PInano® Z Microscope Scanner

Inexpensive, with Low Profile

P-736

- Step-and-settle to 5 ms
- Low overall height of 20 mm for easy integration
- Travel range 100 µm or 200 µm
- Clear aperture 93 mm × 65 mm
- E-709 digital piezo servo controller in the scope of delivery
- USB, RS-232, analog interfaces

Application fields

- Super-resolution microscopy
- Light disc microscopy
- Confocal microscopy
- 3-D imaging
- Screening
- Interferometry
- Measuring technology
- Autofocus systems
- Biotechnology
- Semiconductor tests

Outstanding lifetime thanks to PICMA® piezo actuators

The PICMA® piezo actuators are all-ceramic insulated. This protects them against humidity and failure resulting from an increase in leakage current. PICMA® actuators offer an up to ten times longer lifetime than conventional polymer-insulated actuators. 100 billion cycles without a single failure are proven.

High guiding accuracy due to zero-play flexure guides

Flexure guides are free of maintenance, friction, and wear, and do not require lubrication. Their stiffness allows high load capacity and they are insensitive to shock and vibration. They work in a wide temperature range.

Automatic configuration and fast component exchange

Mechanics and controllers can be combined as required and exchanged quickly. All servo and linearization parameters are stored in the ID chip of the D-sub connector of the mechanics. The autocalibration function of the digital controllers uses this data each time the controller is switched on.

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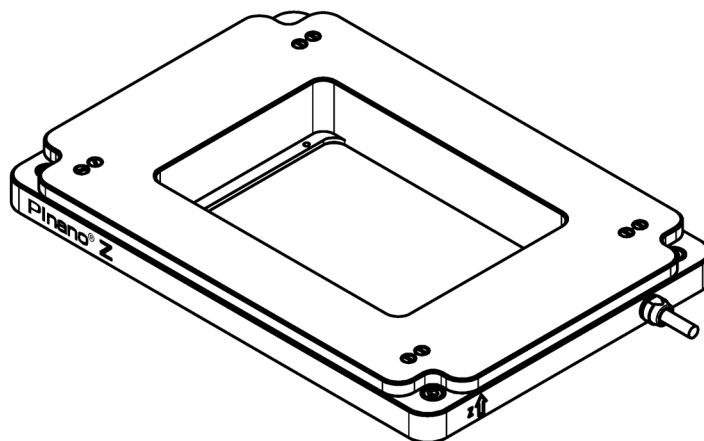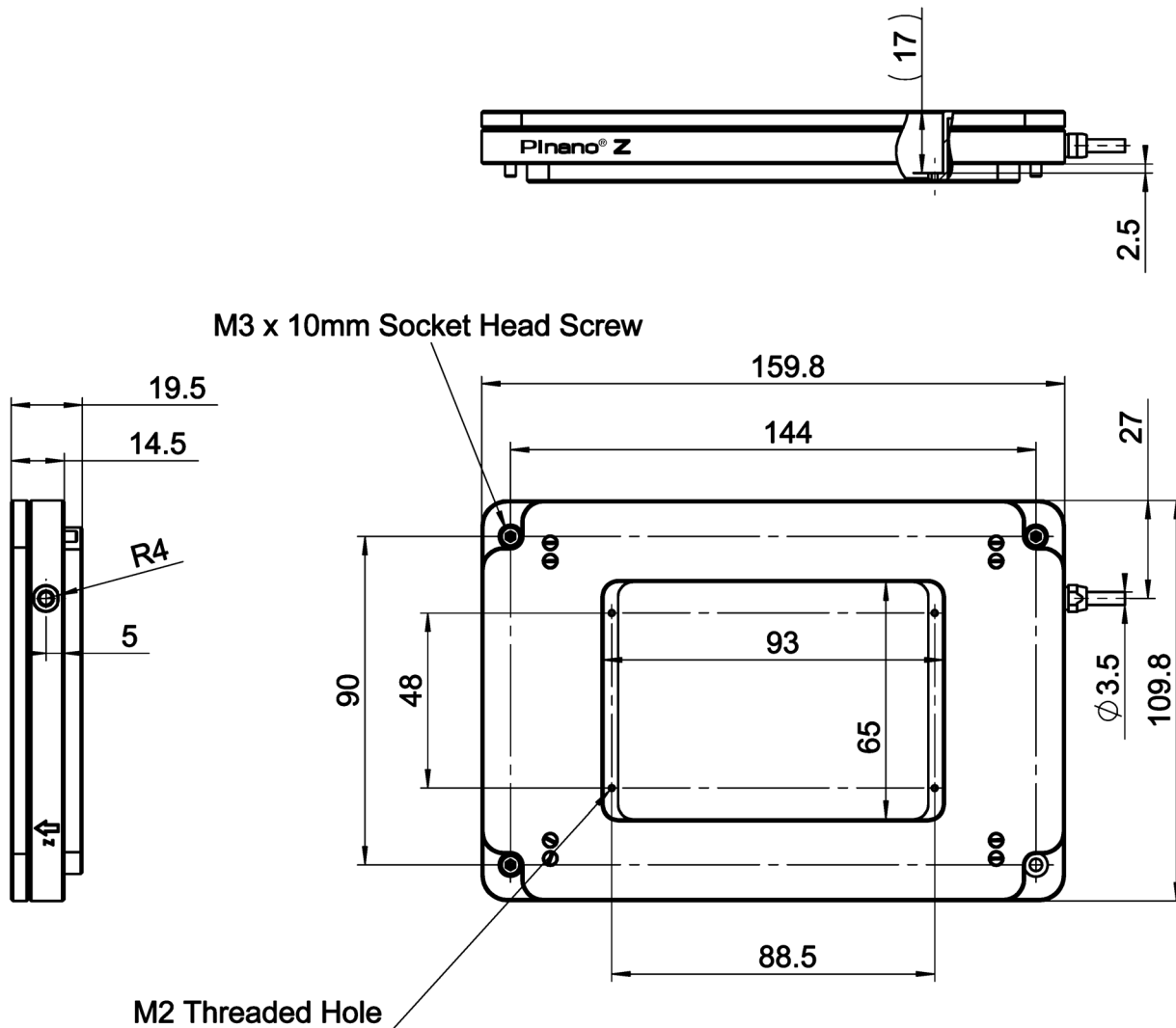## Extensive software for rapid start of productive operation

