E t e r n a l D r i v e

Intelligent Auto Logistics Series

Vector-P100

Dc frequency conversion motor roller driver

user manual

版本号 V1.0

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江苏胜牌科技有限公司

Change Record

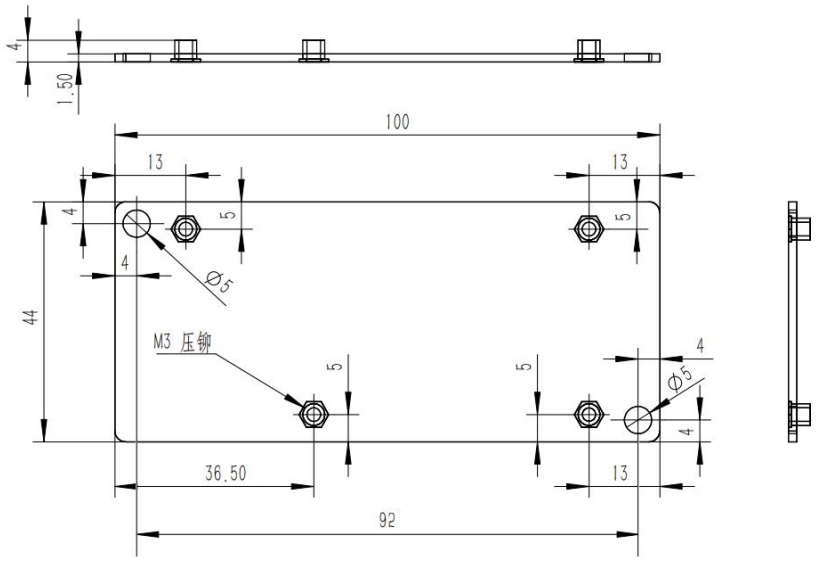
DCR #	Rev.	Originator	Date	Remark
1	1.00	王波	10/10/2022	Initial release

CATALOG

一. Electrical specification

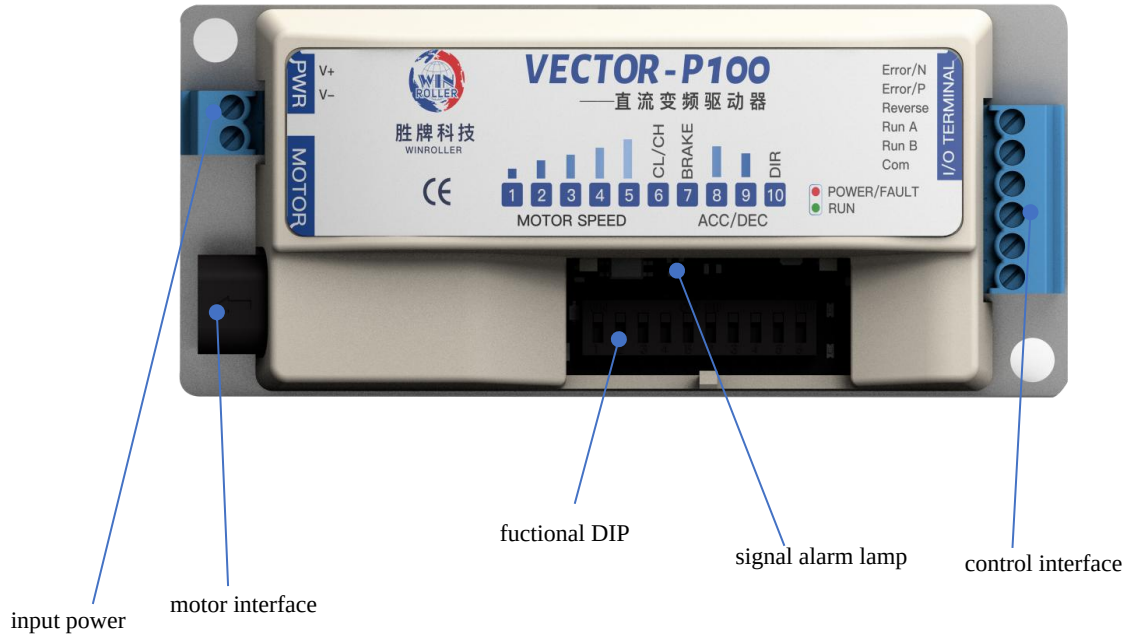
item	unit	specification	explain
controller model		vector-p100	
controller brushless mode		DC brushless controller	Hall sine wave control
rated voltage	V	DC24±5%	
peak current	A	10	
rated power	W	100	
working form	%	100	S1： Continuous working system.
control mode		IO signal	
installation dimension	mm	92mm*36mm	
power interface		2 core screw access socket	nylon(PA66），UL94V-2/0
		2 core screw access terminal	phosphor bronze(C5191),wire gauge：RVV2X1.0mm²
terminal control interface		6-core screw access socket	nylon(PA66），UL94V-2/0
		6-core screw access terminal	phosphor bronze(C5191),wire gauge：ZR-RVSP0.5mm²
motor and hall interface		9-core square socket	nylon(PA66），UL94V-2/0
		9 core square terminal	phosphor bronze(C5191),Motor phase wire gauge：RVV2X1.0mm²，hall wire guage：ZR-RVSP0.5mm²
ambient temperature	℃	-10~40	
ambient humidity		below 85%	No water drops, no rain

