E200PS Installation Manual

(Version: V1.00)

ESTUN AUTOMATION CO., LTD

Total Solution Supplier

Contents

Preface

Synopsis

This document guides the operator how to install, configure and maintenance the E200PS shear numerical control device.

- **Chapter 1** describes the specification of the product.
- **Chapter 2** guides the user how to install and wire, and describes the ports.
- **Chapter 3** describes the operation of the **Parameters setting** page.
- **Chapter 4** describes the operation of the **Diagnose** page.
- **Chapter 5** guides the user how to commissioning the device.
- **Chapter 6** guides the user how to maintenance.

Intended Audience

This document is intended for the **authorized and properly trained persons**:

- Device manufacturer: In the device production process, the people who diagnose the device have the highest managing privileges.
- System integrators: usually refers to the technical personnel of machine tool manufacturers, who can configure the machine parameters to commissioning the system.

Attention

- Copy right is preserved by ESTUN. It is not allowed to add or delete part or all of the manual content without ESTUN's consent. Do not use part or all of manual content for the third party's design.
- E200PS device provides complete software control and has no mechanical protection device for operator or the tool machine. Therefore, in case of malfunction, machine tool must provide protection device for operator and external part of the machine tool. ESTUN is not responsible for any direct or indirect losses caused by normal or abnormal operation of the device.
- ESTUN preserves the right to modifying this manual in the event of function adding or print error.
- E200PS device has the safety-door protection function, but only works on the **CUT** stage, it is unavailable on others stage.

Caution Sign

The following symbols with an adjoining safety advice or notice are used in this document. You have to read the safety advices carefully and adhere them strictly!

WARNING
Risk of injury! If you **do not** adhere the safety advise adjoining this symbol, there is danger to life and health of individuals!

CAUTION
Hazard to individuals! If you **do not** adhere the safety advice adjoining this symbol, there is obvious hazard to individuals!

NOTE
Note or pointer. This symbol indicates information that contributes to better understanding.

Chapter 1 Specification

1.1 Display

LCD

Dimension of display window: 54.38mm*54.38mm

Dot matrix: 320*240

Status light

Green light indicates the system is running.

Red light indicates the system is stop.

1.2 Memory

Capable of storing 40 programs, each program includes 25 steps at most.

1.3 Electrical Specification

Power Supply

Parameter	Min.	Standard	Max.	Unit
Voltage	20	24	28.8	V
Voltage fluctuation			3.6	Vss
Input current	0.8	1	1.5	A
Watt	16	24	43	W
Starting current			1.5	A

INPUT

Power	24VDC±10%
Input current	20mA
Signal characteristic	• High level: VH≤30V • Low level: VL≤1.2V
Effective level	High level

OUTPUT

Output type	Open collector
Output voltage	≤30VDC
Output current	≤100mA
Signal characteristic	• High level: VH≤30V • Low level: VL≤1.0V
Effective level	Low level

Encoder

Support type	complementary type / Voltage type
Supply power	12VDC
Supply current	200mA
Frequency response	500KHz
Input phase	A、B、C
Output phase	A、B、C
Output voltage	• High level: VH≥80%VCC • Low level: VL≤0.3V

Communication

Interface	CAN	RS485	RS232
Signal speed	1Mbps	115.2Kbps	115.2Kbps
Terminal resistance	External increase		-
BUS-ESD	16KV HBM	16KV HBM	15KV HBM
Mode	Half duplex		-

Transportation and Storage

Parameter	Description
Temperature	-20~55℃
Relative humidity	5~95% No condensation
Free fall[1)]	≤0.5m

1: With transport packaging

Chapter 2 Installation and Wiring

2.1 Announcements before installation

Before installation and wiring, please pay attention to the following matters:

- Power supply must be off during installation and wiring.
- Serious damage to the equipment may be caused by misconnection of power supply terminals, improper connection of in-out lines and output line short circuit. Therefore, before turning on the power supply, check the connection of input output grounding and power supply wire. .
- Grounding terminal of E200PS digital control device must be grounded in correct way, with low impedance lower than 0.3Ω.https://www.machinemfg.com/
- Do not dismantle the device without authorization so as to avoid malfunction.
- Electrical components inside the digital device are very sensitive to static electricity, therefore do not put foreign matters or make them fall to the inside of digital control device or touch the control circuit.
- Please install E200PS digital control device in safe region. Avoid high temperature, and direct sunlight, moisture and splash of oil drops or water.
- Do not use this device in place of high temperature, moisture condensation, dust, oil smoke, conductive dust, corrosive gas or flammable gas.

2.2 Installation space and direction

Generally, E200PS shear machine digital control device is embedded on control panel, keep a distance of 65mm from its neighboring components and damper (shell) on up and down, right and left, to facilitate operator install and maintain the device.

2.3 Installation environment

- Place free from water, vapor, dust or oily dust.
- Place free from flammable, explosive or corrosive gas.
- Place free from interference of strong electromagnetism or noise.
- Ambient temperature is between 0℃~40℃. When ambient temperature is over 40℃, please put it in well-ventilated place.
- Relative humidity is under 90% RH.

2.4 Dimension

The installation method is panel mounting. Installation dimension and drawings are shown in Figure 2-1.

