PInano® Z Microscope Scanner System

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 disk microscopy
- Confocal microscopy
- 3D 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.

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.

Motion	Unit		P-736.ZR1S	P-736.ZR2S
Active axes			Z	Z
Travel range in Z	µm		100	200

Positioning	Unit	Tolerance	P-736.ZR1S	P-736.ZR2S
Resolution in Z, open loop	nm	Typ.	0.2	0.4
Integrated sensor			Piezoresistive, indirect position measuring	Piezoresistive, indirect position measuring
System resolution in Z	nm		0.4	0.7
Settling time for 10 % step in Z	ms		5	7

Drive Properties			P-736.ZR1S	P-736.ZR2S
Drive type			PICMA®	PICMA®

Mechanical Properties	Unit	Tolerance	P-736.ZR1S	P-736.ZR2S
Permissible push force in Z	N	Max.	5	5
Guide			Flexure guide with lever amplification	Flexure guide with lever amplification
Overall mass	g	±5 %	550	550
Material			Aluminum	Aluminum

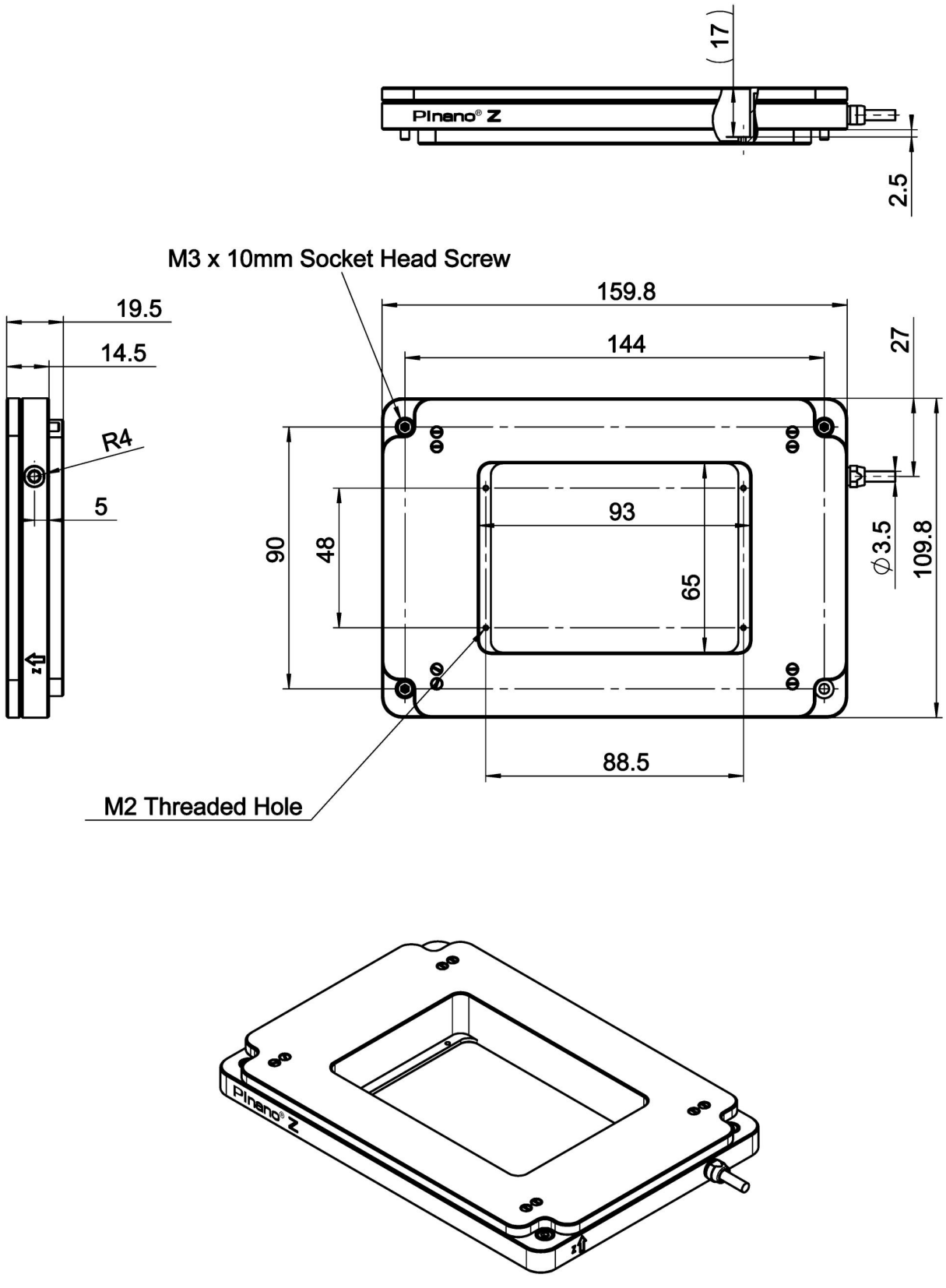
Miscellaneous	Unit	Tolerance	P-736.ZR1S	P-736.ZR2S
Operating temperature range	°C		15 to 40	15 to 40
Connector			D-sub 9 (m)	D-sub 9 (m)
Cable length	m	±10 mm	1.5	1.5

