



HiTEK Servo

مقدمه

بررسی مدهای کاری سروو

0: position control mode

1: speed control mode

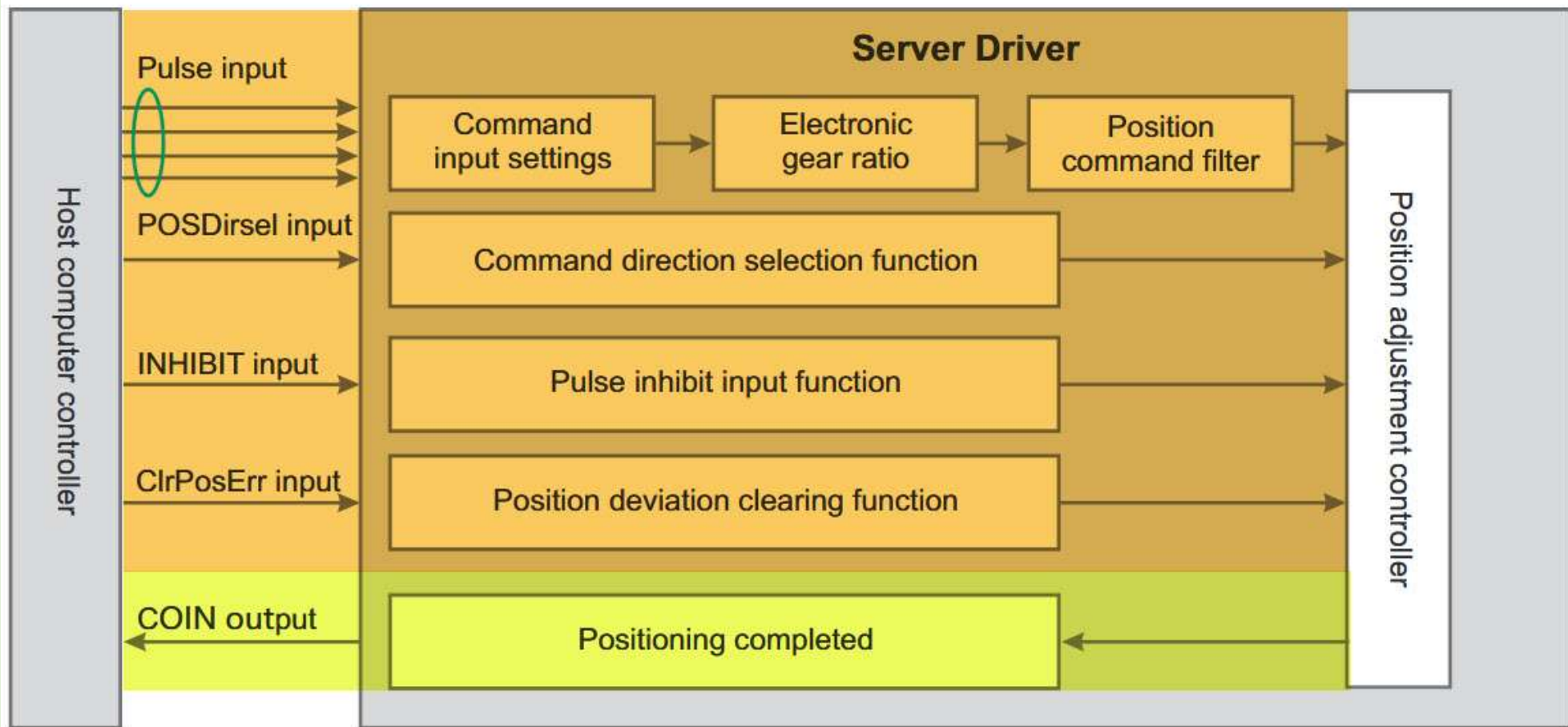
2: torque control mode

