

High- Dynamics Z- Nanopositioner / Scanner

DIRECT POSITION METROLOGY AND CLEAR APERTURE



P-733.Z

- + Travel range 100 μm
- + Direct metrology with capacitive sensors
- + Resolution to 0.3 nm, closed- loop
- + Clear aperture 50 mm \times 50 mm
- + Versions with Additional Degrees of Freedom Available
- + XY and XYZ versions also available
- + Vacuum- compatible versions available

Specifications

	P-733.ZCD P-733.ZCL	Unit	Tolerance
Active axes	Z		
Motion and positioning			
Integrated sensor	Capacitive		
Open- loop travel, -20 to 120 V	115	μm	min. (20 % / -0 %)
Closed- loop travel	100	μm	
Open- loop resolution	0.2	nm	typ.
Closed- loop resolution	0.3	nm	typ.
Linearity error	0.03	%	typ.
Repeatability	<2	nm	typ.
Rotation around Z	<10	μrad	typ.
Rotation around X	<5	μrad	typ.
Rotation around Y	<5	μrad	typ.
Mechanical properties			
Stiffness	2.5	N / μm	± 20 %
Resonant frequency, no load	700	Hz	± 20 %
Resonant frequency, under load, @ 120 g	530	Hz	± 20 %
Resonant frequency, under load, @ 200 g	415	Hz	± 20 %
Push / pull force capacity	50 / 20	N	max.
Drive properties			
Piezo ceramic	PICMA [®] P-885		
Electrical capacitance	6	μF	± 20 %
Dynamic operating current coefficient	7.5	$\mu\text{A} / (\text{Hz} \times \mu\text{m})$	± 20 %
Miscellaneous			
Operating temperature range	20 to 80	$^{\circ}\text{C}$	
Material	Aluminum		
Dimensions	100 mm \times 100 mm \times 25 mm		
Mass	580	g	± 5 %
Cable length	1.5	m	± 10 mm
Sensor connection	Sub- D Special (CD version); 2 \times LEMO (CL version)		
Voltage connection	Sub- D Special (CD version); 1 \times LEMO (CL version)		

Dynamic Operating Current Coefficient (DOCC) in μA per Hz and mrad. Example: Sinusoidal scan of $10\ \mu\text{m}$ at 10 Hz requires approximately 3 mA drive current.

Recommended controllers

One channel:

[E-610 piezo amplifier / controller](#)

[E-625 piezo driver / servo controller](#) (bench- top)

[E-621 piezo servo controller](#) (modular)

[E-753 digital piezo controller](#) (bench- top)

Multi- channel:

E-500 modular piezo controller [system](#) with E-503 amplifier [module](#) (three channels) or [E-505](#) (1 per axis, high- power) and [E-509 controller](#)

Order Information

P-733.ZCD

Compact Precision Nanopositioning Vertical Stage, $100\ \mu\text{m}$, Capacitive Sensor, Sub- D Connector(s)

P-733.ZCL

Compact Precision Nanopositioning Vertical Stage, $100\ \mu\text{m}$, Capacitive Sensor, LEMO Connector(s)

Controllers / Drivers / Amplifiers

[E-610 Piezo Amplifier / Controller](#)

[E-625 Piezo Servo- Controller & Driver](#)

[E-621 Piezo Servo- Controller & Driver](#)

[E-753 Digital Piezo Controller](#)

[E-500 • E-501 Modular Piezo Controller](#)

[E-503 Piezo Amplifier Module](#)

[E-505 Piezo Amplifier Module](#)

[E-509 Signal Conditioner / Piezo Servo Module](#)

Related Products

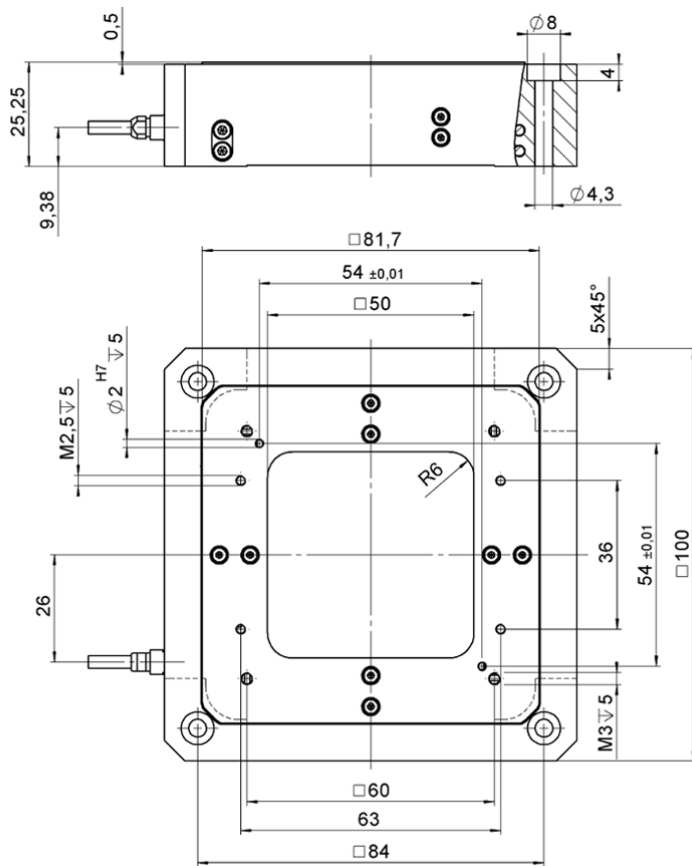
[P-612.Z Piezo Z Stage](#)

[P-541.Z Piezo Z and Z / Tip / Tilt Stages](#)

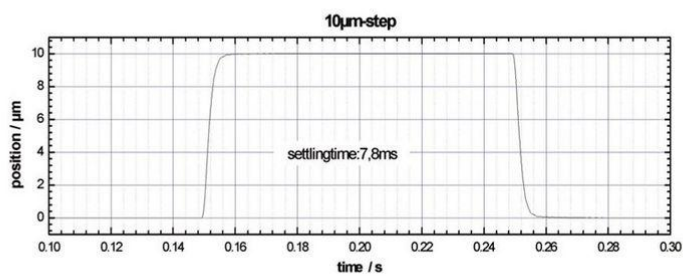
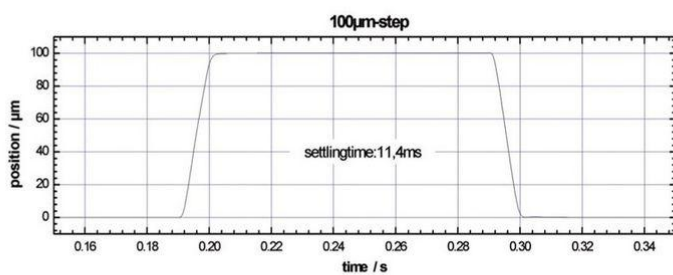
[P-518 • P-528 • P-558 Piezo Z / Tip / Tilt Stage](#)

[P-737 PIFOC® Specimen- Focusing Z Stage](#)

Drawings / Images



P-733.Z Abmessungen
in mm



Step response of the
P-733.ZCD. Settling
time is in the 10 ms
range