominal objective = 175 mm
 10×/32.162 mm nominal objective = 200 mm
 10×/32.172 mm nominal objective = 200 mm
 10×/50.027 mm nominal objective = 0.63X
 10×/50.028 mm nominal objective = 1.0X
 10×/50.029 mm nominal objective = 1.6X
 10×/50.030 mm nominal objective = 2.0X

Add the objectives to be used by means of adapters. However, an adapter queue does need to be inserted (e.g. vignetting, color seams, reflections etc.).



Leica LED5000 NVI: Installing Optional Accessories

Polarization set

The Leica LED5000 NVI can be equipped with optional the polarization set. Using the polarization set reflections can be reduced on metallic surfaces, for example.

1. The polarizer is inserted into the filter insert on the bottom of the Leica LED5000 NVI.



2. The analyzer is placed between the tube and the camera. To do so, remove the tube from the disk camera. Place the analyzer on the disk camera and then place the tube. Test the components by lighting the calibration scene.



3. To generate the desired polarization effect rotate the analyzer disk of the analyzer until the desired frequency is reached.



Leica LED5000 NVI: Installing Optional Accessories (Continued)

Filter Inserts

The Leica LED5000 NVI is supplied with a filter holder as a standard feature. Commercially available filters of size 1/2" can be used. Make sure that the filters being used are sufficiently temperature resistant, so they are not damaged by the high-energy UV light. Additional empty filter inserts (10 725 035) can be purchased as spare parts.

1. To disassemble the filter holder, push the filter holder approx. 1 cm to the side and remove the wide end towards out of the Leica LED5000 NVI. The filter holder is assembled the reverse order of steps



Quick Start Guide

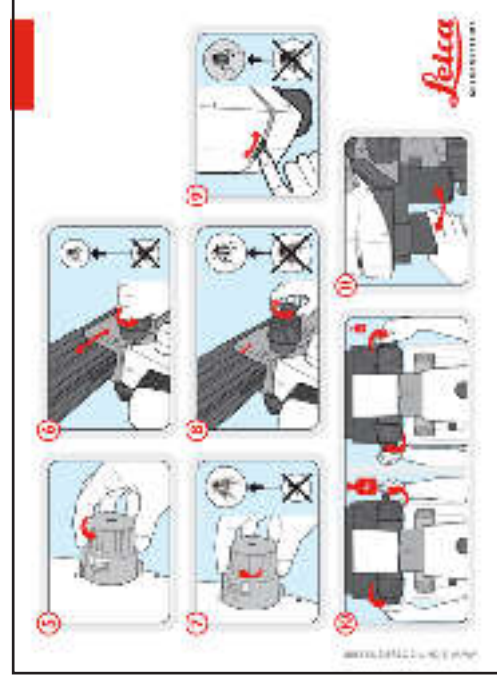


The Fastest Route to Success

Your Leica Stereo microscope has been delivered, unpacked, ready for use. To get the best condition of your Leica Stereo microscope, and to ensure you are able to get the most out of it, we recommend that you read the Quick Start Guide before you use the microscope. This will ensure that you are able to get the most out of your microscope.

This manual will then familiarize you with the finer details of your microscope. The following pages contain information, practice information and tips for using the microscope.

The manual is divided into two parts:

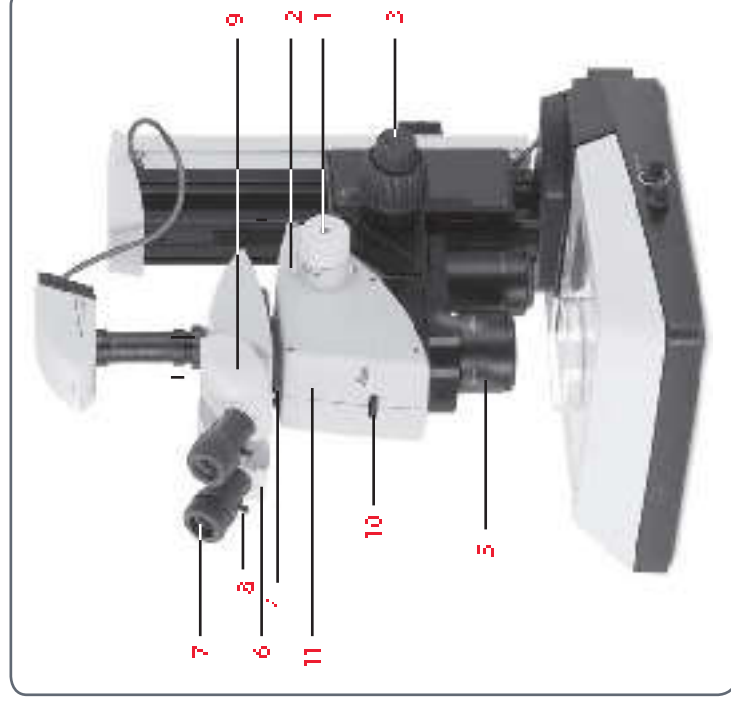


The Stereo Quick Start Guide (included with instrument)

Overview of an M Series Microscope

Essential parts of an M Series microscope are labeled in the accompanying diagram.

1. Magnification changer (zoom)
2. Switch disk stops on/off
3. Coarse/fine focusing
4. Fastening screws for the binocular tube for accessories
5. Interchangeable objective
6. Adjustable eyepiece tubes
7. Eyepieces for spectacle wearers with diaphragm correction and eyecups
8. Fastening screws for the eyepieces
9. Binocular tube
10. Built-in iris diaphragm



The Correct Interpupillary Distance

The interpupillary distance is correct if you see a single circular image field when looking closely at them.

If you are still unsure if you are set, you may need a small modification to the oculars. In this "buddy-eye" test, the oculars are:

Reference value

The distance between eye and eyepiece measures about 22mm for 10/238 wide-field eyepieces and 20mm for 19/9 eyepieces.

Adjusting the interpupillary distance

1. Look into the eyepieces
2. Hold the eyepieces with both hands. Push the eyepieces together or separate them until you see a "circular" image.



3. Slowly approach the eyepieces with your eyes until you can see the complete image field without coming cutting.



Using the Eyepieces

The eyepieces form the connection between the tube and the eye of the observer. So they push them into the tube and they are ready to use.

Each eyepiece offers a certain magnification factor that has a determinative effect on the total magnification. Furthermore, all Leica eyepieces can be equipped with a precise graduated micrometer measuring and quantity scale.

Diaptric correction

A built-in diaptric correction is available for eyepieces intended for near vision, refer to [page 69](#).

If you do not wear glasses:

1. Hold the eyepiece firmly and rotate the eyepiece towards carrier once.
2. When eyepiece is equipped with the micrometer dial correction, turn the micrometer dial.



If you wear glasses:

1. Hold the eyepiece firmly and rotate the eyepiece carrier once towards the rear; as otherwise the viewing distance is too great.



2. When eyepiece is equipped with the micrometer dial correction, turn the micrometer dial.

By the way, one benefit of viewing with eyepieces is a distance of approximately 25 cm. The reason is that the eye will not be tired. The eyepieces also ensure that your eyes will be selected even if they contact the eyepiece.



Focusing

Focusing is best achieved when coarse focusing the focusing drive. The coarse focusing drive is the coarsest focusing drive and is the coarsest of the objective.

- The focusing drive can be operated either manually or electronically.



Focusing

- The fine focusing drive is used for coarse focusing.
- The outer, fine adjustment is used for fine focusing.



Coarse/fine adjustment

The sharpness is adjusted using the coarse/fine adjustment.



The coarse/fine adjustment carries a load of up to 15 kg.

- The resolution of the coarse/fine adjustment is 1 µm.



Adjusting the Resistance of the Focus Drive

Adjusting the resistance

Is the focus movement too loose or too tight? Does the outfit tend to slide downwards? The resistance can be adjusted individually depending on the equipment weight and personal preferences to do this:

1. Grip the outer drive knobs with both hands and turn them towards each other until the desired resistance is reached during focusing.



Changing the Magnification (Zoom)

A. When the camera is level and aligned, zoom. The camera indicates the zoom range covered:

- Leica M125C = 12.5:1
- Leica M165C = 16.5:1
- Leica M205C = 20.5:1

The video camera zoom can be used either manually or remotely.

Zooming

1. Look thru the eyepiece.
2. Turn on the zoom wheel.
3. Rotate the magnification changer until the desired magnification is configured.



Ratchet Steps and Magnification Levels

The zoom button can optionally be operated either without ratchet steps. Continuing our example, when the ratchet steps are disabled, which many users find convenient. On the other hand, when the ratchet steps are enabled, analogizing, measurement results can be reproduced more accurately.

Enabling and disabling ratchet steps

1. Push the top button downwards to disable the ratchet steps.
2. Push the bottom button upwards to enable the ratchet steps.