3: position + speed control mode

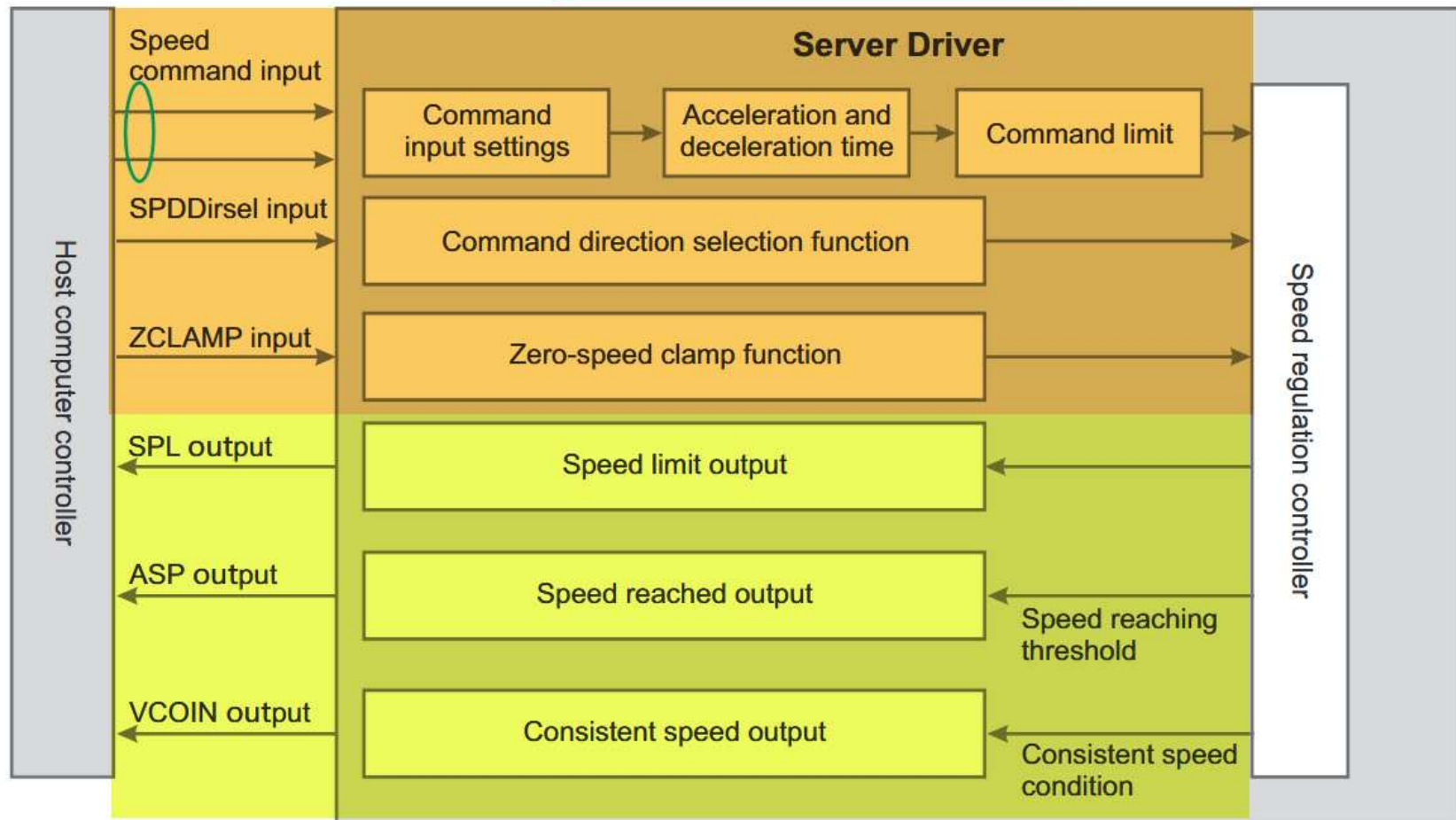
4: position + torque control mode

5: speed + torque control mode

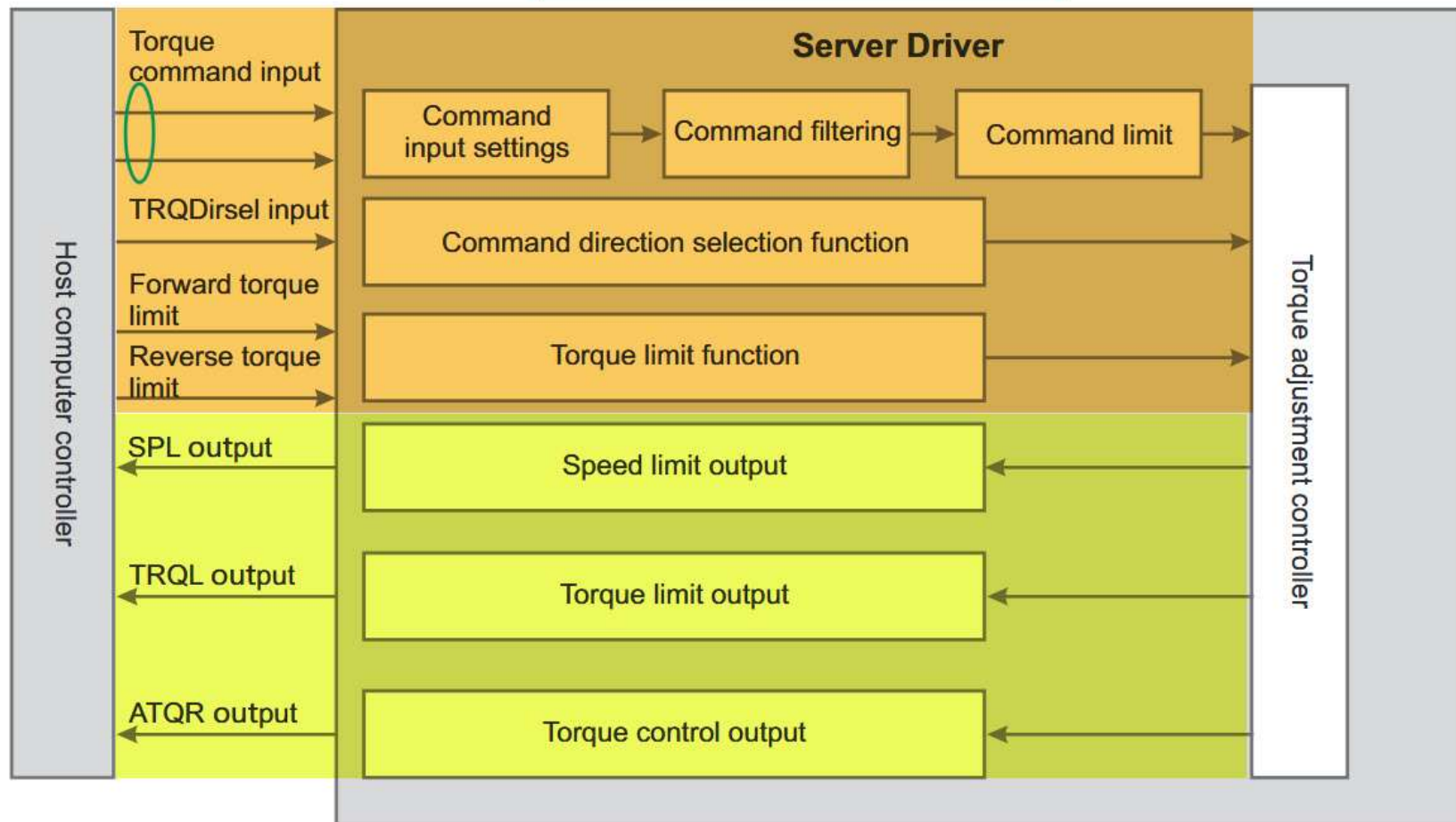
Position control mode



Speed Control Mode



Torque control mode



Reset Factory

تنظیمات کارخانه ای

چگونه تنظیمات را به تنظیمات کارخانه ای برگردانیم !

