



# XD002.X200S Micro Piezo Clamp

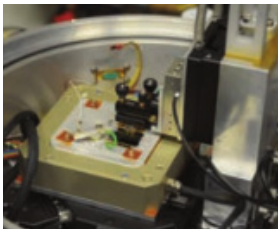
## User Manual

Version: V1.0



This document describes the following products:

- XD002.X200S



# DECLARATION

Thank you for choosing CoreMorrow's products!

This user manual is applicable to XD002.X200S piezo clamp. 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 clamp.
- ▶ The manual contains all necessary information for XD002.X200S piezo clamp.
- ▶ 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.

### 1.3 Expected reader

The manual default user has knowledge of piezo products 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

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



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

- ▶ Do not disassemble XD002.X200S;
- ▶ Discharge XD002.X200S 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 (up to 150V voltage) after power on.



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

- ▶ XD002.X200S is used as much as possible in dust-free, oil-free, lubricant-free environments;
- ▶ 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;
- ▶ Recommended voltage 0~120V for long-term operation to extend lifetime;
- ▶ 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 piezo clamp and piezo controller;
- ▶ Please do not use cable extension wire, if need longer cable, please contact us.

## 3. Product Overview

### 3.1 Product Introduction

XD002.X200S has the following advantages:

- ▶ High performance piezo stack:

XD002.X200S is driven by high-performance piezo stack. It is fully insulated, so its performance and service life are far superior to those of conventional actuator. The insulating layer could effectively prevent the piezo stack from being damaged by moisture. The stability of piezo stack could be ensured under extreme conditions. The piezo clamp has the characteristics of no rebound, no wear.

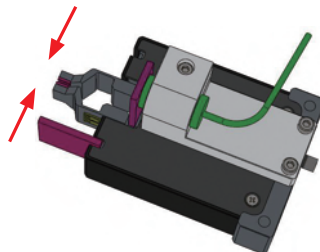
- ▶ Flexible hinge structure:

XD002.X200S adopts flexible hinge mechanism, which has the advantages of no friction and high positioning accuracy. The flexible hinge is a component that is not affected by static and dynamic friction. It is based on the elastic deformation of solid (such as steel) and has no rolling and sliding parts. With high stiffness and load carrying capacity, the hinge guides are maintenance-free and wear-free. Suitable for a wide range of temperatures without the need for lubricants.

### 3.2 Product Features

- ▶ X axis motion
- ▶ Displacement to  $\pm 100\mu\text{m}$
- ▶ Sub-millisecond response time

### 3.3 Motion Direction



## 4. Operating environment

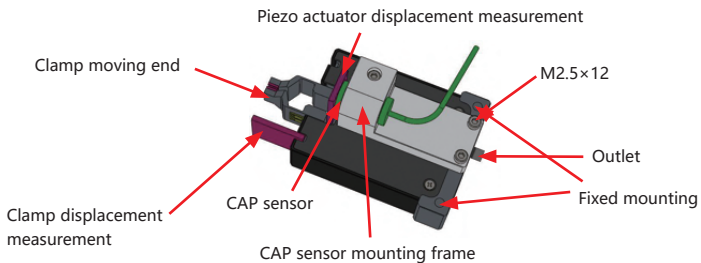
- ▶ Operating temperature: -20~80°C
- ▶ Environment free of dust, clean, and non-corrosive substances
- ▶ Relative humidity: <60%
- ▶ Recommended voltage between 0 and 120V for long-term and high-reliability operation.

## 5. Installation and Operation

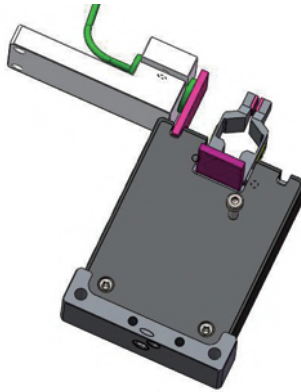
Before installation, first check the safety, such as whether the cable is damaged or broken, and whether the power supply has grounding protection.

