



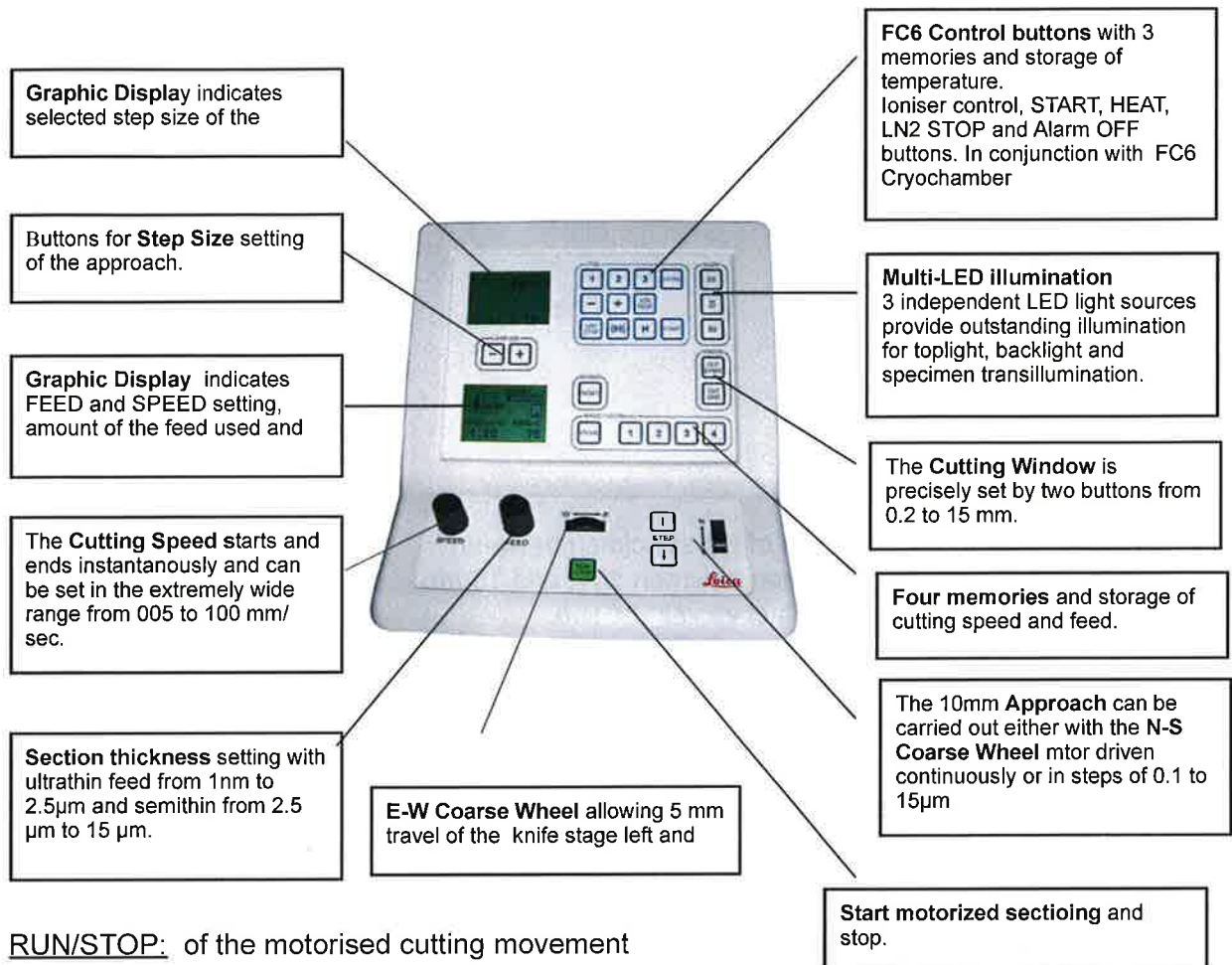
Leica EM UC6

Operating Manual

Order Number 16200032
Leica EM UC6 - E - 05/04

Leica
MICROSYSTEMS

4. Operation of the key-pad controller

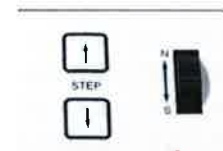


Pressing this button switches on and off the motor of the specimen arm. If feed setting > 2000 nm press longer than one second.