Magnifications and fields of view

The [figure on page 120](#) provides additional information about the magnifications and field of view details. It considers among other the position of the magnification changer and the eyes extended or retracted when used.



Parfocality: More Comfort and Convenience for Your Work

- Once sleep procedures are fully implemented, meeting that you can never be focused when you're focused to the right magnification without having to refocus. There is no need to readjust the focus lever or sleep when you are not focused in general.

Requirements for parfocal work

- If you're using an eyeless or blind or a correction, the procedure differs from this description. For more information, refer to [page 70](#).

- For the procedure for adjusting the focus lever to the objective lens, refer to [page 26](#).

Parfocality

1. The objective lens is turned off.
2. Focus on the next lens.

You're done. Even if you see the same or more magnified image, the next lens is a better fit.

The objective lens is turned off. You focus on another lens of the same lens.



Iris Diaphragm

The iris diaphragm is centered over your specimen because it has the same purpose as those in the other slides: it regulates the amount of light which changes the depth of field. The "depth of field" is the area of a specimen that is brought into sharp focus.

Closing the iris diaphragm

- Close the iris diaphragm by turning the knob to the left. The subject appears darker and the depth of field increases.



Opening the iris diaphragm

- Open the iris diaphragm by turning the knob to the right. The subject now appears brighter, but the depth of field decreases.



Eyepieces



Magnification Factors of the Eyepieces

All eyepieces that only meet 1 condition for our passive eyepieces are not for use in a microscope, but also has a critical effect on the maximum magnification. The magnification factor is between 10x and 40x.

The following eyepieces are available for the M series:		
Magnification	Distinction	Order number
10x	1.5 d outer bellings	10 / 50 630
16x	1.5 d outer bellings	10 / 50 631
25x	1.5 d outer bellings	10 / 50 632
40x	1.5 d outer bellings	10 / 50 633



Health Notes

Potential sources of infection

⚠️ Direct contact with eyes/eyes, or ocular lesions, infections or irritation of the eye. These can be caused by a variety of factors, including eye infections or diseases of the eye. These can be avoided by wearing eye protection. Please contact your local health.



Separate eyecups are an effective way of preventing infections.



Dioptric Correction

- As the eyepieces are set to view through a dioptric correction, changing the microscope to be used without glasses even by those with vision problems. The correction carries 15 diopter settings.



Using the dioptric correction

1. Set the dioptric correction of both eyepieces to the "0" position, 0 diopter settings.
2. When wearing your glasses, ask through the eyepieces and focus on the slide then.
3. Take both eyepieces to the "near" position, "45".
4. Hold one eye closed and rotate the other eyepiece "dioptric" until the slide then is in focus.
5. Then, open the other eye and correct the diopter settings until the "near" position is in focus.



Rotate the "near" diopter correction. The diopter correction is set by a dial - this you have to manually rotate each time you change the eyepieces. To adjust the diopter diopter correction, refer to the "diopter" section on page 70.



Dioptric Correction and Parfocality

Set the eyepieces and the objective lenses to the desired magnification. The eyepieces are parfocal, meaning that once they are focused on a specimen, the objective lenses will also be in focus. The eyepieces are also parfocal, meaning that once they are focused on a specimen, the objective lenses will also be in focus.

Preparations

- Move the eyepieces and the objective lenses to the desired magnification and focus.
- Turn the eyepieces and the objective lenses to the desired magnification and focus.

Adjusting

1. Set the dioptric correction for both eyes to 0.
2. Select the lowest magnification and focus on a flat specimen.
3. Select the highest magnification and readjust the eyepieces.
4. Select the lowest magnification again, but do not adjust the eyepieces.
5. Take the eyepieces out of the eyepiece holder and adjust the dioptric correction for both eyes to 0.

7. Look into the eyepieces

8. Slowly rotate each eyepiece and view the field of view. The eyepieces are parfocal, meaning that once they are focused on a specimen, the objective lenses will also be in focus.
9. Select the highest magnification and readjust the eyepieces.

Now, if you adjust the magnification from the lowest to the highest level, the specimen is always in focus. This is because the eyepieces are parfocal.



Graticules

Use

Graticules (ruler, length measurements and counting device), accuracy of calculations. The value is equipped with a digital camera and a 50x objective.

The graticules for length measurements and numbering are fitted in mounts and are inserted into the eyepiece.

1. Screw the insert onto the eyepiece.



2. Center the graticule on the insert, applying moderate pressure. Ensure that the graticule fits tightly.



3. Screw the insert and graticule firmly into the eyepiece and the eyepiece.



4. You can move the graticule by rotating the eyepiece in the tube and then tightening the locking screw.



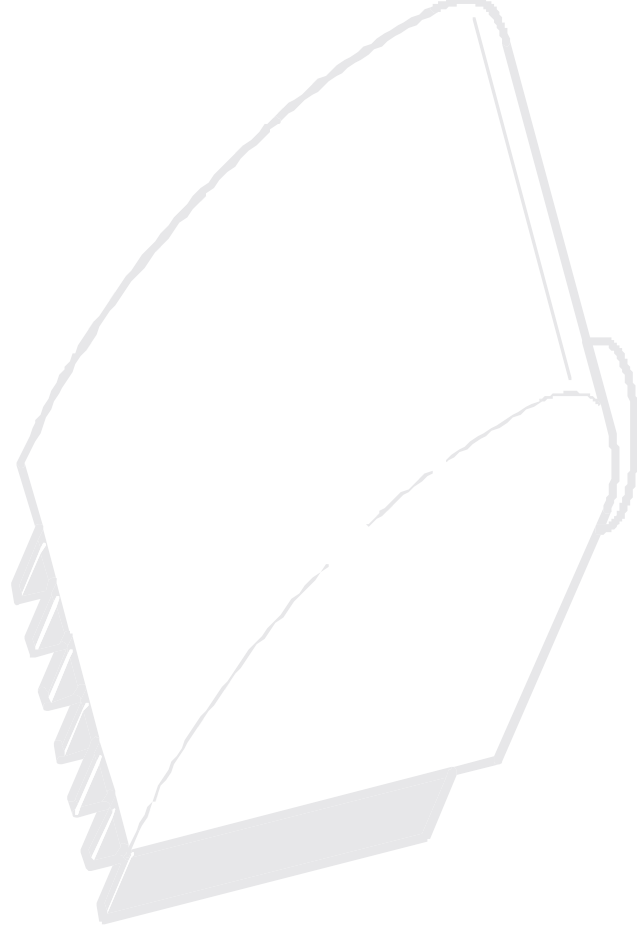
Use with the AX camera



Graticules are used with the AX camera. The AX camera has a built-in measurement scale. The scale is visible through the camera's eyepiece. The scale is visible through the camera's eyepiece.



Photography & Video



Photography & Video

For most microscope users, digital documentation becomes an integral part of their work. These capabilities can be provided in an effective manner; measurements on the digital image provide certainty and, in conjunction with the automated software package, even images of large specimens can be captured. These systems will allow you to record a complete image.

Adapter

A camera controlling the Leica Microsystem Suite is not required; conventional mirror reflex and rangefinder cameras from third-party manufacturers can be used. For this purpose, Leica Microsystems offers a variety of adapters that can be used together with the 30 Å and 100 Å microscope tubes.

Leica cameras

However, if you require absolute control over the camera and need the camera by a measurement, the Leica and more addition to photography, the digital Leica cameras are exactly right for you. Together with the Leica Microsystem Suite, they provide virtually limitless freedom of use for additional information on Leica cameras, refer to the camera's documentation.



Leica Application Suite

The Leica Microsystem Suite, on the other hand, is the digital extension of the Leica Microsystem Suite. In addition to controlling images, it lets you control the camera, adjust settings, stages, cameras and more. For additional information, refer to the Leica Application Suite.



Photo Tubes and C-mounts

Application

All C-mount and C-Mount cameras are equipped with a standard C-mount interface. In turn, the C-mount adapter for the respective photo tube is connected to this interface. This adapter creates a standard interface connection between the microscope and camera and ensures full functionality of the microscope in regard to the image sensor of the camera.

Due to the design of the digital camera to capture as much of the field of vision as possible, even extending as much as the back edge of the field of vision as possible. To do so, the magnification factor of the C-mount adapter must match the image format of the sensor as closely as possible.

There is a limited standard of the camera sensor when the camera is C-mount adapter installed. It can be corrected by the SteadyFind unit of the camera software.

Alternately, you can also use a C-mount adapter with higher magnification. This primarily avoids the critical border area of the field of vision and concentrates on the center of the field of vision.

Cameras from third-party suppliers

In addition to the cameras with the standard C-mount interface, you can connect third-party cameras to the microscope by a C-mount adapter.

