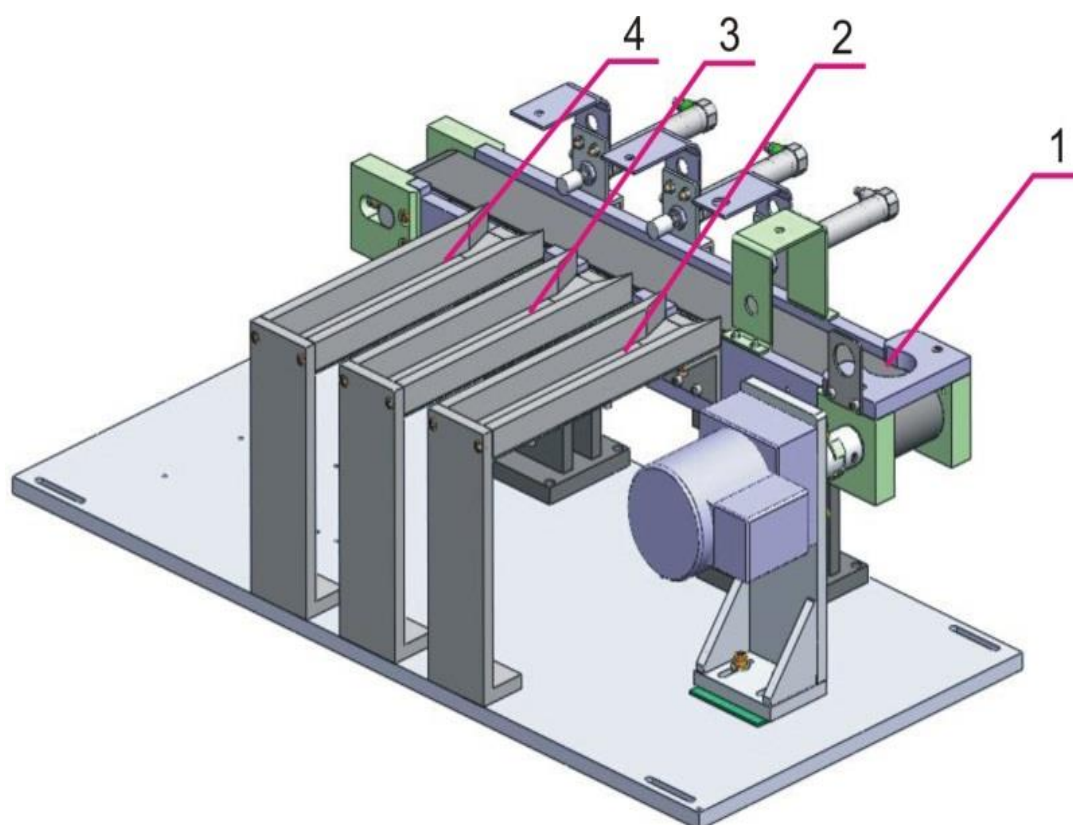




worldskills
HCM City 2019

ĐỀ THI
NGHỀ: TỰ ĐỘNG HÓA CÔNG NGHIỆP

Module 3: Lắp ráp cơ khí, đấu nối mạch điện và khí nén
trạm phân loại
Tổng điểm: 25/100
Thời gian: 90 phút



Năm 2019

3.1 Lắp hệ cơ khí trạm phân loại sản phẩm

3.1.1 Bảng liệt kê linh kiện cơ khí của trạm phân loại sản phẩm:

No.	No.	Model/ Specification	Name	Quantity	description
1	5P1-1		operation guiding element	1	Figure 5-1
2	5P1-2		motor bracket	1	
3	5P1-3		cylinder mounting parts	3	
4	5P1-4		cylinder bracket	3	
5	5P1-5		bracket	4	
6	5P1-6		base plate bracket	4	
7	5P1-7		connecting pieces	3	
8	5P1-8		motor base plate	1	
9	5P1-9		material groove connecting pieces	3	
10	5P2-1		conveyor belt board	1	Figure 5-2
11	5P2-2		conveyor belt side-mechanical parts 1	1	
12	5P2-3		conveyor belt side-mechanical parts 2	1	
13	5P3-1		gasket	1	Figure 5-3
14	5P3-2		transmission axle mounting piece	1	
15	5P3-3		encoder connecting bearing mounting piece	1	
16	5P3-4		motor	1	
17	5P3-5		coupler	1	
18	5P3-6		transmission axle	1	
19	5P3-7		encoder connecting bearing	1	
20	5P4-1		sensor bracket 1 To prevail in kind	1	Figure 5-4
21	5P4-2		sensor bracket 2	2	
22	5P4-3		sensor bracket 3	1	
23	5P4-4		sensor bracket 4 Do not use	1	
24	5P4-5		pusher cylinder	3	
25	5P4-6		motor bracket	1	Figure 5-5
26	5P4-7		connecting piece	1	
27	5P4-8		material groove side-mechanical part 1	1	
28	5P4-9		material groove side-mechanical part 2	1	
29	5P4-10		material groove base plate	3	
30	5P5-1		conveyor belt	1	Figure 5-6
31	5P6-1	M3×8	hexagon socket head cap screw	6	Figure 5-7
32	5P6-2	M3×6	hexagon socket head cap screw	4	
33	5P6-3	M5×12	hexagon socket head cap screw	8	
34	5P6-4	M4×10	hexagon socket head cap	13	

			screw		
35	5P6-5	M4×8	hexagon socket head cap screw	26	
36	5P6-6	M4×12	hexagon socket head cap screw	42	
37	5P6-7	M4	hexagonal nut	6	
38	5P6-8		spring	2	
39	5P6-9	M6×30	hexagon socket head cap screw	2	
40	5P6-10	M6×20	hexagon socket head cap screw	5	
41	5P6-11	M5×20	hexagon socket head cap screw	4	
42	5P6-12	M4×16	hexagon socket head cap screw	8	
43	5P6-13	M4×14	hexagon socket head cap screw	16	

Ghi chú: Bảng liệt kê trên đây chưa bao gồm ốc vít để lắp trạm phân loại lên mặt bàn của Bộ dây chuyền tự động hóa công nghiệp.