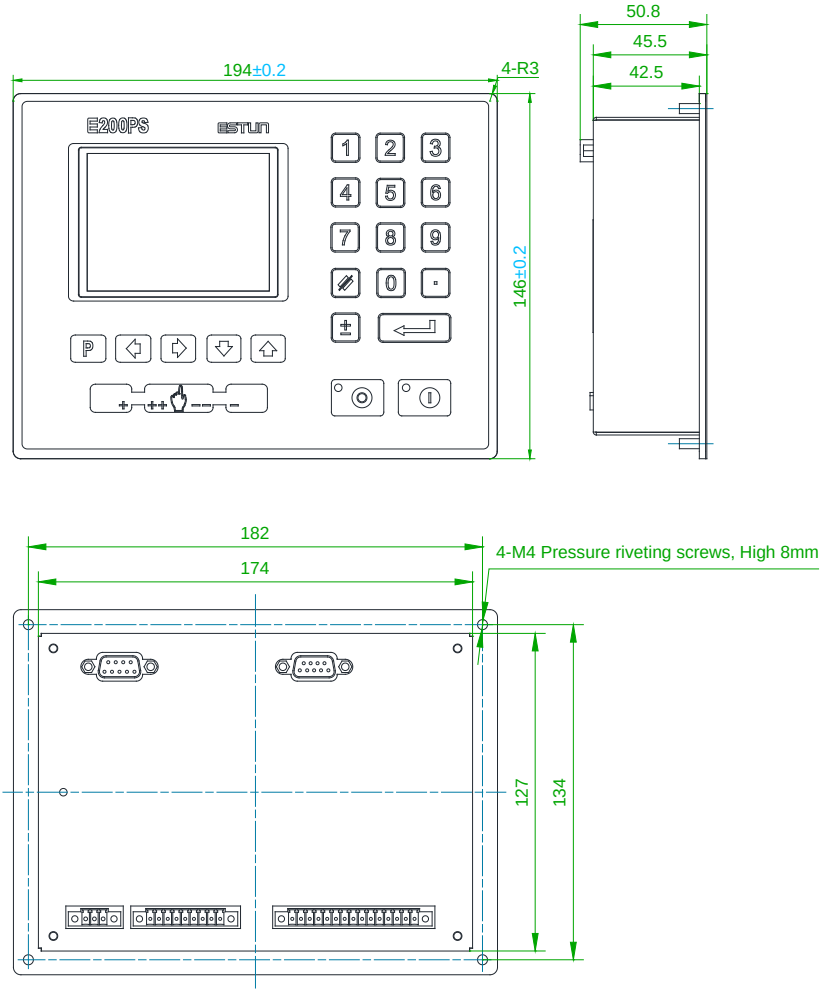


Figure 2-1 Panel Installation Dimension

2.5 Installation layout and Interface

2.5.1 Layout of rear panel

Rear panel block diagram is shown in Figure 2-2, consisting of power port (POWER), input port (INPUT), output port (OUTPUT), encoder port (X, Y), and communication port (COMM).

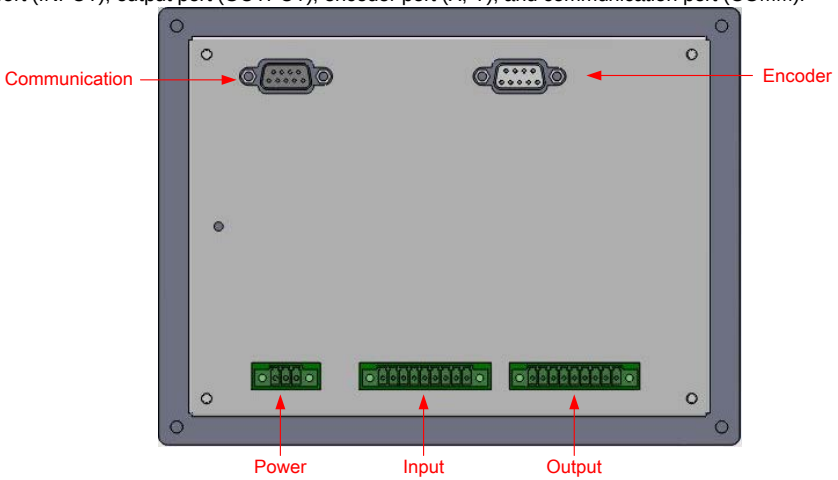


Figure 2-2 Rear panel layout

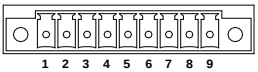
2.5.2 Definition of power interface

Pin	1	2	3
Signal	+24V	GND	EARTH

2.5.3 Definition of input interface

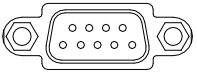
Pin	1	2	3	4	5	6	7	8	9
Signal	I1	I2	I3	I4	I5	I6	I7	I8	COM
Software Define	ULimit	MRDY	D_Limit	Pedal	Barrier	-	-	-	COM1

2.5.4 Definition of output interface



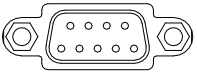
Pin	1	2	3	4	5	6	7	8	9
Signal	O1	O2	O3	O4	O5	O6	O7	+24V	COM
Software Define	G+	G-	Cut	EOS	RDY	Support	-	-	COM2

2.5.5 Definition of encoder interface



Pin	1	2	3	4	5	6	7	8, 9	Shell
Signal	GND	+12V	C	B	A	GND	+12V	NC	EARTH

2.5.6 Definition of communication interface



Pin	1	6	7	8	9	4	2	3	5	Shell
Signal	CANH	CANL	+3.3V	485A	485B	BOOT	TXD	RXD	GND	EARTH

Chapter 3 Parameter Setting

3.1 Home Page

Enter the **PARAMETER SET** page as follows:

Step 1 When the E200PS device is electrified, wait a few seconds into the **SINGLE** page (Default page), as shown in Figure 3-1.https://www.machinemfg.com/

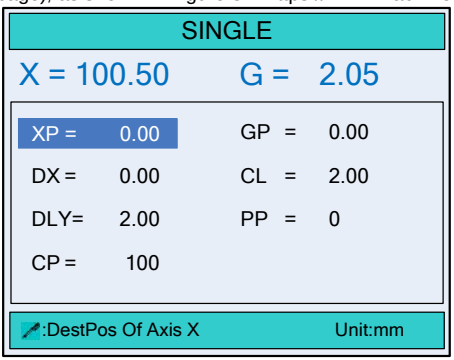


Figure 3-1 The **SINGLE** page

Step 2 Press P two times to enter the **CONST** page, as shown in Figure 3-2.

