

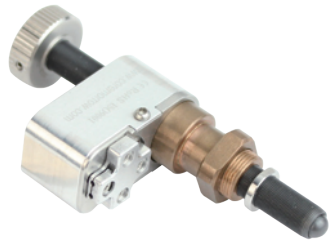
N81 Piezo Motor Driven Linear Actuator

User Manual

Version: V1.0



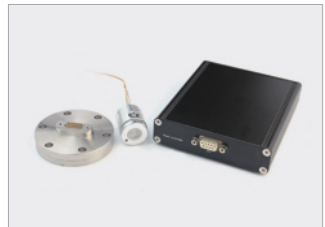
Standard Version



Vacuum Version

This document describes the following products:

- N81.8K standard/vacuum version
 - N81.13K standard/vacuum version
 - N81.26K standard/vacuum version
 - N81A.8K standard/vacuum version
- (Please consult sales engineers for parameters and detailed information)



DECLARATION

Thank you for choosing CoreMorrow's products!

This user manual is applicable to N81 piezo motor driven linear actuator. For your smooth and correct use of this product, please read this manual carefully before use. Please follow the instructions in the manual installation and use procedures. Improper operation may cause injury to the operator or damage to the product. Therefore, the entire installation and operation process should be completed by a professional with a certain foundation and understanding of the product principle, or under the guidance of a professional.

If the product is disassembled or modified without permission, our company will not be responsible for any consequences arising therefrom.

It is illegal to change the product model and other false sales of our products. Users are advised to be vigilant. Once you find out or be deceived, contact us directly, we will crack down on illegal activities and prevent deception and economic losses. CoreMorrow will certainly investigate legal responsibility of the illegal subject and related parties.

With the continuous development and innovation of technology, we will add the latest information to the manual as needed without notice. Please contact us if you need any information.

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1. Introduction

1.1 Purpose and content

- ▶ The manual is mainly for your smooth and correct use of piezo products.
- ▶ The manual contains all necessary information for N81 piezo motor driven linear actuator.
- ▶ The manual describes the precautions during installation and use.

1.2 Symbol and meaning



DANGER: Improper handling may could cause injury to the operator.



Attention: Improper handling can cause damage to the equipment.

- ▶ No order between items.
 1. Please operating in order.
 - 2.

1.3 Expected reader

The manual default user has knowledge of N81 piezo motor driven linear actuator and controllers, and has a basis for its installation and use.

1.4 Manual lost replacement

If the manual is accidentally lost, please contact our customer service department, we will send you the latest version of user manual.

2. Safety Guide

N81 piezo motor driven linear actuator is designed with advanced technology and safety standards, for safety and proper use of the product, please pay attention to following points when using:



Temperature changed and pressure will charge the piezo product. It will remain charged for a period of time disconnected from the controller, so the operator should pay attention when using it:

- ▶ Do not disassemble N81 piezo motor driven linear actuator;
- ▶ Discharge N81 piezo motor driven linear actuator before installation, it could be achieved by connecting to the controller;
- ▶ Do not pull out the controller during operation;
- ▶ Before using, please check whether the connecting wire of the product is in good condition, whether the product and the controller are effectively protected from grounding, in case of danger, please strictly regulate the operation during operation, do not touch it after power on.



In order to prevent damage to the product caused by improper operation, please pay attention to following points when using:

- ▶ N81 piezo motor driven linear actuator is used as much as possible in dust-free, oil-free, lubricant-free environments;
- ▶ Since the product adopts flexible structure design, it is recommended that the load not exceed the bearing capacity of the product. Pay attention to the torque when loading. Do not twist or twist the load surface to avoid damage to the structure;
- ▶ Do not disassemble the product to avoid product damage;
- ▶ Avoid stretching and bending the cable interface to prevent damage to the cable;
- ▶ Please use the dedicated cable provided by us to connect N81 piezo motor driven linear actuator and piezo controller;
- ▶ Please do not use cable extension wire, if need longer cable, please contact us.

3. Product Overview

The N81 piezo motor driven linear actuator has the resolution of more than 20nm in full stroke(the N81A more than 30nm), rated load of 25N(the N81A load of 10N), compact design, excellent long-term stability, and can continue to remain at the set position in the event of a power failure. It has a lifetime of more than 1 billion steps.

