LSPA30uXS LINEAR PIEZO MOTOR DEVELOPER KIT

PRESENTATION

The Linear Stepping Piezo Actuators (LSPA) are long stroke linear piezoelectric motors for high precision positioning. Classified as inertial piezo actuators, they benefit from the APA® heritage, especially from their large deformation and high reliability.

LSPA operates by accumulation of small steps (M1), produced by a sawtooth-like signal. Between each step, the motor is locked in position and that, without any consumption. As a complementary mode, fine adjustment (M2) of the APA® allows to reach nanometer resolution.

The LSPA30uXS Developer kit offers the possibility to discover the potential of the LSPA30uXS, smallest existing LSPA, in stepping mode (M1). With an external dedicated miniature driver (SPC45), and coupled to a high resolution magnetic sensor, the Developer kit is a fully closed-loop solution for high resolution millimetric motion.

➤ DESCRIPTION OF THE LSPA30uXS DEVELOPER KIT

The LSPA30uXS Developer kit is made of different sub-systems:

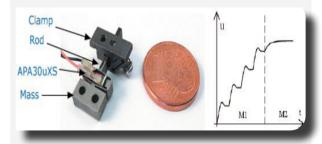
- 1) LSPA30uXS kit (SPA30uXS motor coupled with an incremental sensor on a holding platform)
- 2) SPC45 driver
- 3) SPC45 Power Supply
- 4) Cables
- 5) USB cable for GUI control

> MECHANICAL CONFIGURATION AND INTERFACES

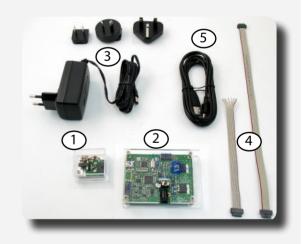
The Developer kit is a plug and play solution. It allows to learn quickly how to use the SPA motor.

The LSPA30uXS motor can be extracted from the holding platform and integrated directly onto user's test bench.

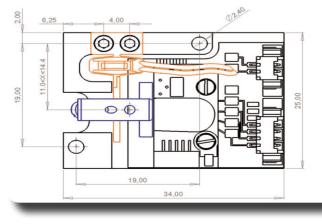


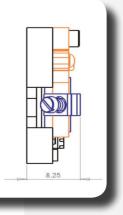


☐ Fig1: LSPA30uXS motor components and principle



☑ Fig2: LSPA30uXS kit





☐ Fig3: Mechanical configuration with fixed (orange) and mobile (blue) parts of the motor



XS LINEAR PIEZO MOTOR DEVELOPER KIT

PERFORMANCES OF THE LSPA30UXS DEVELOPER KIT

REFERENCES	UNITS	LSPA30uXS DEV KIT
Notes		
Sensor		MAG
Base		APA30uXS
Stroke	mm	3.4
Stiffness	N/u	0.108
Max Speed	mm/s	30
Typical holding force at rest	N	0.8
Typical actuation force	N	0.2
Sensor resolution	u/M	1.952
Capacitance	u/F	0.052
Heigth	mm	8.25
Base size	mm	25*34
Mass	gr	8.1
DC Input voltage	V	12
Max Input current (incl. Driver)	Α	0.4
Holding consumption	Α	0



☐ Fig4: Stepping Piezo Controller SPC45.

DEDICATED ELECTRONICS'CHARACTERISTICS

The dedicated driver, the "Stepping Piezo Controller" (SPC45) has been built to offer large possibilities to designers, from fast motion setup to completely controlled movement. USB interface, as well as serial port are available to meet every designer's requirements.

THE LSPS STAGE

The Linear Stepping Piezo Stage LSPS is based on the Stepping Piezo Actuator's (SPA) principle. It provides both long stroke and micro positioning resolution. A linear rail ensures a flat and straight motion and also protects the system against external forces and vibrations. A linear encoder is included for real time position feedback.

The LSPS is compact, robust, EMC compatible and light weight. The stage can perform more than 10⁶ cycles.

The piezo stage is driven by a SPC45 controller.

Typical applications are micro positioning, scanning, optical zoom and focus...Customized Stepping Piezo Stages including Rotary Stepping piezo stages can be designed according to customer's requirements.

For more information, please contact:

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☑ Fig5: Linear Stepping Piezo Stage