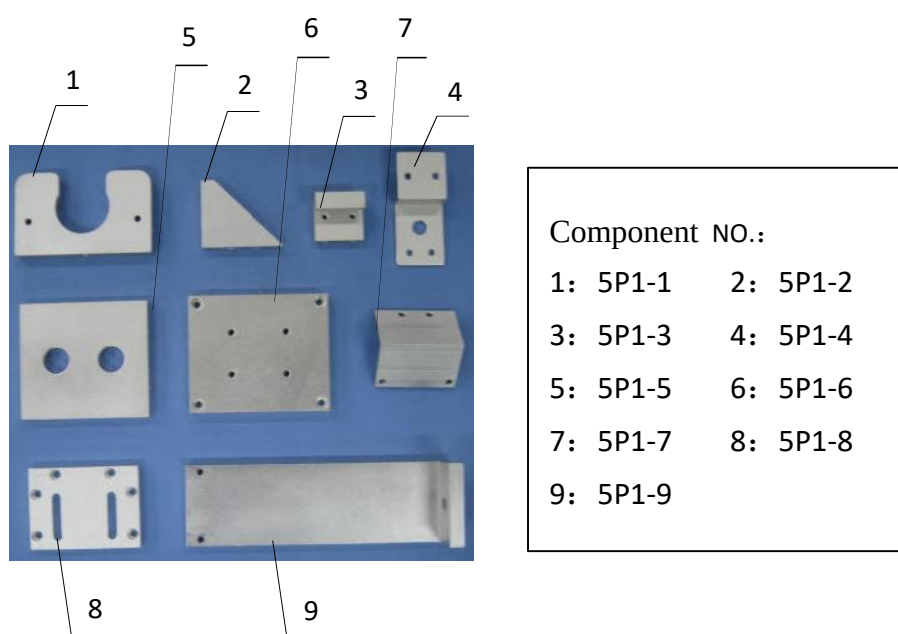


Figure 5-1 Sorting unit component figure 1

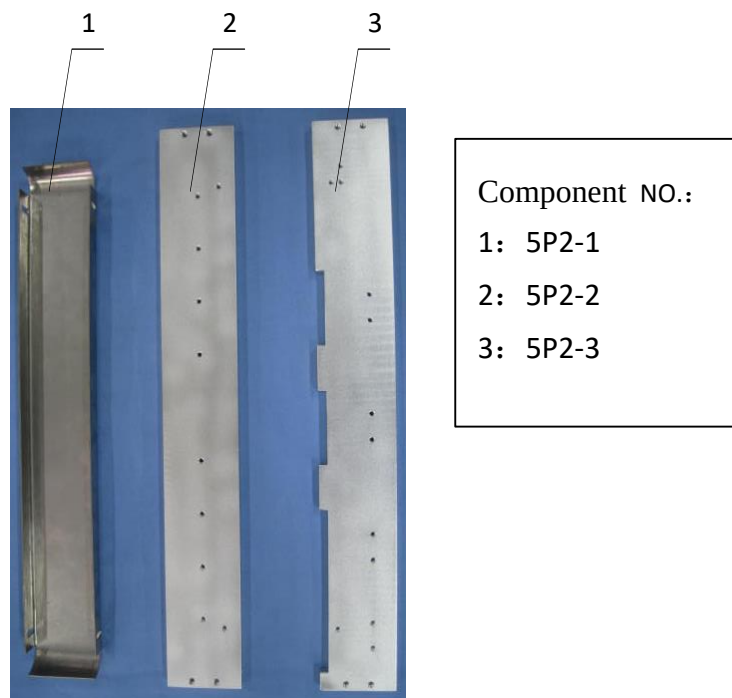


Figure 5-2 Sorting unit component figure 2

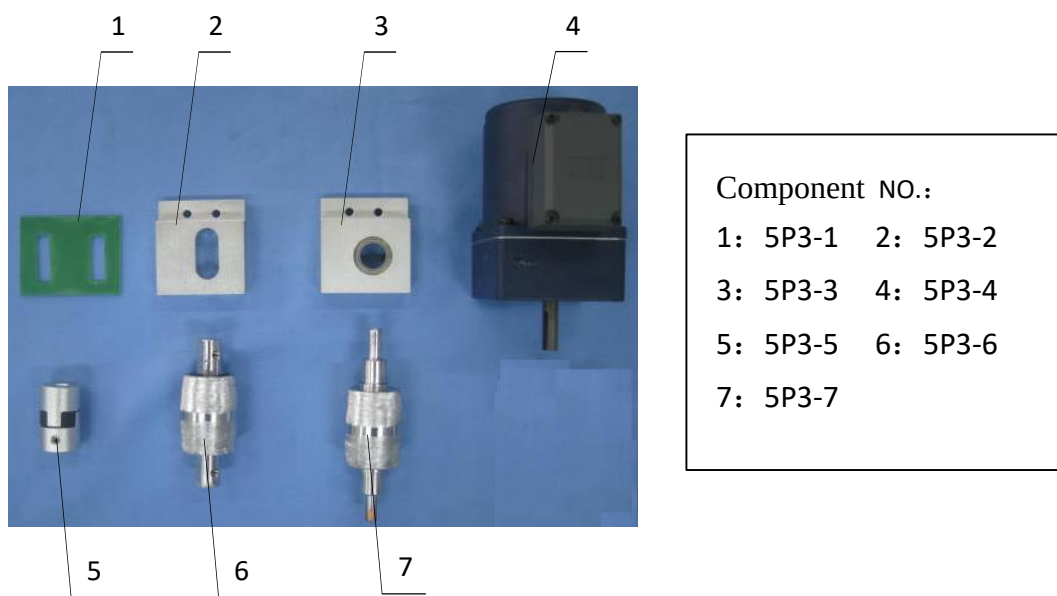


Figure 5-3 Sorting unit component figure 3

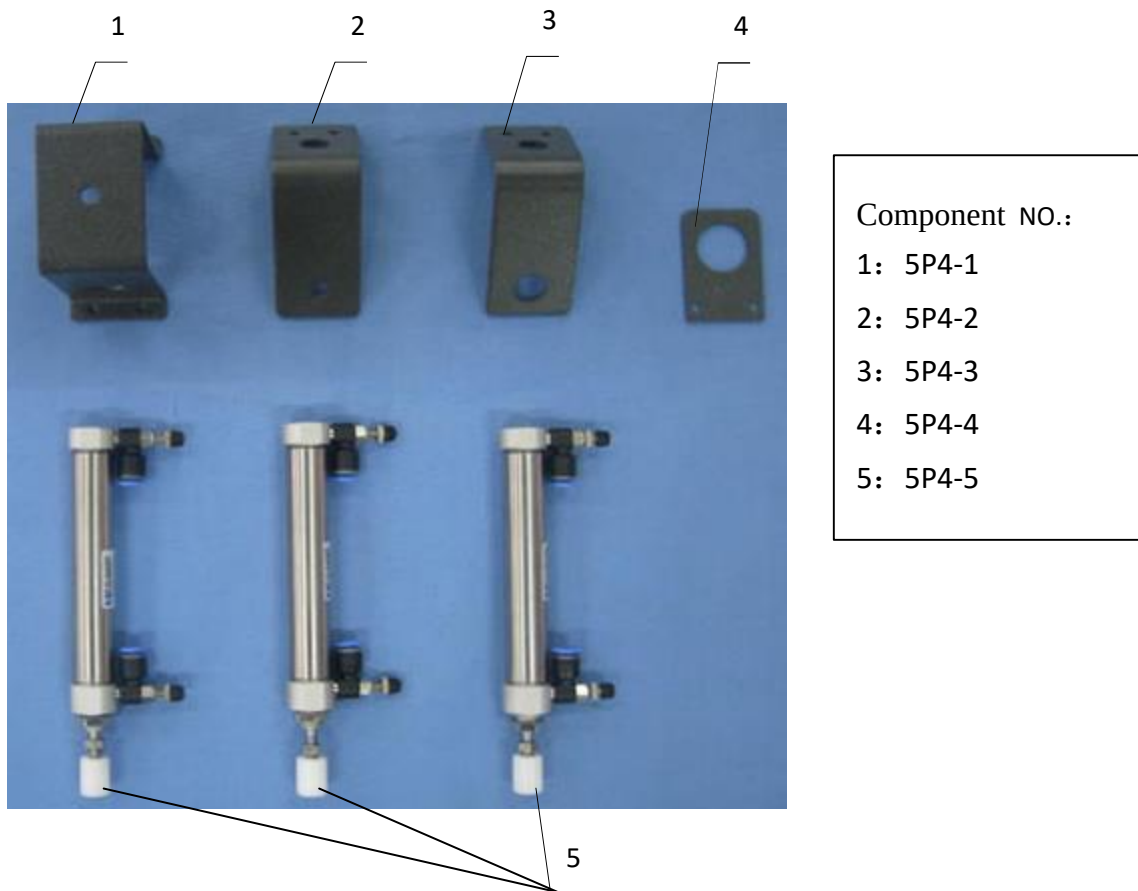


Figure 5-4 Sorting unit component figure 4

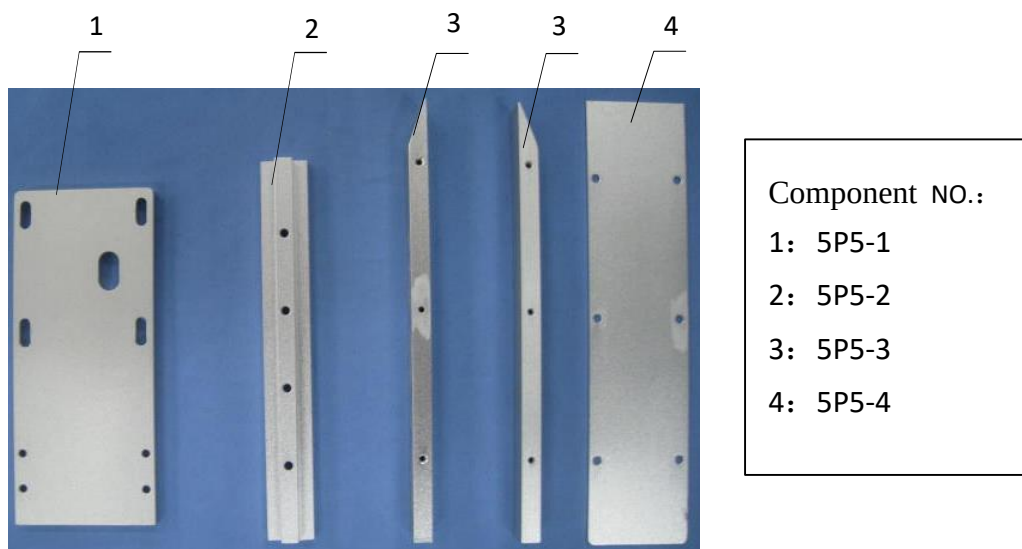