二. Installation and overall dimensions



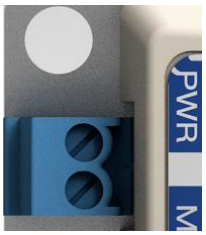
1.Controller size diagram (unit: mm)

三. Interface definition



2.controller interface definition

3.1 Left side interface description



3.left side picture

Input power

item	name	function definition	explain
1	VIN+	DC24V positive input	Voltage input range：DC24V±5%
2	VIN-	DC24V negative input	Current: Rated current is divided into 3A and 4.2A

Motor interface

item	name	hall interface function	explain
1	U	motor U phase	connect to motor U phase（yellow wire）
2	V	motor V phase	connect to motor V phase（green wire）
3	W	motor W phase	connect to motor W phase（blue wire）
4	ENV-	GND	hall source negative（blace wire）
5	ENV+	+5V hall power supply	hall source positive（red wire）
6	TEMP	temperature sensor NTC signal	temperature sensor NTC signal（white wire）
7	HA	hall signal A	connect to motor hall signal A（yellow wire）
8	HB	hall signal B	connect to motor hall signal B（green wire）
9	HC	hall signal C	connect to motor hall signal C（blue wire）

3.2 Right side description

4.right side picture

control interface

item	name	function definition	explain
1	EEROR-N	output 0V when fault	output 24V when no fault
2	EEROR-P	output 24V when fault	output 0V when no fault
3	REVERSE	motor running direction signal	no connect default：clockwise， connected to the common terminal 0V or the positive terminal of the power supply +24V: anticlockwise
4	RUNA	run input signal A	
5	RUNB	run input signal B	
6	COMMON	common port	power supply 0V

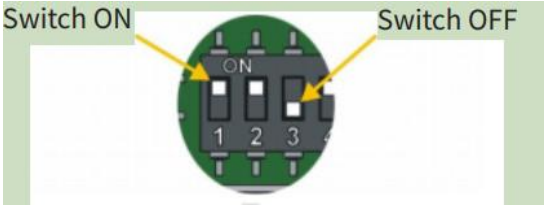
functional DIP

item	name	function definition	explain
1	DIP-1	speed set	see attach table 1
2	DIP-2	speed set	see attach table 1
3	DIP-3	speed set	see attach table 1
4	DIP-4	speed set	see attach table 1
5	DIP-5	speed set	see attach table 1
6	DIP-6	current set	default OFF:3A，ON:4.2A
7	DIP-7	brake set	default OFF:electronic brake,ON:servo brake
8	DIP-8	add/subtract speed set	see attach table 2
9	DIP-9	add/subtract speed set	see attach table 2
10	DIP-10	direction set	default direction OFF:clockwise，ON:anticlockwise

Note: When the lead out line of the motor roller is connected to the controller end or the extension end, it is necessary to plug the connector tightly, so that the white positioning line of the male head is completely covered by the female head (the female head does not show the white line), and it is judged that the connector is firmly inserted.

3.3 Dip switch diagram and speed setting table

dip switch ON/OFF position indication



5 dip switch position indication

Note: The area where the dip switch and LED are located is protected by a transparent plastic cover. Open the protective cover from the bottom edge of the plastic protective cover. After setting the corresponding dip switch, fasten the protective cover tightly when closing the protective cover.

attach table 1：DIP switch speed setting table (DIP1-5)

item	DIP-1	DIP-2	DIP-3	DIP-4	DIP-5	100% rotate speed （rpm）	70% rotate speed （rpm）	30% rotate speed （rpm）
1	OFF	OFF	OFF	OFF	OFF	600	600	600
2	ON	OFF	OFF	OFF	OFF	800	600	600
3	OFF	ON	OFF	OFF	OFF	1000	700	600
4	ON	ON	OFF	OFF	OFF	1200	840	600
5	OFF	OFF	ON	OFF	OFF	1400	980	600
6	ON	OFF	ON	OFF	OFF	1600	1120	600
7	OFF	ON	ON	OFF	OFF	1800	1260	600
8	ON	ON	ON	OFF	OFF	2100	1470	630
9	OFF	OFF	OFF	ON	OFF	2400	1680	720
10	ON	OFF	OFF	ON	OFF	2600	1820	780
11	OFF	ON	OFF	ON	OFF	2800	1960	840
12	ON	ON	OFF	ON	OFF	3000	2100	900
13	OFF	OFF	ON	ON	OFF	3200	2240	960
14	ON	OFF	ON	ON	OFF	3400	2380	1020
15	OFF	ON	ON	ON	OFF	3600	2520	1080
16	ON	ON	ON	ON	OFF	3800	2660	1140
17	OFF	OFF	OFF	OFF	ON	4000	2800	1200
18	ON	OFF	OFF	OFF	ON	4200	2940	1260
19	OFF	ON	OFF	OFF	ON	4400	3080	1320
20	ON	ON	OFF	OFF	ON	4600	3220	1380
21	OFF	OFF	ON	OFF	ON	4800	3360	1440
22	ON	OFF	ON	OFF	ON	5000	3500	1500
23	OFF	ON	ON	OFF	ON	5200	3640	1560
24	ON	ON	ON	OFF	ON	5400	3780	1620
25	OFF	OFF	OFF	ON	ON	5600	3920	1680
26	ON	OFF	OFF	ON	ON	5800	4060	1740
27	OFF	ON	OFF	ON	ON	6000	4200	1800
28	ON	ON	OFF	ON	ON	6200	4340	1860
29	OFF	OFF	ON	ON	ON	6400	4480	1920
30	ON	OFF	ON	ON	ON	6600	4620	1980
31	OFF	ON	ON	ON	ON	6800	4760	2040
32	ON	ON	ON	ON	ON	7000	4900	2100

attached table 2: DIP switch speed setting table (DIp-8 ~DIP-9)

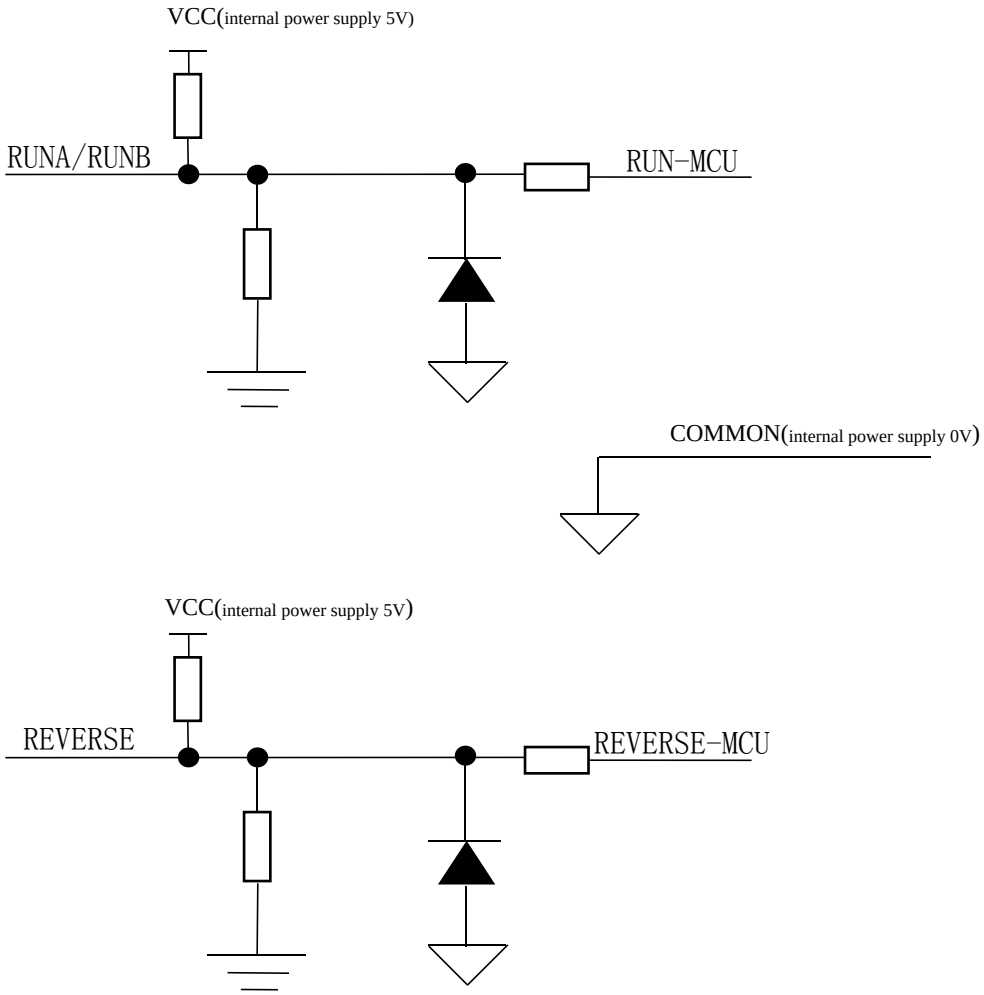
item	DIP-8	DIP-9	increase/decrease speed (seconds)
1	OFF	OFF	2
2	ON	OFF	1
3	OFF	ON	0.5
4	ON	ON	0.2

status lamp

item	name	function definition	explain
1	red LED	power supply indicators failure warning	No fault: keep lighting; Fault: blink (blink for 0.5S at an interval of 1.5S) 1 time：hall 3 times:overcurrent6 4 times: blocked rotation 2 times：temperature times: undervoltage 7 times: overpressure
2	green LED	running status indication	No fault: blinking; Faulty: keep dark

一. Terminal control（I/O interface)

4.1Input electrical schematic diagram

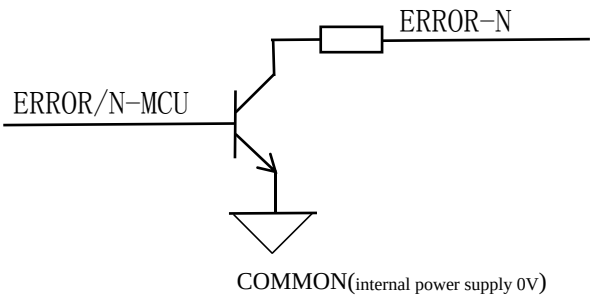


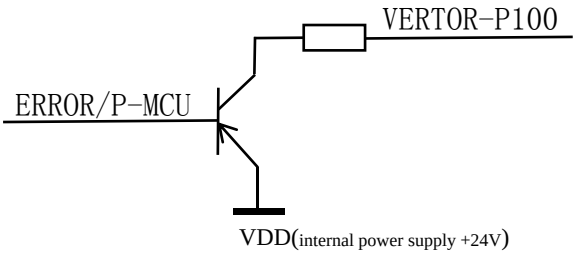
6.Input electrical schematic diagram

Input interface description

item	name	function definition	explain
1	RUNA	Running input signal	1.RUNA, RUNB,REVERSE control signal can be NPN (effective at low level) or PNP (effective at high level).
	RUNB		
2	REVERSE	Motor running direction signal	
3	COMMON	Common end (0V)	

4.2 Output electrical schematic diagram





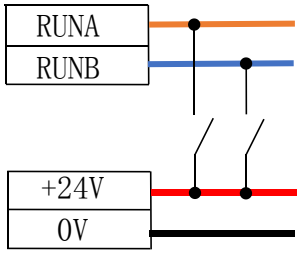
7.Output the electrical schematic diagram

Output interface description

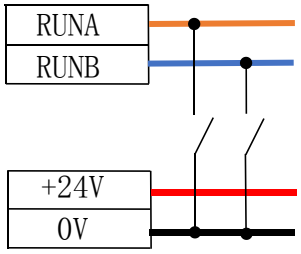
item	name	function definition	explain
1	ERROR-N	fault signal output	1.ERROR-N/VERTOR-P100 indicates the output point signal of the fault, which is normally on. 2.ERROR-N/VERTOR-P100 indicates open-drain output point,when there is an output signal, ERROR-N and COM are connected,VERTOR-P100 and VDD is connected. 3. The maximum current limit of FO output is 20mA and the maximum voltage is 72V.
2	VERTOR-P100	fault signal output	
3	COMMON	common end（0V）	
4	VDD	Internal power supply +24V	

一. Electrical wiring mode

5.1 Wiring speed control PNP mode

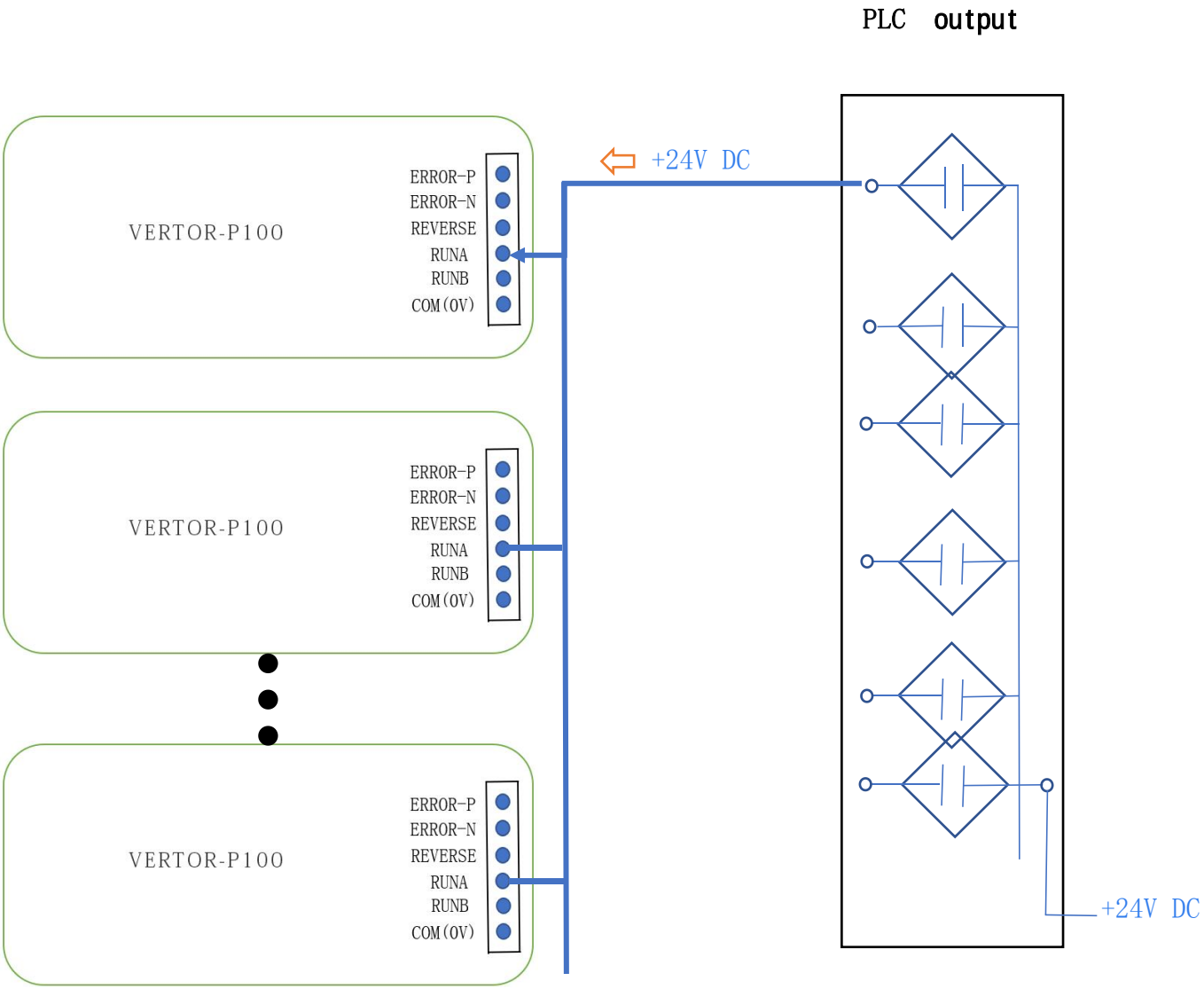
wiring diagram	RUNA	RUNB	explain
	ON	OFF	The motor roller runs at a set speed of 100%
	OFF	ON	The motor roller runs at a set speed of 70%
	ON	ON	The motor roller runs at a set speed of 130%
	OFF	OFF	The motor roller stop running

