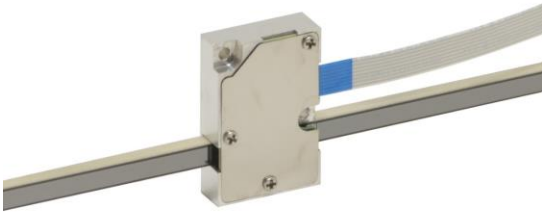


# XLA-1 Series

## 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 200 mm/s and a total weight of less than 6 gram! The XLA-1 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 5 mm to 185 mm!

### Key features

drive principle	patented Crossfixx™ ultrasonic piezo technology
lifetime	> 100 km / 1 million cycles
control principle	Open or closed-loop control
operating voltage	20 to 48 V
controller	external Xeryon controller required

### Model code structure

actuator type	rod length (mm)	encoder resolution (nm)	FPC cable outlet (flexible printed cable)
XLA-1	-20	1250	top side
	-30		
	-40		
	-50	312	
	-60		
	-70		
	-80	78	
	-100		
	-120		
	-140	no encoder (-OPEN)	
	-160		
	-200		

Example: **XLA-1-40-312**

- └ XLA-1 series linear actuator
- └ Rod length of 40 mm
- └ 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-1 all rod lengths				unit	tolerance	
		-1250	-312	-78	Open-loop			
<b>LIMITS</b>	type	-				Optical		
	type	optical, incremental						
<b>ENCODER</b>	grating period	80				no encoder	µm	
	resolution	1250	312	78	nm			
	index	1 per full stroke						
	accuracy	± 5					µm	typ.
	resolution = min. step size = min. incremental motion (MIM)	1250	350	80	50 – 100 nm (pulsed operation)		nm	typ.
unidirectional repeatability	± 1250	± 350	± 80	nm		typ.		
bidirectional repeatability	± 2500	± 700	± 160	nm		typ.		
<b>ACTUATOR</b>	speed	max. speed	200			400	mm/s	typ.
		min. speed	2 to 5			10	µm/s	typ.
	stability (at typical speed of 10 mm/s)	± 1			-	%	typ.	
	point-to-point positioning time for a 1 mm step* 0 g load	200			-	msec	typ.	

## Mechanical properties

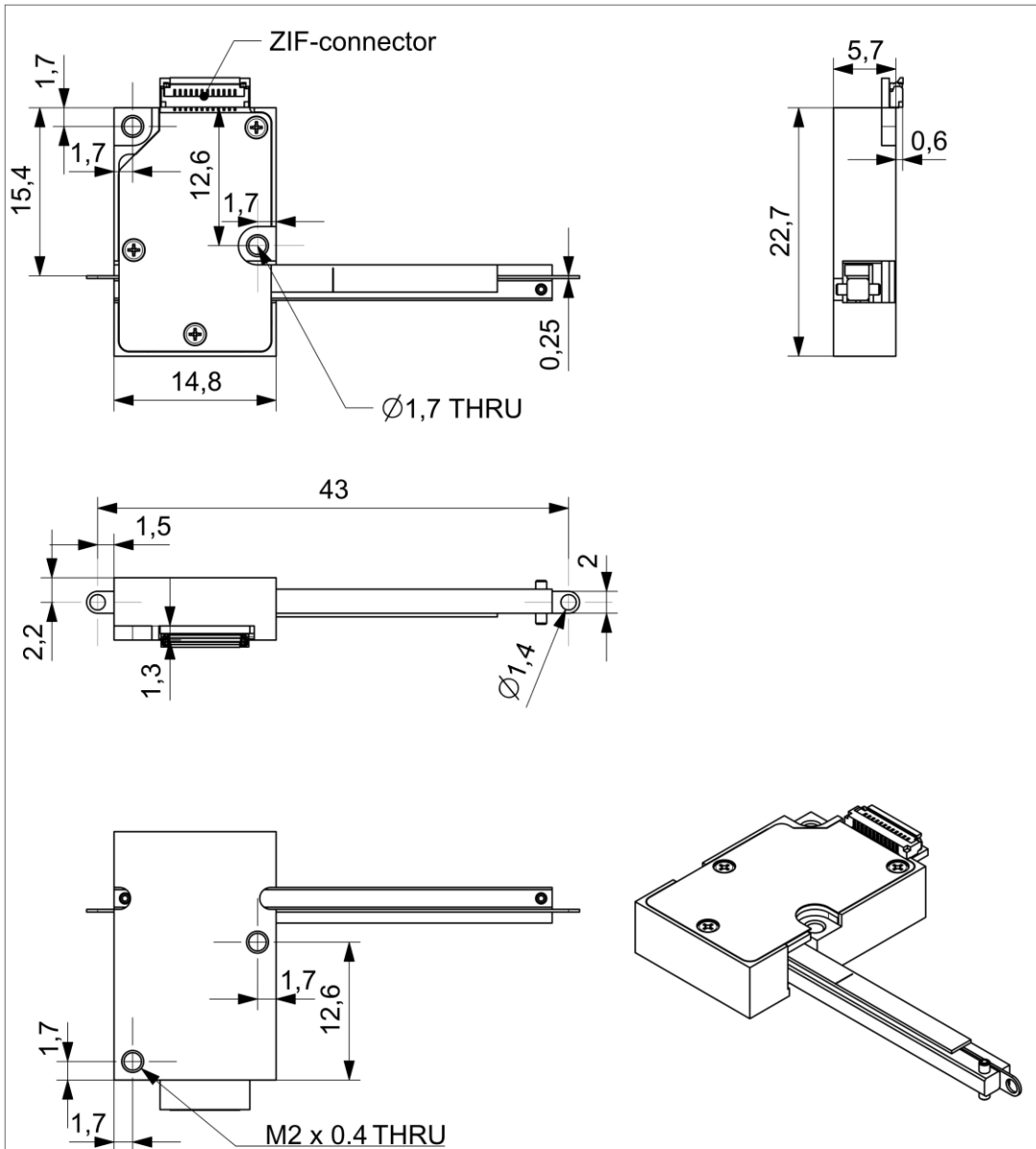
	XLA-1												unit	tolerance
rod length	-20	-30	-40	-50	-60	-70	-80	-100	-120	-140	-160	-200	mm	± 0.1
dimensions	22.7 x 14.8 x 5.4												mm	± 0.1
stroke/ travel range	5	15	25	35	45	55	65	85	105	125	145	185	mm	± 0.1
mass	5.5	5.9	6.3	6.7	7.1	7.5	7.9	8.7	9.5	10.3	11.1	12.7	g	± 5%
holding force	1												N	min.
driving force	1												N	min.
actuator materials	anodised aluminium (housing) stainless steel (rod and housing cover)													
cable type	FPC, 8 core, 0.5 mm pitch with same side contacts													

## Controller/software

The XLA-1 series actuators are compatible with all Xeryon controllers.

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



General roughness	General tolerance	Material	Drawing number
	f		
Scale		Treatment	Project number
2:1			XLA
		XLA-1-40 assembly	
Author: TW		Date: 21-09-2020	A4

Last updated: 12/01/2021. All specifications are subject to change without prior notice.