



# NF15AP25 1.5 mm Travel Single Axis Flexure Stages

## User Guide



Original Instructions

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## Chapter 1 Introduction

The NF15AP25 NanoFlex™ single-axis flexure stage is a versatile and compact nanopositioner, designed to carry loads of up to 0.5kg. They are ideally suited for all laboratory and OEM applications. Optical components can be mounted to the moving platform and translated precisely and smoothly in a single direction.

The thumbscrew actuator offers 1.5mm of travel at a 0.25 mm per revolution of the adjuster knob, while the internal flexure system ensures virtually no friction or stiction. Maximum cross talk is 1.0  $\mu\text{m}$ .

The internal piezoelectric actuator offers a theoretical resolution of 0.76 nm with 25  $\mu\text{m}$  travel.

The stage should be driven by a 0 to 75V piezo controller, such as the Thorlabs MDT694B, BPC301, BPC303 or MPZ601. Please see [www.thorlabs.com](http://www.thorlabs.com) for details on our complete range of piezo controllers



These NanoFlex™ stages are particularly suitable for stacking in 2-axis and 3-axis configurations

## Chapter 2 Safety

Precautions of a general nature should be gathered here. Wherever possible, however, safety warnings, cautions, and notes should only appear immediately before the instructions to which they apply (versus being listed in this section). Regulatory information that is not a warning (Such as FCC statements) should be placed here, but not put in a warning box. No headings should be used on this chapter.

**Warning: Risk of Electrical Shock**

Given when there is a risk of injury from electrical shock.

**Warning**

Given when there is a risk of injury to users.

**Caution**

Given when there is a risk of damage to the product.

**Note**

Clarification of an instruction or additional information.

### 2.1 General Warnings

**Warning: Risk of Electrical Shock**

The piezo actuators in this product use high voltages and up to 75V may be present at the SMC connectors. This is hazardous and can cause serious injury.

Appropriate care should be taken when using this device.

Persons using the device must understand the hazards associated with using high voltages and the steps necessary to avoid risk of electrical shock.

**Warning**

If the device is used in a manner not specified by Thorlabs, the protective features provided by the product may be impaired. In particular, excessive moisture may impair operation.

Spillage of fluid, such as sample solutions, should be avoided. If spillage does occur, clean up immediately using absorbant tissue. Do not allow spilled fluid to enter the internal mechanism.

## Chapter 3 Operation

### 3.1 Piezo Actuators



#### Warning

The piezo actuators in this product use high voltages and up to 75V may be present at the SMC connectors. This is hazardous and can cause serious injury.

Appropriate care should be taken when using this device.

Persons using the device must understand the hazards associated with using high voltages and the steps necessary to avoid risk of electrical shock.

Piezo actuators are used to give nanometric positioning of the top platform over a range of 25 microns. They can also modulate the position of the platform at high frequency.

### 3.2 Accessories



#### Caution

The thickness of the moving top plate is 2.5 mm (0.1"). When mounting components to the moving world, do not use bolts that protrude more than

2.5 mm (0.1") through the component being fitted.

The NF15P1 provides a convenient means of attaching the stage to an optical table. The NF15P2 angle bracket allows the stages to be mounted in X-Y-Z configurations.

NF15P1 Base Mounting Plate



NF15P2 Angle Bracket



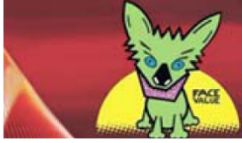
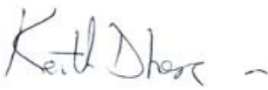

Typical XYZ Setup



## Chapter 4 Regulatory

### 4.1 Declarations of Conformity

#### 4.1.1 For Customers in Europe

		<h1>THORLABS</h1>	
		<a href="http://www.thorlabs.com">www.thorlabs.com</a>	
<h2>EU Declaration of Conformity</h2> <p><i>in accordance with EN ISO 17050-1:2010</i></p>			
We:	Thorlabs Ltd.		
Of:	1 St. Thomas Place, Ely, CB7 4EX, United Kingdom		
in accordance with the following Directive(s):			
2006/42/EC	Machinery Directive (MD)		
2004/108/EC	Electromagnetic Compatibility (EMC) Directive		
2011/65/EU	Restriction of Use of Certain Hazardous Substances (RoHS)		
hereby declare that:			
Model:	<b>NF Series</b>		
Equipment:	<b>Single Axis Flexure Stages</b>		
is in conformity with the applicable requirements of the following documents:			
EN ISO 12100	Safety of Machinery. General Principles for Design. Risk Assessment and Risk Reduction		2010
EN 61326-1	Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements		2013
and which, issued under the sole responsibility of Thorlabs, is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8th June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, for the reason stated below:			
does not contain substances in excess of the maximum concentration values tolerated by weight in homogenous materials as listed in Annex II of the Directive			
I hereby declare that the equipment named has been designed to comply with the relevant sections of the above referenced specifications, and complies with all applicable Essential Requirements of the Directives.			
Signed:		On:	08 April 2016
Name:	Keith Dhese		
Position:	General Manager		
			
		EDC - NF Series -2016-04-08	

### **4.1.2 For Customers in the USA**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the company could void the user's authority to operate the equipment.

## Chapter 5 Thorlabs Worldwide Contacts

For technical support or sales inquiries, please visit us at [www.thorlabs.com/contact](http://www.thorlabs.com/contact) for our most up-to-date contact information.



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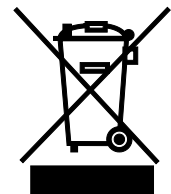
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### China

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Thorlabs verifies our compliance with the WEEE (Waste Electrical and Electronic Equipment) directive of the European Community and the corresponding national laws. Accordingly, all end users in the EC may return “end of life” Annex I category electrical and electronic equipment sold after August 13, 2005 to Thorlabs, without incurring disposal charges. Eligible units are marked with the crossed out “wheelie bin” logo (see right), were sold to and are currently owned by a company or institute within the EC, and are not disassembled or contaminated. Contact Thorlabs for more information. Waste treatment is your own responsibility. “End of life” units must be returned to Thorlabs or handed to a company specializing in waste recovery. Do not dispose of the unit in a litter bin or at a public waste disposal site.



**Annex I**





**THORLABS**

[www.thorlabs.com](http://www.thorlabs.com)

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