Reset Factory

۱ - مقدار $PA - 00 = 385$ قرار دهید

۲ - مقدار $PA - 01 = DEF.$ قرار دهید

ابتدا چند لحظه همه **LED** ها خاموش می شوند و سپس عدد **02430** روی صفحه نمایش ظاهر می شود
یکبار برق اصلی سروو را قطع کنید و مجدداً وصل کنید همه تنظیمات ، تنظیمات کارخانه ای شده است

چگونه تنظیمات را به تنظیمات کارخانه ای برگردانیم !

How To Reset Default Parameters

To recover default parameters when:

- The parameters are scrambled and the system can not work properly.

توجه

The steps to recover default parameters as follow:

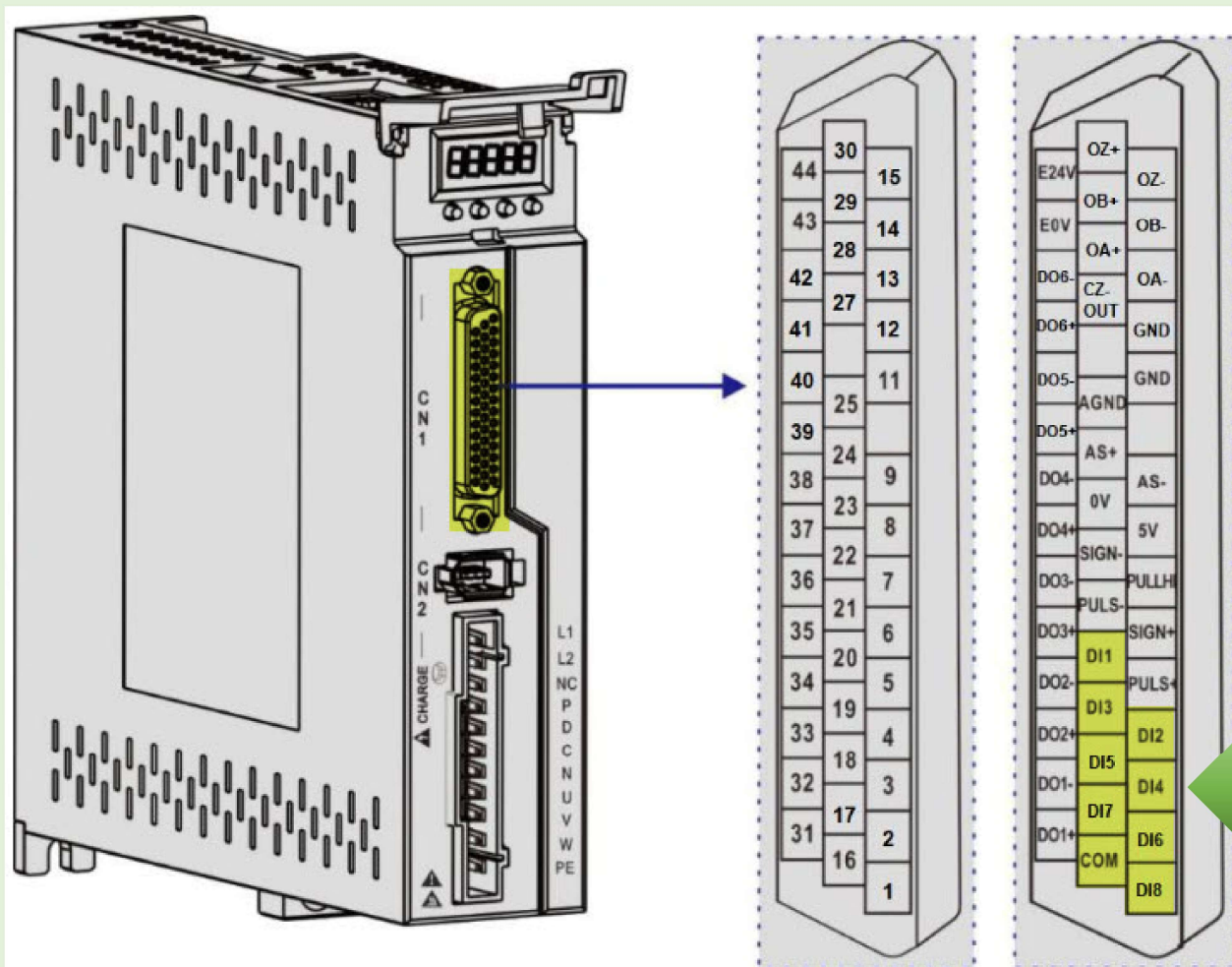
1. Please connect the motor with the driver and power on. The driver will automatically read the motor parameters and match the motor model.