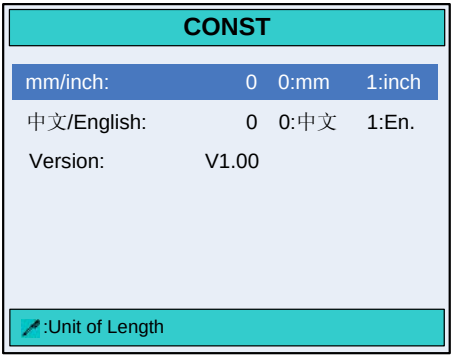


Figure 3-2 The **CONST** page

The description of the **CONST** parameters is as shown in Table 3-1.

Table 3-1 The description of the **CONST** parameters

Parameter	Default	Range	Unit	Description
mm/inch	0	0~1	-	• 0: mm • 1: inch
中文/English	0	0~1	-	• 0: 中文 • 1: English
Version	-	-	-	The current software version number.

[Teach-in parameter]

Move the cursor to parameter **mm/inch** or **中文/English**, enter the password **1212**, and press  to enter the **TchIn PARA** page, as shown in Figure 3-3.

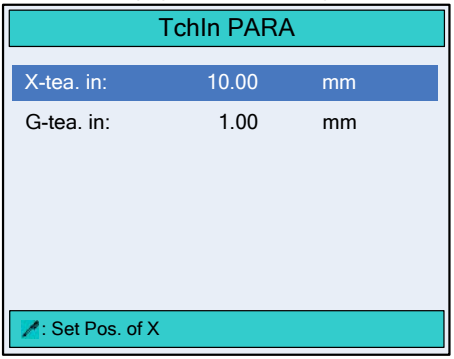


Figure 3-3 The **Teach-In** Parameters page

The description of the **TchIn PARA** parameters is as shown in Table 3-2.

Table 3-2 The description of the **Teach-In** parameters

Parameter	Default	Range	Unit	Description
X-tea. in	10.00	0~9999.999	mm/inch	When the teaching of X-axis is enabling, the operator assigns to the X-axis of a correct value, to represent the backgauge current position.
G-tea. In	1.00	0~9999.999	mm/inch	When the teaching of G-axis is enabling, the operator assigns to the G-axis of a correct value, to represent the slider current position.

Step 3 Move the cursor to parameter **mm/inch** or **中文/English**, enter the password **14789**, and press  to enter the **PARAMETER SET** page, as shown in Figure 3-4.

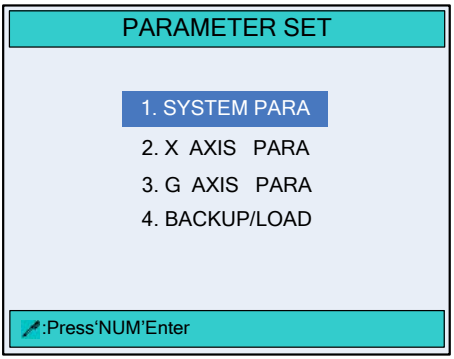


Figure 3-4 The PARAMETER SET page

----End

3.2 System Parameter

On the **SYS PARA.** page, move the cursor to parameter **1.SYSTEM PARA** (or press the number key **1**), and press to enter the first page of the **SYS PARA.**, as shown in Figure 3-5.

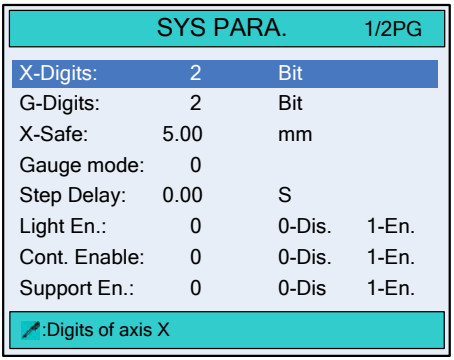


Figure 3-5 The first page of the **SYS PARA.**

The description of the **SYS PARA.** parameters is as shown in Table 3-3.

Table 3-3 The description of the **SYS PARA.** parameters

Parameter	Default	Range	Unit	Description
X-Digits	2	0~3	-	The number of decimal places to display the X-axis position parameters.
G-Digits	2	0~3	-	The number of decimal places to display the G-axis position parameters.
X-Safe	5.00	0~9999.999	mm/inch	X-axis will maintain low speed in this range.

Parameter	Default	Range	Unit	Description
Gauge mode	0	0~1	-	• 0: Back gauge • 1: Front feed
Step Delay	0.00	0~99.99	s	The waiting time of the X-axis, that enters the next step of shearing.
Light En.	0	0~1	-	• 0: Disable • 1: Enable
Cont. Enable	0	0~1	-	• 0: Disable • 1: Enable
Support En.	0	0~1	-	• 0: Disable • 1: Enable
Support time	0.00	0~99.99	s	The time of the support material, act to evacuate. **[Note]** This parameter is enable when parameter **Support En.** is setting to **1**.
Count mode	0	0~1	-	• 0: UL. rise edge • 1: EOS
Cut Max	5.00	0~99.99	s	The maximum time of the cut length.

3.3 X-axis Parameter

On the **SYS PARA.** page, move the cursor to parameter **2.X AXIS PARA** (or press the number key **2**), and press  to enter the first page of the **X PARA.**, as shown in Figure 3-6.

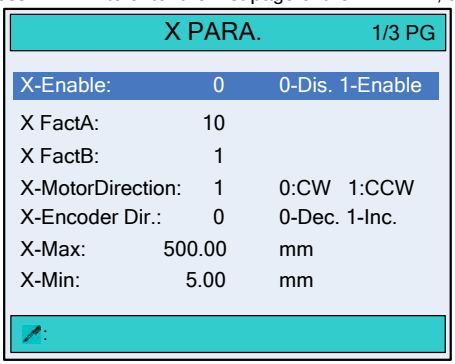


Figure 3-6 The first page of **X PARA.**

[Note] Press  or  to enter other page of **X PARA.**

The description of the **X PARA.** parameters is as shown in Table 3-4.

