From Eye to Insight

Leica MICROSYSTEMS

UC ENUITY

Technical Data

March 2024

TECHNICAL DATA

UC Enuity

	UC Enuity M80	UC Enuity M205
Electronic Data		
Approvals	CE (European Union)	CE (European Union)
Main Voltage	100 - 240 V AC +/- 10%	100 - 240 V AC +/- 10%
Power Consumption	85 VA	130 VA
Anti-Vibration Table		
Resonance Frequency	5 Hz (Vertical Direction); 4 Hz Feed Direction	5 Hz (Vertical Direction); 4 Hz Feed Direction
Absorbability	> 6 Hz	> 6 Hz
Active Damping Plate		
Approvals	CE (European Union)	CE (European Union)
Main Voltage	100 . 240 V AC (+-10%) / 47 - 63 Hz	100 . 240 V AC (+-10%) / 47 - 63 Hz
Power Consumption	10 W (Typical)	10 W (Typical)
Isolation	Dynamic 0.7 Hz to 200 Hz; passive & dynamic to 2 kHz	Dynamic 0.7 Hz to 200 Hz; passive & dynamic to 2 kHz
Transmissibility	Above 10 Hz < 0.01 (-40 dB)	Above 10 Hz < 0.01 (-40 dB)
Maximum Load	150 kg	150 kg
Table Top Size	400 x 450 mm	400 x 450 mm

Dimensions and Weight, Instrument Package and Room conditions

For details please refer to separate room requirement document

Cleaning

All surfaces (except the Control Unit) can be cleaned with a damp cloth moistened with either aqueous cleaning agents or 70% Ethanol. Do NOT use ACETONE.
Clean the Control Unit with a microfiber cloth by brushing it in small circles. If needed, moisten the cloth with distilled water and repeat the small circular motions.

Observation System

Carrier		
Eucentric movement of the stereo carrier	+ 5° / - 8°	
N-S movement of stereocarrier	100 mm	100 mm
Defined knife positions of the stereo carrier	continous (defined stops for glass and diamond knife)	fixed

Stereo Microscope	Leica M80	Leica M205 FA
Objectiv	0.8 x	0.63 x
Eyepieces	Widefield Eyepieces WF16x with Eyecups	Widefield Eyepieces WF16x with Eyecups
Magnification	9.6x - 77x	7.8 - 160x
Resolution at 160 x magnification		333 lp/mm (3 µm)
Observation Angle	5°- 25°	20°
Control of Focus and Zoom	manual	motorized, via touch panel or mouse

Camera	Flexacam i5	Flexacam C5
Digital color camera with CMOS sensor (1/2.3)"	yes	yes
Full Screen Image Capture	at 12 MP	at 12 MP
Exposure Time	<20 ms - 1000 ms	<20 ms - 1000 ms
Field of View (Control Unit)		0.7 mm diameter @ 160 x; 14 mm diameter @ 7.8x magnification
Integrated live image on UC Enuity Control Unit	yes	yes
System Integrated	yes	yes
Live image on an HDMI monitor	up to 60 fps (3,840 x 2,160 pixels)	up to 60 fps (3,840 x 2,160 pixels)
File Formats (recording)	PNG, MP4	PNG, MP4

Fluorescence		yes
Filtersystem		FLUOIII, 4 positions
Filter Recognition		automatic with decoder
Filters Included		GFP, excitation 470/40 (450-490 nm) emission 525/50 (500-550 nm)

Note that autofluorescence of the embedding medium and/or low intentensity of a fluorescence signal may have impact on the visibility of the fluorescent target. For details, please contact Leica Microsystems

Fluorescence

Illumination		
Lamp for Fluorescence Detection		LED
Lamp Type		LEDs
Illumination System		MB Filter Configuration
Controller		External control pod (On/off and brightness)
Brightness Control		0 - 100% (1% steps)
Connection to Microscope		3 mm liquid light guide
Risk group fluorescence lamp (EN 62471:2006)		Purple: Risk group 2 (moderate risk) Blue: Risk group 3 (high risk)
Radiation protection shielding provided		transmission <1% for wave lengths < 480 nm; about 50% @ 520 nm