APPROACH: of the knife towards the specimen

Coarse control with the track wheel and jog control by using STEP buttons. If continuous approach is enabled (setup 1 menu) the knife stage will move towards the specimen while STEP is pressed. Continuous return of the knife stage can be achieved while STEP is pressed.



Step size can be set using +/- buttons between the displays. The step size is indicated on the display above the buttons.



CUTTING WINDOW:

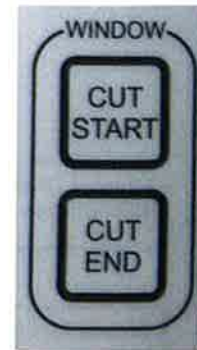
Move the lower edge of the blockface by means of the handwheel to just above the knife edge.

Press the button CUT START.

Move the blockface down until the upper edge of the block face is below the knife edge .

Press the button CUT END.

This can be done for cutting window sizes from 0,2mm up to 15mm.



SPEED / FEED:

Set Cutting speed and feed:

Rotate knob to adjust speed of the specimen between 0.05 and 100mm/sec and feed between 1nm and 15 μ m. Values are indicated in the "active values" line.

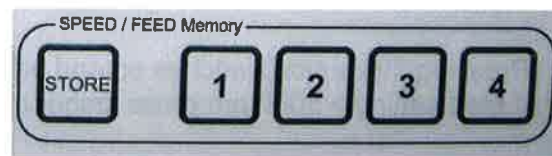


MEMORY:

By pressing one of these four buttons blinking figures indicate the stored values on the display. Pressing the button once again the instrument operates with these values.

Storing SPEED / FEED values:

Set speed and feed by turning the knobs, press STORE followed by one of the four buttons.



ANTISTATIC Control:

With the remote controlled transformer of the antistatic device the intensity of the antistatic electrode can be controlled by pressing + or - button. To enable it the ION/TEMP button has to be pressed. The intensity will be indicated on the upper display.



ILLUMINATION: the UC6 is equipped with three different types of LED illumination.

Top light for observation of the cutting process and judgment of the section thickness.

Transillumination for locating and identifying interesting structures within the specimen block when trimming with the MESACUT or with the trimming block. Mounting the transillumination see point 5.3

Back light for alignment of the diamond and glass knives with the sample and for knife inspection for contamination and flaws (nicks) before sectioning.



The intensity of each light can be set in the submenu (see point 4.1).

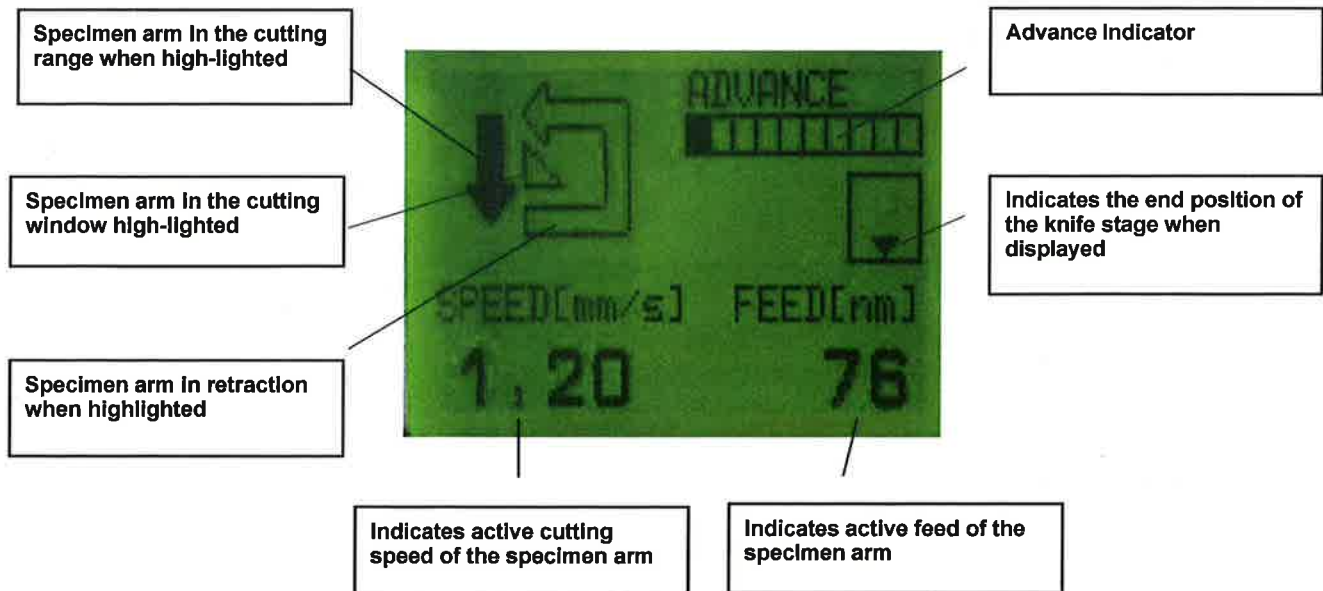
RESET:

Advance indicator and reset control.

Each mark indicates the start of 20 μ m of feed. When the last indication mark lights-up, an acoustic signal and blinking alerts the operator of the end of the specimen advance. An automatic reset is activated at the end of the advance (200 μ m). Resetting may be carried out at any time by pressing the reset button longer than one second.



DISPLAY:



4.1 SUBMENU:

By pressing the alarm off button longer than 1 second you enter the submenu. To leave it press button once again.

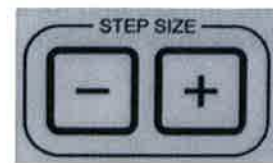
Note: the alarm button is normally used in conjunction with the FC6 cryochamber (described in the FC6 manual).



Use CUT START and CUT END button to select desired parameter which would like to be changed.

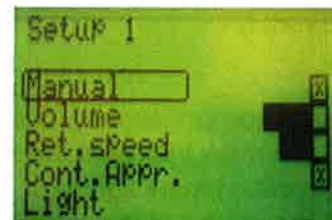


Use — or + button of step size setting for changing the parameter.



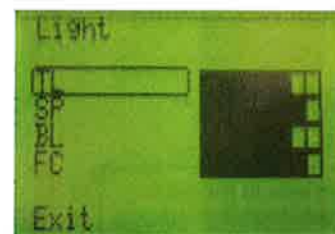
Setup 1 menu

- Manual: to enable manual sectioning using the hand wheel.
- Volume: changes the loudness of acoustic signals.
- Ret.speed: 3 different retraction speeds of the specimen arm can be selected.
- Cont. Appr.: to enable continues approach of the knife while the STEP north button is pressed.
- Light: press + button (step size) to enter Light menu



The brightness can be controlled using — or + button

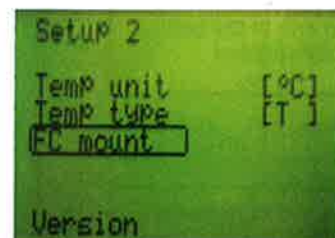
- TL: Top light
- SP: Specimen transillumination
- BL: Back light
- FC: Cryochamber illumination
- Exit: leave menu by pressing + button



Setup 2 menu

Continuation when CUT END is pressed at the end of Setup 1

- Temp Unit: changes to °C, °F or °K (see FC6 manual)
- Temp Type: type of displayed temperature (see FC6 manual)
- FC mount: stage moves in south end and east-west middle position, top light goes on when + button (STEP SIZE) is pressed.
- Version: software information by pressing + button, - to leave.

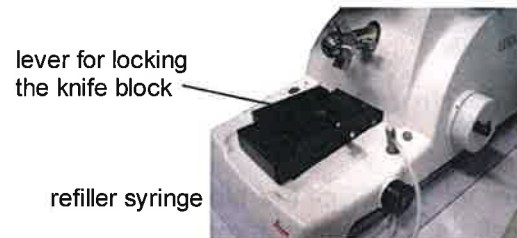


5. Description of the Instrument

The following instructions for the use of the instrument will mediate all information of the proper use and maintenance of the Ultramicrotome. May we suggest you familiarize yourself with the operating elements and run through the following manipulations before starting sectioning.

