



# E82.A64K Series Piezo Controller

## User Manual

Version: V1.0



This document describes the following products:

- E82.A64K Open loop controller 64 channels

# DECLARATION

## Declaration!

This user manual is a integrated user manual of the E82.A64K 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 E82.A64K 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!

E82.A64K 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.

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## 1.Security

### 1.1 Features

- ▶ Please keep surface of E82.A64K clean and dry, do't operate in humid or static environment.
- ▶ E82.A64K is used to drive capacitive loads (such as piezoelectric ceramic actuators).
- ▶ E82.A64K cannot be used in the user manuals of other products with the same name.
- ▶ Pay attention to E82.A64K cannot be used to drive inductive loads.
- ▶ E82.A64K can be used for static and dynamic operating applications

### 1.2 Safety instructions

E82.A64K is based on nationally recognized safety standards. Improper use may cause personal injury or damage E82.A64K. Operator is responsible for correct installation and operation of it.

- ▶ Please read the user manual in detail.
- ▶ Please immediately eliminate any malfunctions and safety hazards caused by malfunctions.

If the protective grounding wire is not connected or connected incorrectly, there will be possibility of electric leakage. It can cause serious or even fatal injuries, if touch E82.A64K. If open E82.A64K privately, touching live parts may cause electric shock, resulting in serious or even fatal injury or damage to E82.A64K.

- ▶ Only authorized professional could open the E82.A64K series controller.
- ▶ When opening E82.A64K series controller, please disconnect the power plug.
- ▶ Please do not touch any internal parts when operating in an exposed state.

### 1.3 User Manual Notes

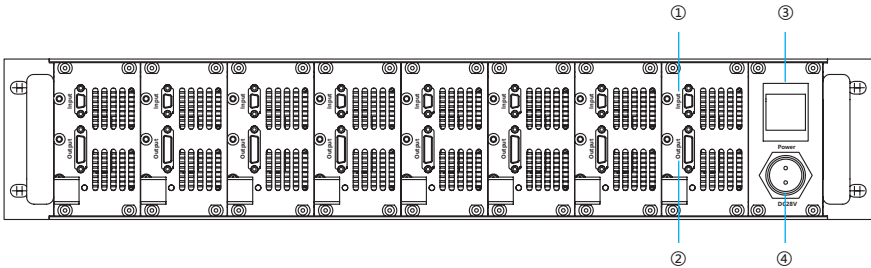
- ▶ The contents described in user manual are standard product descriptions, special product parameters are not described in detail in this manual.
- ▶ When using E82.A64K series piezo controller, the user manual should be placed near the system for easy reference in time. If the user manual is lost or damaged, please contact our customer service department.

- ▶ Please timely add all the information given in the manufacturer's user manual, such as supplements or technical descriptions.
- ▶ If the user manual is incomplete, it will miss a lot of important information, cause serious or fatal injuries, and cause property damage. You have read and understood the contents of the user manual before installing and operating the E82.A64K series piezoelectric controller.
- ▶ Only authorized professionals who meet the technical requirements can install, operate, maintain and clean the E82.A64K series of digital piezoelectric controllers.

## 2. Features and Applications

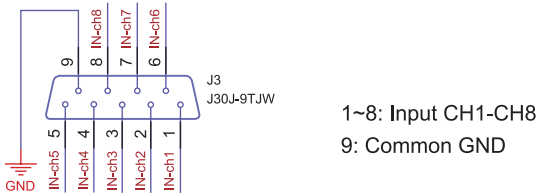
E80.A64K outputs -20~150V voltage, and has 64 channels output. It's a open-loop piezo amplifier, and suitable for driving capacitive loads, like PZTs.

### 2.1 Panel introduction

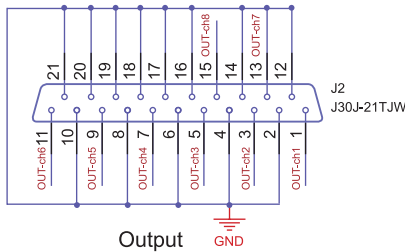


No.	Function	Description
①	Input	Analog input interface J30J-9TJW
②	Output	Output voltage interface J30J-21TJW
③	Swith	Control the power on and off of the piezo controller
④	Power DC28V	DC28V-15A interface WS20J2

## 2.2 Input & Output Interface Definition



Input



Output

## 3. Checking

E82.A64K piezo 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.

## 4. Installment

### 4.1 Installation Precautions

**Note!** Improper installation of the E82.A64K series piezoelectric controller may cause personal injury or damage it!

- ▶ Installation and using of E82.A64K 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 cable to connect E82.A64K series piezoelectric controller system.
- ▶ If power cable 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 E82.A64K!

- ▶ 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°C).
- ▶ Temperature of cooling surface of controller>50°C, 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 +20V~+30V/15A) to connect to power supply interface of the E82.A64K power supply.

## 4.4 Cable connection

- ▶ When the power supply is disconnected, connect the cables to E82.A64K interface. Note that the number on the piezoelectric actuator corresponds to the number of the controller.
- ▶ Analog control mode, when the signal source (signal generator, analog signal source, DA control card) output is 0, connect the cable to the J30J-9TJW interface of E82.A64K.

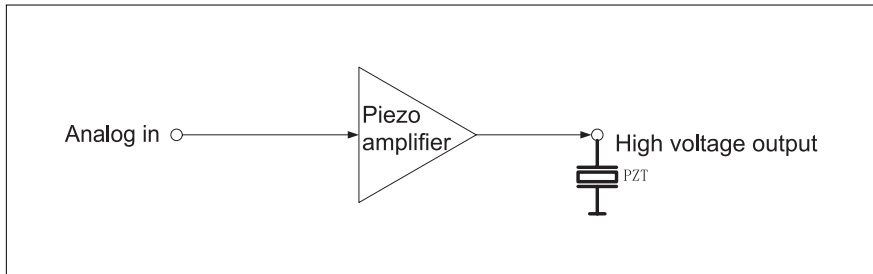
## 5. Parameters

### 5.1 Environmental conditions

The using environment of E82.A64Kseries controller:

Environmental conditions	Condition description
Application	For room use only
Environment humidity	Highest relative humidity 80%, temperature can reach 30°C Highest relative humidity 50%, temperature can reach 40°C
Operating temperature	0 °C — +50 °C
Storage temperature	-10 °C — +85 °C

### 5.2 Driving Principle





## 6. Power Calculation

- Average output (Sine wave operation mode)

$$P_a \approx U_{pp} \cdot U_s \cdot f \cdot C_{piezo}$$

$P_a$  = Average output [W]

$C_{piezo}$  = Piezo actuator capacitance [F]

$U_{pp}$  = Peak and peak drive voltage [V]

$f$  = Operating frequency of the sine wave [Hz]

$U_s$  = Drive voltage [V] (  $(V_{s+}) - (V_{s-})$  )

## 7. Maintenance, storage, transportation

### 7.1 Cleaning measures

Note! The PCB board of the function module in the E82.A64K 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 E82.A64K 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.

## 8. 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

- ▶ Any part of E82.A64K is dismantled, there will be no warranty service.
- ▶ E82.A64K 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.

## 9.Contact us

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

