PInano® Z Microscope Scanner System for Microtiter Plates

Large Clear Aperture for Microtiter Plates, Low Profile, with Digital Controller

P-736

- Fast step & settle
- Clear aperture for well plates and low profile for easy integration
- Travel range 220 µm
- Outstanding lifetime due to PICMA® piezo actuators
- Piezoresistive sensors for lower cost
- Capacitive sensors for higher stability

Fields of application
Confocal microscopy
3D imaging
Laser technology
Interferometry
Metrology / measuring technology
Biotechnology
Micromanipulation

Precision-class nanopositioning system for high-resolution microscopy
Optimized for very fast step-and-settle. Exceptionally low profile of 18 mm for easy integration. Versions available for inverted microscopes from Nikon and Olympus.

PICMA® piezo actuator drive
All-ceramic insulation for maximum operating time. Significantly higher humidity resistance. Excellent guiding accuracy due to FEA-modeled flexure joints.

Choice of feedback sensors: piezoresistive or capacitive
- High-resolution piezoresistive sensors ensure stable position control
- Direct-measuring capacitive sensors for considerably improved stability and repeatability compared to piezoresistive sensors

System with controller and software
The compact E-709 digital servo piezo controller is included in the delivery. Digital servos allow adaptation of all control parameters on the fly, by software. Control is possible via USB, RS-232 and a broadband analog interface. Supports PIMikroMove, NanoCapture. PI General Command Set (GCS). Drivers for LabVIEW, shared libraries for Windows and Linux. Compatible with µManager, MATLAB and Andor iQ.

Motion	Unit		P-736.ZRN2S	PD73Z2ROW	P-736.ZCN2S	PD73Z2COW
Active axes			Z	Z	Z	Z
Travel range in Z	µm		220	220	220	220

Positioning	Unit		P-736.ZRN2S	PD73Z2ROW	P-736.ZCN2S	PD73Z2COW
Integrated sensor			Piezoresistive, indirect position measuring	Piezoresistive, indirect position measuring	Capacitive, direct position measuring	Capacitive, direct position measuring
System resolution in Z	nm		1	1	1	1

Drive Properties			P-736.ZRN2S	PD73Z2ROW	P-736.ZCN2S	PD73Z2COW
Drive type			PICMA®	PICMA®	PICMA®	PICMA®