Table 3-4 The description of the **X PARA.** parameters

Parameter	Default	Range	Unit	Description
X-Enable	0	0~1	-	• 0: Disable • 1: Enable
X FactA	10	1~99999999	-	Multiplication factor of the X-axis, to as the pulse and millimeter conversion.
X FactB	1	0~99999999	-	Division factor of the X-axis, to as the pulse and millimeter conversion.
X-MotorDirection	0	0~1	-	• 0: CW • 1: CCW
X-Encoder Dir.	0	0~1	-	• 0: Decrement • 1: Increment
X-Min	5.00	0~9999.999	mm/inch	The minimum position of the X-axis.
X-Max	500.00	0~9999.999	mm/inch	The maximum position of the X-axis.
X-Teach. En.	1	0~1	-	• 0: Disable • 1: Enable
X-Ref. Pos.	400.00	0~9999.999	mm/inch	The position when X-axis finds the reference position.
X-Tolerance	0.05	0~99.999	mm/inch	Location tolerance. The system completes orientation at this range.
X-Overrun En.	0	0~1	-	• 0: Disable • 1: Enable
X-Over. Dis.	3.00	0~9999.999	mm/inch	Overrun distance. Effective in unilateral positioning.
X-Acc.SPM	1500	0~9999	SPM	The related parameters of the motor.
X-Aec.SPM	1500	0~9999	SPM	
Orientation	1500	0~3000	SPM	
M_Low Speed	200	0~500	SPM	
Ref. Speed	800	0~3000	SPM	
Driven Mode	0	0~1	-	• 0: EDC • 1: ProNet

3.4 G-axis Parameter

On the **SYS PARA.** page, move the cursor to parameter **3.G AXIS PARA** (or press the number key **3**), and press  to enter the first page of the **G PARA.**, as shown in Figure 3-7.

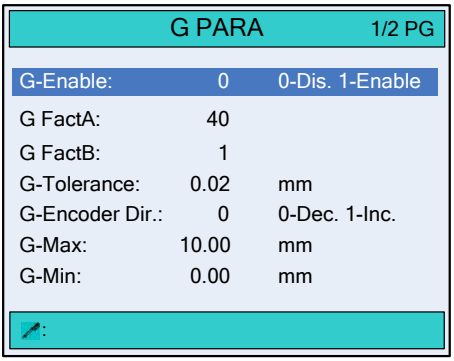


Figure 3-7 The first page of **G PARA.**

[Note] Press or to enter other pages of **G PARA.**

The description of the **G PARA.** parameters is as shown in Table 3-5.

Table 3-5 The description of the **G PARA.** parameters

Parameter	Default	Range	Unit	Description
G-Enable	1	0~1	-	• 0: Disable • 1: Enable
G FactA	40	1~99999999	-	Multiplication factor of the G-axis, to as the pulse and millimeter conversion.
G FactB	1	0~99999999	-	Division factor of the G-axis, to as the pulse and millimeter conversion.
G-Tolerance	0.02	0~99.999	mm/inch	Location tolerance. The system completes orientation at this range.
G-Encoder Dir.	0	0~1	-	• 0: Decrement • 1: Increment
G-Min	0.00	0~99.99	mm/inch	The minimum position of the G-axis.
G-Max	10.00	0~99.99	mm/inch	The maximum position of the G-axis.
G-Overrun En.	0	0~1	-	• 0: Disable • 1: Enable
G-Over. Dis	0.00	0~9999.999	mm/inch	Overrun distance. Effective in unilateral positioning.
G-Stop Dis.	2.00	0~9999.999	mm/inch	The distance of motor early stopping. In this range, the motor run by inertia.
G-Stop Time	2.00	0~99.99	s	The time of waiting the motor altogether stopping.

3.5 Backup and Load

NOTE

The **BACKUP/LOAD** page does not make processing to the program parameters, such as **SINGLE** parameters, **MUTIL-STEP** parameters.

- **BACKUP**: store the current parameter settings.https://www.machinemfg.com/
- **LOAD**: recovery the current parameter settings to the last backup.

On the **SYS PARA.** page, move the cursor to parameter **5.BACKUP/LOAD** (or press the number key **5**), and press to enter the **BACKUP/LOAD** page, as shown in Figure 3-8.

[Operation Guide]:

- Move the cursor to parameter **1.PARA BACKUP**, and long press ± to start backup operation, until the page tips **Backup Done**.
- Move the cursor to parameter **2.PARA LOAD**, and long press ± to start backup operation, until the page tips **Load Done**.
- Press P to return to the **PARAMETER SET** page.

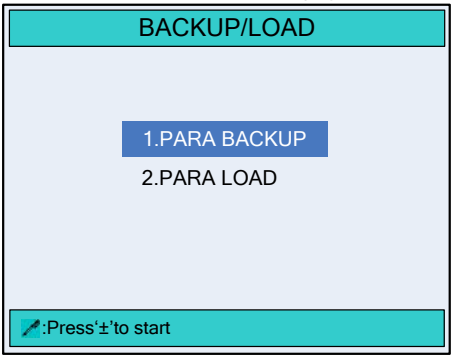


Figure 3-8 The **BACKUP/LOAD** page

Chapter 4 Diagnose

4.1 Home Page

Enter the **DIAGNOSE** page as follows:

Step 1 When the E200PS device is electrified, wait a few seconds into the **SINGLE** page (Default page).

Step 2 Press P two times to enter the **CONST** page.

Step 3 Move the cursor to parameter **mm/inch** or **中文/English**, enter the password **5656**, and press ↵ to enter the **PARAMETER SET** page, as shown in Figure 4-1.