Figure 5-5 Sorting unit component figure 5



Figure 5-6 Sorting unit component figure 6

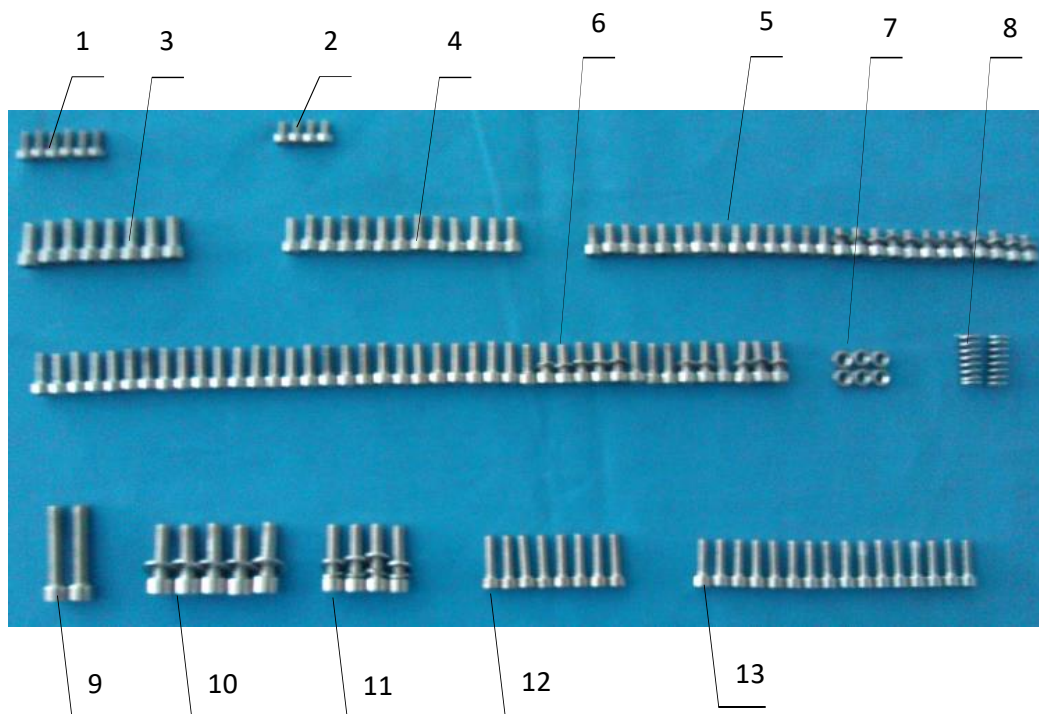


Figure 5-7 Sorting unit component figure 7

Component NO.: 1: 5P5-1 2: 5P5-2 3: 5P5-3 4: 5P5-4
 5: 5P5-4 6: 5P5-6 7: 5P5-7 8: 5P5-8 9: 5P5-9
 10: 5P5-10 11: 5P5-11 12: 5P5-12 13: 5P5-13

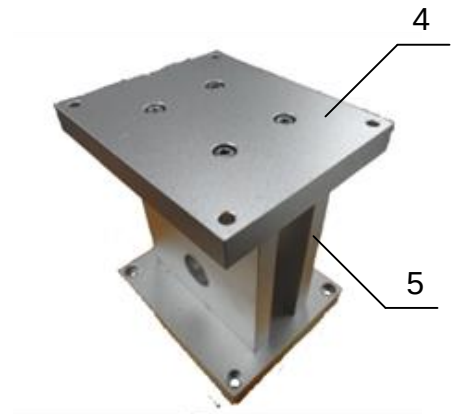
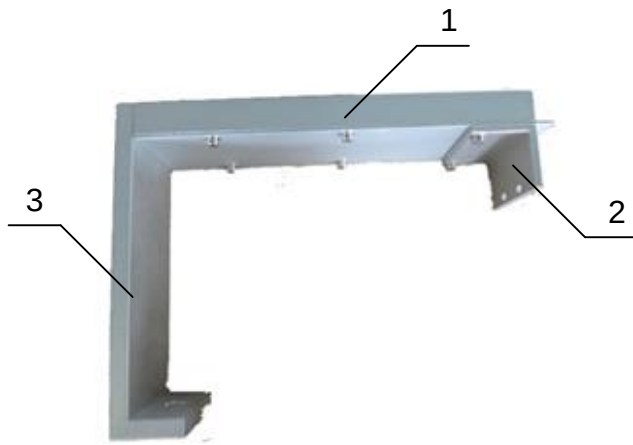
(1) pusher



