Leica MATS Type TL

User Manual

CE

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The instructions contained in the following documentation reflect state-of-the-art technology. We have compiled the texts and illustrations as accurately as possible. Still, we are always grateful for comments and suggestions regarding potential mistakes within this documentation.

The information included in this manual may be changed without prior notice.

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Responsible for contents:
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Contents

1. Description

MATS for TL bases = Microscope-stage Automatic Thermocontrol System for transmitted light bases

Intended use

The Leica MATS Thermocontrol System for TL bases is a heating system for stereomicroscopes and enables the observation of sensitive microscopic specimens under accurate temperature conditions. This includes examining specimens taken from the human body
for the purpose of gaining information relating to physiological or pathological states or inborn anomalies, to examine safety and compatibility with potential recipients or to monitor therapeutic measures.

IVD

The Leica MATS TL Heating System complies with Council Directive 98/79/EC concerning in vitro diagnostics.

This safety class 1 instrument was built and tested in accordance with the harmonized standards EN 61010-1:2001, Safety requirements for electrical equipment for measurement, control, and laboratory use, and EN 61010-2-101:2002, Safety requirements for electrical equipment for measurement, control and laboratory use, part 2: Particular requirements - In vitro diagnostic (IVD) medical equipment.

This (IVD) instrument is not intended for use in a patient environment as defined by DIN VDE 0100-710. It is also not intended to be combined with medical devices as defined by EN 60601-1. If a microscope is electrically connected to a medical instrument in accordance with EN 60601-1, the requirements defined in EN 60601-1-1 shall apply.

User Manual

Note:

This User Manual describes the assembly and handling of the Leica MATS Thermocontrol System for TL bases. With your instrument you receive a printed user manual in your local language.

Further language versions and information can be found on the interactive CD-ROM that you received with your Leica stereomicroscope or macroscope. User manuals and updates can be downloaded on our website www.stereomicroscopy.com

For detailed information relating to the microscope, stereomicroscope or macroscope please see the separate user manual for your instrument.

2. Safety Concept

Caution!

Before assembling the Leica MATS Thermocontrol System for TL bases and putting it into operation, please read this user manual and observe the safety instructions.

Legal regulations

Adhere to general and local regulations relating to accident prevention and environmental protection.

EC Declaration of Conformity

The Leica MATS Thermocontrol System for TL bases is constructed based on the state of the art of technology and is provided with an EC Declaration of Conformity.

Intended use

The Leica MATS Thermocontrol System for TL bases is a heating system for stereomicroscopes and is intended for the observation of sensitive microscopic specimens under accurate temperature conditions. The thermoplate heating stage can be heated up to 50°C.

The Leica MATS Thermocontrol System for TL bases consists of a control unit, a power cable and a thermoplate for Leica stereomicroscopes (transmitted light stands). The thermoplate and control unit are matched.

Note:

Use the thermoplate and control unit from the same package, never from different packages – the serial numbers of both units must be identical!

Non-intended use

Using the Leica MATS TL Thermocontrol System in any way other than that described in this User Manual could result in personal injury or damage to property.

Caution!

Never:

- Install other plugs or cables.
- Change or alter the Leica MATS Thermocontrol System for TL bases.
- Take apart parts, if not specifically instructed to in this User Manual.
- Have the Leica MATS Thermocontrol System for TL bases opened or maintained by unauthorized persons.
- Reuse a damaged thermoplate.

3. Safety Instructions

Place of use

The Leica MATS Thermocontrol System for TL bases may only be used within closed rooms. The following areas of use are prohibited:

- Locations in which flammable gases, corrosive gas-oil vapors and substances that can impair electrical insulation develop or arise in large quantities.
- Locations in which strong vibrations or impacts occur or are transmitted.
- Locations where high-voltage lines are in the area or in which induction interference can affect the operation of the Leica MATS Thermocontrol System for TL bases.
- Locations in which condensate or humidity develops or direct sunlight can occur.

Temperature regulation

The process value shown on the control unit corresponds to the temperature of the stage surface. If the temperature of the specimen in a petri dish or on a specimen slide is lower than the displayed process value, the programmed value must be modified in order to obtain a suitable specimen temperature. Otherwise the specimen could be damaged.

Caution!

A malfunction of the sensor can cause the surface of the thermoplate to become very hot.

Protective measures of the manufacturer:

- Dielectric strength: 2 sec. at 1350 V alternating current between power supply and grounding jack
- Insulation resistance: at 500 V more than 100 MΩ minimum between power supply and grounding jack
- Fire protection: temperature cannot be set over 50°C
- Fuse: T1.6A 250VAC
- According to Directive 2004/108/EC, the Leica MATS Thermocontrol System for TL bases is electromagnetically compatible and can be used with other electric instruments.