### 5.1 Installation and announcement

1. Ensure that the installation plane is flat
2. Secure the platform with M3 screws. Please note that both mounting holes need to be secured with screws.
3. When measuring piezo actuator displacement with capacitance sensor, XD002 installation diagram is shown as follows:



XD002 installation diagram( Piezo actuator Displacement measurement)



XD002 installation diagram( Clamp displacement measurement)

5. When the sensor measurement signal is not stable, please check the piezo actuator displacement measurement and clamp displacement measurement adhesion is stable.

## 5.2 Load

Install the load, and the size of the sample between clamp is 300 and 500 $\mu$ m.

Excessively long screws used in fastening and connecting process will lead to installation failure or partial leakage of bolts, which will scratch the product and affect the movement accuracy of the product. Excessively short bolts will lead to insufficient compact connection and easy loosening, which will damage the internal structure of the product during operation.

### Note:

- ▶ Slowly tighten the load when installing it, and the torque should not be too large to avoid damage to mechanism.
- ▶ Avoid stretching and bending cables.
- ▶ Please connect XD002.X200S 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:

- ▶ XD002.X200S has been grounded.
- ▶ The environment meets requirements of piezo products operating environment.
- ▶ The fixing screws 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. After checking for no abnormalities, input voltage values according to requirements (keyboard or analog control).
4. It could work normally within the rated voltage range of piezo clamp(0~120V, maximum not more than 150V).
5. Please set the piezo controller to zero after used.

Please do not touch the product during the operation, avoid affecting the actuator performance or even damage the actuator.

The resolution of piezo actuator is not limited. It depends on the performance of piezo controller. In order to better achieve the motion accuracy, it is recommended to use CoreMorrow piezo controller. For the operation of piezo controller, please refer to piezo controller usual manual.

### **Note:**

- ▶ Do not remove the grounding protection during operation. If you need to remove it temporarily, reconnect the grounding protection before starting the system again.
- ▶ The driving voltage should not exceed the maximum voltage allowed by XD002 (150V).
- ▶ If abnormal noise or oscillation occurs during use, power off immediately to 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 Treatment

### 7.1 Problem Processing

FAQ are shown in the table below.

Problem description	Possible reason	Solution
No displacement or less displacement	The connection wire is not connected properly or poor contact	Check the connection wire
	Excessive load	Load according to the product' s load capacity
	Sensor zero drift	Check the sensor
Low accuracy	Mountingsurface unevenness	Mount the platform on a flat surface
	Loose connection	Fasten connection
	Wrong connection	Check if the wiring is correct
Vibration or inaccurate positioning at startup	Incorrect input control parameters	Stop immediately and check the parameter Settings
	Resonance occurs	Make drive frequency less than resonance frequency

▶ If the user cannot solve the problem by himself in the process of using, please record the problem in detail and contact CoreMorrow, and professional technical personnel will help to solve.

▶ Problems caused by improper operation are not covered by the warranty.

▶ CoreMorrow is not responsible for any problems caused by dismantling products without permission.

## 7.2 Daily maintenance

If the product is not used for a long time, please store it in a dust-free, well-ventilated, clean and non-corrosive indoor environment after packaging.

In the daily maintenance, please do not loosen the bolts on the product structure, so as not to affect the movement accuracy of the product.

### **Daily cleaning:**

Please disconnect the product from the controller before cleaning the surface of the product.

When cleaning, gently wipe the surface of the product with a towel dipped in a small amount of detergent, and then clean it with alcohol. Please do not use ultrasonic cleaner.

When cleaning the surface, try not to pick up the product. If you have to pick up the product, it is better to put the sponge under the product for protection. The product should not be too high from the sponge, in case the product falls off.

## 7.3 Disposal

Waste products should be disposed according to national and local rules and regulations. In order to fulfill our responsibility as a product manufacturer, we will dispose all old equipments on the market in an environmentally friendly manner. If you have equipment that cannot be disposed, you can ship it to CoreMorrow.

Address: 1F, Building I2, No.191 Xuefu Road, Nangang District, Harbin, Heilongjiang

Tel: +86-451-86268790

## 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

**CoreMorrow Ltd.**

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**CoreMorrow Official and CTO WeChat are below:**