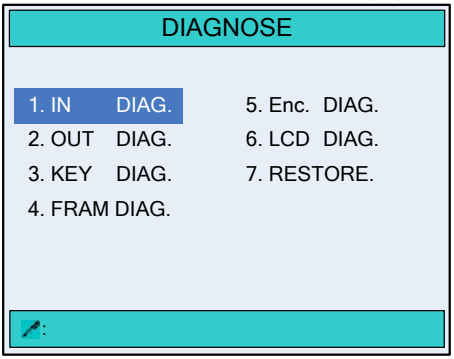


Figure 4-1 The **DIAGNOSE** page

----End

4.2 Input Diagnose

On the **DIAGNOSE** page, move the cursor to parameter **1.IN DIAG.** (or press the number key **1**), and press ↵ to enter the **IN DIAG.** page, as shown in Figure 4-2.

[Operation Guide]:

- Switching high level to the corresponding relay, the device will detect the input signal, and the background color of the corresponding port icon on the page will change, that this input port is normal.
- Press P to return to the **DIAGNOSE** page.

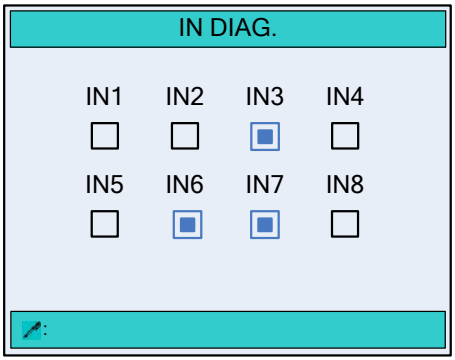


Figure 4-2 The **IN DIAG.** page

4.3 Output Diagnose

On the **DIAGNOSE** page, move the cursor to parameter **2.OUT DIAG.** (or press the number key **2**), and press to enter the **OUT DIAG.** page, as shown in Figure 4-3.

[Operation Guide]:

- Move the cursor to any icon of the port, and press ± to switch the level. If the background color of the corresponding port icon on the page changes, and the corresponding relay turns, that this output port is normal.
- Press P to return to the **DIAGNOSE** page.

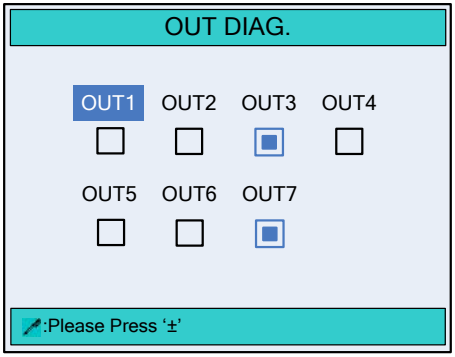


Figure 4-3 The **OUT DIAG.** page

4.4 Keyboard Diagnose

On the **DIAGNOSE** page, move the cursor to parameter **3.KEY DIAG.** (or press the number key **3**), and press to enter the **KEY DIAG.** page, as shown in Figure 4-4.

[Operation Guide]:

- Press any key on the operation board, and check the key name feedback on the page whether is correct.

- Press P to return to the **DIAGNOSE** page.

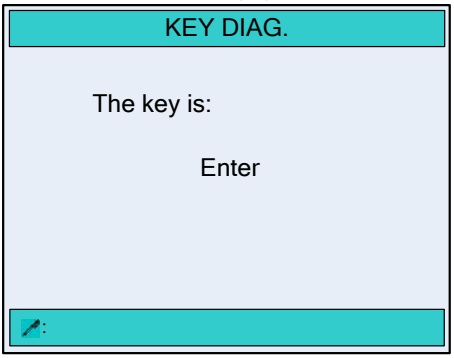


Figure 4-4 The **KEY DIAG.** page

4.5 FRAM Diagnose

On the **DIAGNOSE** page, move the cursor to parameter **4.KEY DIAG.** (or press the number key **4**), and press ↵ to enter the **KEY DIAG.** page, as shown in Figure 4-5.

[Operation Guide]:

- Press ± to start diagnosing. If the FRAM is normal, the page will tip **The result is: OK**.
- Press P to return to the **DIAGNOSE** page.

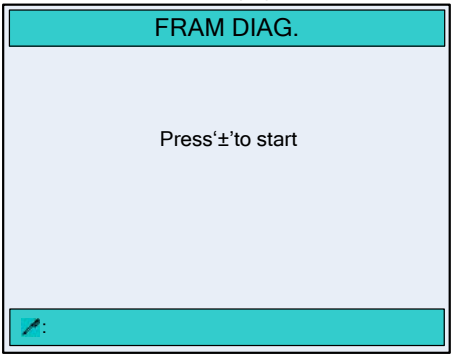


Figure 4-5 The **FRAM DIAG.** page

4.6 ENC. Diagnose

On the **DIAGNOSE** page, move the cursor to parameter **5.ENC. DIAG.** (or press the number key **5**), and press ↵ to enter the **ENC. DIAG.** page, as shown in Figure 4-6.

[Operation Guide]:

- Rotating the Encoder, the corresponding C pulse width will change between 0 and 1, and the value of Vn (**n** is the port number of the encoder) changes, that the encoder port is normal.
- Press P to return to the **DIAGNOSE** page.

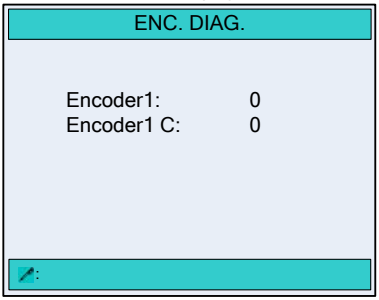


Figure 4-6 The **ENC. DIAG** page

4.7 LCD Diagnose

On the **DIAGNOSE** page, move the cursor to parameter **6.LCD DIAG.** (or press the number key **6**), and press ↵ to enter the **LCD DIAG.** page, as shown in Figure 4-7.

