

XLA-3 Series Fast and compact linear actuator



The XLA micro linear actuators are world class in terms of weight, size and precision. The actuator is driven by the Crossfixx[™] ultrasonic piezo motor, allowing an extremely compact design, variable speeds up to 400 mm/s and a total weight of less than 36 gram! The XLA-3 has an integrated encoder with a 1250, 312 or 78 nm resolution or open-loop. A wide range of rod lengths is available, allowing stroke lengths from 10 mm to 300 mm! The open-loop version also comes with an integrated controller to make the whole setup even more compact.

Key features

	closed-loop open-loop					
drive principle	patented Crossfixx™ ultrasonic piezo technology					
lifetime	> 100 km / 1 million cycles					
operating voltage	20 to 48 V	12 V				
controller	external XD-A controller required	integrated controller				

Model code structure

actuator type	rod length (mm)	encoder resolution (nm)	FPC cable outlet (flexible printed cable)				
	-45	-OPEN					
		-1250					
		-312					
		-78					
	-55						
	-65		ton side				
	-75						
XI A-3	-85						
XEX 0	-105		same as XLA-3-40				
	-125	same as XLA-3-40					
	-145						
	-285						
	-305						
	-325						

Example: XLA-3-45-312

- L XLA-3 series linear actuator
- Rod length of 45 mm
- L Closed-loop actuator with integrated encoder with a resolution of 312 nm

Environmental compatibility

temperature range	-30°C to +70°C
humidity range	20% to 90% RH (non-condensing)
heat dissipation (motor only)	< 1 W

Motion performance

					XLA-:	unit	tolerance		
		-1250 -312 -78 open-loop							
LIMITS type							optical		
		type	opti	ical, increme	ntal				
ER		grating period		80		no oncodor	μm		
COD		resolution	1250	312	78	+	nm		
Ň		index	1 per full stroke			Integrated controller			
		accuracy	± 5				μm	typ.	
	ning	resolution = min. step size = min. incremental motion (MIM)		1250	350	80	50 – 100 um	nm	typ.
	sitio	unidirectional repeatability		± 1250	± 350	± 80	(pulsed operation)	nm	typ.
TOR	đ	bidirectional repeatability		± 2500	± 700	± 160		nm	typ.
ACTUA		max. speed		400			1000	mm/s	typ.
	þé	min. speed			2 to 5		10	µm/s	typ.
	spee	stability (at typical speed of 10 mm/s)			± 1		-	%	typ.
		point-to-point positioning time for a 1 mm step*	0g Ioad		200		-	msec	typ.

Mechanical properties

			XLA-3								unit	tolerance		
rod length		-45	-55	-65	-75	-85	105	-125	-145	-165	-185	-205	mm	± 0.1
dimensions loop		38 x 30 x 9.1									mm	± 0.1		
	open-loop	38 x 30 x 12								2 0.1				
stroke / travel range		10	20	30	40	50	70	90	110	130	150	170	mm	± 0.1
mass	closed- loop	35.8	36.6	37.4	38.2	40	40.8	41.6	42.4	43.2	50	50.8	g	± 5%
made	open-loop	37.0	37.8	38.6		50.4	51.2	52	52.8	53.6	54.4	55.2		
holding force		3									Ν			
driving force		3								Ν				
actuator materials		anodized aluminum (housing) steel rod and stainless steel housing cover												
cable type Closed loop version: FPC, 12 core, 0.5 mm pitch with same side contacts Open loop version: FPC, 14 core, 0.5 mm pitch with opposite side contacts														

			unit	tolerance					
rod length		-225	-245	-265	-285	-305	-325	mm	± 0.1
dimensions	closed- loop			mm	+01				
	open-loop	38 x 30 x 12							10.1
stroke / travel range		190	210	230	250	270	290	mm	± 0.1
	closed- loop	51.6	52.4	53	53.8	54.6	55.4	g	± 5%
made	open-loop	56	56.8	57.6	58.4	59.2	60		
holding force		3							
driving force		3							
actuator mate	erials	anodized aluminum (housing) steel rod and stainless steel housing cover							
cable type Closed loop version: FPC, 12 core, 0.5 mm pitch with same side contacts Open loop version: FPC, 14 core, 0.5 mm pitch with opposite side contacts						ontacts contacts			

Error motion

resolution		XLA- length XX	1 to <mark>XX</mark>	XLA length <mark>X</mark>			
		-1250	-312	-1250 -312	-78 -5 -1	unit	tolerance
error motion	straightness	±	±	±	±	μm	max.
	flatness	±	±	±	±	μm	max.
	pitch					µrad arcsec	max.
	roll					µrad arcsec	max.
	yaw					µrad arcsec	max.

Controller/software

The XLA-3 closed-loop actuators are compatible with the XD-A Controller.

The XLA-3 open-loop actuators have a built-in controller.

Controlling of the stage is done with:

- Easy-to-use Windows interface
- LabVIEW interface program (compiled program or source)
- MATLAB interface script
- C++ and Python libraries

Drawing



Last updated: 24/08/2021. All specifications are subject to change without prior notice.

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