Thanks to support of MATLAB and NI LabVIEW as well as all common operating systems (Windows, Linux, and macOS), integration succeeds in virtually every environment – quickly and efficiently. Sophisticated programming examples and software tools such as PIMikroMove shorten the time to productive operation considerably.

Specifications

	P-736.ZR1S	P-736.ZR2S	Unit	Tolerance
Active axes	Z	Z		
Motion and positioning				
Integrated sensor	Piezoresistive	Piezoresistive		
Travel range, closed loop	100	200	µm	
Resolution, open loop	0.2	0.4	nm	typ.
Resolution, closed loop	0.4	0.7	nm	typ.
Mechanical properties				
Settling time (10 % step width)	5	7	ms	
Load capacity	500	500	g	max.
Drive properties				
Piezo ceramic	PICMA® P-885	PICMA® P-885		
Miscellaneous				
Operating temperature range	15 to 40	15 to 40	°C	
Material	Aluminum	Aluminum		
Mass	550	550	g	±5 %
Cable length	1.5	1.5	m	±10 mm
Piezo controller	E-709 digital servo (in the scope of delivery)			
Communication interfaces	USB, RS-232, SPI			
I/O connector	HD D-sub 26 1× analog input 0 to 10 V 1× sensor monitor 0 to10 V 1× digital input (LVTTL, programmable) 1× analog output 5× digital outputs (LVTTL, 3× predefined, 2× programmable)			
Command set	PI General Command Set (GCS)			
User software	PIMikroMove			
Software drivers	NI LabVIEW driver, dynamic libraries for Windows and Linux			
Supported functions	Wave generator, data recorder, autozero, trigger I/O, MATLAB, µManager			
Controller dimensions	160 mm × 96 mm × 33 mm			

The resolution of the system is limited only by the noise of the amplifier and the measuring technology because PI piezo nanopositioning systems are free of friction.