Mechanical parts:

1: 5P4-5 3
 2: 5P4-2 2
 3: 5P1-4 3
 4: 5P4-3 1

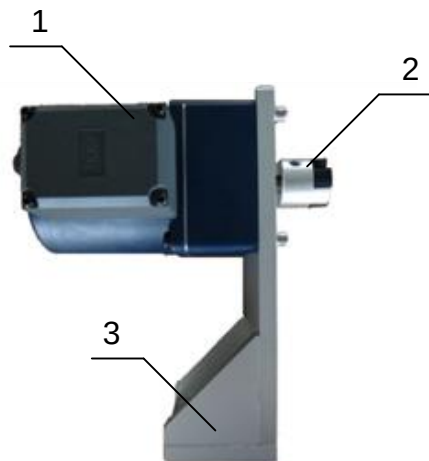
(2) Material groove and support clamp



Mechanical parts:

1: 5P4-10 3 piece 2: 5P1-7 3 piece 3: 5P1-9 3 piece
4: 5P1-6 4 piece 5: 5P1-5 4 piece

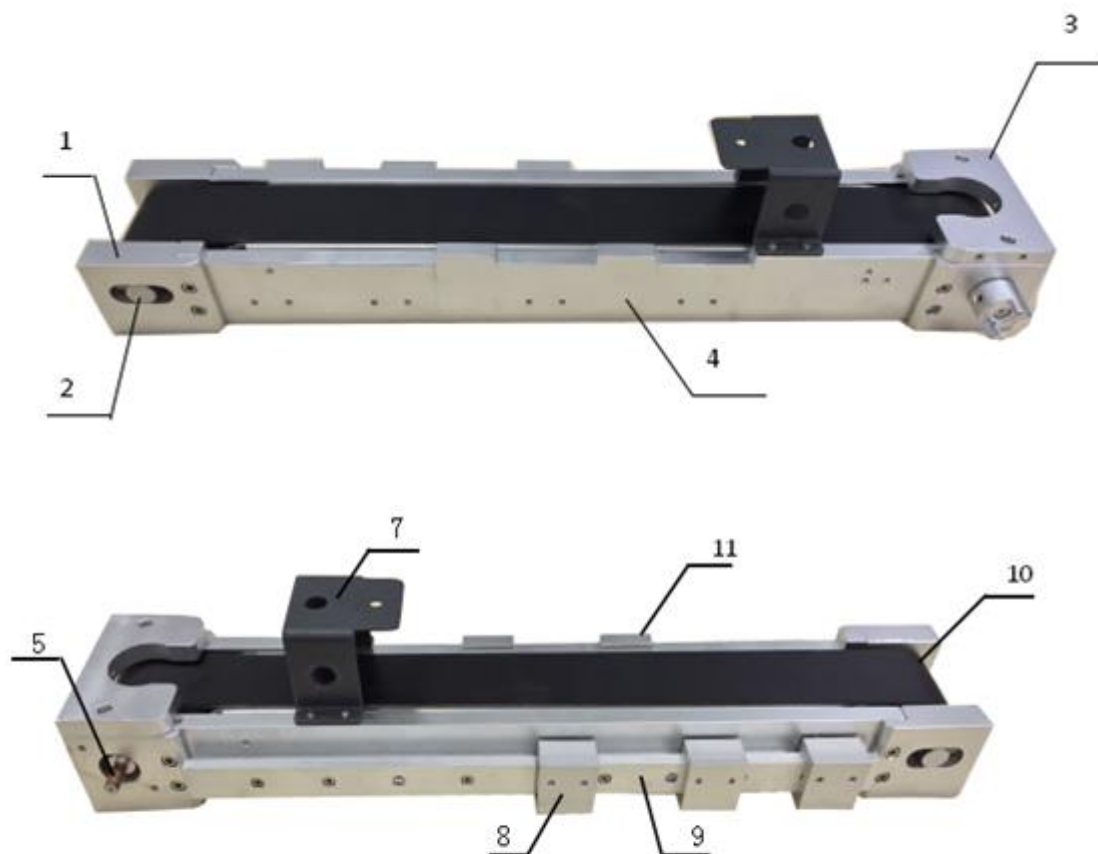
(3) AC motor



Mechanical parts:

1: 5P3-4 1 piece
2: 5P3-5 1 piece
3: 5P4-6 1 piece

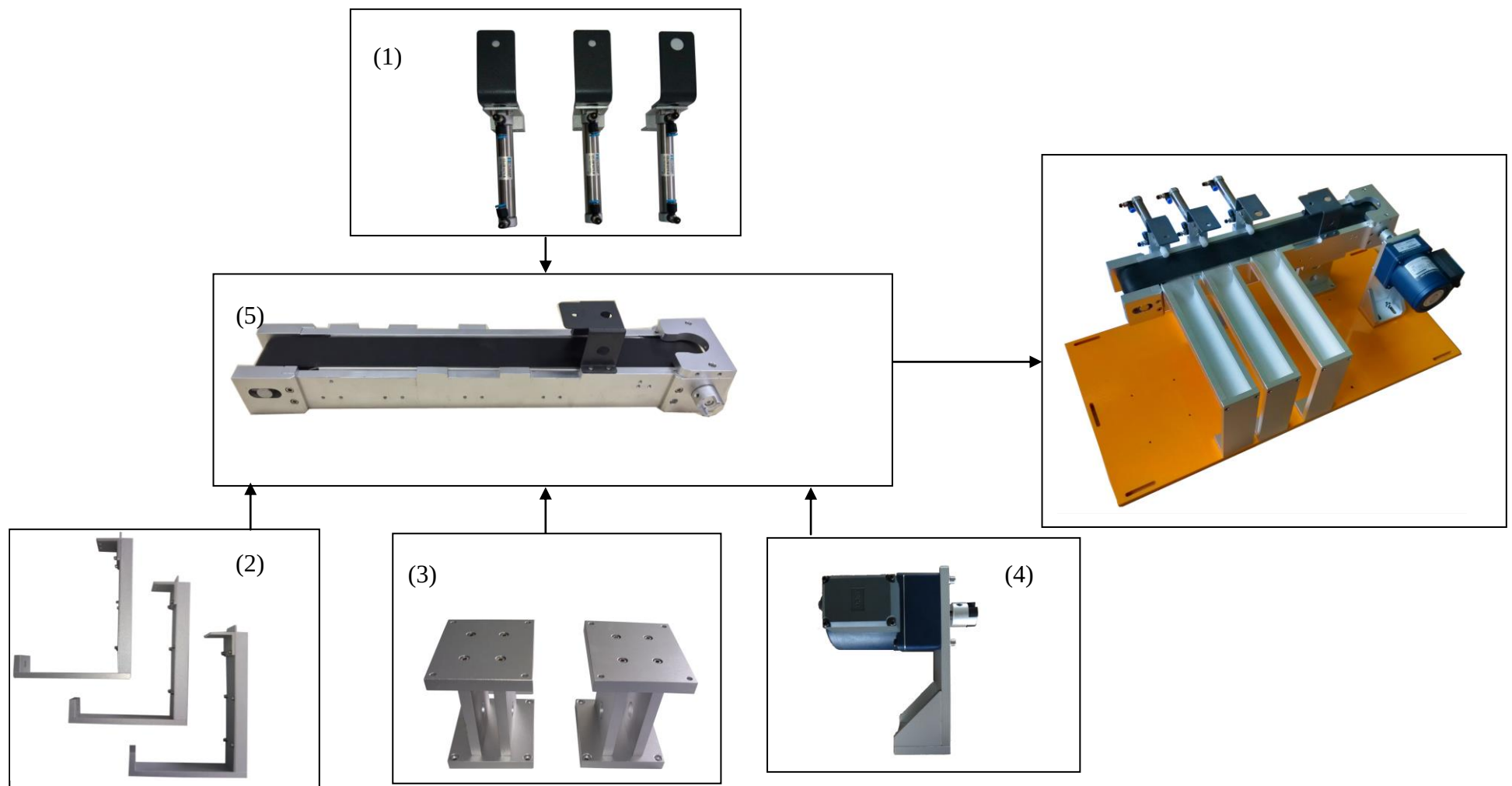
(4) Conveyorbelt



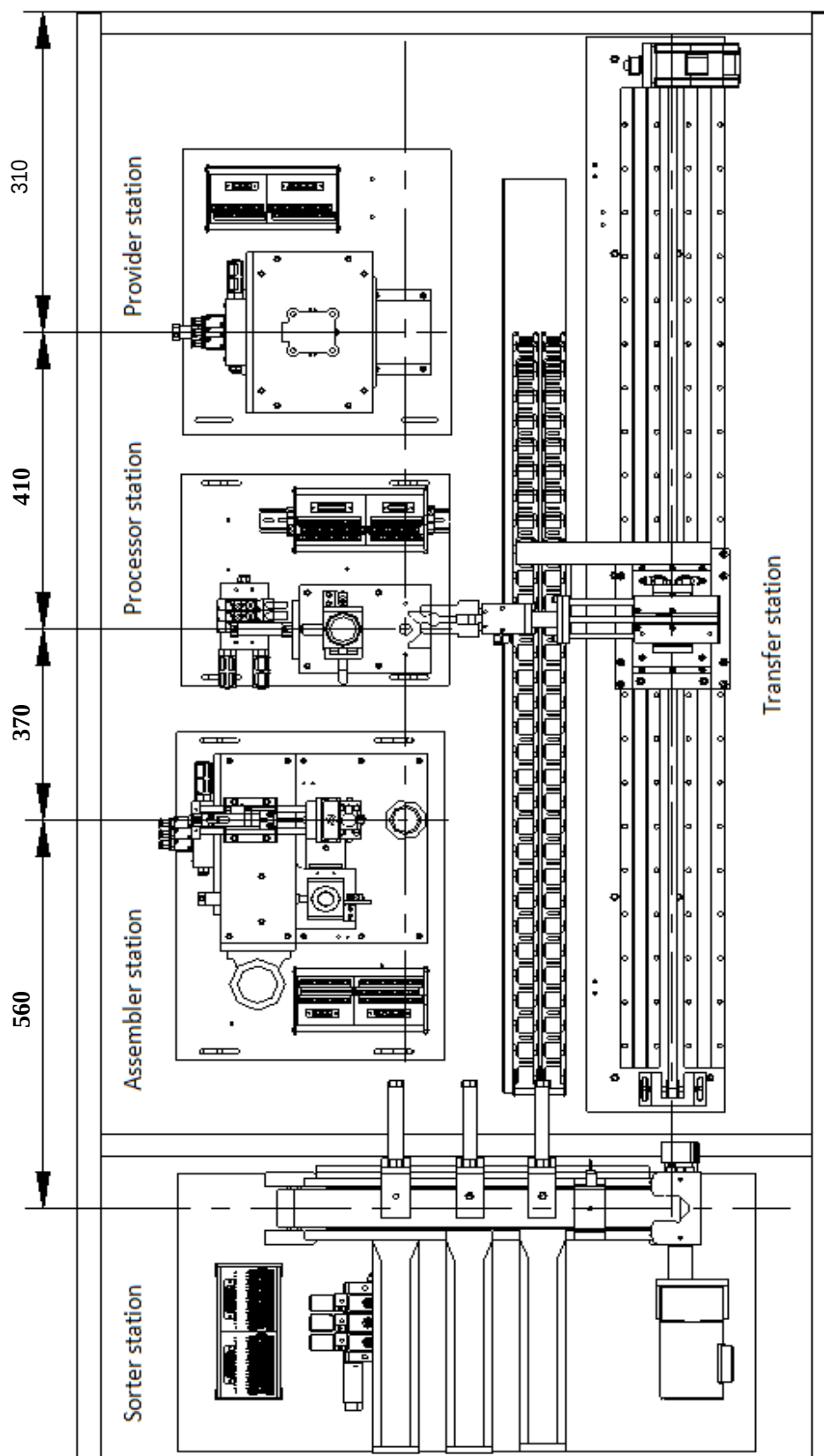
Mechanical parts:

1: 5P3-3	2	2: 5P3-6	2	3: 5P1-1	1
4: 5P2-3	1	5: 5P3-7	1		
7: 5P4-1	1	8: 5P1-3	3	9: 5P4-7	1
10: 5P5-1	1	11: 5P2-2	1		

3.1.2 Lắp ráp các cụm như hình (1) đến (5) và lắp hoàn chỉnh trạm phân loại như hình (6)



3.1.3 Lắp trạm phân loại lên mặt bàn đúng khoảng cách



3.2 Vị trí lắp đặt các cảm biến

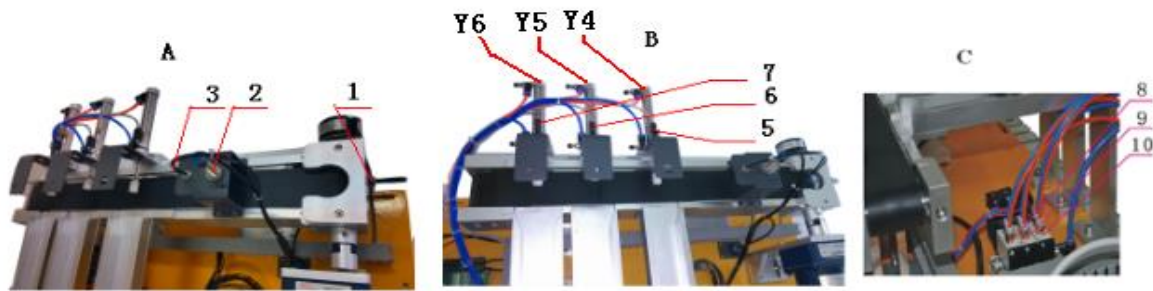


Figure 5 #335 Sorter station control system components installing position

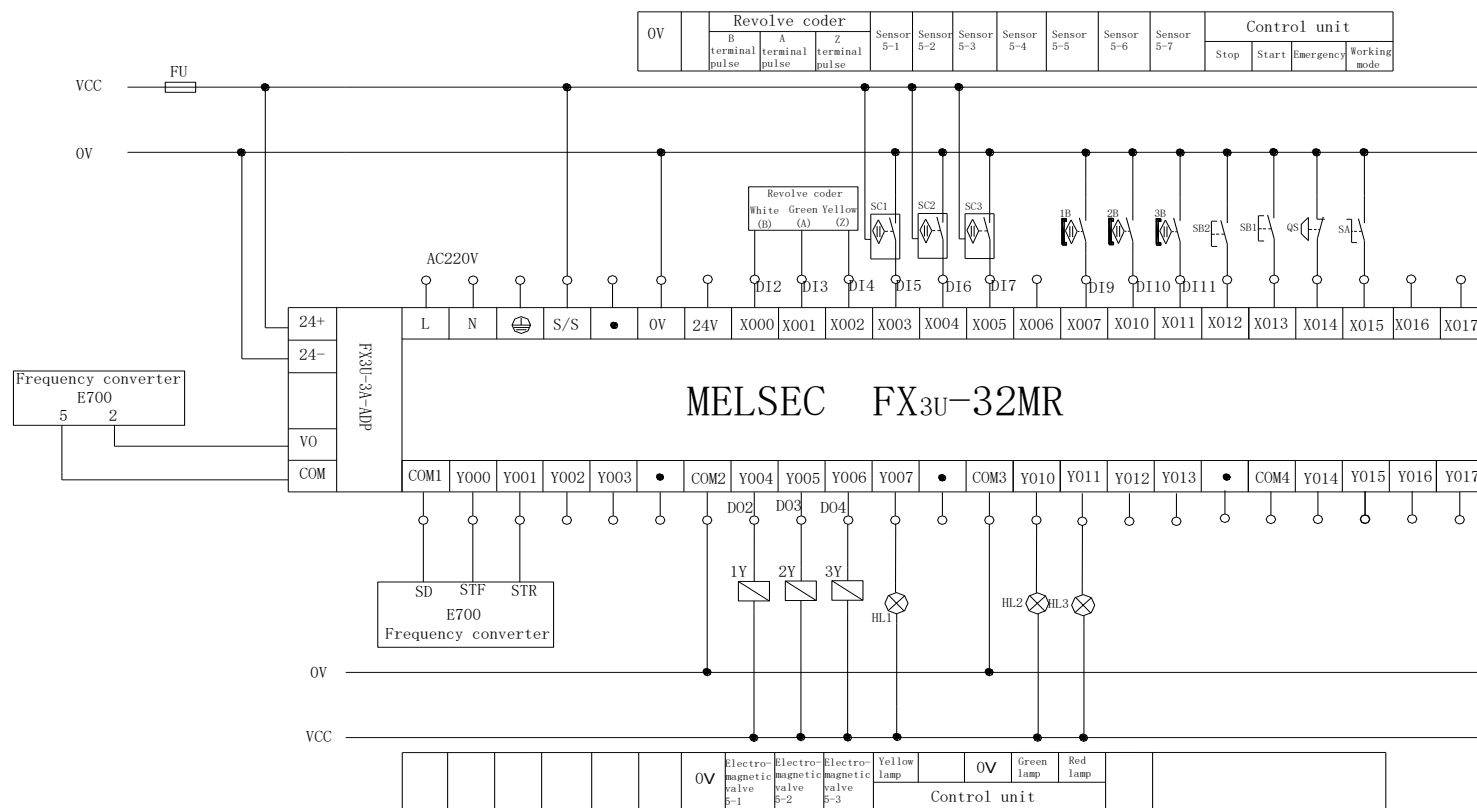
- 1.Sensor 5-1 2.Sensor 5-2 3.Sensor 5-3 4. 5.Sensor 5-5
6.Sensor 5-6 7.Sensor 5-7 8.Electromagnetic valve 5-3 9. 10.Electromagnetic valve 5-1
9.Electromagnetic valve 5-2

3.3 Tín hiệu vào / ra của trạm phân loại sản phẩm

Input signal					Output signal				
ID	PLC Input	Item Symbol	Signal Description	Source of signal	ID	PLC Output	Item Symbol	Signal Description	Source of signal
1	X000		Revolve coder A terminal pulse	Device side (H01687)	1	Y000		STF	Frequency converter
2	X001		Revolve coder B terminal pulse		2	Y001		STR	
3	X002		Revolve coder Z terminal pulse		3				Device side (H01650)
4	X003	SC1	Sensor 5-1		4				
5	X004	SC2	Sensor 5-2		5				
6	X005	SC3	Sensor 5-3		6	Y004	1Y	Electromagnetic valve 5-1	
7	X006				7	Y005	2Y	Electromagnetic valve 5-2	
8	X007	1B	Sensor 5-5		8	Y006	3Y	Electromagnetic valve 5-3	
9	X010	2B	Sensor 5-6		9	Y007	HL1	Yellow lamp	Control unit
10	X011	3B	Sensor 5-7		10	Y010	HL2	Green lamp	
11	X012	SB2	Stop	Control unit	11	Y011	HL3	Red lamp	
12	X013	SB1	Start						
13	X014	QS	Emergency						
14	X015	SA	Working mode						