[Operation Guide]:https://www.machinemfg.com/

LCD diagnose is mainly used for checking the screen whether there is bright or dark sports.

- Press ± to start diagnosing, the page switch to the monochrome screens, please check whether there is bright or dark spots.
- Press P to return to the **DIAGNOSE** page.

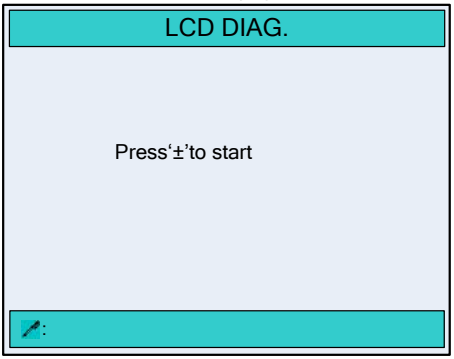


Figure 4-7 The **LCD DIAG.** page

4.8 Factory Setting

NOTE
The **RESUME** page does not make processing to the program parameters, such as **SINGLE** parameters, **MUTIL-STEP** parameters.

On the **DIAGNOSE** page, move the cursor to parameter **7.RESTORE.** (or press the number key **7**), and press  to enter the **RESUME** page, as shown in Figure 4-8.

[Operation Guide]:

- Press  to factory setting, until the page tips "恢复完成，请重启！"and then restart the device。
- Press  to return to the **DIAGNOSE** page.

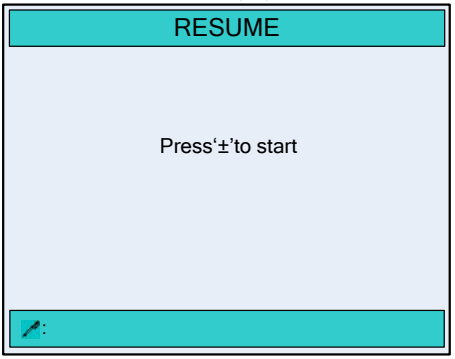


Figure 4-8 The **RESUME** page

Chapter 5 Commissioning

CAUTION
When commissioning starts, watch carefully whether motor runs normally or mechanical impacts may be caused. If necessary, cut down motor power immediately to avoid accident.

5.1 Preparation before commissioning

- Check the power line, ground wire, input/output signal wire and encoder plug for reliable and accurate connection.
- Check whether output voltage of 24V switch power is normal or not.
- Check power supply and ground wire before power on the system.
- Enter **Diagnose** page, check system's input signal. When there is input signal, the corresponding input indication is filled; otherwise, input signal is not connected.
- Enter **Diagnose** page, check system's output signal. When there is output signal, the corresponding output indication is filled. If machine tool fails to operate normally, check electrical parts of the machine tool.

5.2 Procedure

5.2.1 Parameter setting

1. When the E200PS device is electrified, wait a few seconds into the **SINGLE** page (Default page).
2. Press P two times to enter the **CONST** page.
3. Move the cursor to parameter **mm/inch** or **中文/English**, enter the password **14789**, and press ↵ to enter the **PARAMETER SET** page.
4. Move the cursor to parameter **2.X AXIS PARA** (or press the number key **2**), and press ↵ to enter the first page of the **X PARA.**
5. Set the following parameter on the **X PARA.** page:
   X-Enable: 1
   X FactA: 100
   X FactB: 1
   X-Encoder Dir.: 1
   X-Min: 5.00
   X-Max: 500.00 (this value is determined by gauge length)
   X-Teach. En: 1
   X-Ref. Pos: 10.00
   X-Tolerance: 0.02
   X-Overrun. En.: 1
   X-Over. Dis.: 5.00
6. Press P to return to the **PARAMETER SET** page.

7 Move the cursor to parameter **3.G AXIS PARA** (or press the number key **3**), and press  to enter the first page of the **G PARA.**。

8 Set the following parameter on the **G PARA.** page:

G-Enable: 1

G FactA: 40

G FactB: 1

G-Encoder Dir: 1

G-Min: 0.00

G-Max: 10.00

G-Teach. En.: 1

G-Ref. Pos: 1.00

G-Tolerance: 0.02

G-Overrun. En: 1

X-Over. Dis.: 5.00

5.2.2 Manual movement

1 When the E200PS device is electrified, wait a few seconds into the **SINGLE** page (Default page).

2 Press  or  to enter the **MANUAL** page.

3 Adjust the X-axis and G-axis manually.

- Press and hold  , watch the gauge whether move to the maximum position slowly, if not, please enter the **X PARA.** page, and set the parameter **X-MotorDirection** to **1**.
- Watch the encoder counting direction whether is correct. If it is incorrect, please enter the **X PARA.** page, and set the parameter **X-Encoder Dir.** to **0.**
- Press  and  simultaneity, and watch the gauge whether move to the minimum position fast.
- Confirm that the front and rear limit are effective.

5.2.3 Counting

Edit multistep program on programming page (setting number of work piece is over 1, single step is excluded), press  , and depress pedal to dry running when X is in position, observe whether counting has increased; if no change occurs, check whether **I1** signal wire (**U——Limit**) and **O4** signal wire (**EOS**) are reliably connected to the system.

5.2.4 Retract

Edit single-step program on programming page (yield parameter is 5mm), press  and depress pedal to dry running when X is in position. observe whether there is yield and yield sequence is correct. If error, check whether **I2** signal wire (**MRDY**) is reliably connected to the system, and whether yield distance (Dx value) set is correct and reasonable.

5.2.5 Teaching

When the above procedures are finished, roughly correct actual position of X-axle by teach function. Edit single step program to carry out actual processing, measure dimension of the processed work piece, then correct scale error by teach function.

Chapter 6 Maintenance

6.1 Instructions to maintenance

In order to use this system safely and properly, follow the instructions.