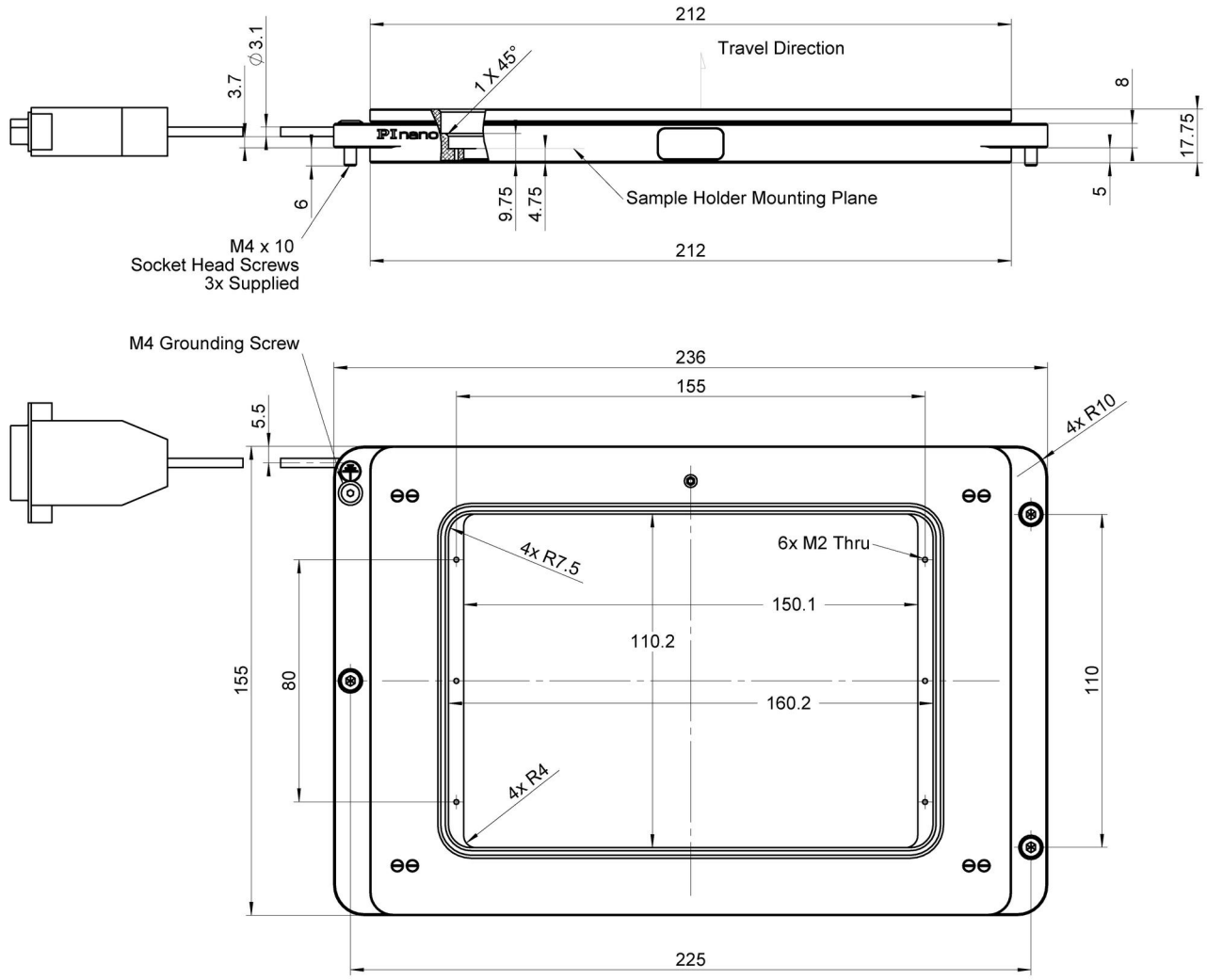
Mechanical Properties	Unit	Tolerance	P-736.ZRN2S	PD73Z2ROW	P-736.ZCN2S	PD73Z2COW
Resonant frequency in Z, under load with 100 g	Hz	±20%	250	250	250	250
Permissible push force in Z	N	Max.	5	5	5	5
Guide			Flexure guide with lever amplification	Flexure guide with lever amplification	Flexure guide with lever amplification	Flexure guide with lever amplification
Overall mass	g	±5%	850	850	850	850
Material			Aluminum	Aluminum	Aluminum	Aluminum

Miscellaneous	Unit	Tolerance	P-736.ZRN2S	PD73Z2ROW	P-736.ZCN2S	PD73Z2COW
Operating temperature range	°C		15 to 40	15 to 40	15 to 40	15 to 40
Connector			D-sub 9 (m)	D-sub 9 (m)	D-sub 7W2 (m)	D-sub 7W2 (m)
Cable length	m	±10 mm	1.7	1.7	1.7	1.7
Compatible inverted microscopes			Nikon Eclipse Ti2 | Nikon Eclipse Ti	Olympus IX3 | Olympus IX2 | Olympus IX	Nikon Eclipse Ti2 | Nikon Eclipse Ti	Olympus IX3 | Olympus IX2 | Olympus IX

Controller	Unit		P-736.ZRN2S	PD73Z2ROW	P-736.ZCN2S	PD73Z2COW
Controller type			E-709 (included in the scope of delivery)	E-709 (included in the scope of delivery)	E-709 (included in the scope of delivery)	E-709 (included in the scope of delivery)
Application-related functions			Data recorder	Data recorder	Data recorder	Data recorder
Motion types			Wave generator	Wave generator	Wave generator	Wave generator
Communication interfaces			RS-232 | SPI | USB	RS-232 | SPI | USB	RS-232 | SPI | USB	RS-232 | SPI | USB
Command set			GCS 2.0	GCS 2.0	GCS 2.0	GCS 2.0
User software			PIMikroMove	PIMikroMove	PIMikroMove	PIMikroMove
Software - APIs			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	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)	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	160 mm × 96 mm × 33 mm	160 mm × 96 mm × 33 mm
Drive functions			Autozero	Autozero	Autozero	Autozero
Motion-dependent inputs and outputs			Digital trigger input | Digital trigger output	Digital trigger input | Digital trigger output	Digital trigger input | Digital trigger output	Digital trigger input | Digital trigger output
Integration with third-party solutions			MetaMorph | µManager | Andor iQ	MetaMorph | µManager | Andor iQ	MetaMorph | µManager | Andor iQ	MetaMorph | µManager | Andor iQ