3.4 Chứng loại của các cảm biến

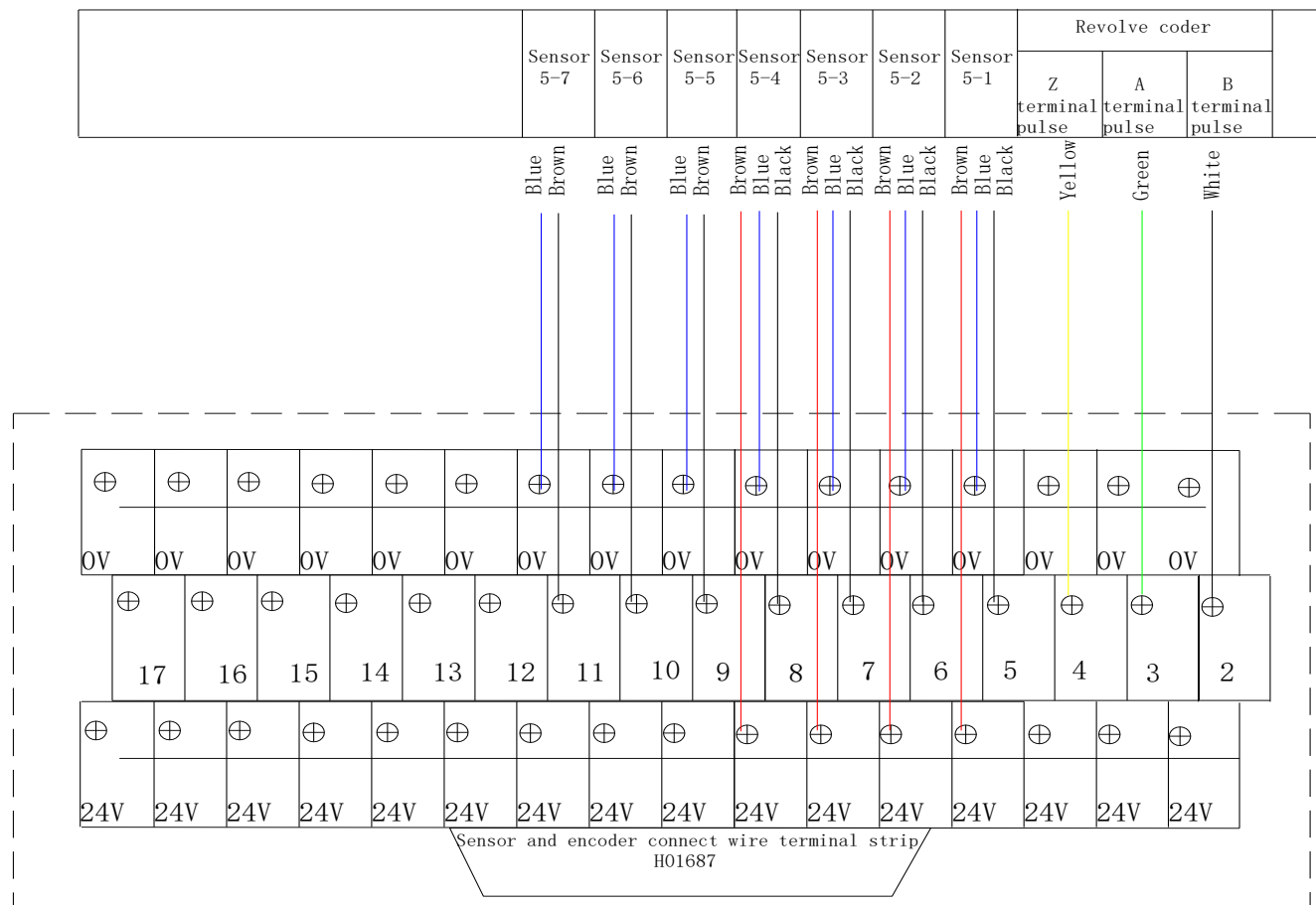
ID	Symbol	Sensor	Type	ID	Symbol	Sensor	Type
1	SC1	Sensor 5-1	MHT15-N2317	5	1B	Sensor 5-5	D-C73
2	SC2	Sensor 5-2	OBM-D04NK	6	2B	Sensor 5-6	D-C73
3	SC3	Sensor 5-3	E3X-NA11/E32-DC200	7	3B	Sensor 5-7	D-C73
4	SC4	Sensor 5-4	E3X-NA11/E32-DC200				



NOTE

1. The working power supply of each sensor all use external power supply, the positive electrode is 24v, negative electrode is 0v, the power supply inside PLC no use.
2. Inverter just connect STF, RH, SD terminal. Another termianls connect wire have been completed.
3. DI2-DI11: Input connect wire terminal strip No. DO2-DO4: Output connect wire terminal strip No.

YL-335B Automatic Production Line Device	Yalong Group		
	Electrical control schematic diagram (Sorter)		
	YL-335B 05-1		

