

PIMag™ VC Vertical Linear Actuator

COMPACT WITH INTEGRATED POSITION SENSOR



V-900KPIC

- + Travel range 1.5 mm
- + High scanning frequencies, fast step- and- settle
- + Integrated linear encoder, 0.1 μ m resolution
- + Wear- free flexure guiding for long lifetime
- + Compact design
- + Maximum force 0.5 N
- + Resolution 0.01 μ m (open- loop)
- + Long Lifetime; >100 million cycles
- + C-413 Motion Controller

OEM Linear Actuator

PIMag™ voice coil magnetic drive, high velocity and high dynamics. Low wear and high lifetime. Integrated linear encoder for reliable position control and repeatable accuracy. 10 kHz servo update rate. Optional force sensor for applying defined forces. Easy integration by coupling the guided load to the moving runner

PIMag™ C-413 Digital Motion Controller for Position and Force Control

2 channels (position control) or 1 channel (simultaneous position and force control). Controlled output current up to 1.5 A at 24 V, 150 kHz. USB interface for sending commands, digital I/ Os, SPI interface. Plug&Play: ID chip for reading stage parameters. Available as OEM board or bench- top device. PIMikroMove user software, compatible with PI General Command Set (GCS)

Fields of Application

OEM drives in automation. For fast handling tasks and precision positioning in the micrometer range, micromanipulation

Specifications

Preliminary data	V-900KPIC	Unit	Tolerance
Active axes	Z		
Motion and positioning			
Travel range	1.5	mm	
Integrated sensor	Optical linear encoder		
Servo update rate	10*	kHz	
Open- loop resolution	10*	nm	typ.
Closed- loop resolution	100	nm	typ.
Closed- loop linearity error	±1	%	typ.
Repeatability	±500	nm	typ.
Straightness of travel	±5	µm	±5
Maximum velocity, open- loop	250	mm/ s	
Velocity, closed- loop	45	mm/ s	
Mechanical properties			
Moved mass	10	g	typ.
Average push / pull force	0.5	N	nominal
Maximum push / pull force	0.8	N	max.
Force constant	4	N/ A	typ.
Drive properties			
Motor type	PIMag™ voice coil drive		
Magnet material	NdFeB (N38SH)		
Coil resistance	8.8	Ω	typ.
Coil inductance	0.8	mH	typ.
Average continuous current	120**	mA	max.
Peak current (max. 3 s)	200	mA	
Miscellaneous			
Operating temperature range	10 to 45	°C	
Material	Aluminum		
Mass	40	g	±5 %
Cable length	0.2	m	
Motor / sensor connection	Molex 12- pin		
Lifetime	>10 ⁸	cycles	min.
Recommended controller	C-413 (plug adapter required)		

* With C-413 controller.

** Allowable average value for continuous operation, not to be exceeded.

Order Information

V-900KPIC

PIMag™ VC Linear Actuator 1.5 mm, 0.5 N

Controllers / Drivers / Amplifiers

[C-413 PIMag™ Motion Controller](#)

Related Products

[V-273 PIMag™ Voice Coil Linear Actuator](#)

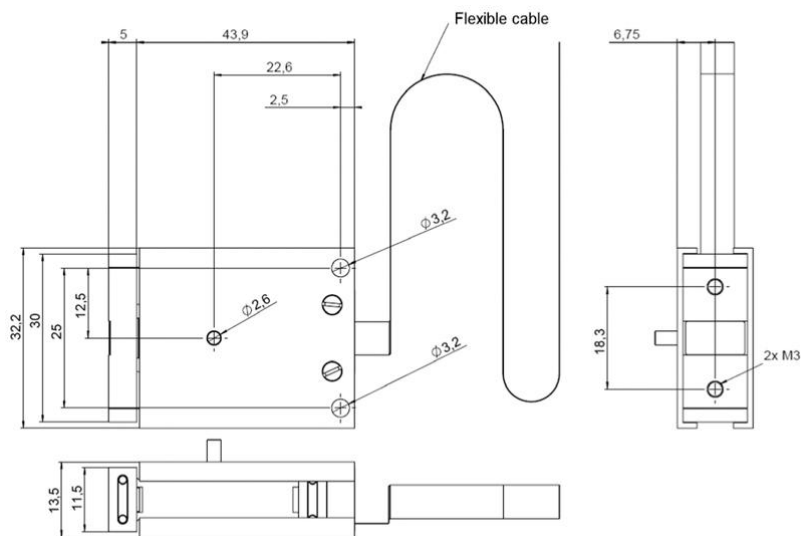
[P-603 Cost- Efficient PiezoMove Linear Flexure Actuator](#)

[P-602 PiezoMove High- Stiffness Linear Piezo Actuator](#)

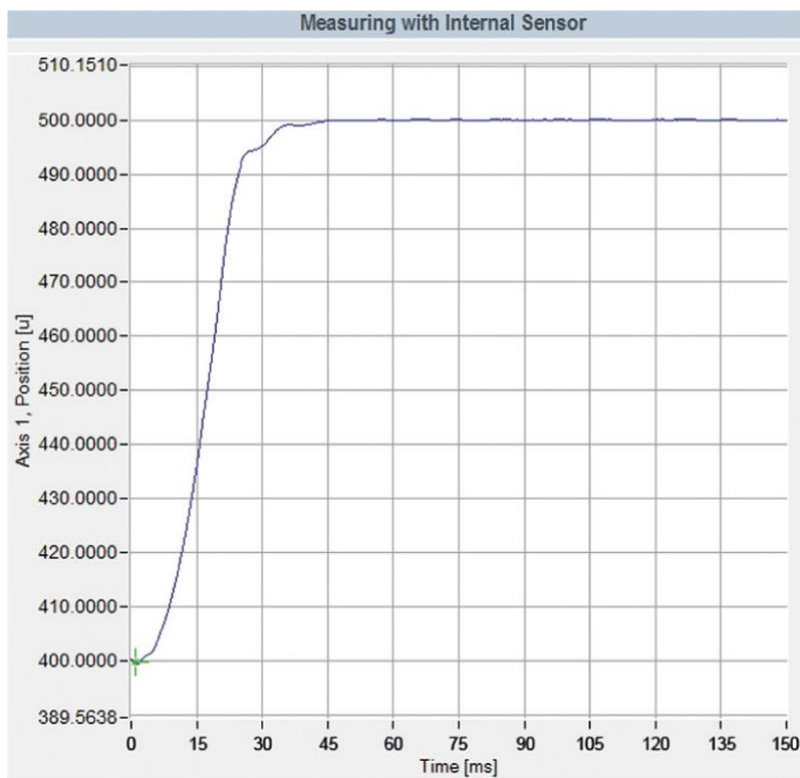
[N-603 Linear Positioning Stage for Closed- Loop Operation](#)

[U-264 RodDrive OEM Piezomotor Direct Drive](#)

Drawings / Images



V-900KPIC,
dimensions in mm



The settling time for a
100 μ m step is approx.
50 ms.