Responsibilities of person in charge of instrument

Ensure that:

- The Leica MATS TL Thermocontrol System is operated, maintained and repaired only by authorized and trained personnel.
- All operators have read, understood and observe this stereomicroscope's User Manual, and particularly the safety regulations.
- The heating plate is intact before every use. If the plate is defective, stop using it immediately. Otherwise, an uncontrolled temperature increase and damage to the specimen can result.

Repairs, service work

- Repairs may only be carried out by Leica Microsystems-trained service technicians.
- Only original Leica Microsystems spare parts may be used.
- Disconnect power supply during maintenance and repair. Avoid contact with powered electrical circuits, which can lead to injury.

Power cable

- Only use the power cables specified on p. 14.
- Regularly check if the power cable is intact. Replace defective power cables immediately because they can cause the instrument and other equipment to become electrically live and injure people.
- Ensure that the cable is routed carefully. Prevent people from getting caught in cables or hurting themselves while tripping. The instrument could tip over and be damaged.
- Avoid pulling the power cable.

Liquids

Exercise particular care when handling liquids. Spilled liquids on electrical instruments can cause the instrument and other equipment to become electrically live. People could be injured or the instruments could be damaged.

Cleaning, care

Carefully handle your Leica MATS Thermocontrol System for TL bases

- Unplug the power cable before cleaning!
- Do not open or disassemble the control unit under any circumstances.
- Observe warning messages when handling liquids.
- Do not immerse the instrument in water or solvent.
- Never use volatile materials such as gasoline or thinners for wiping. The color of the surface could change or peel off. Imprinted letters could also be removed.

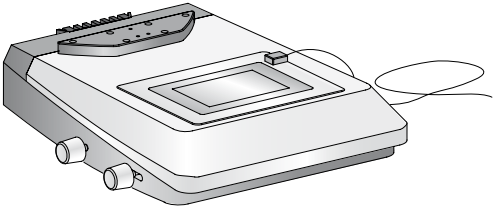
Avoid anything that could scratch the thermoplate.

Note:
If contaminated, carefully clean the control unit and thermoplate with a soft cloth that has been immersed in a water-diluted cleaning agent.

4. Design

Components

1. Control unit
2. Thermoplate type 10450620 for Leica stereomicroscopes with TL3000 ST, TL4000 BF/DF, TL4000 RC/I or TL5000ergo transmitted light base.

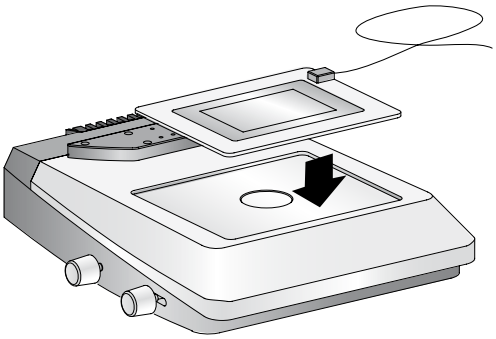


Heating stage 10 450 620

5. Assembly

Thermoplate

- To reach the correct temperature, remove the glass stage plate from the base of the stereomicroscope.
- Position the thermoplate according to the figure on the specimen stage of the stereomicroscope.

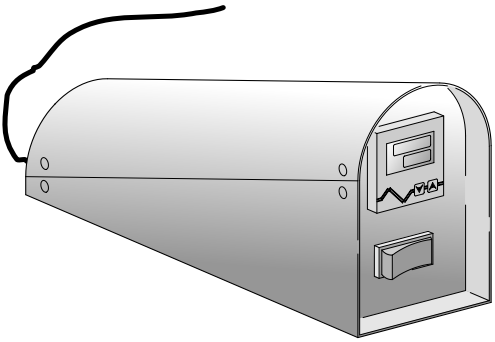


Heating stage 10 450 620
for Leica stereomicroscopes with TL3000 ST, TL4000 BF/DF, TL4000 RC/I or TL5000ergo transmitted light base.
(TL BFDF, TL RC™ and TL RCI™)

Control units

- Connect the thermoplate to the control unit.
- Plug the power cable into the input socket of the heating unit.

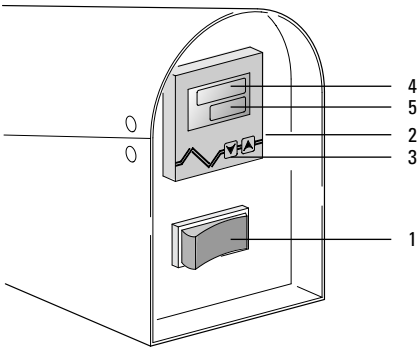
For compatible power cables, see p. 14



6. Operation

Controls

1. Power switch
2. Temperature control
3. Adjusting temperature: up/down buttons
4. PV display shows the process value and different characters
5. SV display shows different configured values



Caution!

Before activating the Leica MATS Thermocontrol System for TL bases, please read the safety instructions on p. 6-9.

- Press the power switch (1).
- After completing work, switch the instrument off at the power switch and disconnect the power plug.