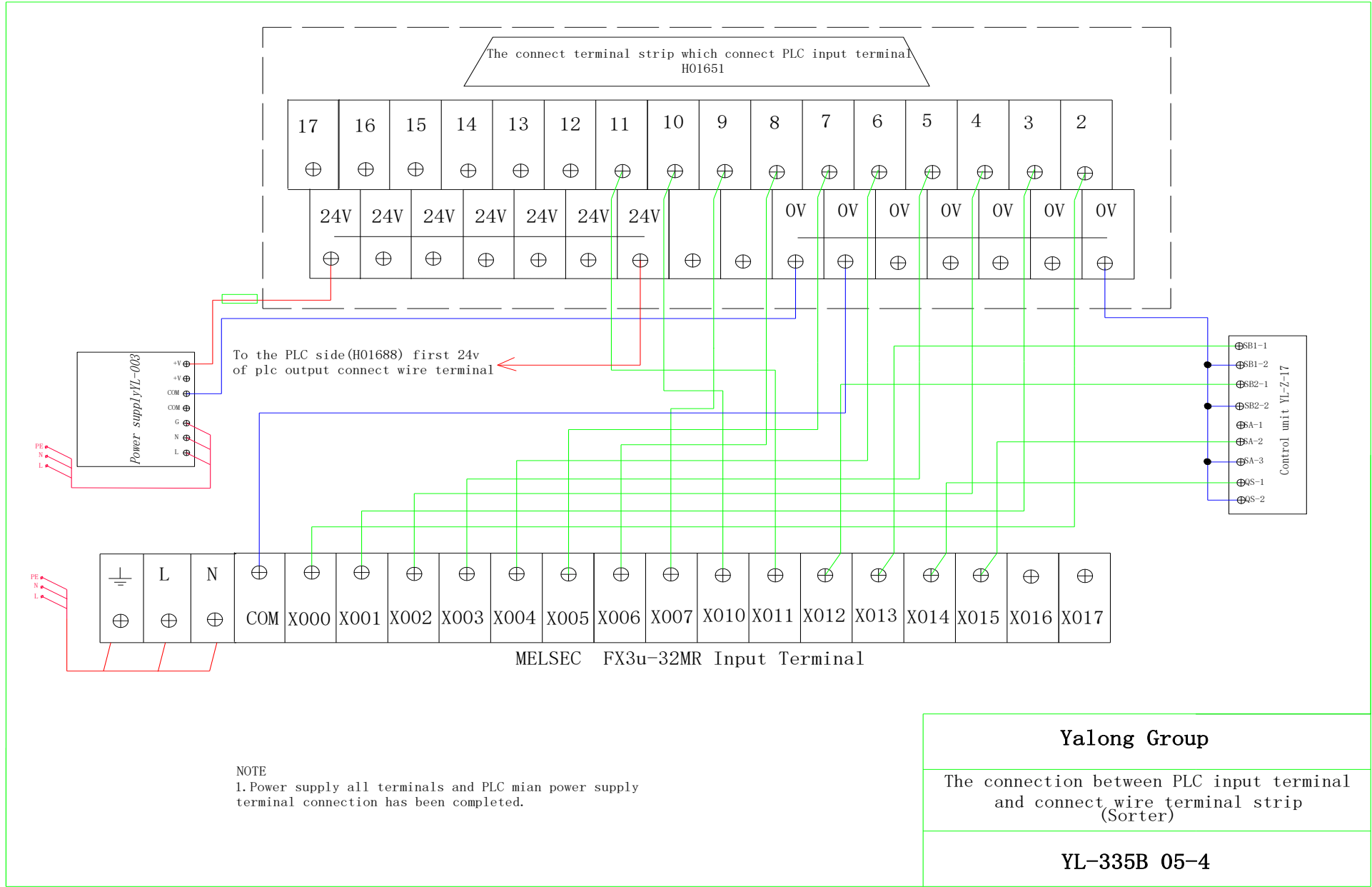


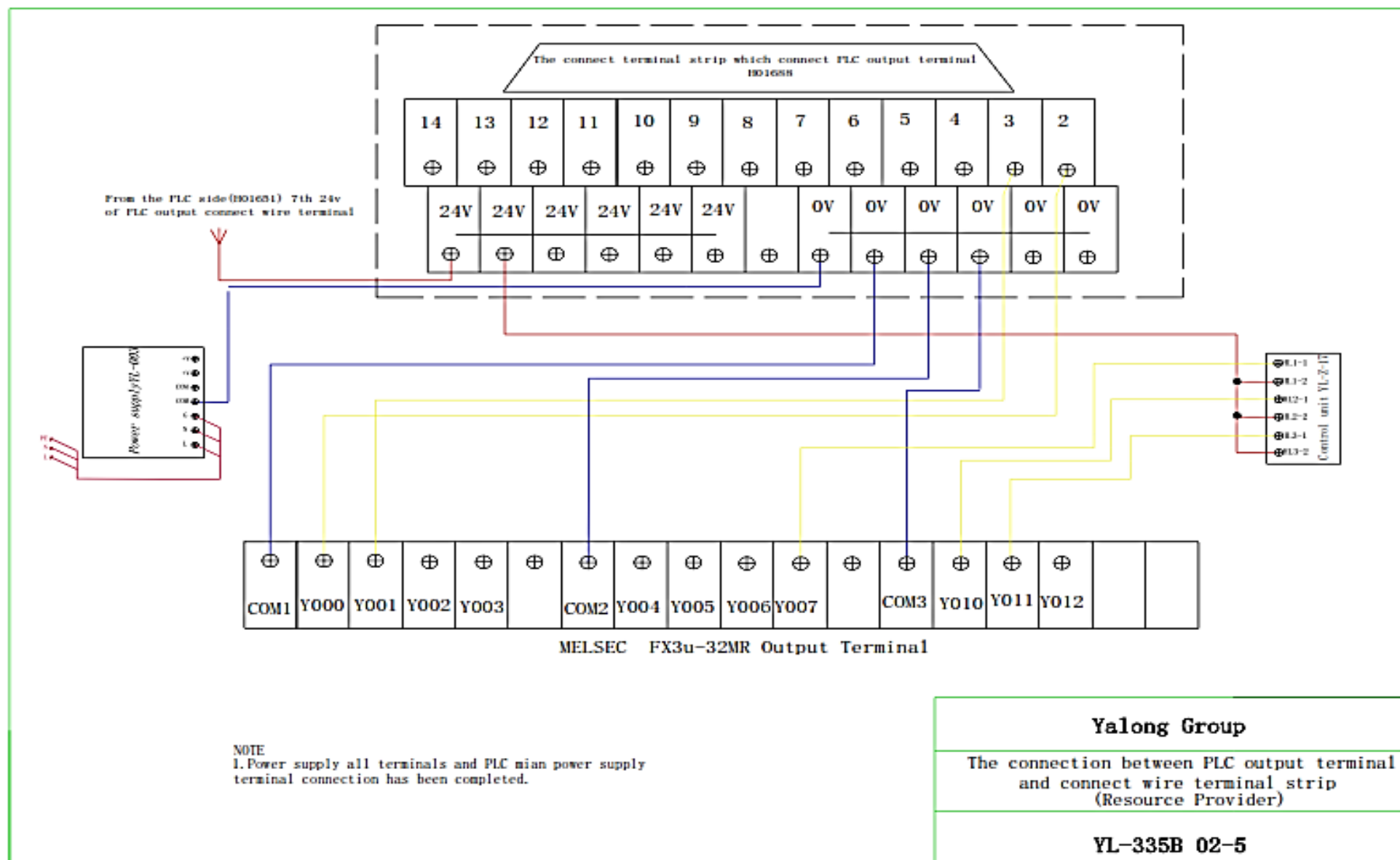
NOTE
1.Wire connect port H01687 connect with wire connect port H01651 by 17 pin connector cable.

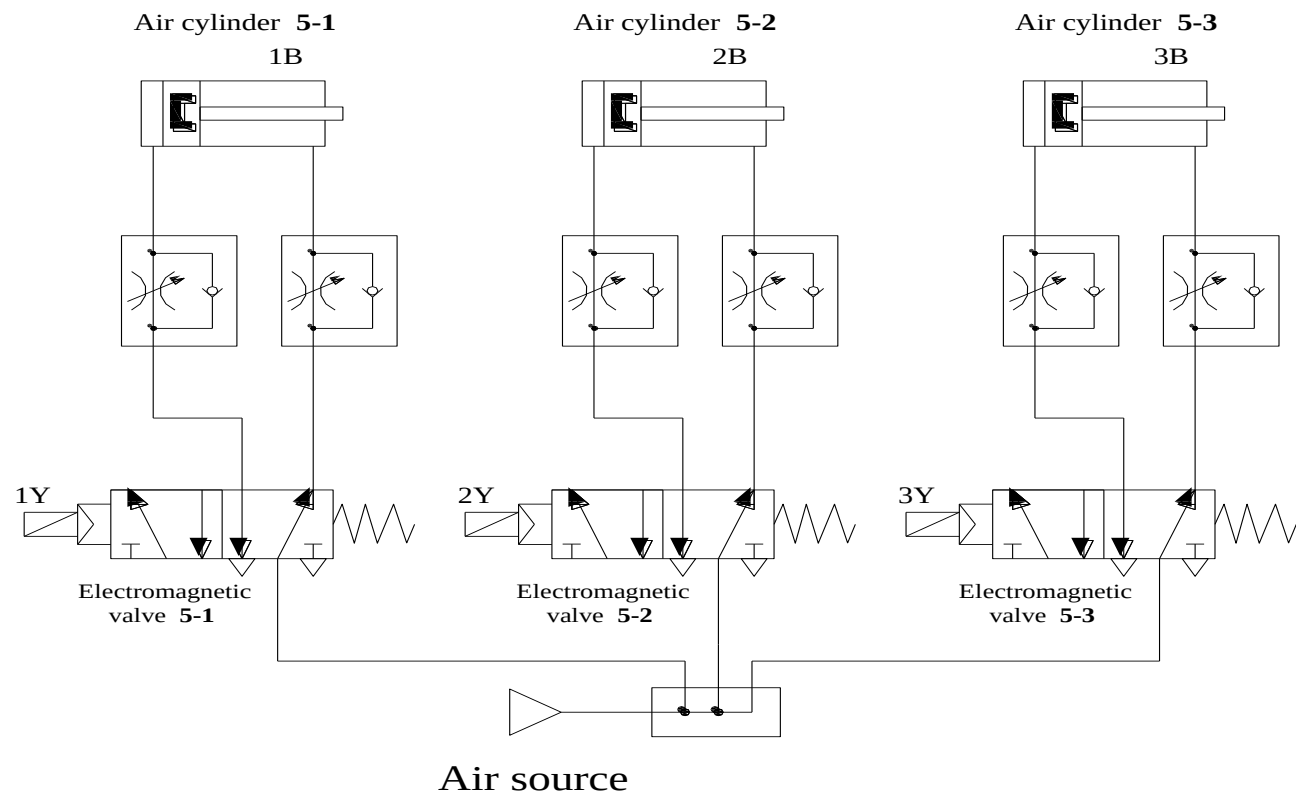
Yalong Group

The connection between input signal and connect wire terminal strip (Sorter)

YL-335B 05-2







Yalong Group

Pneumatic system diagram
(Sorter)

YL-335B05-6