Drawings / Images

(17)

2.5

M3 x 10mm Socket Head Screw

19.5

14.5

R4

5

159.8

144

27

90

48

93

65

Ø 3.5

109.8

88.5

M2 Threaded Hole

P-736, dimensions in mm. Note that a comma is used in the drawings instead of a decimal point.
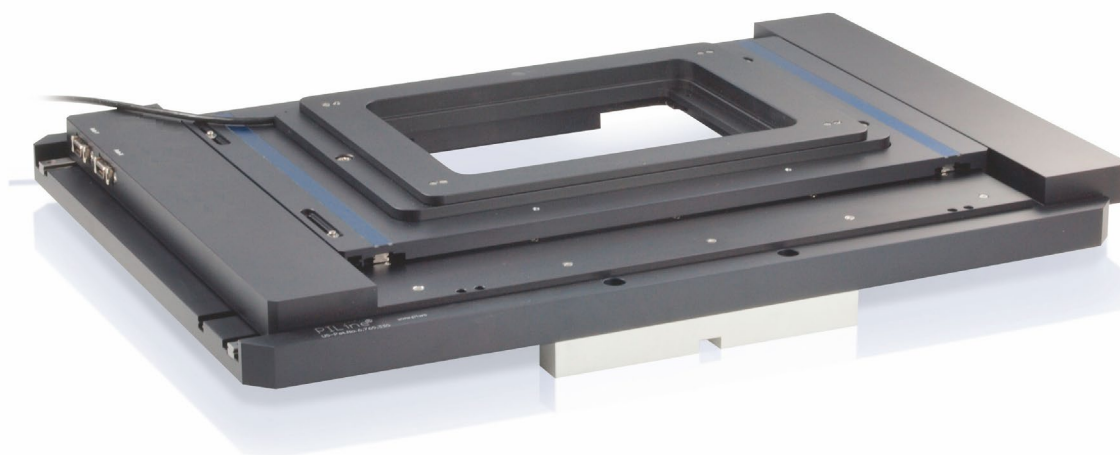
Customized designs are possible. The example above shows a P-736 version with particularly large aperture. The P-736 is mounted on an XY stage, which is driven by PILine® piezo motors.
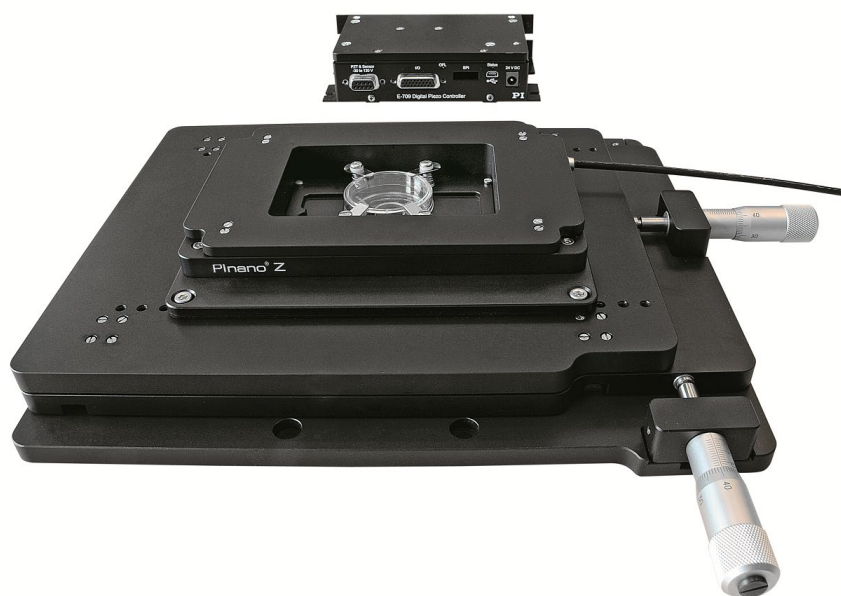
The PInano® Z scanner can be combined with the M-545 microscope stage, which has a travel range of 25 mm × 25 mm.

Ordering Information

P-736.ZR1S
PInano® Z piezo scanner system, 100 µm, clear aperture for microscope slides, piezoresistive sensors, with USB digital controller

P-736.ZR2S
PInano® Z piezo scanner system, 200 µm, clear aperture for microscope slides, piezoresistive sensors, with USB digital controller

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