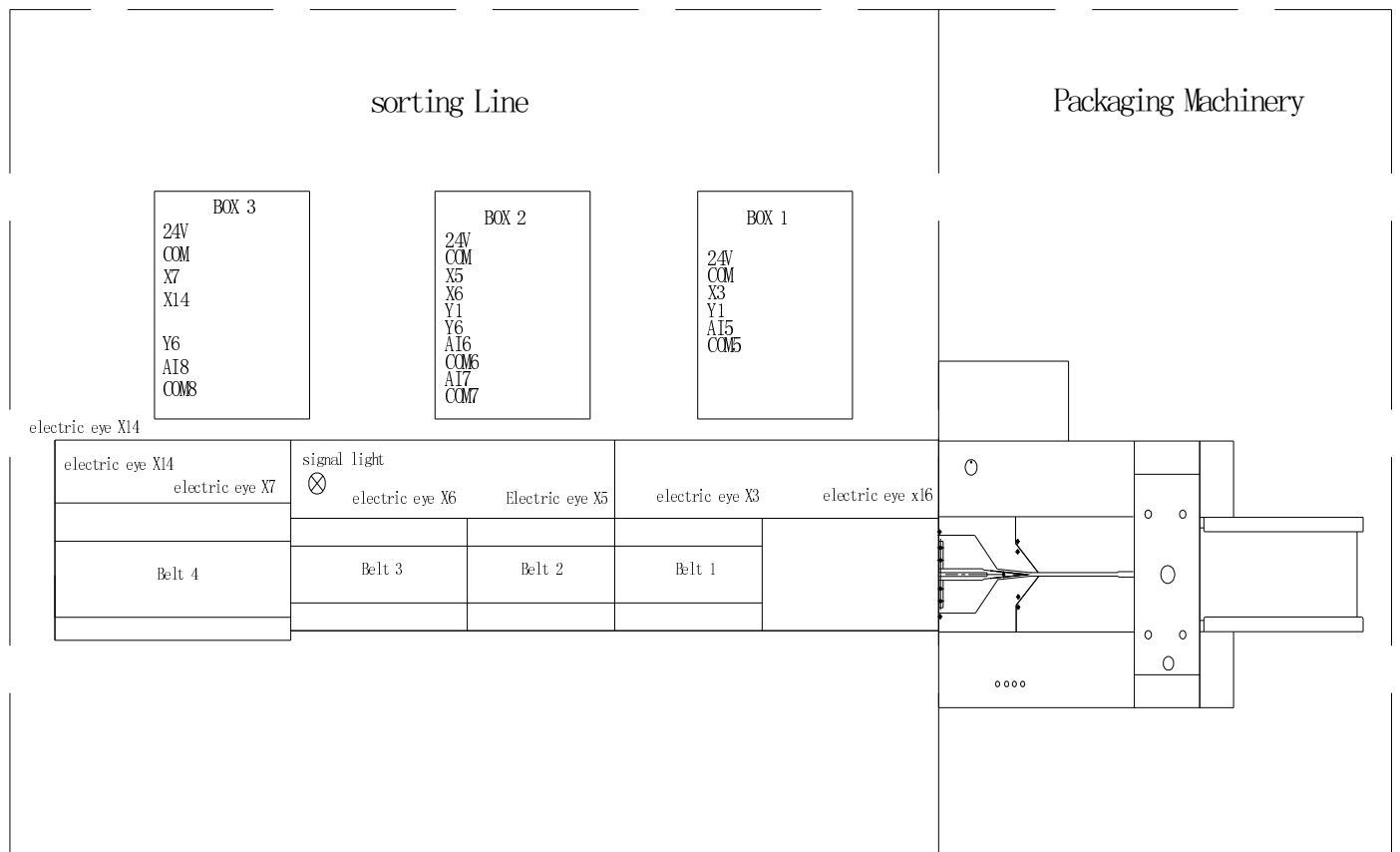


# Automatic Packaging Line Operation Manual

**FO SHAN RUI PUHUA**

## Automatic Packaging Line Operation Manual

The automatic Packaging line uses the electric eye examination the material position, control the belt speed to send the material into the packaging machine accurately. The control method of the belt is different according to different materials, so the correct maintenance of the apparatus is essential. The control system will carry on the division, the packaging machine and the positioning system with the identical set of control system control, and carries on the standardization, combines the different effect using the parameter establishment, reorganizes the system according to customer situation temporary ordering, the following instruction booklet elaboration packaging machine and positioning system's installment, the debugging.



## General Plan

- 1, Standardized packaging machine and positioning system includes a packaging machine and 4 belts, when the material can pile up, expects even and is joined to paper-insulated installing equipment, may simplify is 3 belts.
- 2, The control method of belts:
  - Position: send the material to the specific position accurately; In packaging machine speed 150bags' min, position error 30mm, can satisfy on walks the paper-insulated installing equipment request, second time position errors is smaller than 5mm, under can satisfy walks the paper-insulated installing equipment request.
  - Float material: carries on the stack belt's on material, the electric eye can eliminate the gap, prevents the empties.
  - Adjust space: adjust the material distance even.
  - Track material: before the float material processes, the speed will be fast when doesn't have material.
- 3, Belts function:
  - Belt 1:** Position
  - Belt 2:** Position、Adjust space
  - Belt 3:** Float material、Adjust space
  - Belt 4:** Track material、Adjust space
- 4、 Function combination:
  - A、 **Swiss roll:** Expects evenly, as soon as arranges in order enters, can pile the material  
**combining form:** Belt 1( Position)、Belt 3(Float material)、Belt 4(Track material)
  - B、 **Pancake:** Expects evenly, enters one by one, cannot pile the material  
**combining form:** Belt 1( Position)、Belt 3( Adjust space)、Belt 4( Adjust space)
  - C、 **Plasticene:** enters one by one, cannot pile the material, uses the down-paper installed packing machine  
**combining form:** Belt 1( Position)、Belt 2( Position)
  - D、 **French bread:** expects non-uniform, enters one by one, can pile the material  
**combining form:** Belt 1( Position)、Belt 3(Float material)、Belt 4(Track material)
- 5、 Other function:
  - A、 **start and stop automatically:** The packaging machine when the principle material condition, like X14 does not have the material, Y1 reliefs, namely the packaging machine and the leather belt 1, 2, 3 stops, Y6 maintains the output, namely the leather belt 4 have moved receives the material. And Y6 may give the first-level system to provide the signal.
  - B、 **adjust the speed automatically:** When normal use, the packaging machine speed recently expected the speed to be high, namely the packaging machine has the stop waiting time, when starts stops being too frequent will cause the packing effect not to be good. When expects is even, may using electric eye X17 carry on the packaging machine speed the automatic match.
  - C、 **Against cuts function:** Electric eye X16 is against cuts the electric eye, when has two

materials simultaneously enter, reports to the police the engine off.

## Equipment Installation

### 1、belts electric connection:

- A、 **The belt 1:** adjust electric eye is X3, start port is Y1, the frequency port is second module CH1
- B、 **The belt 2:** adjust electric eye is X5, start port is Y1, the frequency port is second module CH2
- C、 **The belt 3:** adjust electric eye is X6, start port is Y1, the frequency port is second module CH3
- D、 **The belt 4:** adjust electric eye is X7, start port is Y6, the frequency port is second module CH4

### 2、 position of electric eyes:

**“Adjust” electric eye:** the localization, adjust space electric eye position which is apart from to be away from nearby the belt is a material length adds 15mm; the float material electric eye position which is apart from to be away from nearby the belt is a material length; the track material electric eye's position regards to the belt's foundation speed and the acceleration carries on the determination, enables the material to overtake, and does not arch the material

**“START” electric eye:** the position from the belt nearby the approximately two material lengths, makes the parameter adjustment again, enables the material to overtake, and does not arch the material.

**“Stuffing and Counting”electric eye:** If with tally function time the position enters in the principle material positioning system place, guaranteed the material can pull open position; If with fills time the material function regards the actual situation control material stack end the position  
Against cut electric eye: position in the chain

### 3、 connection with the previous system:

**Y6:** The packaging machine treats the material condition, namely the packaging machine is moving or treats the material condition

**Y7:** The packaging machine fills the material condition, namely the packaging machine is moving the material too to be but many, cannot receive the material

**X11:** The packaging machine stops anxiously, may by on the previous system control packaging machine

## Equipment Adjustment:

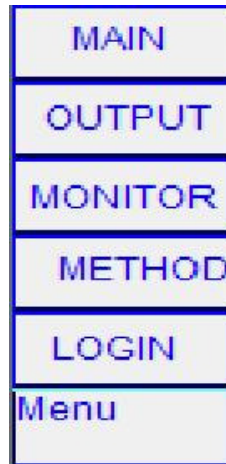
[main control view]:



- 1、"language": chinese→english
- 2、"speed": set the speed of packing machine, In[method picture]-[speed origin]after the establishment, available potentiometer velocity modulation or direct input
- 3、"F-Length": fixed-length time direct input; When tracks the color code, in[method picture]-[bag long method]establishes for automatic when the direct examination, the establishment manner man-hour must the first manual input
- 4、"color mark": choose the bag length is fixed-length or tracks the color mark
- 5、"sorting line switch": choose the principle material function, manages the material function namely non-material engine off
- 6、"Film": directly control the paper In or Back
- 7、"Total Pcs" "clear": shows the current packaging quantity, can be clear "0"
- 8、"Stop Site": set the horizontal sealling position, when the packing machine cycle stop
- 9、"Current Site": shows the horizontal sealling current angle, with 1-112
- 10、"normal": it's adjustment condition when pressed down, the packaging machine may on the operation, manages the material localization belt not to work
- 11、"M-Length": input the product length which need to pack
- 12、"Common User": shows the current user, if adjustment user, can enter the adjust board, Senior User can enter the senior board
- 13、"Cut Site": when the color mark working, adjust the cut position of horizontal selaling, make

it cut on the color mark

- 14、"In Site": adjust the product come into the chain, avoid it pushing on the material block
- 15、"Menu": can spring the shortcut menu to enter other pictures



16、"stop": shows the packing machine current condition, with stop working、running、arret、Joggle 、error

[signal output view]

language	RUI PUHUA	Common User			
Output1 Off	Y10	Start	0	Time	0 10ms
Output2 Off	Y11	Time	0	End	0
Output3 off	Y12	Start	0	Length	0
Output4 off	Y13	Start	0	Length	0
Avoid Cut off	X5	Start	0	End	0
	Current Site		0	[1-112]	
Menu	2011 - 1 - 13		8: 16	Ready	

**Explanation:** The signal output to refer to the knife to seal the current position, controls various ports' signal output or the movement; This system has established altogether four port's outputs, in addition established one against to cut the control, controlled the packaging machine to stop; Five signal outputs are equipped with the switch, and carries on the different parameter control according to the different need

**Date printer:** Only establishment the printing start position, the signal length 10 (0.1 second), can satisfy majority hits the code machine signal request

**Air inlet:** setting the air inlet finish location, about the cutter sealing location, about 3Kg pressure,

the time about 8(0.08seconds)

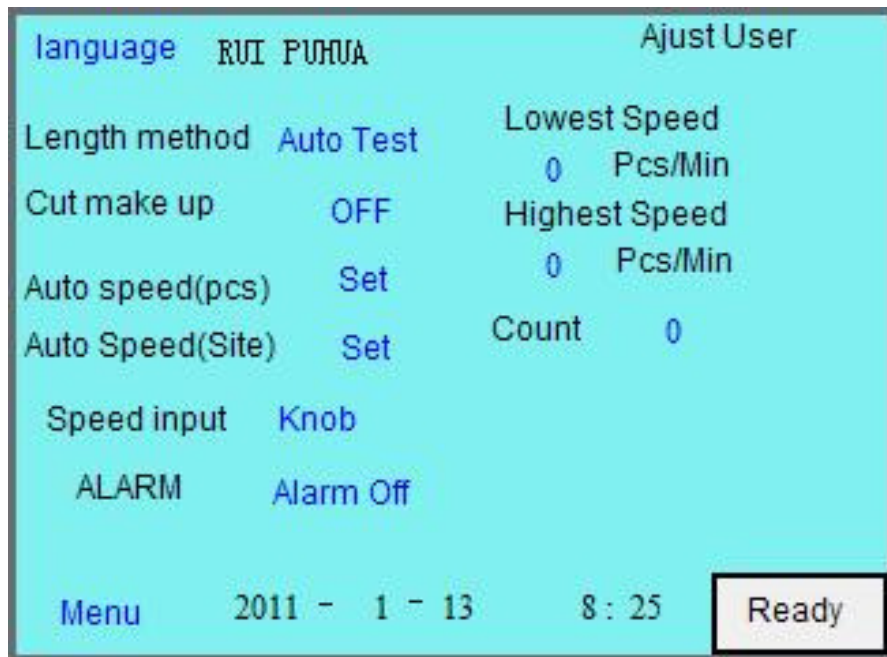
**Alcohol:** according to the practical situation setting the working time.

**protect cutting:** according to the practical situation start and finish sitting.

### [Surveillance view]

language		RUI PUHUA		Common User	
Set Speed	Reality Speed	Cut offset	Cut pulse		
0	0	0	0		
Mid error		Mid-Offset	Mark Error		
0		0	0		
Standard P	Film pulse	Belt 1 in	Belt		
0	0	0	Right Right		
Menu	2011 - 1 - 15	10:22	Ready		

1. **Set Speed, Reality Speed:** control the producer function.
2. **Cut off set:** if the setting speed the same as the practice speed, can setting compensation. The cutter warp is cutter compensation value, too much the producer will be not good.
3. **Cut pulse:** the cutter working one circle is practice output pulse, standard is 112, if in 111—113 is drive system shake, not effect using. If less 111, is the problems of cutter approach switch or groove switch, if more than 113, is about the interference
4. **Mid-sealing error:** Mid-sealing practical error, 4 pulse is 1mm, less 8 is Normal
5. **Mid-sealing off set:** indicate the cutter sealing and mid-sealing producer consistency, if the cutter sealing is normal and the value is more than 100, that the mid-sealing is not good.
6. **Color Mark Error:** the color mark follow up, the color photo cell make the wrong sign.
7. **Standard pulse:** the bag length theory output pulse.
8. **Film pulse:** the bag length practice output pulse.
9. **Belt 1 In:** the feeding belt 1 products enter location: normal is 90-112 and 0-20.if not is the belt2 working wrong, that belt 1 difficult make the point.
10. **Belt:** indicate the belt theory speed is over the practical output.



1. **Length method:** the equipment may automatically detect and set the length, manual setting is put the bag length, Normally is the automatic bag length, if the color mark signal is too much you can put the bag length by hands.
2. **Cut make up:** the setting speed same as the working speed need the compensation.
3. **Auto speed(pcs):** According to the products feeding to test the packing speed, should setting adjust Qty. to calculate the peed.
4. **Auto speed(Site):** according to the products location to change the speed, the products less, the speed lower, the products more, the speed higher.
5. **Speed input:** the automatic or the manual
6. **alarm:** if start the warning alarm

#### [LOG view]



Choose the user and the passwords, use the adjust user or senior user into the windows.



**[Feeding belt control]**

language		RUI PUHUA		Ajust User	
Belt Adjust					
	METHOD	Long	Quicken	In Site	
Belt 1	Test	0			
Belt 2	Test	0	0	0	
Belt 3	Test	0	0	NEXT	
Belt 4	Test	0	0	CLOSE	

Menu 2011 - 1 - 13 8:22 Ready

1. **Method:** choose the belt functions, the detect state is not working, all the 4 belt is detect state, use the same length as the products via the 4 belt and cell photo, detect all the belt working and the belt 2 feeding location.
2. **Long:** setting every belt working one circle length on the cutter sealing, belt as the sitting, working length is double as the products length, belt as the pushing: the working length is one products length. Others make as the situations.
3. **Quicken:** when the products distance is more than the theoretical value use make the speed up, too lower can not catch, too higher not good, about 150-300
4. **In Site:** The belt 2 establishes this when adopt the localization function, the effect like belt 1 feeding position

**[adjust view 2]**

language		RUI PUHUA		Adjust	
Start-Stop control					
Start	0	.01s	Stop	0	.01s
Block control					
Block	0	.1s			

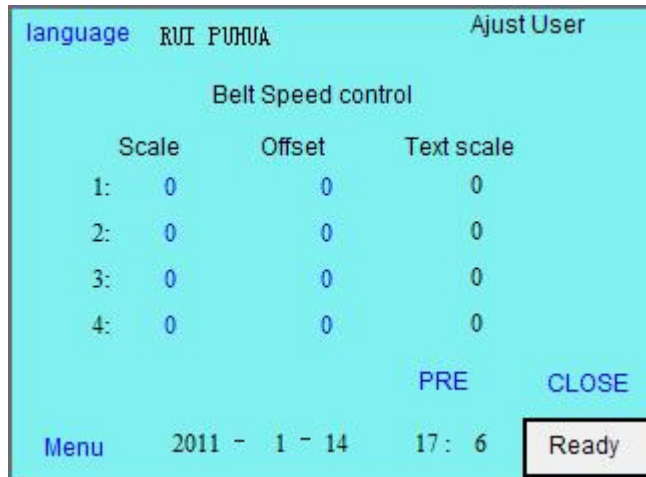
Menu 2011 - 1 - 15 10:33 Ready

1. **Start-Stop control:** Under the principle material begins using, opens stops electric eye X14 examines how long time of the material begins using the packaging machine, does not examine when can not check the material time stops the packaging machine
2. **Block control:** After filling material electric eye X17 examines how long the material

continuously, then reports.

### [adjust view 3]

Feeding belt speed adjustment

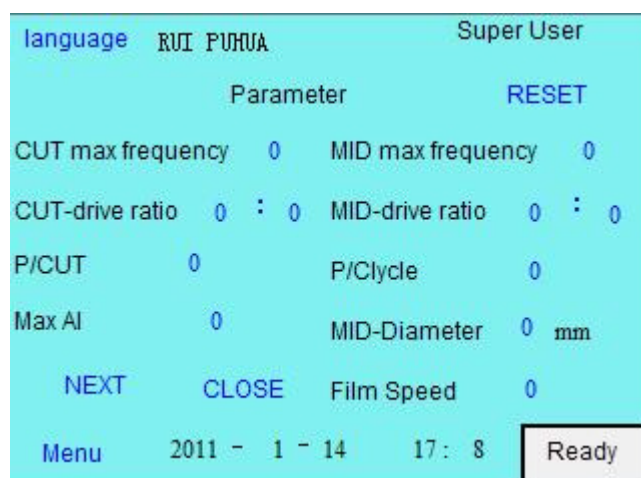


As a result of the electric appliance performance error, the machine-finishing error causes the data not to permit, this window user adjusts various belts speed:

- 1、 **Scale:** Adjusts the various belts' distance proportion; If the chain wheel velocity ratio is time 1:1, normal 100 (1 time)
- 2、 **Offset:** Adjusts various belts' foundation deviation, the standard is 0, as a result of this system for the voltage control frequency, in the voltage transmission has the voltage drop, basically supposes is 30-50
- 3、 **Text Scale:** Various belts under the examine condition, with any material which same length of the product passes through 4 belts and the electric eyes, the automatic detection various belts' proportion deviation supplies the reference.

### [senior view 1]

packaging machine parameter

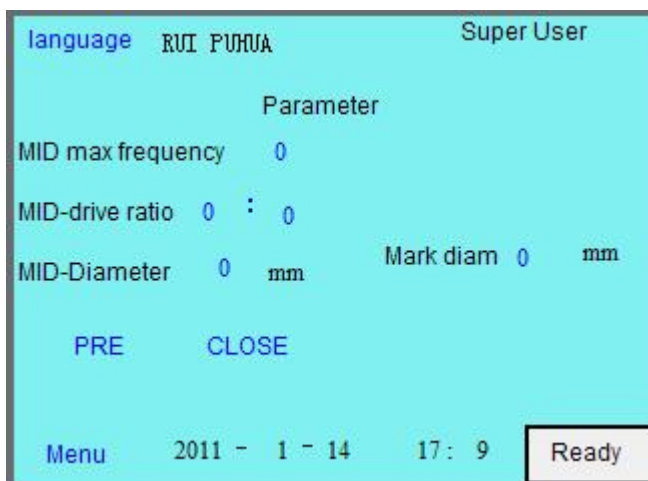


- 1、 **“Initialization”:** According to standard layout automatically set up parameter