To do so, instead of the C-mount adapter, you may use the corresponding S-T adapter with a C-mount. However, these third-party cameras are not integrated into the SteadyFind software and have to be operated using the corresponding software from the camera manufacturer.

The selected camera is deleted from the user interface along with instructions for the camera's use.

Time	Field of vision	Resolution	Field of vision	Resolution	Field of vision	Resolution
9.1 mm FOV	5	1.976 mm	2.35 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	10	1.976 mm	1.67 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	3	1.976 mm	3.2 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	3	1.976 mm	3.2 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	5	1.976 mm	3.2 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	5	1.976 mm	3.2 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	8	1.976 mm	2.7 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	12.5	1.976 mm	1.75 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	1.3	1.976 mm	3.75 mm	16	1.632 mm	0.5 mm
9.1 mm FOV	1.3	1.976 mm	1.75 mm	16	1.632 mm	0.5 mm

Resolution of the camera sensor is not recommended.

Resolution of the camera sensor is not recommended.

Trinocular Video/Phototube 50 %

Use

When is not seen left the trinocular video camera use 50% enter as you has in a leucousy view and making in the same then. The eye and grill is divided as areas

- 50 % save area for the two eyes eyes.
- 50 % of the grill is diverted to the video camera seen left.

Assembly

When the trinocular use 50% in the optical center of the trinocular observation tube refer to [page 221](#)



Trinocular Video/Phototube 100 %

Use

With its 100% beam split, the Trinocular Video/Phototube 100% enables you to observe a biological specimen, this means that 100% of the light is available to the other beam split. The other beam split is also available.

Assembly

Insert the Trinocular Tube 100% into the optical center block of the microscope observation tube (refer to [page 22](#)).

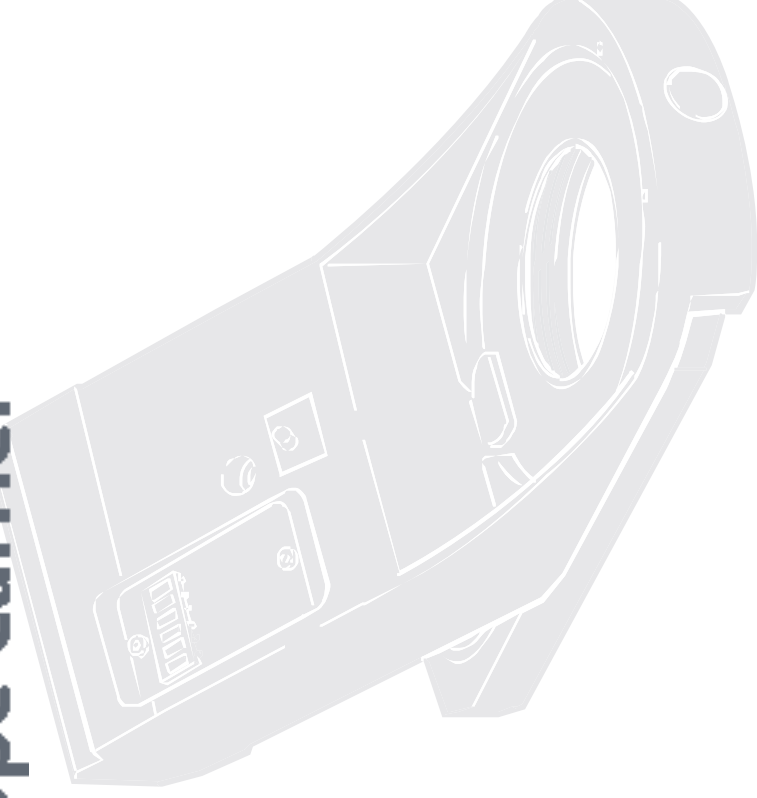


Switchover

- Turn the control on the right side of the tube into the horizontal position in order to guide the eye into the eyepieces. You can now observe the specimen.
- Turn the control on the right side of the tube into the vertical position in order to guide the eye into the camera. You can now photograph the specimen.



Microscope Carrier



The Microscope Carrier AX

Just as you would take a great deal of analogizing, these measurements are made with precision and should be the microscope carrier AX or stereoscopic observation. The stereoscopic imaging by means of a perpendicular beam needs to be made without any error.

Compatibility

The stereoscopic and stereoscopic objectives fit into the thread in the microscope carrier AX for the Jace M125 C, Jace 165 C and the Jace M205 C.

Stereoscopic viewing

A stereoscopic view is required for examining scale objects. For this purpose, the microscope carrier AX must be brought to a horizontal position.

1. Unlock the carrying screen.



2. Turn the microscope into the horizontal position and look at the scale view and light the carrying screen.



The Microscope Carrier AX (Continued)

Parallax-free images

The built-in red targeting produces more precise results in analogography, measuring and positioning.

1. Juxtafix the carrying screen.
2. Push the microscope towards the object as far as you can and lighten the carrying screen.



The objective is now oriented directly beneath either the left or the right carrier plate.

Coaxial light and the Leica M205 C

When using coaxial incident light together with the Leica M205 C, juxtafix the carrying screen and press the object carrier towards the light source. The movement is only 2 mm. This provides uniform illumination in both carrier plates.



The Objective Nosepiece

Use

The objective nosepiece allows you to switch between two objectives just one hand movement, or even to replace the 1x and 2x objectives.



Practical work

With the new 4 sets of objectives, the selection by 3 is the real even when objectives are changed, meaning that the selection will be to 15 times according to the change.



Order sets of objectives cannot be used, but it must be done by changing the objective change.

Technical constraints



The objective nosepiece cannot be used together with the 205000 1x system, as the objective nosepiece cannot be rotated.



Objectives and Optical Accessories



The Different Types of Objectives

To meet the various requirements regarding imaging properties, there is a wide offering of objectives. These are divided into apochromatic, planapochromatic and planachromatic objectives and also into achromatic and semi-achromatic objectives.

- Achromatic objectives are particularly suited for specimens with high-contrast structures.

- Half-field (planachromatic) objectives are particularly well suited for studying flat objects such as metal sections.

- With apochromatic objectives, the finest structures are visible with high contrast. The sophisticated apochromatic correction allows these objectives to deliver the highest color brilliance and fidelity.

Achromatic objectives

The 0.32X, 0.5X, 0.63X, 0.8X, 1X, 1.5X, 2X achromatic objectives offer countless variants for selecting the object field diameter, magnification ranges and working distances (see page 120).

Planachromatic objective 1X

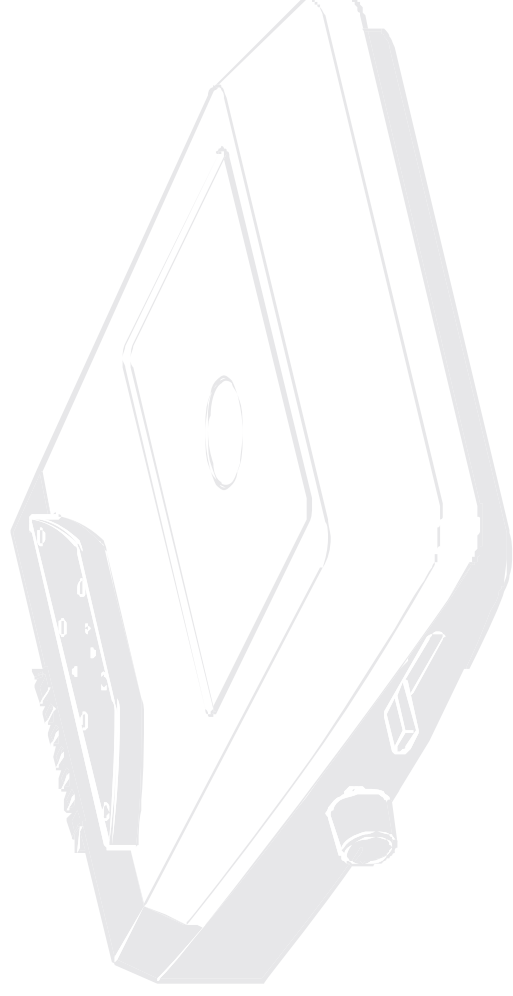
To the highest requirements for overall image quality, we recommend equipping the microscope with the 1X plan (flat-field) objective, which returns sharp, contrast-rich object fields.