It can be used for touch-free adjustment of hard-to-reach optical adjustment frames, and adjustment of optical frames that are sensitive to force when turning the knob(such as laser cavity adjustment or longdistance beam pointing adjustment). With E53.C4K-H(4 output channels) or E53.C1K-K(1 output channel) piezo controller, it can be operated by PC software, which is more convenient..

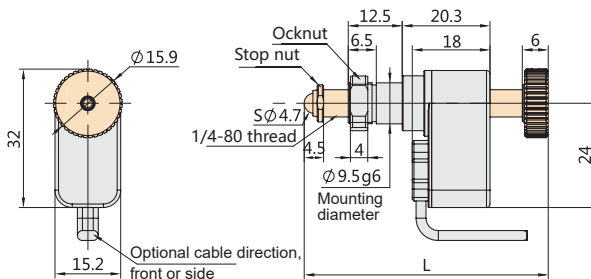
3.1 Product features

- ▶ Optional 8, 13 or 26mm travel
- ▶ Sticky slip principle driven
- ▶ Self-locking at rest, requires no current
- ▶ Customizable closed-loop version
- ▶ Optional vacuum version

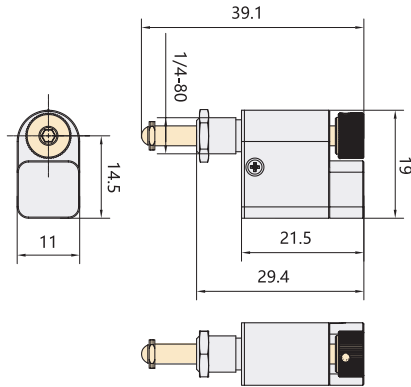
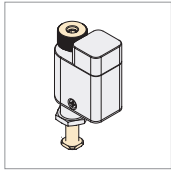
3.2 Drawing

N81.8/13/26K

Type	N81.8K	N81.13K	N81.26K
L	51.8mm	56.5mm	69.5mm



N81A.8K-B

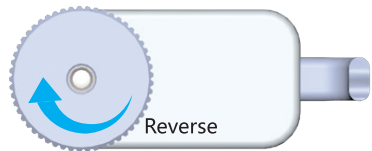


3.3 Motion direction

Explanation: The motion direction of piezo motor driven linear actuator in this section is combined with the operation interface of the upper computer software. The forward/reverse buttons are the operation interface buttons of the upper computer software. For specific information and the actual direction of actuator, please refer to the following instructions:

Forward: The counterclockwise movement of the actuator in the top-down direction;

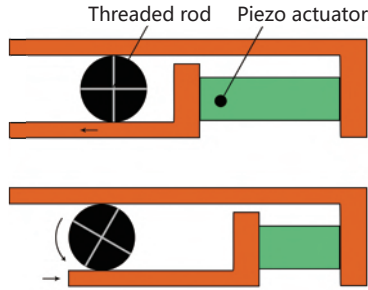
Reverse: The clockwise movement of the actuator in the top-down direction.



The motion direction of the N81 piezo motor driven linear actuator

Note: The motion direction of the N81A is consistent with the above.

3.4 Structural principles



Piezo screw rotation driving principle

3.5 Technical data

Type	N81.8K	N81.13K	N81.26K	N81A.8K-B	Units
Travel	8	13	26	8	mm
Resolution	<20	<20	<20	<30	nm±20%
Load capacity	25	25	25	10	N
Speed	3	3	3	1	mm/min±20%
Position hold deviation at power up or down	<20	<20	<20	-	nm
Operating temperature	10~40	10~40	10~40	10~40	°C
Mass with cable	80	82	85	22 (not include cable)	g±5%
Material	Steel, Al	Steel, Al	Steel, Al	Copper alloy, Al	
Cable length	2	2	2	1.5	m±10mm
Recommended controller	E53.C4K-H/E53.C1K-K				
PZT connector	RJ11	RJ11	RJ11	RJ11	

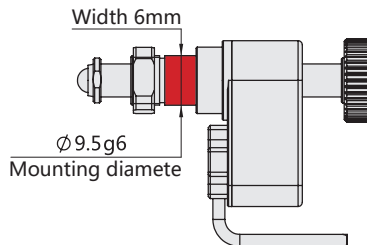
4. Operating Environment

- ▷ Operating temperature: 0~40°C
- ▷ Environment free of dust, clean, and non-corrosive substances