- When power is on or system operates normally, do not open cover plate or panel as it may damage the components. https://www.machinemfg.com/
- Wiring and inspection shall be done by professionals.
- Don't touch IC pin or contact of joint.
- Do not place system on metal product that may cause power leakage, or on wood, plastic or vinyl product which has static electricity.
- If self-diagnosis error occurs to the system, determine details in accordance with warning instructions and eliminate causes to error. Ensure safety. Rerun when warning is removed. (Refer to Appendix 1 Warning list and instructions)
- Before operation, determine and adjust program and each parameter.
- Do not add voltage values excluded in operating manual on any binding post. Otherwise damage or breakage may be caused.
- Do not misconnect terminals. Otherwise damage or breakage may be caused.
- Do not mistake polarity (+/-) . Otherwise damage or breakage may be caused.
- Control line and communication cable shall not be together with or close to principal line and power harness. Their distance between each other shall be over 100mm during installation.

6.2 Routine inspection

For routine inspection, please refer to Table 6-1.

Table 6-1 Routine inspection

No.	Inspection item	Standard content	Standard specification	Treatment
1	Basic installation status of the system	Check set screw for loosening, and check seal for drop.	Be installed properly.	Fasten screw.
2	IO port connection status	Check IO port connection for loosening	Correct wiring.	Correct wiring.
3	Connection status	Check terminal screw for loosening	Screw is not loose	Fastening terminal screw.
4	LED display status	Check whether LED display is correct.	LED (green) indicate system running, LED (red) indicate system stop.	-

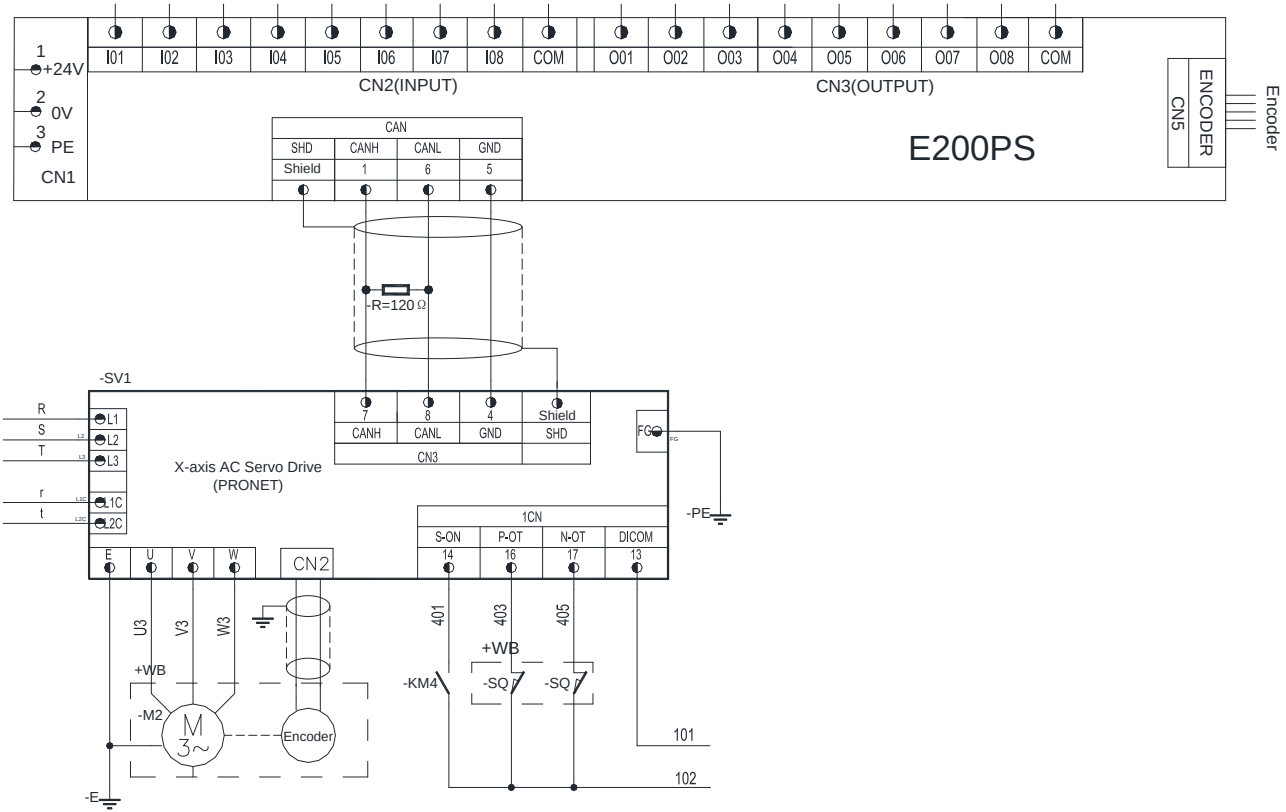
6.3 Periodic inspection

Items which require once or twice inspection every 6 months or 1 year are listed below. In case of equipment removal or reconstruction, or any changes to wiring, inspection is also required. Please refer to Table 6-2 for inspection content.

Table 6-2 Periodic inspection content

No.	Inspection item		Standard content	Standard specification	Treatment
1	Surrounding environment	Ambient temperature	Measure by thermometer, humid meter, and measure whether corrosive gas exists.	0~40℃	-
		Ambient humidity		5~95%RH	
		Air		No corrosive gas	
2	Voltage		Voltage among terminals 24V DC	20~29V DC	Change power supply
3	Install	Tension, mobility	Mobile module	Module must be installed securely.	Secure the screw. If CPU and I/O module loses, fasten them by screws.
		Dust and foreign matter attachment	Visual observation	No dust or foreign matter is allowed.	Remove and clean.
4	Connection status	Tightness of terminal screw	Rotate by screwdriver	No loosening	Screw
		Whether compression type terminal is close	Visual inspection	Compression type terminal must be fixed between proper intervals.	Adjust
		Tightness of joint	Visual inspection	No loosening	Tighten screw
5	Relay		Multimeter, visual inspection	Whether contact pull-in is normal. Coil resistance	Replace relay.