Achromatic objectives with a long focal

length:
For special applications, achromatic objectives with long working distances and focal lengths of ≥ 100 mm for 100 mm lenses are



Bases



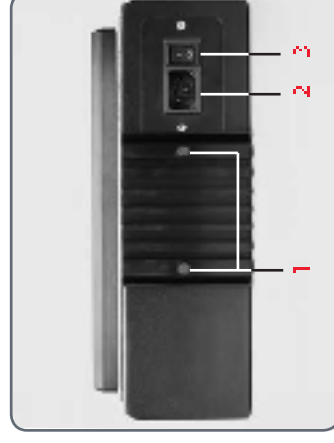
Transmitted-light Base Leica TL ST: Controls



1. Adapter plate for easy assembly of focusing dials
2. Removable glass plate
3. Control for light intensity
4. Adjustment for deflection mirror



Extension plate of the transmitted-light base TL ST



Rear side of the transmitted-light base TL ST

1. Socket for changing the halogen lamp
2. Power connection socket
3. Power switch



Transmitted-light Base Leica TL ST: Operation

Light intensity control

The light control adjusts the intensity of the 12V/20W halogen light.

1. Selection of the illumination of the base at the same section.
2. Focus on the base then.
3. Set the illumination to desired intensity using the light control.



Transmitted-light control

The transmitted-light control is a deflection mirror that automatically moves the deflection mirror in the base when moved. The mirror's section in the control position allows the end user to smoothly changeover between bright field and oblique transmitted light.



Bright field

Bright field is suitable for examining translucent objects featuring contrasting structures. The object is directly illuminated from below and seen in its true color against a bright background.

- Move the slider backwards until the desired effect is achieved.

Inclined transmitted light

The inclined light reflects the object obliquely, which produces an advantageous effect for observing very transparent, aqueous objects.

- Simply pull the slider forwards until the desired effect is achieved.



Transmitted-light Base Leica TL ST: Lamp Replacement

Changing the halogen lamp

 Before you change the lamp, it is essential to follow the safety instructions. They are necessary to avoid the danger of injury from the base to prevent the use of electric shocks.

 The halogen lamp becomes very hot during operation. Therefore, to avoid being burned, let the base cool off for approx. 10 minutes after switching it off!

 Do not touch the halogen lamp with your bare fingers – this drastically reduces the service life of the lamp.

Changing bulbs

1. Unscrew the two screws on the cooling unit and pull the cooling unit out, along with the lamp.



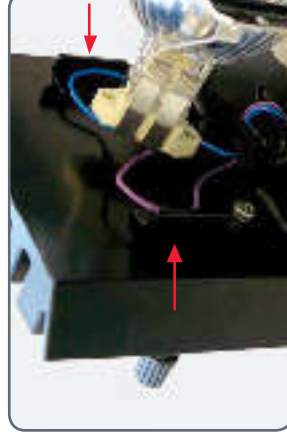
2. Carefully pull out the lamp and mount by pulling the wires upwards.

3. Disconnect the wires from the mount.

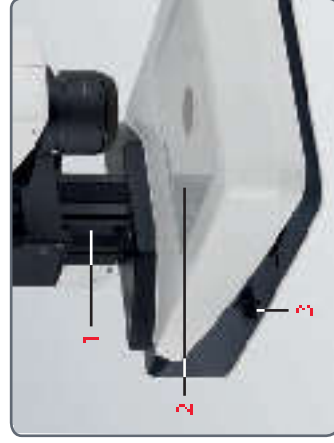
4. Insert the new lamp into the mount and reinsert the wires into the wires holder.

Precautionary measures

 When inserting the wires, ensure that the wires are inside the two cable guides. This prevents the wires from getting caught during insertion.



Transmitted-light Base Leica TL BFDf: Controls



1. Adapts plate to co-ordinate assembly of focusing drives
2. Standard stage 10/150/552
3. Button to toggle between bright field and dark field



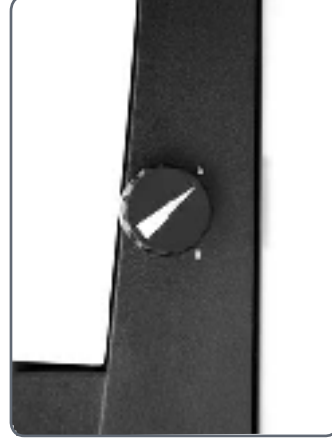
Extension plate of the transmitted light base, 10/150/552



Adapts to the focusing drive



Connect for cold light sources
light conductor for fiber (10 mm)
and tube (12 mm)



Button to toggle between bright field/dark field

Transmitted-light Base Leica TL BFDf: Operation

Light intensity control



Please observe the user manual – in particular safety regulations – for the features of the grid guide and grid source

- Select on the grid guide according to the manufacturer's user manual and adjust the brightness

Transmitted-light control

The "33" transmitted-grid base is a parallel field switch the grid from "bright field" to "dark field".

Bright field

Bright field is suitable for examining translucent objects featuring contrasting structures. The object is directly illuminated from below and seen in its true color against a bright background.

- Turn the control as far as the "BP" ("Bright field").



Finger tip with bright field illumination

Dark field

In dark-field illumination, a ring illuminator is used. As a key the field of view does not reach the object without a scatterer. Only the structure of the specimen, due to objects disperse the light, making the object visible against a dark background.

- Turn the control as far as the "DP" ("Dark field").



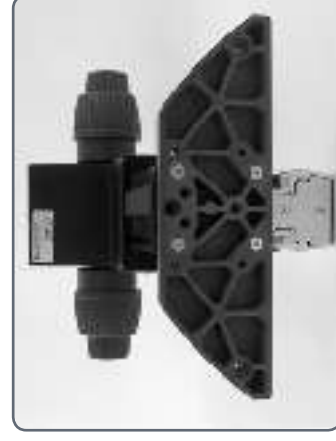
Identical subject with dark field illumination



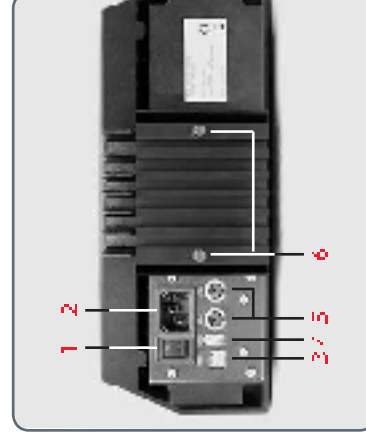
Leica TL RC / Leica TL RCI: Controls



1. Heat sink of the integrated halogen illuminator (only TL RCI)
2. Extension plate for focusing dials
3. Standa stage 10/150/502
4. Filter holder
5. Control of top and bottom flaps of the filter mount control
6. Button for minor and horizontal movement of the mirror
7. Torus thread-light base



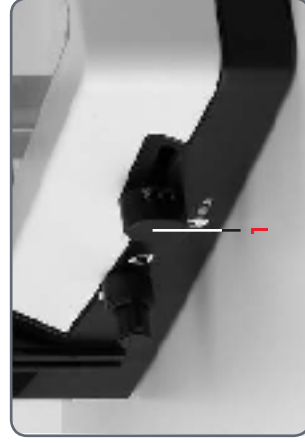
Horizontal light base adapter plate



1. Power switch
2. Power connection socket
3. USB socket, type B
4. USB socket, type A
5. 2x CAN bus
6. Screws for changing the halogen lamp



Leica TL RCI: The Deflection Mirror



Inverted world?

Depending on the properties of the back mirror, the deflected image of the environment and the perception of the viewer, it is possible that the viewer experiences depth or positive and inverted relief contrast and to be oriented in reverse. This means that the observer is left rather than of the upper section, contrast inverted relief contrast and vice versa.

Tilted mirror

The built-in mirror features one flat and one concave side and can be tilted and moved. The concave side has been specially designed for the optical requirements of objectives with a high numerical aperture. The back mirror is on the left side of the built-in deflection mirror and can be tilted to the left or right by moving the mirror and travel to the left and back.

The concave side of the mirror indicates the concave side of the mirror, creating a false optical effect and a false eye contact.

The angle of light incidence in the back mirror also changes depending on the tilt and position of the mirror. As a result, switching between transmitted light (bright field), oblique illumination and dark field-like illumination is possible.

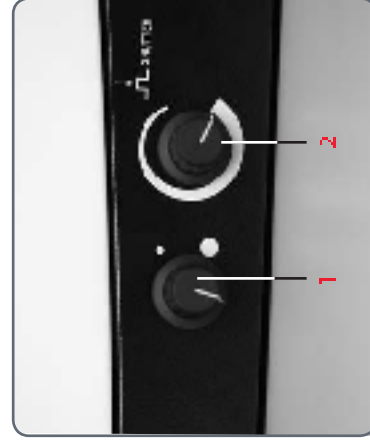
Functions of the rotary knob

The rotary knob (1) fulfills the following tasks:

- Turning the deflection mirror from the flat to the concave side
- Setting it to guide the light beam through the back mirror and the deflection mirror at a flatter angle
- Moving the deflection mirror (forwards/backwards)



Leica TL RCI: Color Intensity and Temperature



1. Potentiometer 1, controlling the Constant Color Intensity Control Illumination Intensity
2. Potentiometer 2, controlling the Local Color Temperature

The Leica TL RCI has two electronic potentiometers that control the color intensity, the local color temperature.