System Information

Base Unit		
Control of antistatic device	yes	yes
Control of foot pedals for manual sectioning	yes	yes
Built-in control of cryochamber	yes	yes
Upgradability	Fully upgradable	Fully upgradable
Compatibility	Room temp./cryo sectioning	Room temp./cryo sectioning

Specimen Arm Movement		
Cutting Transmission Stroke	Vibration Decoupled Gravity Stroke	Vibration Decoupled Gravity Stroke
Cutting Window	0.2 to 12 mm (variable) 15 mm (full range)	0.2 to 12 mm (variable) 15 mm (full range)
Cutting Speed Control	0.04-100mm/s wheel contr.	0.04-100mm/s wheel contr.
Specimen Arm Advance	0-2500 nm wheel contr.	0-2500 nm wheel contr.
Return Speeds	10, 30, 50mm/s	10, 30, 50mm/s
Total Specimen Advance	200 µm	200 µm

Dual automatic Advance Mode		
Specimen Arm Feed	0 to 100 in steps of 1 nm	0 to 100 in steps of 1 nm
	100 to 2500 nm in steps of 10 nm	100 to 2500 nm in steps of 10 nm
Stage Feed (alternative)	100to 2500 nm in steps of 100 nm	100to 2500 nm in steps of 100 nm
	2500 to 50000 nm in steps of 500 nm	2500 to 50000 nm in steps of 500 nm

Knife Stage Movement		
Total E-W movement	25 mm	25 mm
E-W movement step button	100 µm	100 µm
E-W movement wheel	continuous	continuous
N-S movement (motorized)	10 mm	10 mm
Total N-S movement (manual)	56 mm	56 mm
N-S movement step control	0.1-15 µm steps	0.1-15 µm steps
N-S movement wheel	continuous (0.1 µm stepping)	continuous (0.1 µm stepping)
Selectable Cutting Advance Control	100 nm to 2500 in steps on 100 nm	100 nm to 2500 in steps on 100 nm
	2500 to 50000 nm in steps of 500 nm	2500 to 50000 nm in steps of 500 nm

Illumination		
Independently controlled illumination	yes	yes
LED Top Light (Controllable Brightness)	yes	yes
LED Back Light (Controllable Brighness)	yes	yes
LED Specimen Transillumination	yes	yes

Segment Arc and Knife Block

Manual Segment Arc		
Sample rotation	360°	360°
Eucentric sample tilt	+/- 22°	+/- 22°
Autoalignment supported	no	no

Manual Knife Block		
Rotation	360°	360°
Self-locking	yes	yes
Graduation	+/- 30°	+/- 30°
Clearance Angle Adjustment	-2° to 14° with 1°scale	-2° to 14° with 1° scale
Knife holder	for 6 - 12mm knives	for 6 - 12mm knives
Autoalignment supported	no	no

Motorized Segment Arc		
Sample Rotation	360°	360°
Self-locking	yes	yes
Sample Tilt	+/- 22°	+/- 22°
Absolute positioning of rotation and tilt	rotation: 0.1°; 0.05° tilt	rotation: 0.1°; 0.05° tilt
Step Size Tilt	0.05 - 5°	0.05 - 5°
Step Size Rotation	0.1 - 90°	0.1 - 90°
Autolignment Supported	yes	yes
Calibration to 0° position	automatic and manual	automatic and manual
Automatic 90° rotation	with button	with button

Motorized Knife Block		
Rotation Adjustment	+/- 30°	+/- 30°
Absolute positioning of knife angle	0.05°	0.05°
Step size knife angle	0.05 - 10°	0.05 - 10°
Dual sided self-locking precision drive	yes	yes
Clearance angle adjustment	-2° to 14° with 1° scale	-2° to 14° with 1° scale
Knife Holder	for 6 - 12mm knives	for 6 - 12mm knives
Auto Alignment Supported	yes	yes