Controller	Unit		P-736.ZR1S	P-736.ZR2S
Controller type			E-709 (included in the scope of delivery)	E-709 (included in the scope of delivery)
Application-related functions			Data recorder	Data recorder
Motion types			Wave generator	Wave generator
Communication interfaces			RS-232 | SPI | USB	RS-232 | SPI | USB
Command set			GCS 2.0	GCS 2.0
User software			PIMikroMove	PIMikroMove
Application programming interfaces			Dynamic library for PI General Command Set (GCS) | C, C++, C# | MATLAB | NI LabView	Dynamic library for PI General Command Set (GCS) | C, C++, C# | MATLAB | NI LabView
I/O lines			1× analog input 0 to 10 V; 1× sensor monitor 0 to 10 V; 1× digital input (LVTTL, programmable); 1× analog output; 5× digital outputs (LVTTL, 3× predefined, 2× programmable)	1× analog input 0 to 10 V; 1× sensor monitor 0 to 10 V; 1× digital input (LVTTL, programmable); 1× analog output; 5× digital outputs (LVTTL, 3× predefined, 2× programmable)
Controller's dimensions			160 mm × 96 mm × 33 mm	160 mm × 96 mm × 33 mm
Drive functions			Autozero	Autozero
Motion-dependent inputs and outputs			Digital trigger input | Digital trigger output	Digital trigger input | Digital trigger output
Integration with third-party solutions			µManager	µManager

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.

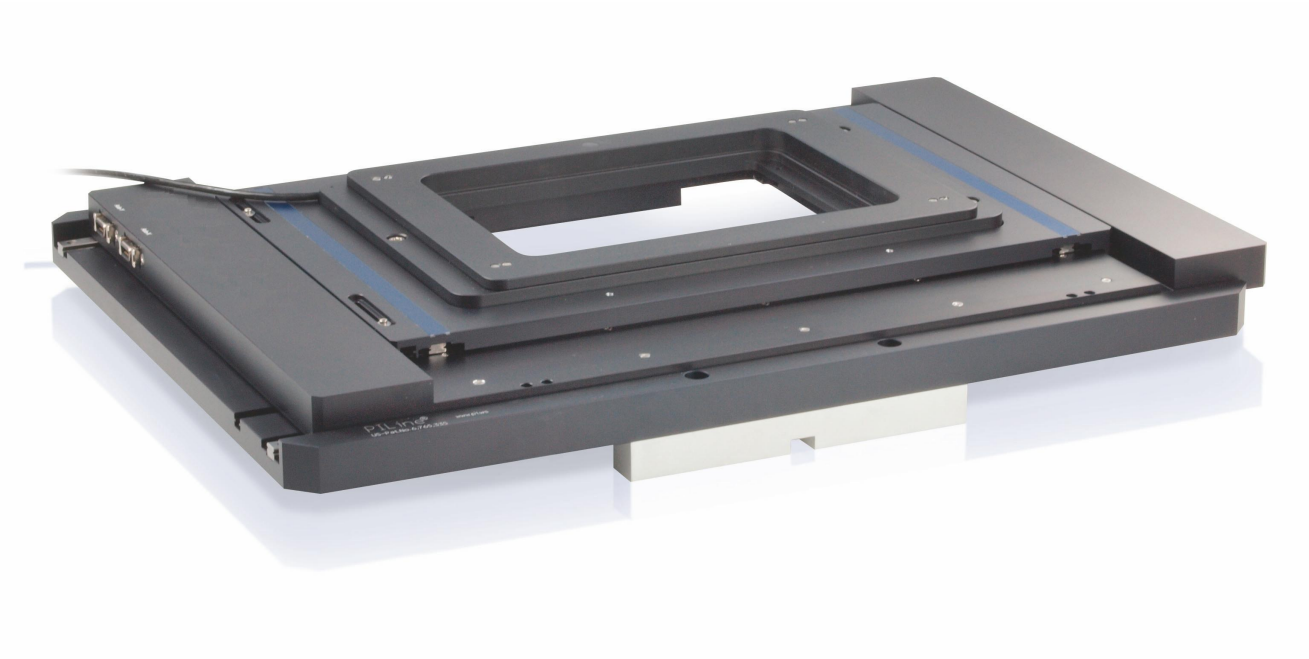
At PI, technical data is specified at 22 ±3 °C. Unless otherwise stated, the values are for unloaded conditions. Some properties are interdependent. The designation "typ." indicates a statistical average for a property; it does not indicate a guaranteed value for every product supplied. During the final inspection of a product, only selected properties are analyzed, not all. Please note that some product characteristics may deteriorate with increasing operating time.