5. Installation and Operation

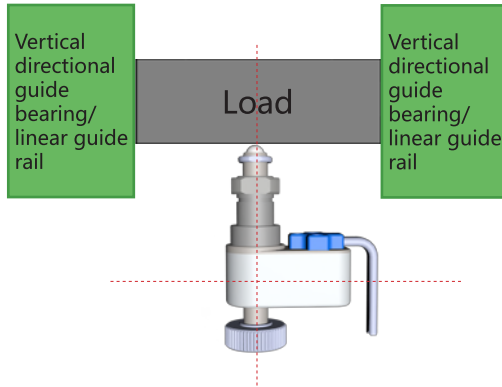
5.1 Installation and announcement

The N81 piezo motor driven linear actuator adopts a locking thread fixation method, which means that the base passes through the N81 threaded sleeve, and tighten the locking nut to achieve the fixation of the piezo motor driven linear actuator:



5.2 Load

The output of N81 is achieved through the head. To achieve uniform loading force, please ensure that the load center position is in contact with the head as much as possible to avoid uneven loading force affecting measurement;



Note:

- ▶ Maintain the vertical use of the N81 piezo motor driven linear actuator to avoid radial forces affecting accuracy and the service life of the N81.
- ▶ Avoid stretching and bending cables.
- ▶ Please connect the N81 piezo motor driven linear actuator and controller with special cable provided by CoreMorrow.
- ▶ Please do not extend the cable without authorization, please contact us if you need a longer cable.

5.3 Operating

Please confirm the following information before starting the power supply:

- ▶ The environment meets requirements of piezo products operating environment.
- ▶ The N81 piezo motor driven linear actuator must be tightened.

The above information is determined to perform controller related operations:

1. Please carefully read piezo controller user manual before operating, then start the controller;
2. Set the piezo controller to zero;
3. It could work normally within the rated voltage range of the N81 piezo motor driven linear actuator.
4. Please set the piezo controller to zero after used.
5. If abnormal noise or oscillation occurs during use, immediately turn off the power and check parameter settings.

6. Transportation and Inspection

6.1 Transportation

Product is packed in carton. The transportation is carried out under the condition of packaging. This product can be transported by various means of transportation under normal conditions. During transportation, it should avoid direct rain and snow, avoid contact with corrosive substances, and avoid strong collision, try to avoid improper behavior such as squeezing, irregular placement.

6.2 Unpacking inspection

Please check below information:

- ▶ Before opening the package, please carefully check the packaging for damage, bruising, wetting, moisture, deformation, etc.
- ▶ Please check the parts on a case-by-case basis based on the supply contract and the packing list.
- ▶ Whether there is obvious damage on the surface of the product.
- ▶ Whether the product identification is clear and complete.
- ▶ Whether the connector is loose, the connection line is broken or not, etc.

If any of the above occurs, please make a detailed record and take a photo, and please contact us immediately.

Precautions:

- ▶ Please handle gently when unpacking to avoid permanent damage to the products caused by bumps.
- ▶ Please do not use heavy tools or use rough methods to open them.
- ▶ Please do not discard all packaging materials for return shipments.

7. Maintenance and processing

7.1 Problem Processing

- ▶ If the user has problems that could not be solved. Please record the fault situation and contact with us. The professional technical engineer would help solve the problem.
- ▶ Problems caused by improper operation are not covered by the warranty;
- ▶ CoreMorrow is not responsible for any problems caused by dismantling the N81 piezo motor driven linear actuator without permission.

7.2 Daily maintenance

- ▶ If the product is not used for a long time, please store it in a room environment with no dust, good ventilation, clean and non-corrosive substances.
- ▶ Please do not loosen the screws on the stage structure, avoiding to affect the accuracy.

Daily cleaning:

- ▶ Please disconnect the N81 piezo motor driven linear actuator to controller, then clean the surface of it.
- ▶ When cleaning, first wipe a small amount of detergent with a towel and gently wipe the surface of the N81 piezo motor driven linear actuator, then wash it with alcohol. Please do not use ultrasonic waves for cleaning.

8. Customer Service

If you have questions about the products you are currently using, please let us know the following information:

- ▶ Product model number and related number.
- ▶ Controller model for this product.
- ▶ Software driver version for this product.
- ▶ Computer operating system for installing supporting software.

9.Contact us

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CoreMorrow Official and CTO WeChat are below:

