

E21S Instruction Book

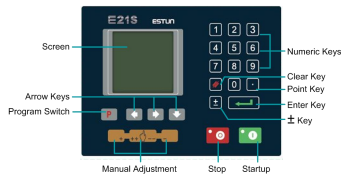
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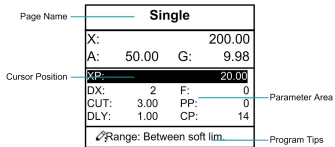
 Read this handbook carefully before the operation

Display

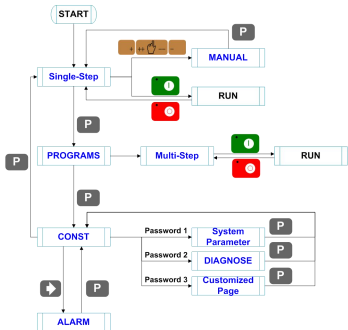
Panel



Page



Operation Flow



Notice

- When the RED indicator light is on, you can program the parameters.
- Only when the page is on **SINGLE**, Total Parameters page or the Step 1 page, you can press **Startup Key** to run the device.
- Press **Stop Key** to stop the machine, and the device backs to the previous page.
- When the page displays the alarm info, you should resolve the problem with some effective measures (see **Alarm List**). The device will be reset by the self-diagnosis function.

Manual

Press **MAN** key, **STOP** key or **STOP** key to enter the **MANUAL** page. A-axis and G-axis are controlled by the relays, press **MAN** to move them at low speed in increasing direction; press **MAN** to move them at low speed in decreasing direction. Button **STOP** is of no effect on them. Press **Arrow Keys** to select X axis, and follow the below table to operate.

➢ The drive mode of X-axis is **motor**.

Press Key	Status	Direction	Duration	Speed
	STOP	increasing	Press Time	Slow
	RUN	increasing	■ Press Time (Press Time < Pulse Time) ■ Pulse Time (Press Time > Pulse Time)	Slow
	STOP	decreasing	Press time	Slow
	RUN	decreasing	■ Press Time (Press Time < Pulse Time) ■ Pulse Time (Press Time > Pulse Time)	Slow
	STOP	increasing	Press time	Slow
	RUN	increasing	Press time	Slow
	STOP	decreasing	Press time	Slow
	RUN	decreasing	Press time	Slow

➢ The drive mode of X-axis is **frequency converter**.

Press Key	Status	Direction	Duration	Speed
	STOP	increasing	Press Time	Slow
	RUN	increasing	Unable	
	STOP	decreasing	Press Time	Slow
	RUN	decreasing	Unable	
	STOP	increasing	Press Time	Fast
	RUN	increasing	Unable	
	STOP	decreasing	Press Time	Fast
	RUN	decreasing	Unable	

Single-Step

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Description

1. The default page is **SINGLE**; also, you can press **P** key several times, switching to the **SINGLE** page.
2. Press **Arrow Keys** to select the parameter you want to program.
3. Press **Numeric Keys** to program a desired value.
4. Press **Enter Key** to complete the setting.
5. Follow the above methods to program the others parameters.
6. After finishing the program, press **Startup Key** to run the device.

Parameter

Page	Parameter	Description
Single-Step	X	Actual position of the back gauge
	A	Actual angle value of the cutting blade.
	G	The distance between the cutting blade and the table
	XP	Programmed position of the back gauge
	DX	Retract distance of the back gauge
	CUT	The delay time for the cutting blade getting into the next work-step, after it leaves TDC
	DLY	Delay time in seconds for X-axis retracting
	F	The value for programmable digital outputs
	PP	Preset workpieces
	CP	■ PP>0, indicates the residual workpieces ■ PP=0, indicates the finished workpieces

Example

<INFO> There is one batch of materials, the requirement of bending are as following: 10 pieces, cutting length is 100.00mm, back gauge position is 80.00mm, the retract distance is 5.00mm, the delay time for retracting is 2 seconds, and the cutting delay time is 3 seconds.

<PROCEDURE>

1. Program the parameter **XP** to **80**.

SINGLE	
X:	200.00
A:	50.00 G: 9.98
XP:	80.00
DX:	5.00 F: 0
CUT:	3.00 PP: 0
DLY:	1.00 CP: 14
Range: Between soft lim.	

2. Press **Enter Key**, moving the cursor to the next parameter, and program the parameter **DX** to **5.00**

SINGLE	
X:	200.00
A:	50.00 G: 9.98
XP:	80.00
DX:	5.00 F: 0
CUT:	3.00 PP: 0
DLY:	1.00 CP: 14
Range: 0 ~ X Max.	

3. Press **Enter Key**, moving the cursor to the next parameter, and program the parameter **CUT** to **3.00**

SINGLE	
X:	200.00
A:	50.00 G: 9.98
XP:	80.00
DX:	5.00 F: 0
CUT:	3.00 PP: 0
DLY:	1.00 CP: 14
Range: 0 ~ 99.99S	

4. Press **Enter Key**, moving the cursor to the next parameter, and program the parameter **DLY** to **2.00**

SINGLE	
X:	200.00
A:	50.00 G: 9.98
XP:	80.00
DX:	5.00 F: 0
CUT:	3.00 PP: 0
DLY:	2.00 CP: 14
Range: 0 ~ 99.99S	

5. Press **Enter Key**, moving the cursor to the next parameter, and program the parameter **PP** to **10**

SINGLE	
X:	200.00
A:	50.00 G: 9.98
XP:	80.00
DX:	5.00 F: 0
CUT:	3.00 PP: 10
DLY:	1.00 CP: 10
Range: 0 ~ 9999	

6. Press **Enter Key** to finish the program.

7. Press **Startup Key** to run the device.

Multi-Step

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Description

1. Press **P** key several times, switching to the **PROGRAMS** page.
2. Press **Arrow Keys** to select a desired No., or you can press **Numeric Keys** to input a desired No., and then press **Enter Key** to enter the General Parameters page.
4. Press **Arrow Keys** to select the parameter you want to program.
5. Press **Numeric Keys** to program a desired value.
6. Press **Enter Key** to complete the setting.
7. Follow the above methods to program the others general parameters.
8. After finishing the program, press **<arrow right>** key to enter the Step Setting page.
9. Follow the above methods to program the others step parameters.
10. Press **<arrow right>** or **<arrow left>** key to enter the others Step Setting page, and program the desired parameters.
11. After finishing the program, you should back to the Total Parameters page or the Step 1 page, and press **Startup Key** to run the device.

Parameter

Page	Parameter	Description
Multi-Step	ST	The number of steps
	PP	Preset workpieces
	CP	■ PP>0, indicates the residual workpieces ■ PP=0, indicates the finished workpieces
	DLY	Delay time in seconds for X-axis retracting
	CiDly	The delay time for the cutting blade getting into the next work-step, after it leaves TDC
	XP	Programmed position of the back gauge in the step
	DX	Retract distance of the back gauge
	RP	The number of times a step is repeated before the next step is executed
	F	The value for programmable digital outputs

Example

<INFO> There are 50 pieces of material, which are bent as following:

The first cutting length is 50.00mm, retract distance is 5.00mm

The second cutting length is 100.00mm, retract distance is 5.00mm

The third cutting length is 85.00mm, retract distance is 5.00mm

Put the above program into Program-No 1.

<PROCEDURE>

1. Press **P** key several times, switching to the **PROGRAMS** page

PROGRAMS	
OP	2ST
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
11	12
12	13
13	14
14	15
15	16
16	17
17	18
18	19
19	20
Range: 1 program	

2. Select **1** and press **Enter Key** to enter the General Parameters page; and program the parameter **ST** to **3**

PROGRAM1	
ST:	3
PP:	20
CP:	9
DLY:	0.50
CiDly:	1.00
Range: 0~25	

3. Press **Enter Key**, moving the cursor to the next parameter; and program the parameter **PP** to **50**

PROGRAM1	
ST:	3
PP:	50
CP:	9
DLY:	0.50
CiDly:	1.00
Range: 0~99999	

4. Press **Enter Key**, moving the cursor to the next parameter; and program parameter **DLY** to **2.00**

PROGRAM1	
ST:	3
PP:	50
CP:	50
DLY:	2.00
CiDly:	1.00
Range: 0~99.99S	

5. Press **Enter Key**, moving the cursor to the next parameter; and program the parameter **CiDly** to **3.00**

PROGRAM1	
ST:	3
PP:	50
CP:	50
DLY:	2.00
CiDly:	3.00
Range: 0~99.99S	

6. Press **Enter Key** and **<Arrow Right>** Key to enter the Step 1 Setting page; and program the parameter **XP** to **50.00**

PROGRAM1 1/3 ST	
X:	150.00
A:	1.00 G: 0.98
XP:	50.00
DX:	10.00
RP:	1
F:	0
Range: Between soft lim.	

7. Press **Enter Key**, moving the cursor to the next parameter; and program the parameter **DX** to **5.00**

PROGRAM1 1/3 ST	
X:	150.00
A:	1.00 G: 0.98
XP:	50.00
DX:	5.00
RP:	1
F:	0
Range: 0 ~ X Max	

8. Press **Enter Key**, moving the cursor to the next parameter; and program the parameter **RP** to **1**

PROGRAM1 1/3 ST	
X:	150.00
A:	1.00 G: 0.98
XP:	50.00
DX:	5.00
RP:	1
F:	0
Range: 0 ~ 99	

9. Press **Enter Key** and **<Arrow Right>** Key to enter the next step parameters setting page; follow the above methods to program the parameters of Step 2 and Step 3

10. After finishing the program, press **P** key to back the Total Parameters page or the Step 1 page

11. Press **Startup Key** to run the device.

Diagnosis

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 Do not start the pump before your diagnosis.

<NOTE> The following is only described how to diagnosis the encoder, and for the others diagnosis, just according to the page tips to operate.

1. Press **P** key several times, switching to the **CONST** page.
2. Press **Numeric Keys** to input the password **5656**, and press **Enter Key** to enter the **DIAGNOSE** page.

DIAGNOSE	
1. IN	DIAG
2. OUT	DIAG
3. KEY	DIAG
4. FRAM	DIAG
5. ENC	DIAG
6. LCD	DIAG
Range:	

3. Select **5. Enc. DIAG**, or press **Numeric Key 5** directly, and then press **Enter Key** to enter the **ENC. DIAG** page.

ENC. DIAG.	
Encoder1:	0
Encoder1 C:	0
Range:	

4. Rotate the encoder of X-axis, the page displays the pulse changing. The corresponding C-pulse will jump between 0 and 1, which indicates the encoder port is normal.

Alarm

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Procedure

1. Press **P** key several times, switching to the **CONST** page.

CONST	
mm/minch:	0
P: English:	0.200
Pulse Time:	Version:
V1.11	
Range: 0. mm 1. inch	

2. Press **<arrow right>** key to enter the **ALARM RECORD** page.

ALARM RECORD	
A.22	Encoder failure

Alarm List

The page can show the latest 6 alarm info. And, the following table lists all the alarm info.

No.	Name	Resolver
A.01	Pieces reached	Count reaches preset value
A.02	X.Pos < min.	Move X-axis forwards in Manual Movement.
A.03	X.Pos > max.	Move X-axis forwards in Manual Movement.
A.04	-	The current position of X-axis exceeds the soft limit
A.05	A Axis MAX	A-axis current position beyond the maximum limit
A.06	A Axis MIN	A-axis current position beyond the minimum limit
A.07	G Axis MAX	G-axis current position beyond the maximum limit
A.08	G Axis MIN	G-axis current position beyond the minimum limit
A.11	Count reached shut-down	Rerun, the alarm is cleared automatically.
A.12	Beam is not on upper dead point	Step on the Foot Up Switch, moving the slider to the TDC, and the alarm will be cleared automatically.
A.22	Encoder failure	Check whether the encoder wiring is normal.
A.25	Angle Abnormal	Angle input error
A.26	X Stop Err	Check whether the back gauge motor is run normally.
A.28	X V2 Err	Check whether the back gauge motor is run normally.
A.29	X V3 Err	Check whether the back gauge motor is run normally.
A.32	XPos < 0	Move X-axis forwards to the setting range in Manual Movement.
A.41	Para. error	-

Troubleshooting

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Fault	Trouble shooting
The screen don't display when power on.	The terminal of power supply wiring is error. Follow the nameplate to rewire. The source voltage is too low. The connector is not connected well.
The back gauge motor doesn't run when X-axis is operated, but the slider motor runs.	The wires of these two motor are in reverse, please rewire.
The motor doesn't run when operating.	Check whether the machine is impeded, or whether the slider is back to TDC. Check whether the motor wire is connected well.
The motor can't mutually convert from high to low	Check whether the signal is in effect, or whether frequency converter is normal. Check whether parameter Mute Dis is programmed correctly.
The step can't be changed in Multi-Step mode.	Check the STEP terminal is connected to +24V when the slider is on TDC.
The counter doesn't work in Multi-Step mode.	Check the STEP terminal is connected to +24V when the slider is on TDC.
Lose control of the system	Check whether the encoder cable is connected well. Check whether the motor direction wiring (X+, X-, A+, A-, G+, G-) is correct.
The actual position of X-axis is unchanged or unshown.	Check whether the encoder cable is connected well or correctly.

Reference

- <E21S Installation Manual >
- <E21S Operation Manual >

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