5.2 Wiring speed control NPN mode

wiring diagram	RUNA	RUNB	explain
	ON	OFF	The motor roller runs at a set speed of 100%
	OFF	ON	The motor roller runs at a set speed of 70%
	ON	ON	The motor roller runs at a set speed of 30%
	OFF	OFF	The motor roller stop running

5.3 Multi controller are connected to PLC in PNP mode

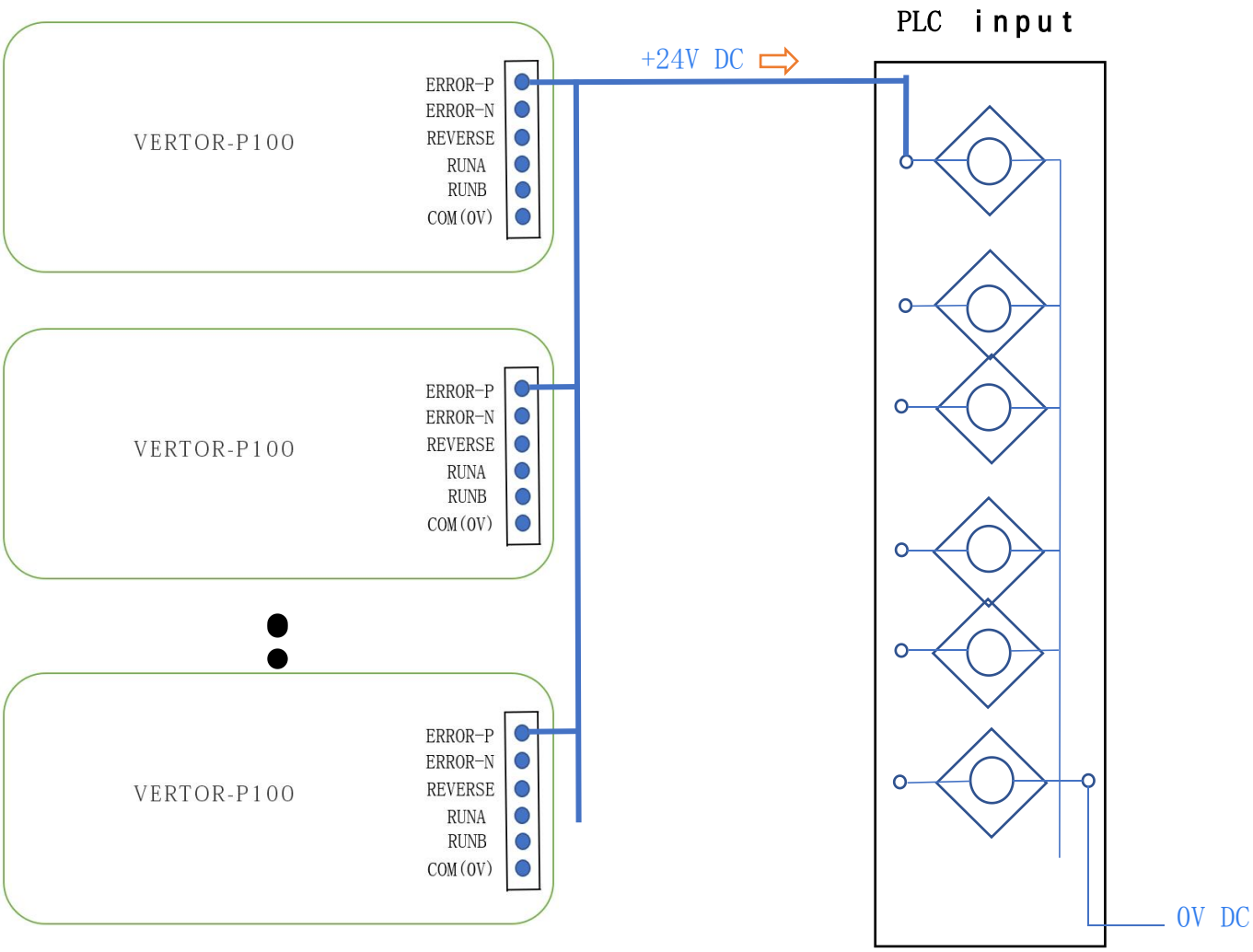
5.3.1 Multi controller RUN port connects to PLC in PNP mode



8 Multi controller RUNA port connects to PLC in PNP mode

Note: Figure 8 shows the RUNA port of a single PLC output point connected to a multi controller. The same applies to RU NB and REVERSE.

