

# Specifications LSM 700

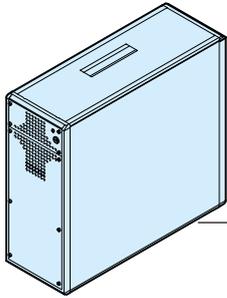
Microscopes	
<b>Stands</b>	Upright: Axio Imager.Z1m, M1m and Axio Scope mot for LSM Inverted: Axio Observer.Z1m SP (side port)
<b>Z drive</b>	Axio Imager: Step motor, smallest increment 10 or 25 nm Axio Observer: DC motor with opto-electronic coding, smallest increment 10 nm
<b>XY stage (option)</b>	Motorized XY scanning stage with Mark & Find (XYZ) and Tile Scan (Mosaic Scan) functions
<b>Objectives</b>	More than 40 reflected-light objectives: EC Epiplans, EC Epiplan-Neofluars, EC Epiplan-Neofluars, EC Epiplan-Apochromats, LD Epiplans, LD EC Epiplan-Neofluars
<b>Accessories</b>	High-resolution AxioCam microscope camera
Scanning module	
<b>Scanner</b>	Two independent galvanometric scanning mirrors with ultra-short line and frame flyback
<b>Scanning resolution</b>	4x1 to 2048x2048 pixels, continuously adjustable
<b>Scanning speed</b>	13x2 speed stages, Up to 5 frames/s with 512x512 pixels (max. 154 frames/s with 512x16 pixels)
<b>Scanning zoom</b>	0.5x to 40x, variable in increments of 0.1
<b>Scanning rotation</b>	Freely rotatable around 360°, variable in increments of 0.1°
<b>Scanning field</b>	Field diagonal of 18 mm (max.) in the intermediate image plane, homogeneous illumination of image field
<b>Pinhole</b>	Motorized master pinhole, diameter continuously adjustable
<b>Detection</b>	One or two confocal channels (reflection/fluorescence), one optional external transmitted-light channel with DIC capability, each with high-sensitivity PMT detector, spectral increment 1 nm
<b>Data depth</b>	Selectable between 8 bit, 12 bit or 16 bit
Laser inserts	
<b>Laser inserts (VIS, V)</b>	Pigtail-coupled solid-state laser with polarization-preserving single-mode fiber; up to 4 V/VIS laser directly connectable to the scanning module; laser lines 405 nm 5 mW or 445 nm 5 mW; 488 nm 10 mW; 555 nm 10 mW; 639 nm 5 mW (at fiber end) Fast (pixel-exact) customized and variable intensity adjustment of all laser lines (direct modulation) Automatic shutdown of laser when not in use
Electronics module	
<b>Control computer</b>	Real-time electronics integrated in PC; communication with user PC via PCI express; Control of microscope, lasers, scanning module and additional accessories, data acquisition and synchronization; Over sampling acquisition for best sensitivity and doubled SNR; possibility of online data-analysis during acquisition
<b>User PC</b>	High-end PC with ample RAM and hard disk storage capacity; ergonomic high-resolution 16:10 LCD-TFT flat-panel display, Windows VISTA operating system with multi-user capability Ethernet connection to local network

Standard software	
<b>System configuration</b>	Convenient control of all motorized microscope functions, laser modules, and scanning module, saving and restoring of application configurations
<b>ReUse function</b>	Restoration of acquisition parameters per mouse click
<b>Capture modes</b>	Spot, Line/Spline, Frame, Z Stack, Time-Lapse Series and combinations: XY, XYZ, XYT, XYZT, XZ, XT, XZT, Spot-T, Averaging and summation (line-wise or frame-wise, configurable) Step Scan (for higher frame rates, configurable)
<b>Crop function</b>	Convenient selection of scanning ranges (simultaneous zoom, offset and rotation)
<b>Spline scan</b>	Scanning along a freehand defined line
<b>Image processing</b>	Image processing options for any kind of computations, addition, subtraction, multiplication, division, ratio, shift, filters (low-pass, median, high-pass, etc., also user-definable)
<b>Presentation</b>	Orthogonal view (XY, XZ, YZ in a single presentation) Cut view (3D section made under a freely definable spatial angle) 2.5D view for time-lapse series of line scans Projections (stereo, maximum, transparency) for single frames and series (animations) Depth coding (pseudo-color presentation of height information) Brightness and contrast adjustments; off-line interpolation for Z stacks Selection and modification of color lookup tables (LUTs), drawing functions for documentation
<b>Analysis</b>	Intensity profile measurement of straight lines and curves of any shape Measurement of lengths, angles, areas, intensities, etc.
<b>Data archiving</b>	ZEN file browser with convenient functions for managing experiments together with their acquisition parameters Multiprint function for creating assembled image and data views. More than 20 file formats (TIF, BMP, JPG, PSD, PCX, GIF, AVI, Quicktime, etc.) for compatibility with all common image processing programs