Control Unit and Processing Unit

Control Unit		
Display Size	12.1"	12.1"
Touch Panel	capacitive	capacitive
Resolution	1280 x 800	1280 x 800
Camera Integration	yes	yes
USB Connection	3 x USB 3.0	3 x USB 3.0
USB software update/upgrade	yes	yes

Processing Unit		
Processor	Intel Quad Core i7	Intel Quad Core i7
Memory	16GB DDR4 SO-DIMM 3200MHz	16GB DDR4 SO-DIMM 3200MHz
LAN	1x GB LAN, 1x 2.5GB LAN	1x GB LAN, 1x 2.5GB LAN
OS	Windows 10 LTST	Windows 10 LTST

Software		
Swipe Function	yes	yes
Configurable and interactive user interface	yes	yes
Speed and Feed Indicator	yes	yes
Speed and Feed Memory	5	5
Reserve Warning	20 µm	20 µm
Indicator of Knife Stage/Specimen Arm position	yes	yes
Step button control of knife stage	E - W and N-S	E-W and N-S
Section Counter Up	Nr of sections and nm counter	Nr of sections and nm counter
Customizable Specimen arm/knife block feed	yes	yes
Foot Switch On/Off	yes	yes
Built in control for EM Crion	yes	yes
Remote Acces	Windows Remote Desktop	Windows Remote Desktop

Remote Care	yes	yes
Real-time monitoring of service relevant data	yes	yes
Error codes sent in case of error	yes	yes

Software Module B Standard (16708012)	System configuration dependent	included
User specific settings	100 profiles storable	100 profiles storable
Specimen parameter storage	yes	yes
Knife parameter storage	yes	yes
Export/Import of parameter data	yes	yes
Operator Recognition System (User Menu)	yes	yes
Storage parameter reporting	yes	yes
E-W Measuring	yes	yes
N-S Measuring	yes	yes
Section Counter Down	Nr of sections and nm counter	Nr of sections and nm counter
Rocking Mode	yes	yes
Retract Mode	yes	yes
Remote Acces	Windows Remote Desktop	Windows Remote Desktop

Software Module C Automation (16708014)	System configuration dependent	included
Prerequisite for this software module:	Motorized segment arc and knife block (16708031) and Software Module B Standard (16708012)	Motorized segment arc and knife block (16708031) and Software Module B Standard (16708012)
2D Trimming		
Semi-automatic Autotrim	3 facets (face, left, right) + 2 facets (left right), manual rotation	3 facets (face, left, right) + 2 facets (left right), manual rotation
Fully-automatic Auto Trim	5 facets (face, all four sides), without user intervention	5 facets (face, all four sides), without user intervention
Automatic knife inclination correction	yes	yes
Ttrimming knife compatibility	20°, 45°, 90°	20°, 45°, 90°
Block Face Shape	rectangular	rectangular

Automatic Alignment		not specified
Aligns Knife Angle	accuracy 0.1° for blockface 500x500µm	
Aligns Sample rotation	accuracy 0.5° for blockface 500x500µm	
Aligns Sample Tilt	accuracy 0.1° for blockface 500x500µm	
Auto Approach	yes	
Supported blockface width/height	250 µm x 250 µm to 1200 µm x 1200 µm	
Supported Blockface	45° - 90° diamond trimmed	
Supported Sample Holders	Universal sample holder	
Supported Trim Depth	> 40 µm	
Supported Blockface Shape	rectangular	
Knife Compatibility	35° Ultra 3mm (16708032) and 35° Leica AT-4 (1670586)	
Other Shapes and Knifes	not specified	