- 2、**“CUT max frequency”**, **“MID-max frequency”**: The knife seals, mid-seals transducer's max frequency, is consistent with the transducer establishment; The standard is 70
  - 3、**“CUT-drive ratio”**: The knife seals motor and the knife seals - knife's velocity ratio, the standard is 1:9
  - 4、**“MID-drive ratio”**: Mid-seals motor and the Mid-seal driveshaft's velocity ratio , the standard is 1:9
  - 5、**“P/CUT”**: the output pulse number when the knife seals a round, the standard is 112
  - 6、**“P/Clycle”**: the output pulse number when the Mid-seals driveshaft a round, the standard is 720
  - 7、**“MID-Diameter”**: Mid-seals driveshaft diameter, the standard is 56
  - 8、**“Film Speed ”**: the adopted speed when the paper running
- ◆**Note: This window parameter connect with packaging machine's mechanism and electric parameter, cannot adjust at will**

## [senior view 2]

sorting line parameter



- 1、**“MID max frequency”**: sorting line transducer's max frequency, is consistent with the transducer parameter, the standard is 70
  - 2、**“MID-drive ratio”**: the velocity ratio of sorting line motor and driving shaft, the standard is 1:10
  - 3、**“MID-Diameter”**: sorting line driveshaft's diameter, the standard is 100
  - 4、**“Mark diameter”**: the diameter of a spot which the electric eye project to the product
- ◆**Note: This window parameter connect with sorting line's mechanism and electric parameter, cannot adjust at will**

## transducer parameter

This control system uses the Schneider transducer, the parameter establishment is as follows:

**CONF:**division model

**FULL:** full menu

**I\_O\_:** input\_output menu

**\*tct:** wire 2 control-LEL:0/1 Level

**\*Npl:** Logic Input type-Neg: negative logic

**All\_:** All division menu

**\*Allt:** All Type-10U: Voltage 10V

**Drc\_:** motor control menu

**\*tFr:** max frequency

**Ctl\_:** control menu

**\*CHCF:** Channel division-SEP: Separate mode

**\*ACC:** Acceleration time-0.2

**\*DEC:** Deceleration time-0.2

**\*HSP:** Top frequency-70Hz

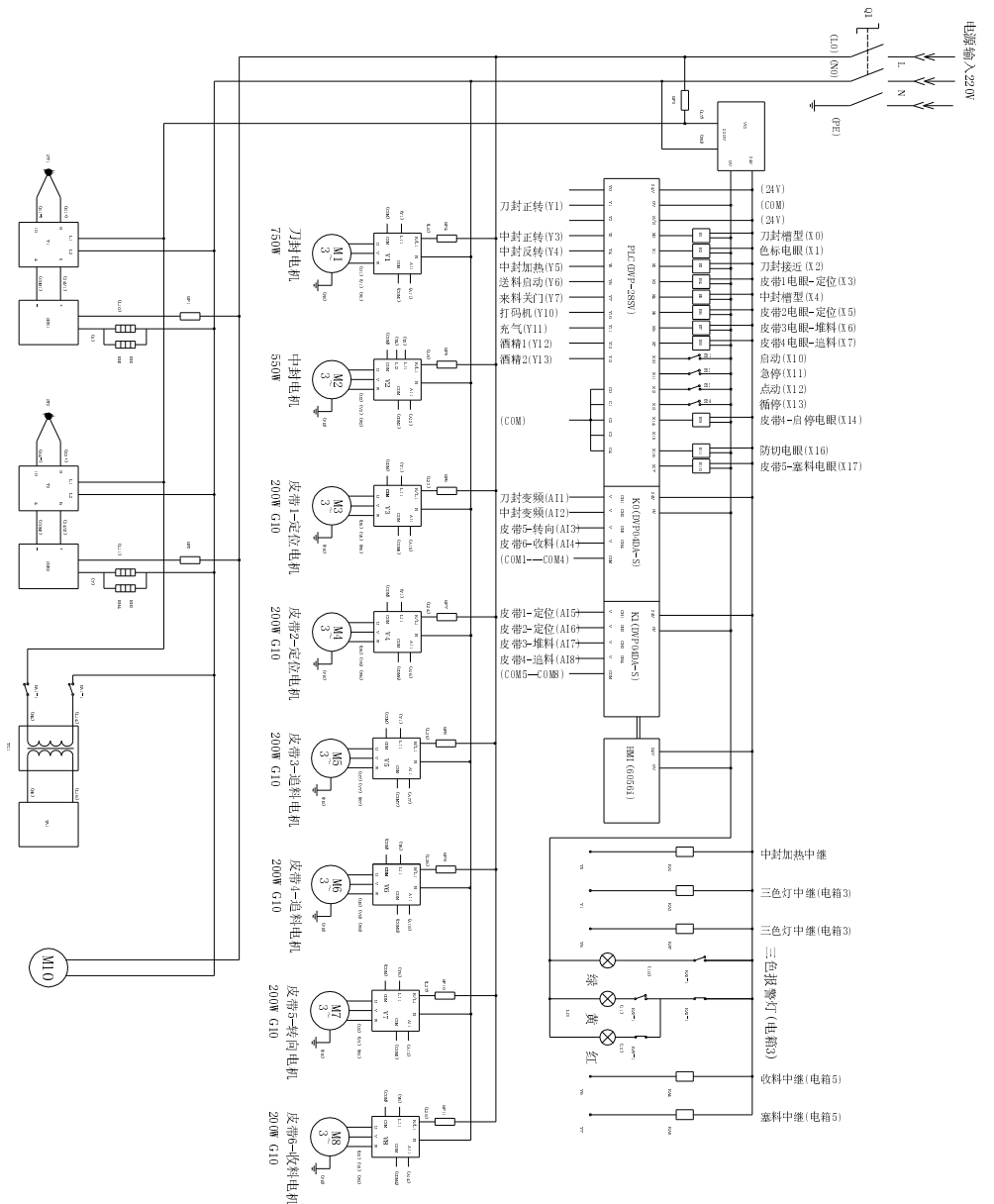
Transducer parameter reset:

**CONF:** division model

**\*FCS:** Resumes the leaving plant disposition (press "ENT " and keep 2 seconds)

# Electrical Wiring diagram

序号	代号	名称	型号规格	数量	备注	序号	代号	名称	型号规格	数量	备注	序号	代号	名称	型号规格	数量	备注
34						26	M1	交流电机	Y802-4	1	220V 750W	13					
38	M10	风扇		1		25	V1-12	变频器	ABBACS1000	7	一位两通	12					
37	M9	直流小电机	29W-10G10	1	特制长轴			电磁阀		1		11	E7-E11	光电眼	SICK/WT9-2N130	5	NPN
36	V9	调速器		1		23	G1	三色报警灯		10		9	E5	槽型开关	SINX/79-K44	1	NPN
35	V11	电磁阀		1		22	K1-K38	中间继电器	OMRON-2V	8		8	E4	光电眼	SICK/WT9-2N130	1	NPN
34	TC1	变频器	220V-110V	1		21	HM1	中间继电器	WATER-347500R	1		7	E3	接近开关	BAI DELI/RS-C2W	1	NPN
33	EH3-EH4	发热管	Φ9.4X160	4	220V 350W	19	PLC	控制器	DELTA/DP-041W	2		6	E2	光电眼	BAI DELI/RS-C2W	1	NPN
32	EH1-EH2	发热管	Φ9.4X100	2	220V 350W	18	V3-V7	变频器	ABBACS1000	5		5	E1	槽型开关	SINX/79-K44	1	NPN
31	SSR1-SSR2	固态		2	40A	17	SB4	按钮开关	ABBACS1000	1		4	VC1	直流稳压源	MP-S-50-24	1	OUT:24V-2.1A
30	ST1-SS2	热电阻	K型-1X20X500	2		16	S83	按钮开关	ABBACS1000	1		3	QF2-QF10	空气开关	CAS-6A	8	
29	T1-T2	温控表		2		15	S82	按钮开关	ABBACS1000	1		2	QF1-QF2	空气开关	CAS-6A	2	
28	M3-M7	交流电机	Y801-G10	5		14	S81	按钮开关	ABBACS1000	1		1	Q1	护指开关	九州/JH13	1	
27	M2	交流电机	Y801-4	1													



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