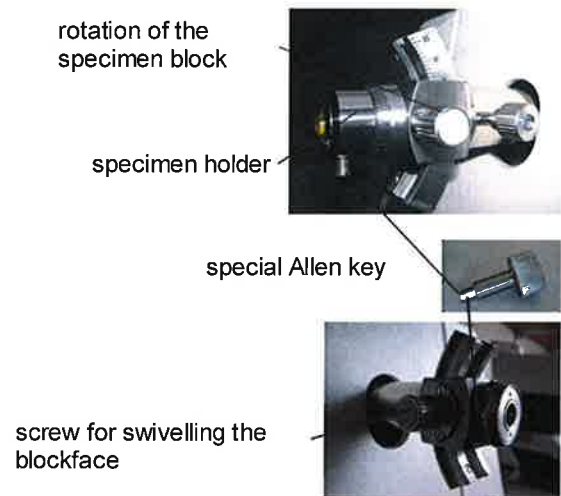
5.1 Specimen-Knife Area

Move the microscope carrier to the left or right. Place the REFLEXOMAT refiller syringe with its magnetic base on one of the steel plates. Unlock the lever and lift the knife block upwards out of its guide and put it aside. After removal of the knife block, the segment arc and specimen holder are completely freely accessible and all manipulations can be easily carried out.

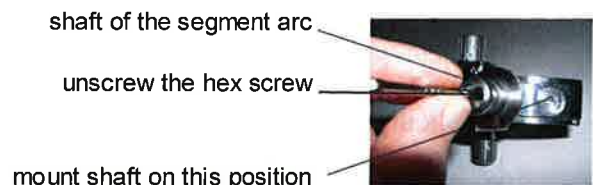


5.2 Segment Arc

The specimen is fixed in the specimen holder by means of a special Allen key. The same key fastens the specimen holder in the segment arc. Store special key in either the right or the left opening of the armrest. With the segment arc in the vertical position the specimen block may be rotated about its long axis with the knurled knob and swivelled about its cutting face. Both controls of the segment arc are self-locking precision drives.



For longitudinal or radial sections the shaft of the segment arc can also be placed at the end position of the segment arc. This is done by unscrewing it from the centre position and tightening it again at the end position of the segment arc.



5.3 Transillumination

The transillumination is connected with the connecting cable and its plug to the outlet. The other side with the LED is inserted into the swivelling part of the segment arc. Swivel the arc into the upper position and insert the LED mounting, clamping screw (plastic head) facing you.



5.4 Trimming Block / Trimming Adapter

For inspection of the block and the cutting face as well as for manual trimming with a razor blade a trimming block is available. It is placed into the guide track of the knife support in place of the knife block and clamped by the lever.

After clamping the trimming block, the standard segment arc or the trimming adapter can be put into the opening of the trimming block and clamped with lever. For expedient working coarse alignment of the specimen block in the stereo is made by opening the clamping of the trimming block and moving its guide into the centre of the field of view and by swivelling the stereomicroscope left to right. Fine adjustment at high magnification can be done with knife support controls and as well as the stereomicroscope N-S control. To start the zoom control should be set to the lowest magnification.



Clamping lever of the trimming block

Clamping lever of the trimming adapter

5.5 Knife Block

The knife block consists of the knife holder, the upper portion and the lower part. For coarse and quick movement of the knife about the vertical axis the upper portion of the holder is pivoted by hands in its self-locking bearing. Fine adjustment can be carried out with the self-locking precision drive. For moving or exchanging the knife holder the clamping screw has to be released. The clearance angle may be set from -2° to $+15^\circ$ with the calibrated control to the position marked on it using dark field illumination.

When inserting the knife the front of the knife has to be pressed against the stop plate.

Clamping screw for the knife

Setting of the clearance angle



Precision drive for pivoting the knife.

5.6 Drive System

To switch on the motor drive, the green button has to be pressed.

The motor runs and the handwheel rotates.

Turning the SPEED knob varies the cutting speed between 0,05 and 100 mm/s.

When choosing a very slow speed e.g. 0,05 mm/s it will be easy to see that the specimen is moving very slowly in a certain part of its downward movement (cutting window) and thereafter much faster.

The cycling will be indicated by the highlighted segments on the control unit. During the return stroke the specimen is automatically retracted by approx. 0,2 mm so that the cutting edge of the knife is not touched by the specimen in the return stroke.