5.3.2 Multi controller VERTOR-P100 port connects to PLC in PNP mode

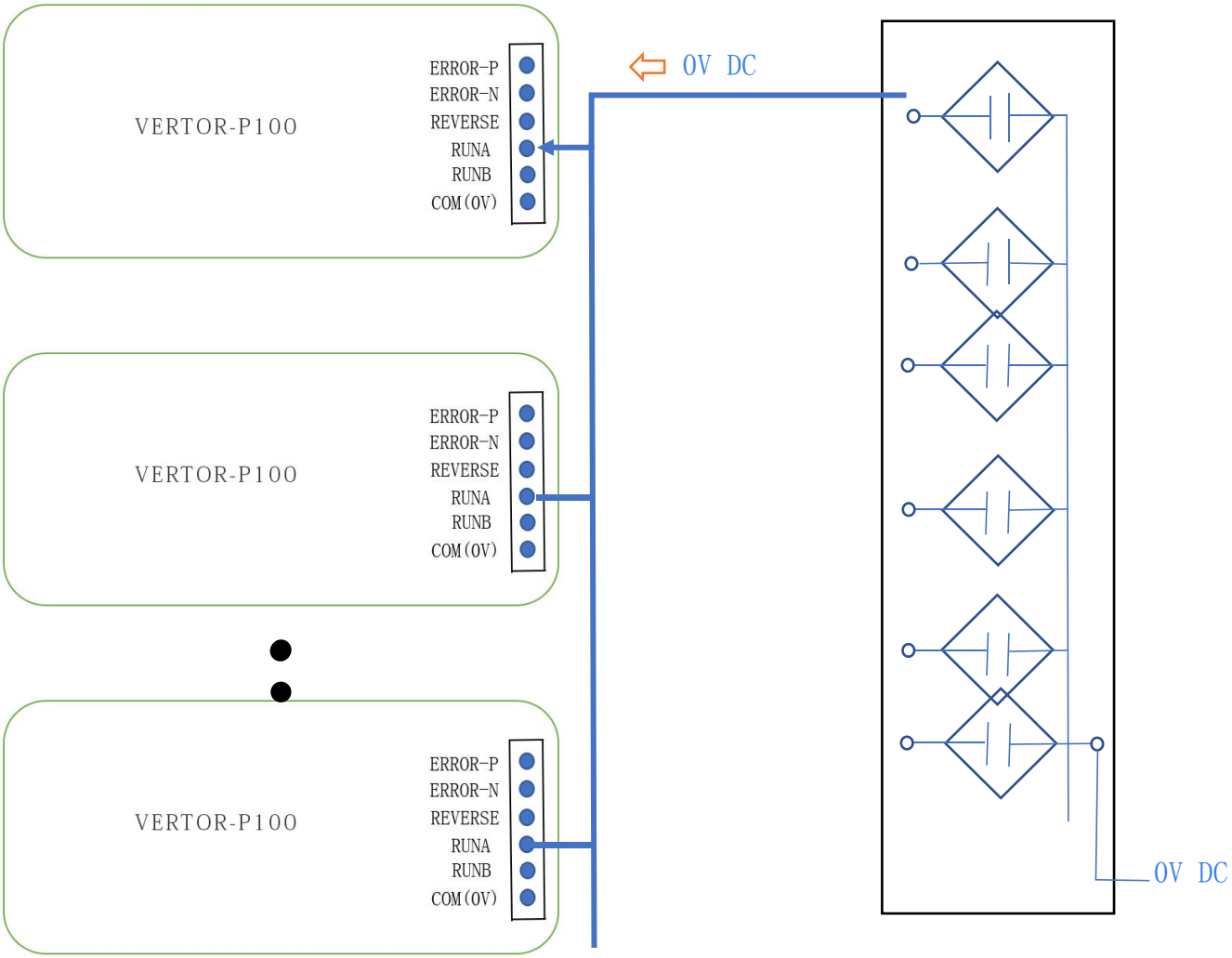


9 Multi controller VERTOR-P100 port connects to PLC in PNP mode

Note: Figure 9 shows the ERROR--P port of a single PLC input connected to multi controller. This input point will be triggered if any of the controllers have an error.