Drawings / Images

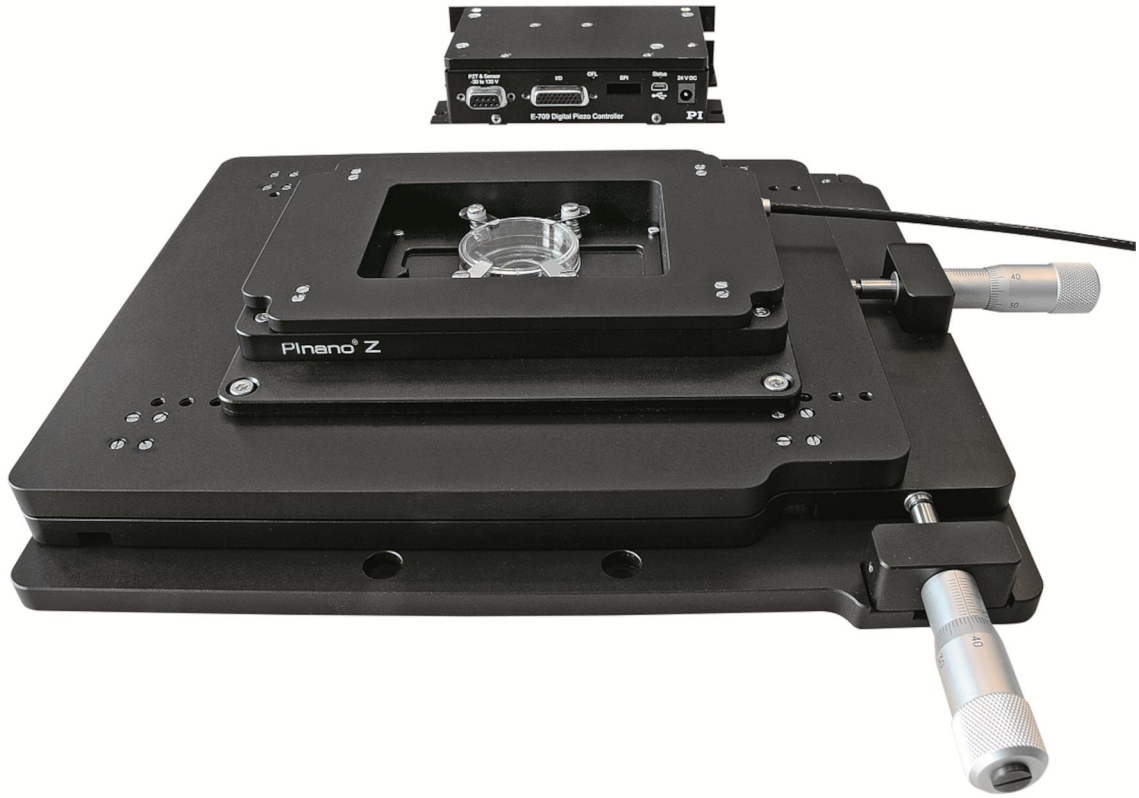


P-736, dimensions in mm

Drawings / Images



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.

Order Information

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

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