The control for the color temperature potentiometer serves as an electronic shutter.

- To alter just your work <<< the potentiometer 2.
- <<< edge in to switch on the illumination. The electronic return to the previously configured settings.

Using a USB mouse (only TL RCI)
The Leica USB mouse controls the TL RCI and during operation the TL RCI. Connected the mouse to the corresponding USB port of the base.

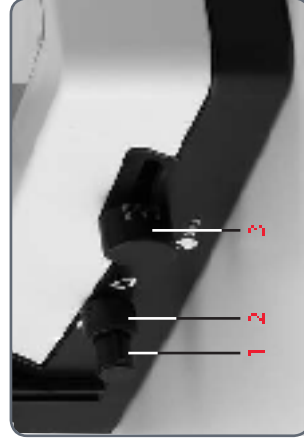
- The electronic shutter is activated by default in the TL RCI control system and is used to control the illumination intensity.
- To switch the illumination on or off, briefly <<< the shutter wheel.
- To enter an extended triggering mode <<< end and during the shutter wheel for longer than 2 seconds.



Leica TL RC / Leica TL RCI: Operation

Setting the relief contrast

The two switches on the left side of the illuminated grill base (TL RC: TL) activate two built-in flaps. The outer switch (1) controls the inverted relief contrast, and the inner switch (2) adjusts the positive relief contrast.



1. Switch 1b, adjusting the inverted relief contrast
2. Switch 1a, adjusting the positive relief contrast
3. Deflection mirror

Depending on the flap position, a part of the opening of the built-in flaps remains covered, which results in the different contrast effects. Phase structures typically act as spatial, relief-type images – the positive relief contrast seen by the inverted relief contrast seen by.



Increased contrast without relief is achieved by switching the relief to 0.5. A dynamic illuminated area is created. By tilting the deflection mirror slightly, you can move the grid over the entire field of view and quickly toggle between positive and negative relief images. The dynamic effect makes it easy to distinguish phase structures from other structures.



Leica TL RCI: Methods in Transmitted Light

Vertical bright-field illumination

Suitable for slide-mounted specimens with sufficient contrast

The light beam is deflected vertically through

the specimen. This results in a maximum brightness field with maximum brightness

Inclined transmitted light

Suitable for semi-transparent, opaque specimens such as foraminifera and fish eggs. Move the deflection mirror until the desired data are visible

Singlesided dark field

Suitable for fixed specimens and fine structures

The flatter the angle at which the light beams are deflected into the specimen plane, the darker the substrate appears. A dark field-like transmitted light is created. Outlines, fine edges and structures are bright in contrast to the dark background through diffraction of the light beams on the dark background

Leica TL RCI: Relief Images

Starting position

1. Push the deflection mirror all the way back towards the camera.
2. Turn the deflection mirror into the notch position (Fig. 13).



Positive relief contrast

Slide on both the incident and the reflected beams. The smallest structures are seen in

The effect can be strengthened or weakened by gently tilting the deflection mirror.

Negative relief contrast

Slide on both the incident and the reflected beams. The smallest structures are seen in

The effect can be strengthened or weakened by gently tilting the deflection mirror.



Leica TL RCI: Relief Images (Continued)

Dynamic relief contrast

Suitable for semi-transparent and translucent structures

By tilting the deflection mirror slightly, you can move the gaps over the entire field of view and quickly toggle between positive and negative relief images. The dynamic effect makes it easy to distinguish structures from each other in 3D.

Constraints

The relief methods provide good results for mid-zoom to high magnifications and with 1X, 1.6X and 2X magnifications. In the lower zoom range and with weaker objectives, the object field may not be uniformly illuminated.

We recommend using the Leica field-grip base with 1X or higher objectives and not objectives with a dry objective height.

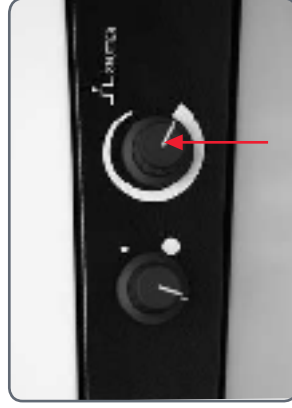


Using Filters

Filters for TL RC and TL RC1

The perforated-grid bases TL RC and TL RC1 can be equipped with up to three filters – even at no extra cost – as standard. By customer request, the filters are also available as one-off items.

1. Switch off the light source or click (TL RC1) the button for the filter:



2. Take the empty filter from an available filter slot in the filter holder.
3. Insert the desired filter.



2. Switch the grid source back on.

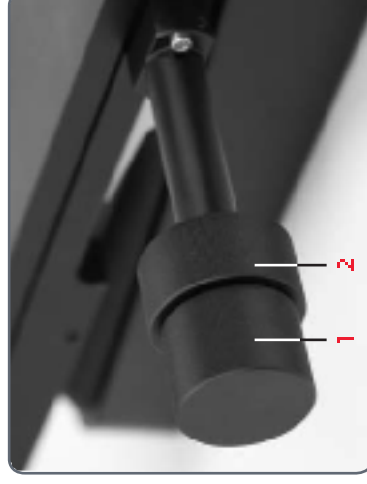
Daylight filter for TL RC1
A daylight filter is also available for the perforated-grid base TL RC1.



Leica IsoPro (Non-motorized): Controls

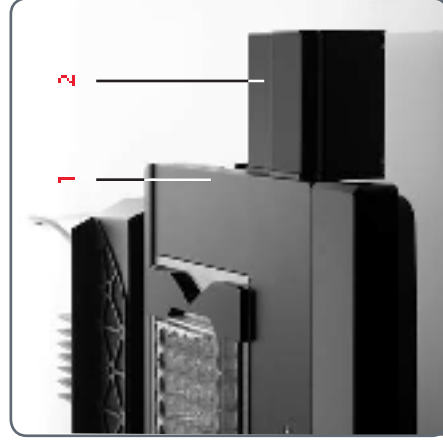
Operating the cross-stage IsoPro

1. To move the stage in X direction, rotate the control knob.
2. To move the stage in Y direction, rotate the control knob.



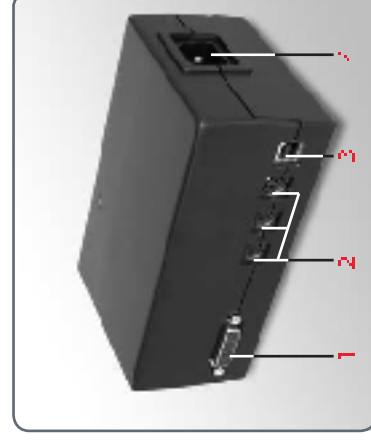
Leica IsoPro (Motorized): Controls

IsoPro:



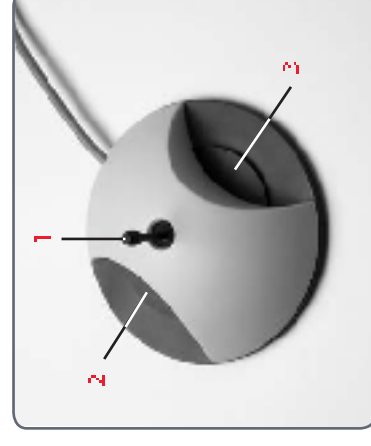
1. Motorized base stage Leica IsoPro
2. Housing with motorization

X-Y-stage DCI module



1. Sub-D interface Leica Syno, Move
2. 2.54mm interface
3. 0.05mm interface (type B)
4. Socket for grounded power cable

Leica PSC controller



1. Quick control
2. Fine control X
3. Fine control Y



Accessories



Leica Hand Wheel and Foot Switch



Up to five foot switches can be configured with a microcomputer. They can be programmed to 255 or 256 X to control focus, illumination, and video magnifications.



The hand wheel is designed to control the motor focus.



Leica SmartTouch



With the touch screen of the Leica SmartTouch, you can control your experiment procedures with a few touch movements and never use a grid or your mouse to place the needles.

The most important control functions on the control unit can be adjusted to your specific needs with freely programmable velocity knobs and junction buttons.

Controls

The functions of the individual knobs and screen elements can be configured both directly on the Leica SmartTouch and using the Leica Application Suite.

The standard configuration when shipped from the factory is as follows:

- Touch of the knob = zoom
 - Junction of the knob = focus
- For a detailed description of the functions and settings, please refer to the Leica SmartTouch manual or the Leica Application Suite help file.



Leica PSC Controller

Use

The Leica PSC controller gives you precision control of the Leica software-controlled cross-stage.

Connection

Connect the Leica PSC controller and the Leica software-controlled cross-stage.



