COREMORROW E80.D3S-K Series Piezo Controller User Manual

COREMORROW
Piezo Nano Motion

E80.D3S-K Series Piezo Controller
User Manual
Version: V1.0

This document describes the following products:
■ E80.D3S-K Servo controller SGS sensor 3 channels

Contents

E80.D3S-K Series Piezo Controller

DECLARATION
Declaration!
This user manual is a integrated user manual of the E80.D3S-K series piezoelectric controller.
Please read this user manual carefully before using this controller. Follow the instructions in the manual during use. If there is any problem, please contact us for technical support. If you do not follow this manual or disassemble and modify the product yourself, the company will not be liable for any consequences arising therefrom.
Please read the following to avoid personal injury and to prevent damage to this product or any other product connected to it. In order to avoid possible hazards, this product can only be used within the specified range.
Notice!
Do not touch any exposed ends of the product and its accessories.
There is high voltage inside. Do not open the case without permission.
Do not connect or disconnect input, output, or sensor cables with power on.
Please keep surface of E80.D3S-K clean and dry, don't operate in humid or static environment.
After use, output voltage should be cleared to zero before turning off the controller switch, such as switching the servo state to the open-loop state.
Danger!
The piezoelectric power amplifier described in this manual is a high-voltage device capable of outputting high currents, which can cause serious or even fatal damage if not used properly. It is strongly recommended that you do not touch any parts that connect to the high voltage output. Special **Note:** If you connect it with other products in addition to our company, please follow the general accident prevention procedures.
Operating the high-voltage amplification requires training professional operators.
Warning!
If the voltage exceeds the PZT's tolerable range, it will cause permanent damage to the PZT.
Before adding voltage to the PZT poles, it must be ensured that the positive and negative poles of the PZT are connected correctly and the operating voltage is within the allowable range of this PZT.
Cautious!
E80.D3S-K housing should be installed on a horizontal surface in an area with a 3CM air flow area to prevent internal convection in the vertical direction.
Insufficient airflow can cause equipment to overheat or premature instrument damage.

Security

1.1 Introduction

- Please keep surface of E80.D3S-K clean and dry.
- Do not operate in the humid or static environment.

- E80.D3S-K is used to drive capacitive loads (such as piezo actuators).
- E80.D3S-K should not be used in user manuals of other products of the same name.
- Pay special attention E80.D3S-K cannot be used to drive resistive or inductive loads.
- E80.D3S-K could be used for static and dynamic operating applications.
- E80.D3S-K piezo controller with SGS sensors can operate in a closed loop mode.

1.2 Safety Instructions

E80.D3S-K is based on the national safety standard. Improper use may cause personal injury or damage to the piezo controller. The operator is responsible for the correct installation and operation of the piezo controller.

- Please read the user manual in detail.
- Please eliminate any faults and potential safety hazards caused by the faults.

If the protective ground wire is not connected or connected incorrectly, there will be a possibility of leakage. If you touch the E80.D3S-K piezo controller, it may cause serious or even fatal injuries.
If the piezo controller housing is opened without permission, touching the live parts may cause electric shock, resulting in serious or even fatal injury or damage to the piezo controller.

- Only authorized professional technicians with corresponding qualifications could open the piezo controller
- When opening E80.D3S-K series controller, please disconnect the power plug.
- Please do not touch any internal parts when operating under bare conditions.

1.3 Notes

- The contents in the user manual are all standard descriptions, and the customized parameters are not explained in detail in this manual.
- The latest user manual is available for download on CoreMorrow website.
- When operating the E80.D3S-K, the user manual should be placed near the system for easy reference in time. If the user manual is missing or damaged, please contact
  CoreMorrow customer service department.
- Please timely add all the information given in the manufacturer's user manual, such as supplements or technical descriptions.
- If your user manual is incomplete, it will miss a lot of important information, cause serious or fatal injuries, and cause property damage. Please read and understand the content in the user manual before installing and operating the E80.D3S-K.
- Only professionals who are authorized to meet the technical requirements could install, operate, maintain and clean the E80.D3S-K.