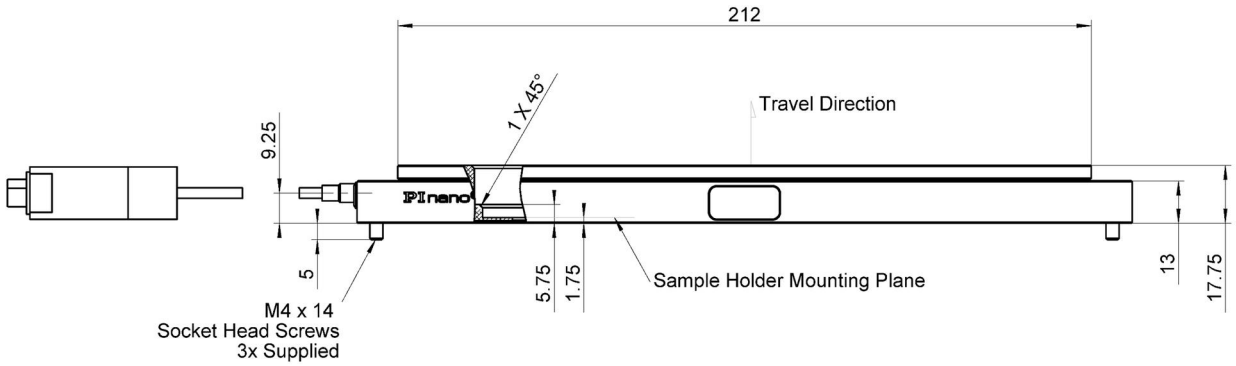
Permissible push force in Z: The recommended load for dynamic operation is 500 g (max.). Higher dynamics are possible with a reduced load.

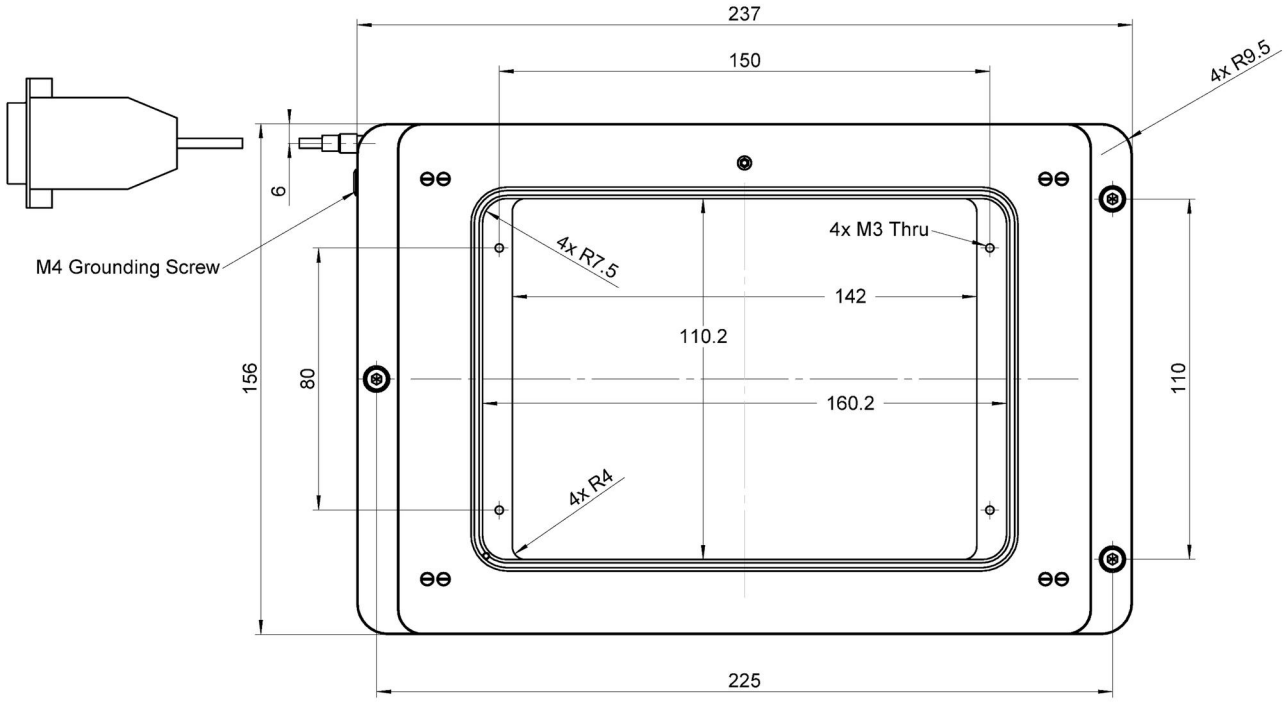
Drawings / Images



P-736.ZCN2S / P-736.ZRN2S systems: Dimensions of the P-736.ZCN2 / P-736.ZRN2 mechanics in mm.