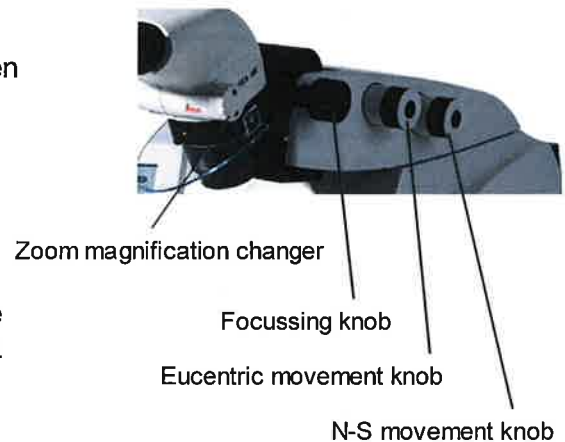
If the specimen arm is in its retracted mode the segment on the display lights up.

5.7 Stereo Carriers

5.7.1 with eucentric movement of the stereo microscope

The eucentric movement of the Leica EM UC6 viewing system allows examination of sections, even with a lowered water level (e.g. for Lowycryls) and dry sections. Defined position marks provide optimum positioning of the stereo microscope for approaching the sample towards the knife edge.

The click stop position in the middle of the movement is used for diamond knife approach. The upper end position is used for glass knife approach.



Example using the eucentric movement at lowered water level.

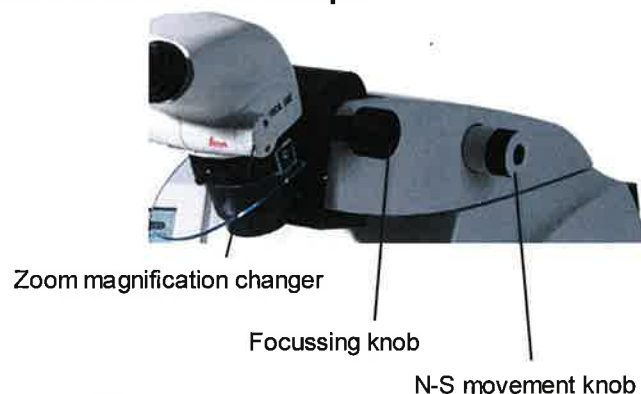


without eucentric movement



with eucentric movement

5.7.2 without eucentric movement of the stereo microscope



6. Technical specification

Magnification	MZ6: 8x-51x
	S6E: 10x - 64x
	S4E: 10x - 48x
Ergo-Wedge	5°-25°
Eucentric movement of the stereo carrier	+5°/-8°
Built in control of antistatic device	yes
Top-light	LED
Back-light	LED
Transillumination	LED
Cutting transmission	vibration decoupled gravity stroke
Specimen advance	200µm
Reserve warning	20µm
Segment arc	360° rotatable specimen
eucentric movement	+/- 22°
90° indication marks for alignment	yes
Knife block	360° rotatable
self locking	yes
graduation	+/-30° graduation
Clearance angle adjustment	-2° to 15° with 1° scale
Knife holder	for 6-12 knives
Coarse knife-movements N-S:	10 mm stepping motor
E-W.	25mm stepping motor
Cutting window	0.2 - 15 mm adjustable
Cutting speed	0.05 - 100 mm/s wheel controlled
Section thickness	0-15000nm wheel controlled
FEED/SPEED storage (combined)	5 touch controller 4 key pad controller
Return speeds	10, 30, 50mm/s
Step control	0.1 - 15 µm steps

EC Declaration of Conformity

EG Konformitäts-Erklärung

Déclaration CE de Conformité

We / Wir / Nous

Leica Mikrosysteme GmbH
Hernalser Hauptstrasse 219
A-1170 Wien Austria

declare in exclusive responsibility that the product
erklären in alleiniger Verantwortung, daß das Produkt
déclarons sous notre seule responsabilité que le produit


Model	Leica EM UC6
Modell	Leica EM UC6
Modèle	Leica EM UC6
Type / Typenbezeichnung / type	705801/655825

to which this declaration relates is in conformity with the following standards:
auf das sich diese Erklärung bezieht, mit den folgenden Normen übereinstimmt:
auquel se réfère cette déclaration est conforme aux normes:

EN 61010-1
EN 50081-1
EN 50082-1
EN 61000-4

following the provisions of directive
gemäß den Bestimmungen der Richtlinie
conformément aux dispositions de directive

89 / 336 / EEC	(Electromagnetic compatibility) (Elektromagnetische Verträglichkeit)
73 / 23 / EEC	(Low Voltage Equipment) (Niederspannungsrichtlinie)
89 / 392 EEC	(Machinery) (Maschinen)



Wien, 13. Dezember 2003

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R&D Manager
Chef du service développement