Passing over the specimen quickly

- Move the optical unit to the desired location by dragging the optical unit quickly onto the cross-stage.

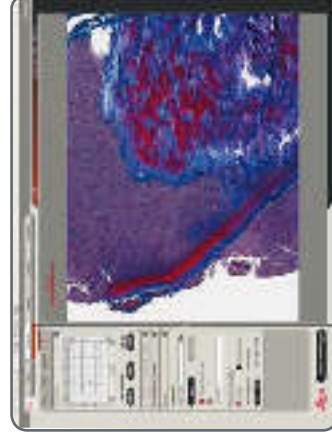


Fine control of the cross-stage

The motorized Leica iOLPro cross-stage offers an accuracy of up to 0.25 µm. To move the position with maximum accuracy, use the optical unit on the optical.

Control by LQS

The instructions for controlling the Leica software-controlled cross-stage are provided in the software's help file.

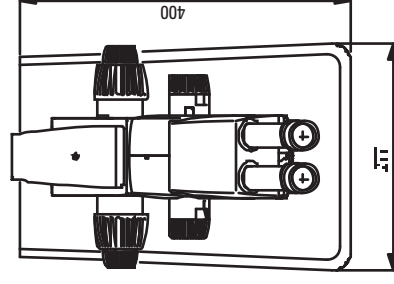
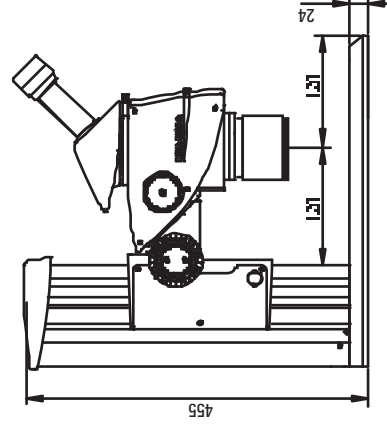
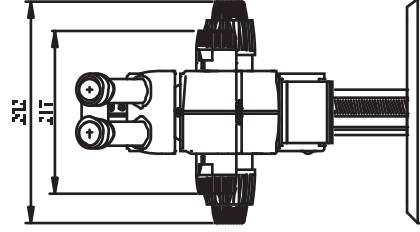


Dimensional Drawings



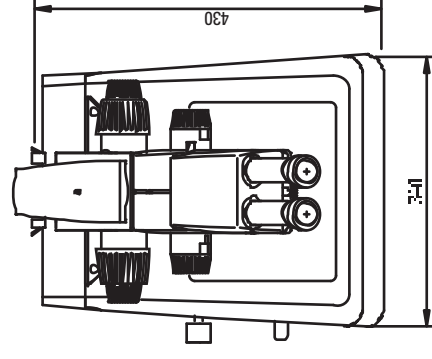
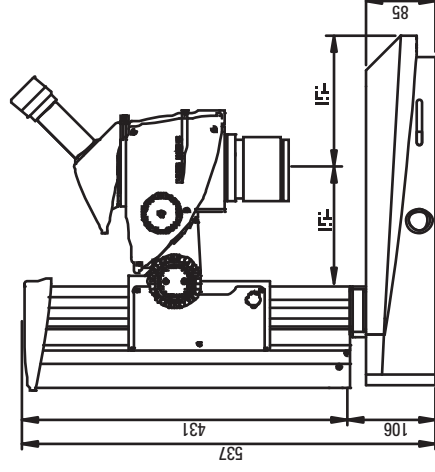
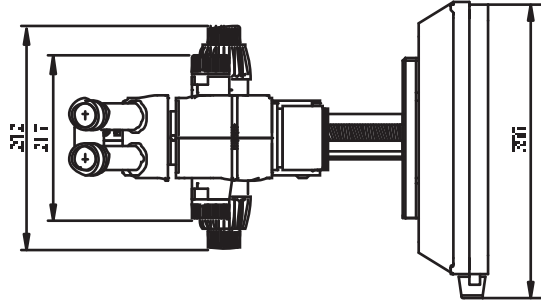
Leica M125 C / Leica M165 C

Leica M125 C / Leica M165 C with incident light base and new focusing column
(dimensions in mm)



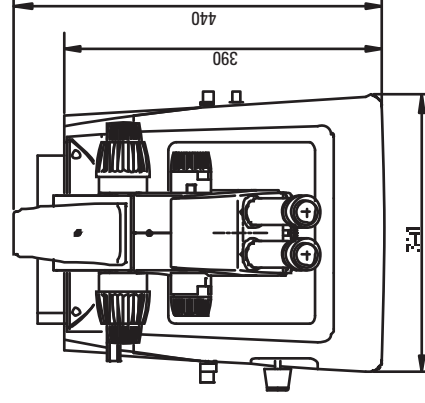
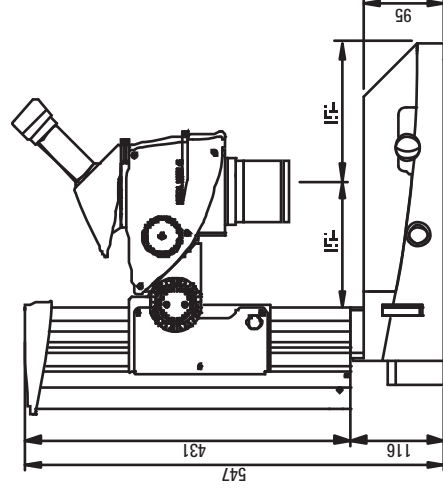
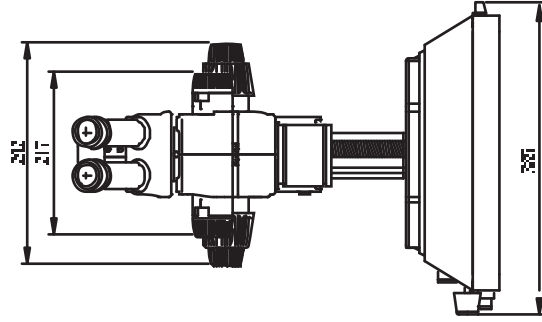
Leica M125 C / Leica M165 C (Continued)

Leica M125 C / Leica M165 C with transmitted-light base TL ST and manual focus
(dimensions in mm)



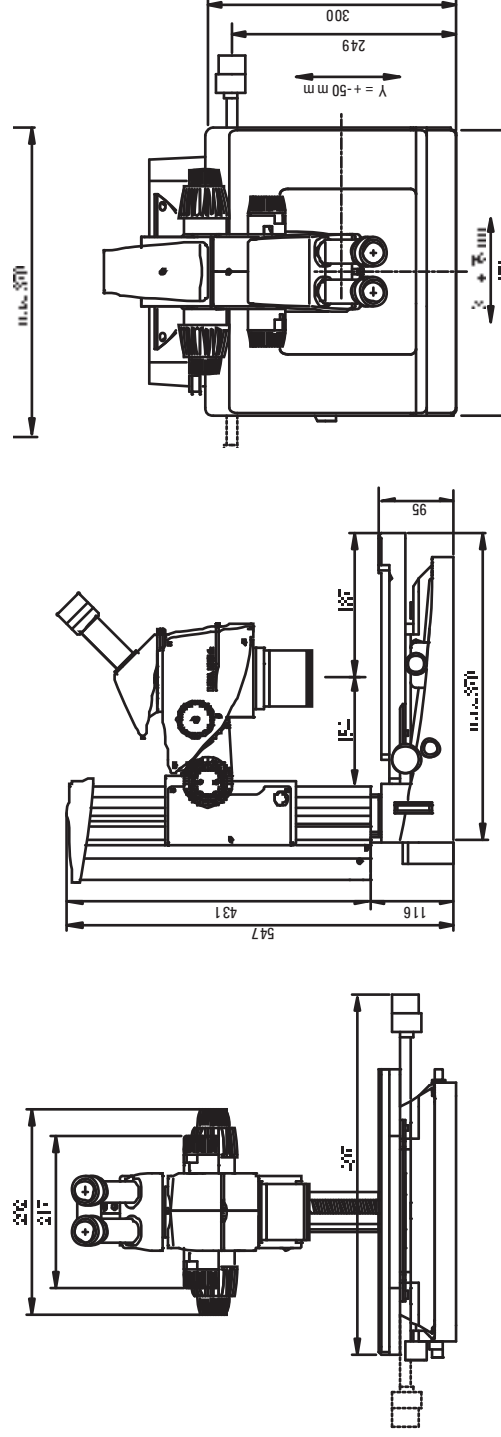
Leica M125 C / Leica M165 C (Continued)

Leica M125 C / Leica M165 C with transmitted-light stand TL RC and manual focus
(dimensions in mm)