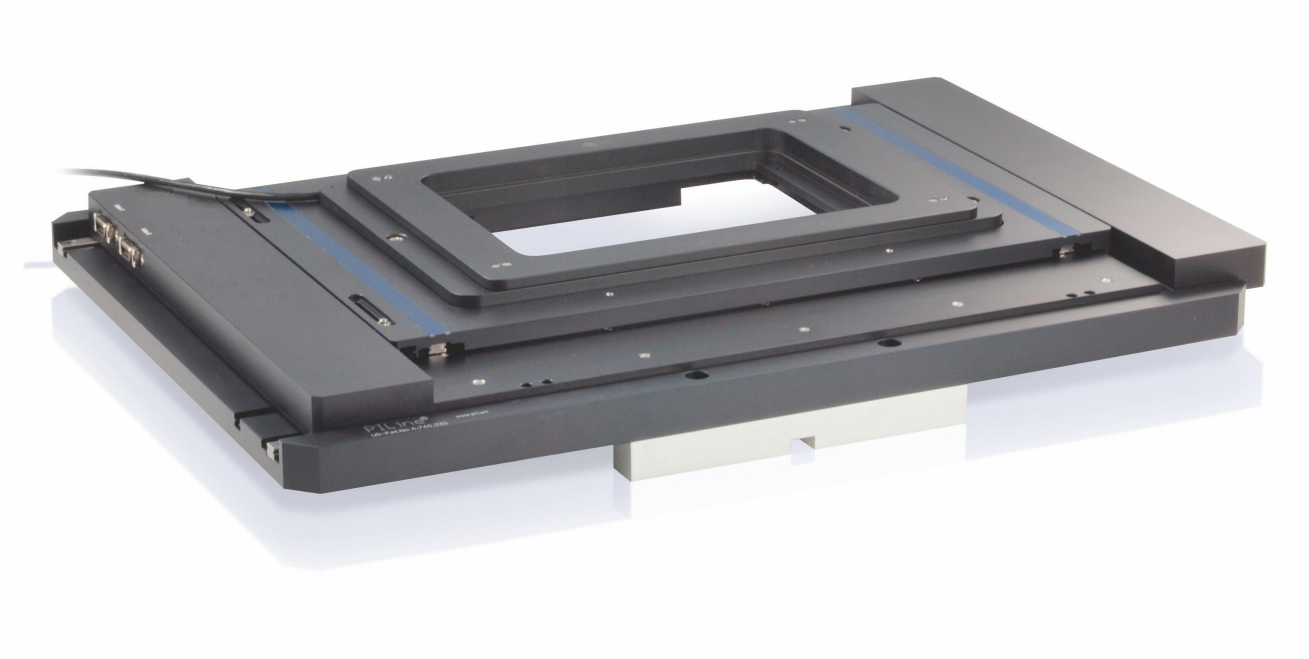
Drawings / Images





PD73Z2COW / PD73Z2ROW systems: Dimensions of the P-736.ZCO / P-736.ZRO mechanics 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.

Order Information

P-736.ZRN2S
PInano® Z piezo scanner system with clear aperture for microtiter plates; for inverted Nikon microscopes; 220 µm travel range; piezoresistive sensors; with USB digital controller

PD73Z2ROW
PInano® Z piezo scanner system with clear aperture for microtiter plates; for inverted Olympus microscopes; 220 µm travel range; piezoresistive sensors; with USB digital controller

P-736.ZCN2S
PInano® Z piezo scanner system with clear aperture for microtiter plates; for inverted Nikon microscopes; 220 µm travel range; capacitive sensor; with USB digital controller

PD73Z2COW
PInano® Z piezo scanner system with clear aperture for microtiter plates; for inverted Olympus microscopes; 220 µm travel range; capacitive sensor; with USB digital controller