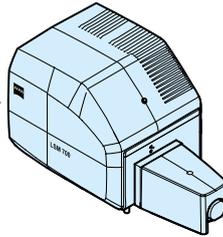
Optional software	
<b>Topography package</b>	Computation and visualization of surfaces (fast rendering modes) and height profiles, plus many measurement functions (roughness, surface area, volume)
<b>StitchArt plus package</b>	Capture of multiple XZ profiles and multiple XYZ stacks with reflected light
<b>LSM Image VisArt plus</b>	Fast 3D and 4D reconstruction and animation (shadow and transparency projection, surface and mixed rendering modes, cutting planes, fly-through mode, distance measurement in 3D)
<b>3D for LSM</b>	3D presentation and measurement of volume data records, on request
<b>3D Deconvolution</b>	Image restoration based on computed point spread functions with fluorescence (Modes: nearest neighbor, maximum likelihood, constrained iterative)

Freeware	
<b>Image Browser ZEN LE</b>	Free software packages for display, processing, sorting, printing and Export/import of LSM 5/7 images

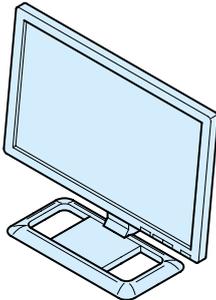
# System overview LSM 700



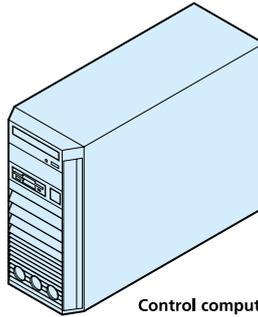
Electronics and laser module for LSM 700 (4x pigtailed laser 405-639 nm)



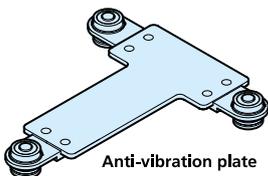
1-2-channel scanning module LSM 700



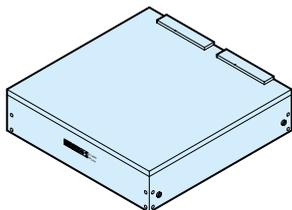
LCD TFT flat screen monitor 30"  
16:10 flat screen monitor 24"



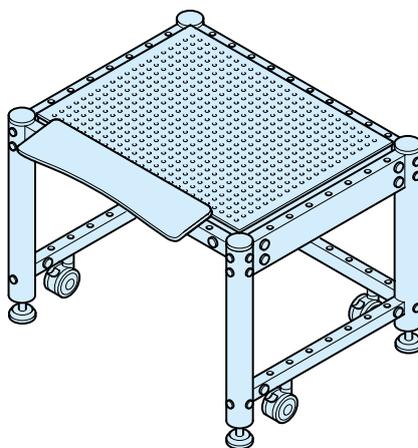
Control computer



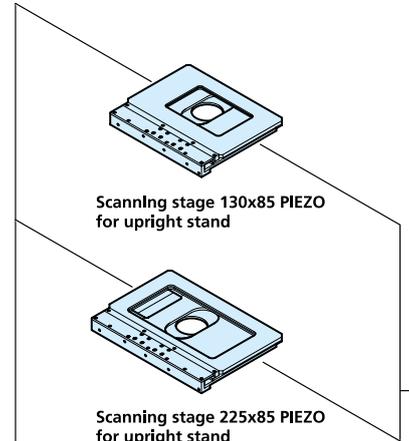
Anti-vibration plate



Micro 40 active antivibration system  
table surface: 45 cm x 40 cm  
Micro 60 active antivibration system  
table surface: 65 cm x 60 cm

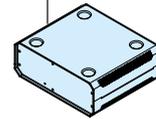


System table with breadboard  
Wide: 1000x750mm (1200x950 overall)  
Narrow: 750x1000mm (950x1200 overall)

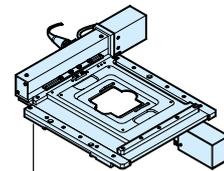


Scanning stage 130x85 PIEZO for upright stand

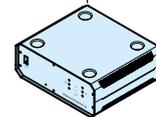
Scanning stage 225x85 PIEZO for upright stand



XY-stage controller PIEZO  
XY-joystick for stage controller PIEZO



Scanning stage DC 120 x 100 for inverted stand



Controller incl. joystick

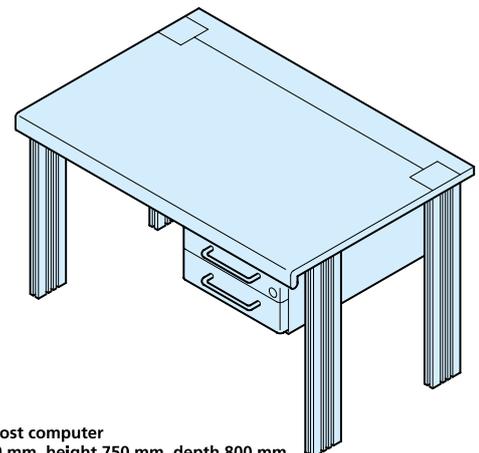


Table for host computer  
width 1200 mm, height 750 mm, depth 800 mm