5.4 Multi controller connect to PLC in NPN mode

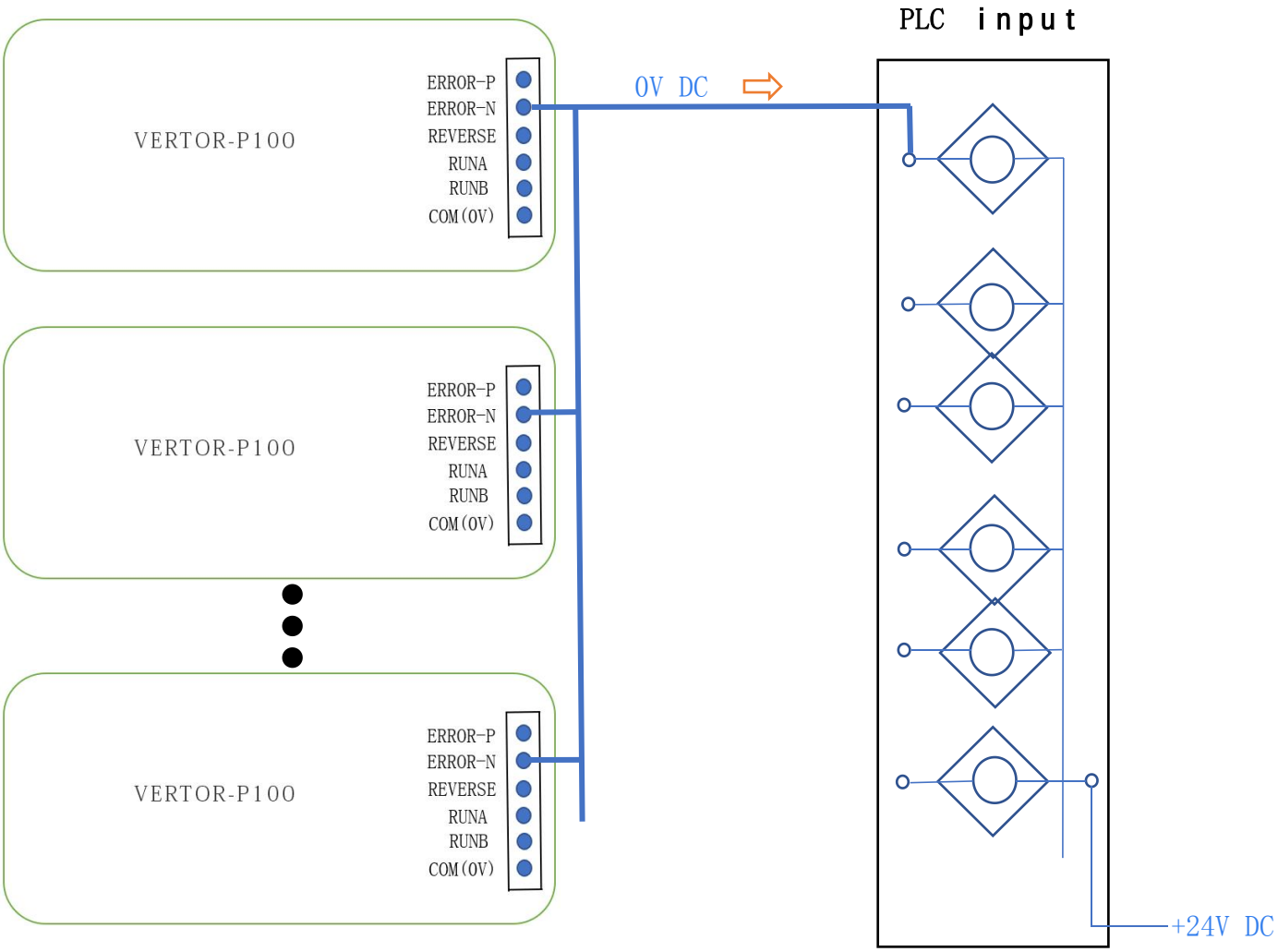
5.4.1 The RUN port of multiple controller connects to the PLC in NPN mode



10.The RUNA port of multiple controller connects to the PLC in NPN mode

Note: Figure 10 shows the RUNA port of a single PLC output point connected to a multi controller. The same applies to RUNB and REVERSE.

5.4.2 Multi controller ERROR-N port connects to PLC in NPN mode



11.Multi controller ERROR-N port connects to PLC in NPN mode

Note: Figure 11 shows the ERROR--N port of a single PLC input connected to multi controller. This input point will be triggered if any of the contrlers have an error.