Features and Applications

E80.D3S-K piezo controller of 3 channels,real-time communication with upper computer is realized through RS-422 interface, and secondary development of upper computer software is supported.The upper computer communication software can set the parameters such as voltage and displacement.It can be used in the fields of tilt, pitch,swing/differential drive and other high reliable systems.

2.1 Series

Model	Description
E80.D3S-K	Piezo controller, 3channels, SGS sensor, Software control

2.2 Appearance
2.2.1 Front Panel

Symbol	Function	Description
Power interface	J30J-9ZKSP	Input power connector
Mirror interface	J30J-15ZKSP	Output voltage drives PZT.Sensor input signal.
Communication interface	J30J-9ZJSP	The computer is connected with the controller interface through RS-422 to control. Sensor output signal monitoring . The output range is 0 to 10V.

Checking

E80.D3S-K controller has been carefully checked for electrical and mechanical aspects before shipment. When you receive the device, unpack and inspect the surface of the system for any obvious signs of damage. If it is damaged, it may be damaged during transportation, please contact our customer service department in time. Check whether the accessories are complete according to the packing list. Please keep the original packaging materials for subsequent maintenance and using.

Installment

4.1 Installation Precautions
Note! Improper installation of the E80.D3S-K series piezo controller may cause personal injury or damage the E80.D3S-K series piezo controller!

- Installation and using of E80.D3S-K should be close to the power source, so that the power plug can be easily and quickly disconnected from the main power source.
- Use included power cord to connect E80.D3S-K series piezo controller system.

- If power cord provided by our company must be replaced, please use power cord with large enough size and effective grounding.

4.2 Ensure ventilation
Note! Overheating of equipment due to high temperature may damage the E80.D3S-K controller!

- Ensure that the cooling area of the controller is sufficiently cooled.
- Ensure that there is adequate ventilation equipment.
- Keep ambient temperature to non-critical level(<50℃).
- Temperature of cooling surface of controller >50℃ , it is recommended to take external heat dissipation measures to improve the stability of the controller.

4.3 Connect power
Use power adapter (output range 28V/3A) to connect to power supply interface of E80.
D3S-K power supply.
4.4 Cable connection

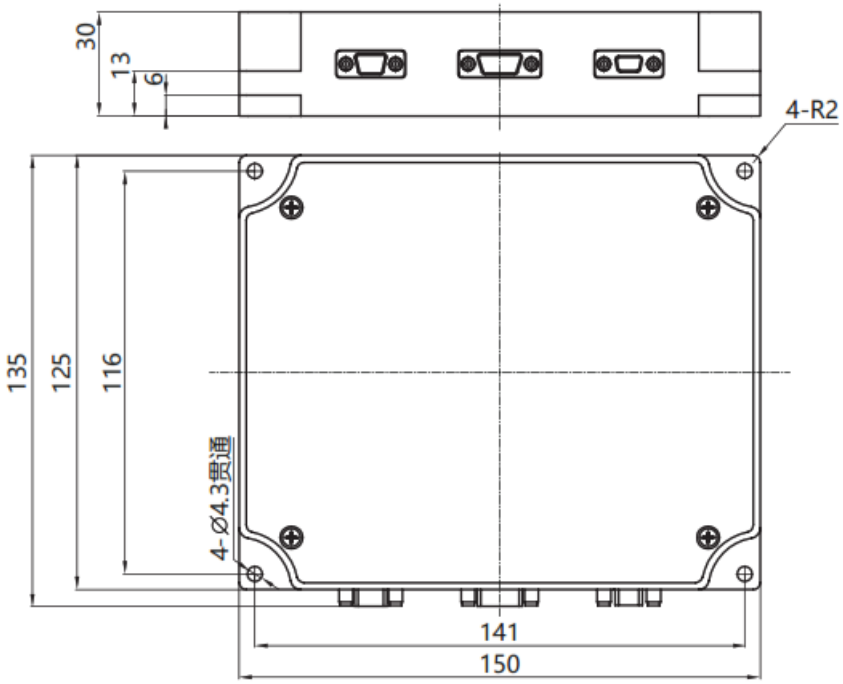
- When the power supply is disconnected, connect PZT&Sensor cable to E80.D3S-K controller interface. Note that the number on the piezo actuator corresponds to the
  number of the controller.
- Connect to the computer control mode of PC, connect to PC through the cable connection USB interface or RS-232/422 interface socket.