Software Module F for Target Trimming (16708030)	optioal	optioal
Prerequisite for this software module:	Motorized segment arc and knife block (16708031) and Software Module B Standard (16708012)	Motorized segment arc and knife block (16708031) and Software Module B Standard (16708012)
µCT-based target trimming of front face	yes	yes
Compatible trim knifes	diamond trim knifes, glass knifes	diamond trim knifes, glass knifes
Supported µCT file formats	DICOM, XRM, TIFF, JPEG, PNG, GIF, BMP, LIF, XLEF, LEI, OME TIFF	DICOM, XRM, TIFF, JPEG, PNG, GIF, BMP, LIF, XLEF, LEI, OME TIFF
Trimming accuracy to target region	<10 µm at 1 µm voxel size from µCT (diamond trim knife)	<10 µm at 1 µm voxel size from µCT (diamond trim knife)
Safety margin between trimmed blockface to target plane	adjustable	adjustable
Blockface target plane defined 3D µCT data stack	yes	yes
Angular definition of target plane angle	+/- 20° (pitch and jaw)	+/- 20° (pitch and jaw)
Angular trimming accuracy	0.5°	0.5°
3D Visualization of µCT data	yes	yes
Software guided workflow	yes	yes

Volume EM	optioal	optioal
Array Tomography for SEM (16708021)		
Automatic Alignment with AT-4 knife for ARTOS	yes (blockface size 250 x 250 µm - 1000 x 1000 µm)	yes (blockface size 250 x 250 µm - 1000 x 1000 µm)
Supported Knife	35° diamond knife Leica AT-4 (16705864)	35° diamond knife Leica AT-4 (16705864)
Supported Ribbon Carrier	25 x 25 mm and 25 x 50 mm silicon wafer 24 x 24 mm and 24 x 50 mm ITO glass slide	25 x 25 mm and 25 x 50 mm silicon wafer 24 x 24 mm and 24 x 50 mm ITO glass slide
Parallel Ribbons Supported	1-x (depending on blockface width)	1-x (depending on blockface width)
Supported Blockface Size	50 µm - 1000 µm	50 µm - 1000 µm
AT-knife Width	4 mm	4 mm
Software Guided Workflow	yes	yes

TECHNICAL DATA

UC Enuity Cryochamber

Consumption and Emmision

UC Enuity Cryochamber

Approvals	CE, UK CA
Voltage	100 - 240 V AC
Frequency	50/60 Hz
Power	350 VA
Emmision	5m3/h

Control of Cryo Chamber

Temperature Range	110° C to -185° C
Temperature Working Range	-15° C to -185° C
Temperature Control	Knife/Gas/Specimen Area
Eucentric rotation of knife stage for knife stage holder	15°
Illumination	Chamber LED illumindation, window for backlight of sample

LN2 Dewar and Pump

LN2 Dewar Capacity	25 l
LN2 Consumption	2.5 l/h
Pump Storage Holder	yes

Software

Standard Mode	yes
High Gas Flow Mode	< -140° C
Wet Sectioning Mode	yes
Start/Pump On/Off controls	yes
Automatic Rapid Cooling	yes
Temperature Memories	4 advanced controller
LN2 Level Indicator	6 levels, near end warning
Automatic Bake-Out-Switch- Off function	yes
Built-in Control for EM Crion	yes

Antistatic device CRION

Approvals	CE
Supply voltage	100 - 240 V AC, 50-60 Hz (Iprim 0,7 A)
Intensity Control	Built in
Foot switch control	On/Off, charge/discharge

Dimensions and Weight, Instrument Package and Room conditions

For details please refer to separate room requirement document

Cryosphere

Humidity level inside Cryosphere	< 10%

CONNECT
WITH US!

Leica Microsystems CMS GmbH | Ernst-Leitz-Strasse 17–37 | D-35578 Wetzlar (Germany)
Tel. +49 (0) 6441 29-0 | F +49 (0) 6441 29-2599

https://www2.leica-microsystems.com/coral-cryo