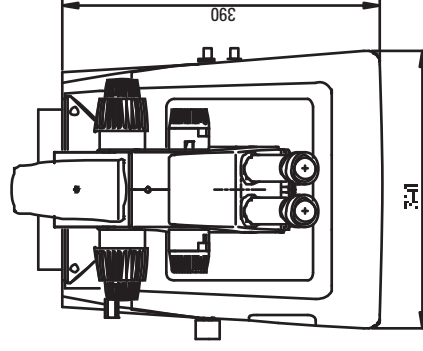
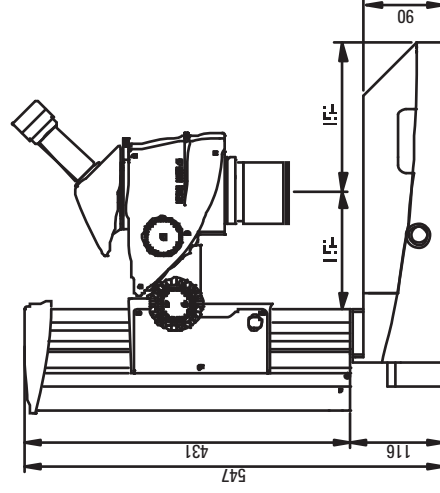
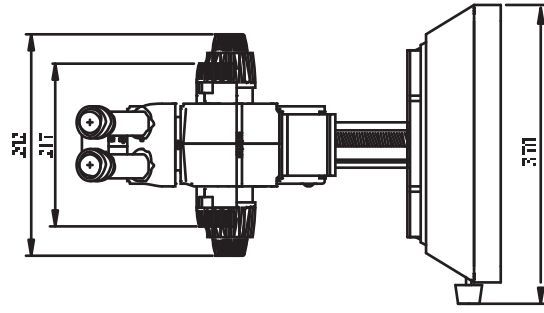
Leica M125 C / Leica M165 C (Continued)

Leica M125 C / Leica M165 C with transmitted-light stand TL RC, manual cross-stage Leica IsoPro and manual focus
(dimensions in mm)



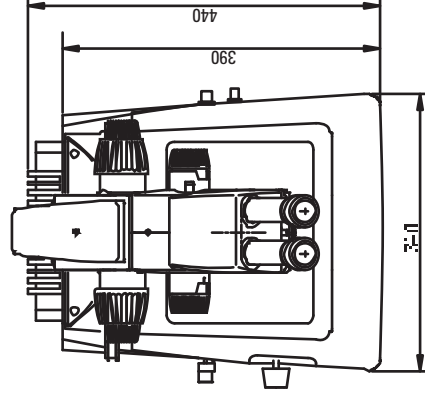
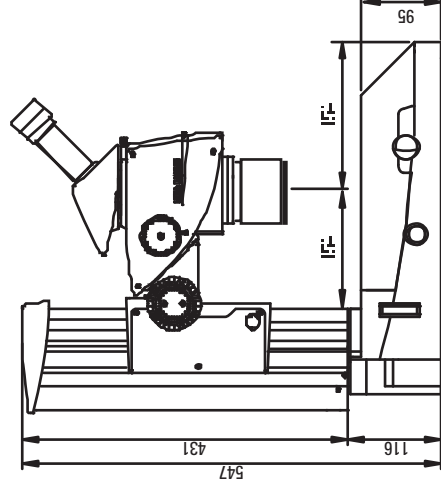
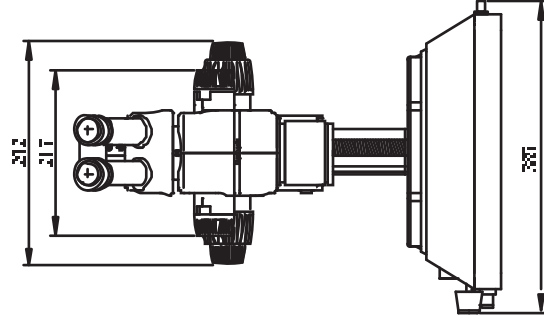
Leica M205 C

Leica M205 C with transmitted-light stand TL ST and manual focusing drive
(dimensions in mm)



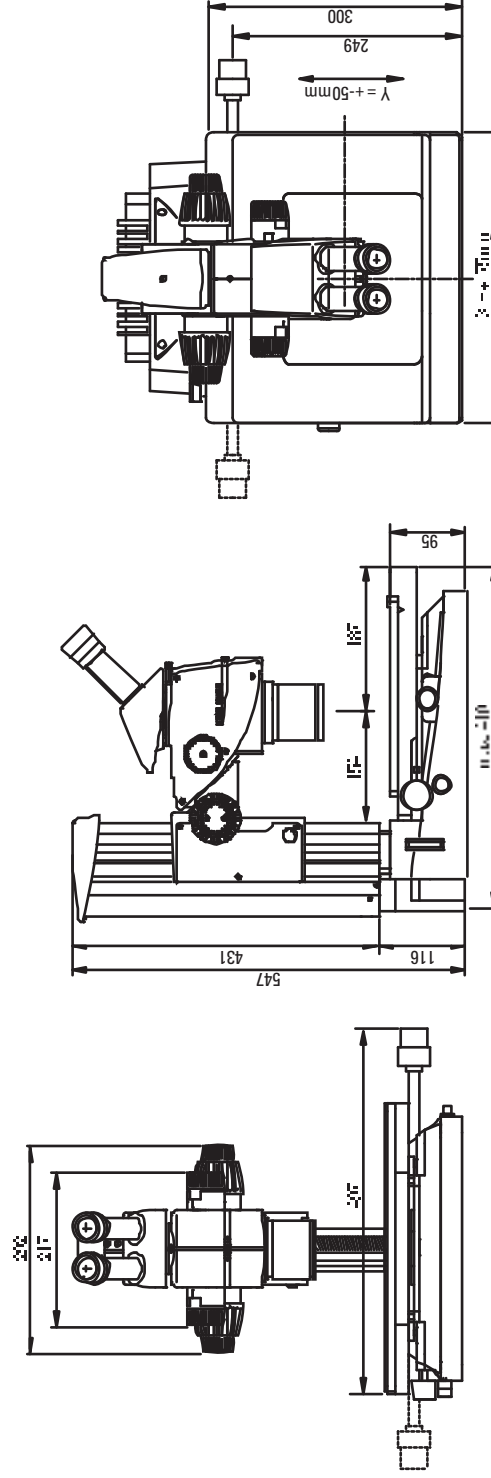
Leica M205 C (Continued)

Leica M205 C with transmitted-light stand TL RC and manual focusing drive
(dimensions in mm)



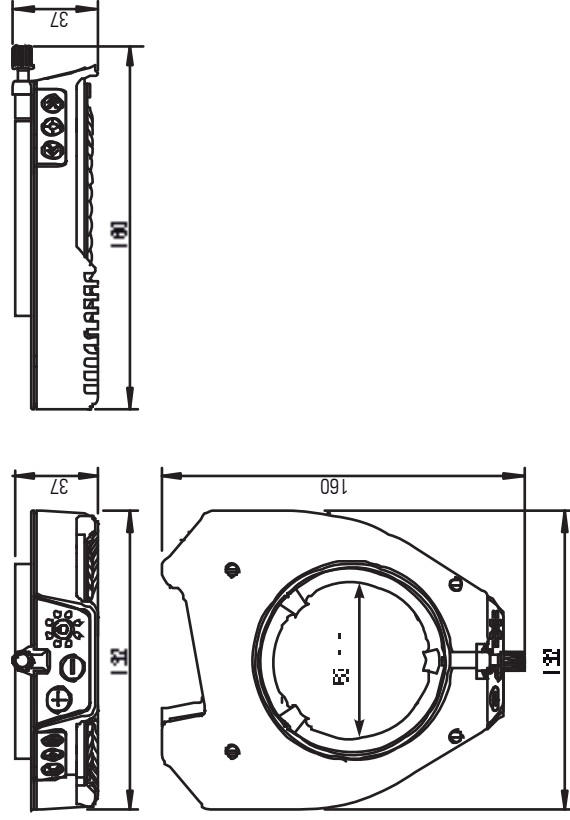
Leica M205 C (Continued)

Dimensions of Leica M205 C with transmitted-light stand TL RC1, manual or six-stage Leica IsoPro and manual focus
(dimensions in mm)