Parameter

5.1 Environmental Conditions
The using environment of E80.D3S-K series controller:

Environmental conditions	Condition description
Application	For room use only
Environment humidity	Highest relative humidity 80%, temperature can reach 30℃ Highest relative humidity 50%, temperature can reach 40℃
Operating temperature	-40 ℃ ~+65 ℃
Storage temperature	–50 ℃ ~ +70 ℃

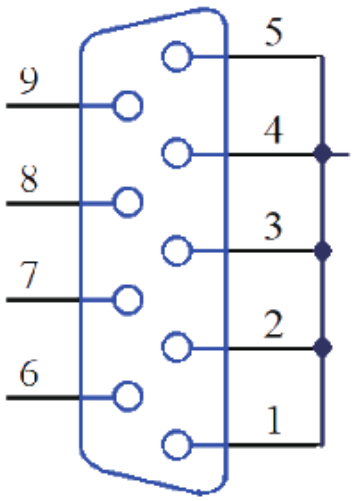
5.2 Drawings
The using environment of E80.D3S-K series controller:



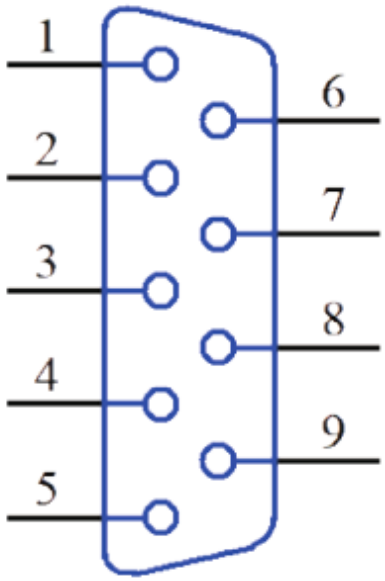
5.3 Pin Definition

5.5.1 Power Interface

Pin No.	Pin definition
1	Power supply +
2	Power supply +
3	Power supply +
4	Power supply +
5	NULL
6	Power supply –
7	Power supply –
8	Power supply –
9	Power supply –

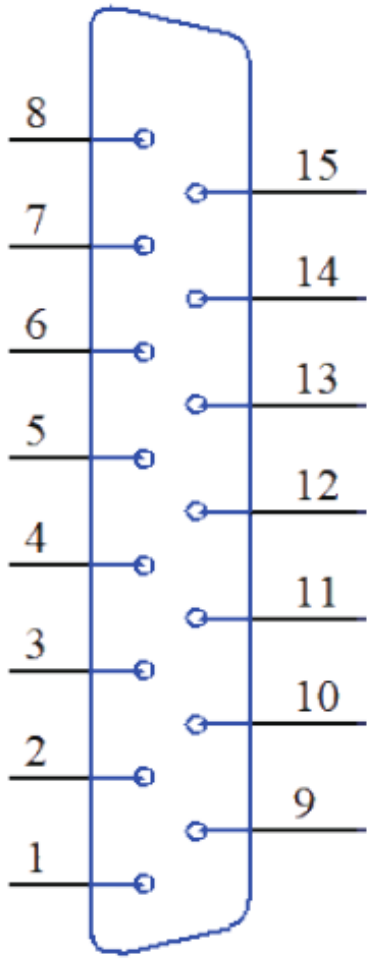


5.5.2 Mirror interface

Pin No.	Pin definition	
1	Sensor monitor 2 + (S2+)	
2	Sensor monitor 1 +(S1+)	
3	Receive data + (422-R+)	
4	Send data – (422-T-)	
5	Signal ground (GND)	
6	Sensor monitor 2 – (S2-)	
7	Sensor monitor 1 -(S1-)	
8	Receive data – (422-R-)	
9	Send data + (422-T+)	