Appendix A Wiring



Appendix B Parameter Description

Parameter	Default	Range	Unit	Description
CONST				
mm/inch	0	0~1	-	• 0: mm • 1: inch
中文/English	0	0~1	-	• 0: 中文 • 1: English
Version	-	-	-	The current software version number.
TchIn PARA				
X-tea. in	10.00	0~9999.999	mm/inch	When the teaching of X-axis is enabling, the operator assigns to the X-axis of a correct value, to represent the gauge current position.
G-tea. in	1.00	0~9999.999	mm/inch	When the teaching of G-axis is enabling, the operator assigns to the G-axis of a correct value, to represent current size of the gap.
SYS PARA.				
X-Digits	2	0~3	-	The number of decimal places to display the X-axis position parameters.
G-Digits	2	0~3	-	The number of decimal places to display the G-axis position parameters.
X-Safe	5.00	0~9999.999	mm/inch	X-axis will maintain low speed in this range.
Gauge mode	0	0~1	-	• 0: Back gauge • 1: Front feed
Step Delay	0.00	0~99.99	s	The waiting time of the X-axis, that enters the next step of shearing.
Light En.	0	0~1	-	• 0: Disable • 1: Enable
Cont. Enable	0	0~1	-	• 0: Disable • 1: Enable
Support En.	0	0~1	-	• 0: Disable • 1: Enable

Parameter	Default	Range	Unit	Description
Support time	0.00	0~99.99	s	The time of the support material, act to evacuate. **[Note]** This parameter is enable when parameter **Support En.** is setting to **1**.
Count mode	0	0~1	-	• 0: UL. rise edge • 1: EOS
Cut Max	5.00	0~99.99	s	The maximum time of the cut length.
X PARA.				
X-Enable	0	0~1	-	• 0: Disable • 1: Enable
X FactA	10	1~99999999	-	Multiplication factor of the X-axis, to as the pulse and millimeter conversion.
X FactB	1	1~99999999	-	Division factor of the X-axis, to as the pulse and millimeter conversion.
X-MotorDirection	0	0~1	-	• 0: CW • 1: CCW
X-Encoder Dir.	0	0~1	-	• 0: Decrement • 1: Increment
X-Min	5.00	0~9999.999	mm/inch	The minimum position of the X-axis.
X-Max	500.00	0~9999.999	mm/inch	The maximum position of the X-axis.
X-Teach. En.	1	0~1	-	• 0: Disable • 1: Enable
X-Ref. Pos.	400.00	0~9999.999	mm/inch	The position when X-axis finds the reference position.
X-Tolerance	0.05	0~99.999	mm/inch	Location tolerance. The system completes orientation at this range.
X-Overrun En.	0	0~1	-	• 0: Disable • 1: Enable
X-Over. Dis.	3.00	0~9999.999	mm/inch	Overrun distance. Effective in unilateral positioning.
X-Acc.SPM	1500	0~3000	SPM	The related parameters of the motor.
X-Aec.SPM	1500	0~3000	SPM	
Orientation	1500	0~1500	SPM	

Parameter	Default	Range	Unit	Description
M_Low Speed	200	0~3000	SPM	
Ref. Speed	200	0~3000	SPM	
Driven Mode	0	0~1	-	• 0: EDC • 1: ProNet
G PARA.				
G-Enable	1	0~1	-	• 0: Disable • 1: Enable
G FactA	40	1~99999999	-	Multiplication factor of the G-axis, to as the pulse and millimeter conversion.
G FactB	1	0~99999999	-	Division factor of the G-axis, to as the pulse and millimeter conversion.
G-Tolerance	0.02	0~99.999	mm/inch	Location tolerance. The system completes orientation at this range.
G-Encoder Dir.	0	0~1	-	• 0: Decrement • 1: Increment
G-Min	0.00	0~99.99	mm/inch	The minimum position of the G-axis.
G-Max	10.00	0~99.99	mm/inch	The maximum position of the G-axis.
G-Teach. En.	0	0~1	-	• 0: Disable • 1: Enable
G-Ref.Pos.	0.00	0~9999.999	mm/inch	The position when G-axis finds the reference position.
G-Stop Dis.	2.00	0~9999.999	mm/inch	The distance of motor early stopping. In this range, the motor run by inertia.
G-Stop Time	2.00	0~99.99	s	The time of waiting the motor altogether stopping.
SINGLE				
XP	0.00	-9999.999~9999.999	mm/inch	Program position of X axle.
GP	0.00	0~99.99	mm/inch	Program position of G axle.
DX	0.00	0~9999.999	mm/inch	Retract distance of X axle.
CL	0	0~100	%	Actual time of the cut length = Max time of the cut length ×CL
DLY	5.00	0~99.99	s	In case of single step, delay time for X-axle retracting.

Parameter	Default	Range	Unit	Description
PP	0	0~9999	-	The number of processing workpiece in this program.
CP	0	0~9999	-	• PP=0: this value is the current work piece. • PP>0: this value is the remain work piece.
PROGRAM				
ST	0	0~25	-	The total number of steps in this program.
PP	0	0~99999	-	The number of processing workpiece in this program.
CP	0	0~99999	-	• PP=0: this value is the current work piece. • PP>0: this value is the remain work piece.
DLY	0.00	0~99.99	s	In case of single step, delay time for X-axle retracting.
STEP				
XP	0.00	-9999.999~9999.999	mm/inch	Program position of X-axis.
GP	0.00	0~99.99	mm/inch	Program position of G-axis.
DX	0.00	0~9999.999	mm/inch	Retract distance of X axle.
Cut Length	0	0~100	%	Actual time of the cut length = Max time of the cut length ×Cut Length
Repeat Times	1	1~99	-	The repeat times in this step.

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