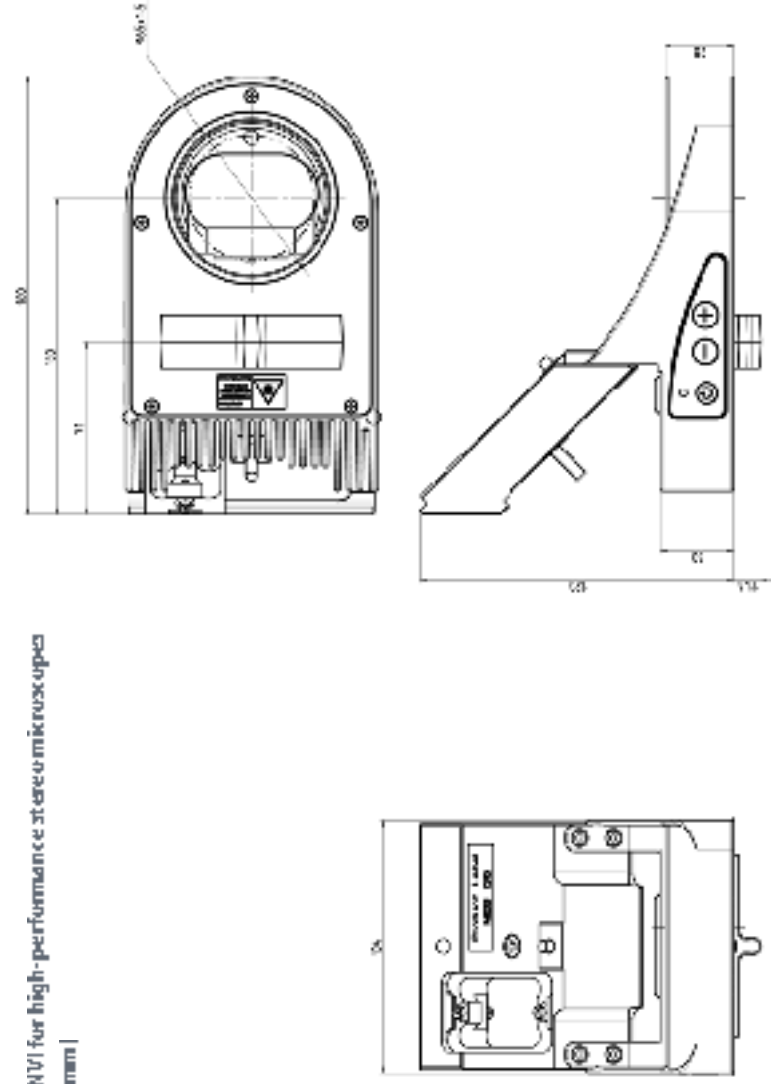
Leica LED5000 RL

Leica LED5000 RL
(dimensions in mm)



Leica LED5000 NVI

Leica LED5000 NVI for high-performance stereo microscopy
(dimensions in mm)



Specifications for the Bases



Transmitted-light Base Leica TL ST

Light source	Helogen, 12 W/20 W
Quick illumination	Yes
Interleaved slide	50 mm
Power supply unit	Variable 100–240 V, frequency 50–60 Hz, energy consumption 30 W max, ambient temperature 10–30 °C
Connectors	Power plug, power switch
Weight	7.7 kg

Illumination types

Bright field	Yes
Dark field	Yes (optional)
Oblique light	No
Leica Contrast System (LCS)	No
LCS Contrast System (LCS)	No
LCS Contrast System (LCS)	No
Phase-contrast illumination	No
Integrated filter holder	Yes
Coated optics for increasing mechanical temperature	Yes
Mechanical illumination	No
Temperature variations	No
Anti Static Pads	Yes
Dimensions (WxHxD)	370x130x85 mm



Transmitted-light Base Leica TL BFDf

-light source	Slotted view of light source
attached accessories	20 mm
Connections	Connection to grid guide active = 10 mm, end use = 13 mm
Weight	5.8 kg

Illumination types	
Bright field	Yes
Dark field	Yes
Oblique light	No
Leica Contrast System (LCS)	No
LCS Contrast Control	No
Leica shutter/flash control	Yes*
Integrated filter holder	No
Coated optics for increasing the contrast	No
Temperature	
Measuring of temperature	Yes**
Temperature variations	Yes***
Anti Static Pads	Yes
Dimensions (WxHxD)	30x290x90 mm
*With grid guide Leica CS150 S	**Contrast filter
	***With Leica grid guide



Leica TL RC / Leica TL RCI

	Leica TL RC	Leica TL RCI
Light source	External record light source	External 12V/20 W
Quick attachment	-	Yes
Interleaved exposure	35 mm	35 mm
Power supply unit	-	100-240 V, frequency 50-60 Hz, energy consumption 30 W max, ambient temperature 10-30 °C
Connectors	Connection record light guide, active 10 mm, new tube 13 mm	1x USB type A, 1x USB type 3, 2x CAN 4-3.5
Weight	6.0 kg	7.2 kg

Illumination types	
Bright field/dark field	Yes/yes
Optical guide light/Contrast System (CL)	Yes/yes
CCD Constant Color Intensity Control	No
Interleaved shutter/continuous	Yes**
Integrated filter holder	Yes
Calibration for measuring temperature	Yes
Measuring of illuminance	Yes***
Temperature variations	Yes****
AntiShocks Pads	Yes
Dimensions of base, WX-HxD	370x390x95 mm
*5 included **5W record light source, 12V/20 W ***W Intensity light source	



Leica IsoPro Motorized XY Stage

Control by	Leica Xden1 gni baseid™_bases™_3°D™_X™_Y™_Z™
Stages size X/W/H	335.5mm X 370mm X 115mm
Travel	152mm X 102mm (6" X 4")
Speed XY	20 mm/s
Motor resolution X,Y	0.25µm
Resolution by X,Y	1.2µm
Positioning accuracy X,Y	±20µm over the entire stage
Typical resolution X,Y	30µm
Motor	Direct current (DC) motor with encoder
Accessories	See below
Adapters	Adapters for™_bases
Acceleration	Standard acceleration
Controller connection	USB
Configuration	Leica XSC, Leica Smart Move, Leica iS Ve 2C
Power supply	Input: 100–240VAC 50/60 Hz 1.0 A Output: 15 VDC 2.66 A / 0W Max



Appendix



Calculating the Total Magnification and Field of View Diameter

Parameter	
WO	Magnification of objective
WE	Magnification of eyepiece
Z	Magnification changer position
q	Tube factor; eg 1.5X for coarse incident light 1.6X for 1/3" digital tube
.	Factor 1.25x for the parafocal and parfocal objective of the M2125/M216 are used on the M55, M26, M275 or M295
WFOVS	Field number of the eyepiece divided by the field number of the eyepiece 10x = 21, 16x = 17, 25x = 9.5, 40x = 6.

Calculation example: magnification in binocular tube

$$WFOVS = \frac{WO \times WE \times Z \times q \times .}{1 \times 25 \times 1 \times 1.5 \times 1.25 = 187.5x}$$

Example	
WO	1x objective
WE	25x/9.5-eyepiece
Z	Zoom position 1
q	Coaxial reflected light 1.5x tube factor
.	Factor 1.25x

Calculation example: field of view diameter in the specimen

$$\phi OF = \frac{WFOV}{WO \times Z \times q \times .}$$



Care, Maintenance, Contact Persons

We hope you enjoy using your grease gun. Grease guns are designed to last for many years and are built to last. Observing the following care and cleaning instructions will ensure that even after years and decades, your grease gun continues to work as well as on the very first day.

Warranty benefits

The grease gun covers defects in materials and manufacture. It does not, however, cover damage resulting from careless or improper handling.

Contact address

However, your complaint should no longer concern grease gun. Contact your technician, your grease dealer or the grease gun company. (See the end of the manual for more information.)

E-mail contact

See service@grease-gun.com

Care

- Protect your grease gun from dust, dirt, debris and acids and from excessive heat. Grease gun should be stored in a cool, dry place.
- Do not use grease gun to apply grease to surfaces that will be damaged or weakened, unless doing so is specifically permitted and described in this manual.
- Protect your grease gun from dust and debris.
- Do not grease gun surfaces or structures that are not designed for greasing.



Care, Maintenance, Contact Persons (Continued)

Protection from dirt Dust and dirt will affect the quality of your results	Cleaning polymer components Some components are made of polymer and are recommended. They are therefore essential and convenient to include the use of suitable cleaning agents and techniques can damage polymers	Permitted measures
• All dust cover over the instrument when it will be used and the • Use dust caps to protect the openings. Use only special eye caps, and eye caps • Feet covers the dust free area when not in use		• Clean the microscope parts of all dry matter as quickly as possible during dissection • For dissection, you can use special media and the camera for dissection. When dissection is over, the camera and safety instructions • Remove dust in the microscope using air with the special dust • Cleaned with end eye caps in the camera and eye caps in the camera





CONNECT
WITH US!



Leica Microsystems (Schweiz) AG · Max-Born-Strasse 201 · 9135 Heerbrugg, Switzerland
+41 71 726 31 31 · +41 71 726 31 41
www.leica-microsystems.com

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