5.5.3 RS-422

Pin No.	Pin definition
1	Sensor 2 reference voltage(VREF2)
2	Sensor 2 signal +(S2+)
3	Sensor 1 reference voltage(VREF1)
4	Sensor 1 signal +(S1+)
5	NULL
6	PZT drive signal ground (PZT1_GND)
7	PZT drive signal ground (PZT2_GND)
8	PZT drive signal ground(PZT3_GND)
9	Sensor 2 signal ground (AGND2)
10	Sensor 2 signal – (S2-)
11	Sensor 1 signal ground (AGND1)
12	Sensor 1 signal – (S1-)
13	PZT drive signal 3
14	PZT drive signal 2
15	PZT drive signal 1



Operating Calculation

● Average output Sine wave operation mode
Pa ≈ Upp • Us • f• Cpiezo
Pa=Average output[W]
Upp=Peak and peak drive voltage [V]
Us=Drive voltage[V] Vs+ - Vs-
Cpiezo=Piezo actuator capacitance[F]
f=Operating frequency of the sine wave[Hz]

Maintenance, Storage, Transportation

7.1 Cleaning measures

Note! The PCB board of the function module in the E80.D3S-K system is an ESD (electrostatic discharge) sensitive device. Take precautions against any static build-up of these devices before use to avoid contact with circuit component leads and PCB wiring. Before touching any electronic components, the body first touches the grounding conductor to discharge static electricity, ensuring that any type of conductive particles (metal, dust or debris, pencil lead, screws) enter the device. Be careful not to drop the equipment when cleaning, to avoid any

form of mechanical shock!

- Disconnect the power plug of the E80.D3S-K system before cleaning.
- Prevent cleaning fluid and any liquid from entering the system module to avoid short circuits.
- The surface of the system chassis and the front panel of the module, please do not use an organic solvent for surface wiping.

7.2 Transportation and Storage

- This product is packed in carton. Transportation must be carried out under product packaging conditions, and direct rain and snow, direct contact with corrosive gases and strong vibrations should be avoided during transportation.
- The instrument can be transported under various conditions of normal transportation, and should avoid damp, load, collision, extrusion, irregular placement and other adverse conditions during transportation.
- If the instrument is not used for a long time, the instrument should be packaged and stored.
- The instrument should be stored in a non-corrosive atmosphere and in a well ventilated, clean room.
- In the process of transportation, storage and use, attention should be paid to fire prevention, shockproof, waterproof and moisture proof.

Service and Maintenance

8.1 Disposal

- When disposing of old equipment, please abide by the national regulations and local regulations.Please dispose of the old equipment properly.Please contact CoreMorrow for the upgrade and replacement of old equipment in order to meet the customer's handling of system products.
- If you have an old device or an unusable device that cannot be handled, you can ship it to the following address:
  Address: 1F, Building I2, No.191 Xuefu Road, Nangang District, Harbin, Heilongjiang

8.2 After-sales Service

- E80.D3S-K does not contain user repairable components.
- E80.D3S-K must be returned to factory for any service and repair.
- Any part of E80.D3S-K is dismantled, there will be no warranty service.
- E80.D3S-K is a precision instrument which should be handled with care.
- In case of any problem, please record the problem and contact CoreMorrow to be repaired by professional technicians.

Contact us

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CoreMorrow Official and CTO WeChat are below:

http://weixin.qq.com/r/PEzawqnEyfS2re2h9xku	https://u.w

Documents / Resources

	COREMORROW E80.D3S-K Series Piezo Controller [pdf] User Manual E80.D3S-K Series Piezo Controller, E80.D3S-K Series, Piezo Controller, Controller

References

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