Temperature control

The thermoplate heating stage can be heated up to 50°C. The process value shown on the control unit corresponds to the temperature of the stage surface. If the temperature of the specimen in a petri dish or on a specimen slide is lower than the displayed process value, the programmed value must be modified in order to obtain a suitable specimen temperature. Otherwise the specimen could be damaged.

Note:

Make sure that when using the stereomicroscope, the glass stage plate is removed before disconnecting the heating stage from the base. Otherwise the correct temperature is not guaranteed.

Adjusting the temperature

To adjust the temperature press the up/down buttons. If the button is held for one second or longer, the displayed temperature changes continuously. Two seconds after completed adjustment, the temperature control is activated to reach the defined temperature.

- Set the temperature control using the buttons (2).
- Wait 10 minutes until the thermoplate's temperature has stabilized.

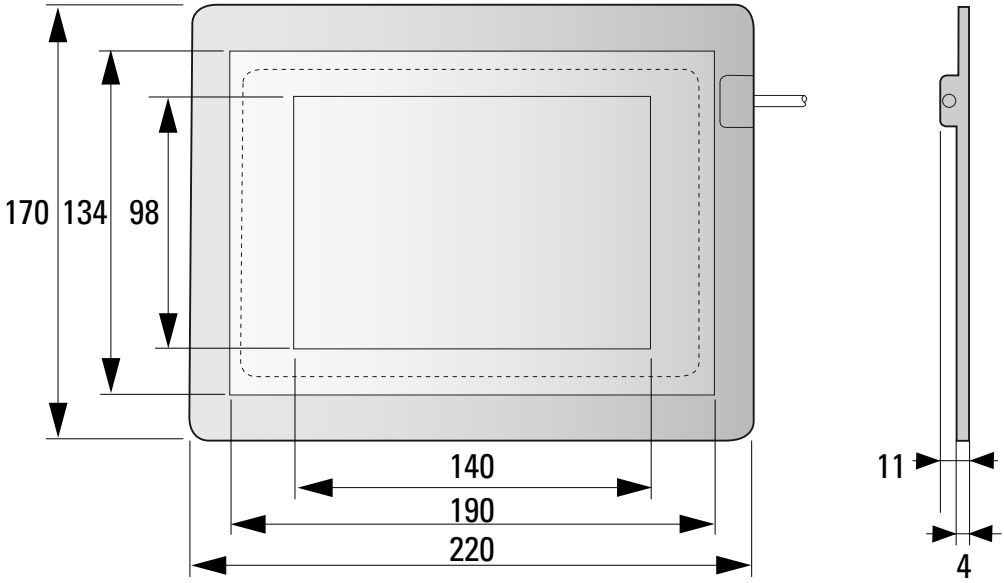
7. Size and Weights

Control unit

- Weight: approx. 1.3 kg
- Dimensions: width 113 mm, length 210 mm, height 128-74 mm

Thermoplate 10 450 620

- Weight: approx. 170 g



Dimensions in mm

8. Technical Data

Leica MATS Thermocontrol System

Power supply	100-240 V ±10 % alternating current, 50/60 Hz, 0.68 A, protection class I
Operating environment	only to be used in enclosed rooms Temperature: 5°C to 40°C maximum relative humidity 35 % to 80 % (non-condensing) Elevation: up to max. 2000 m Ambient conditions: installation category II according to IEC 664, Pollution degree 2
Transport and storage	Transport and storage at -25° – +70°C and max. 80% humidity (non-condensing).
Power cable	with power supply from 100 up to 120 V only use the following power cables: 3-wire, grounded instrument connection cable SVT No.18 AWG (UL listed) not permanently connected to the instrument, nominal data at least 125 V, 7A When using the extension cable use only power cables with protective ground With power supply from 220 up to 240 V: Use only a three-pin power cable, plug and socket according to EU/EN standards within the EU When using Class I accessories use a connection with protective ground When using the extension cable use only power cables with protective ground

Disposal

Note!

Once the product has reached the end of its service life, please contact Leica Service or Sales about disposal. Please observe and comply with the national and federal laws and regulations that are equivalent to EC directives such as WEEE.
Like all electronic devices, neither the product nor its accessories may be disposed of as general household waste.

Temperature control	Method: the temperature control is based on the PID control unit with solid-state relay Achieved accuracy: T (actual temperature) in the center of the heating stage is within a range of [t > T > t-1] °C, where t stands for the set temperature (under the condition that the set value is t=37°C) Increment: 0.1°C Method of adjustment: with up/down button Range of adjustment: room temperature up to 50°C Attainable temperature accuracy: ±0.3°C (with indicator temperature) Sensor: thermocouple Connection to heating stage: 4-pole plug (cable length: 1000 mm)
Temperature indicator	Method of display: digital display with 7 segments and individually illuminated indicator Increment: 0.1°C Accuracy of display: ±0.5 %
Duration	50°C within 10 minutes

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