2. Set password (PA0) to 385.

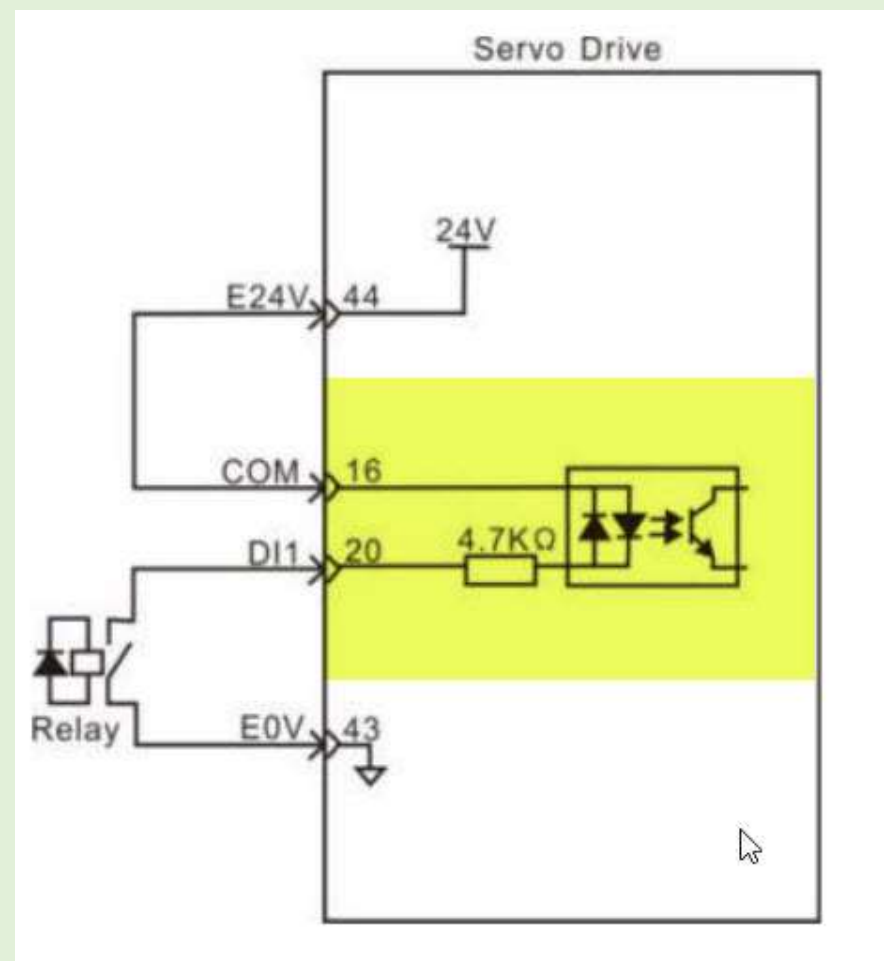
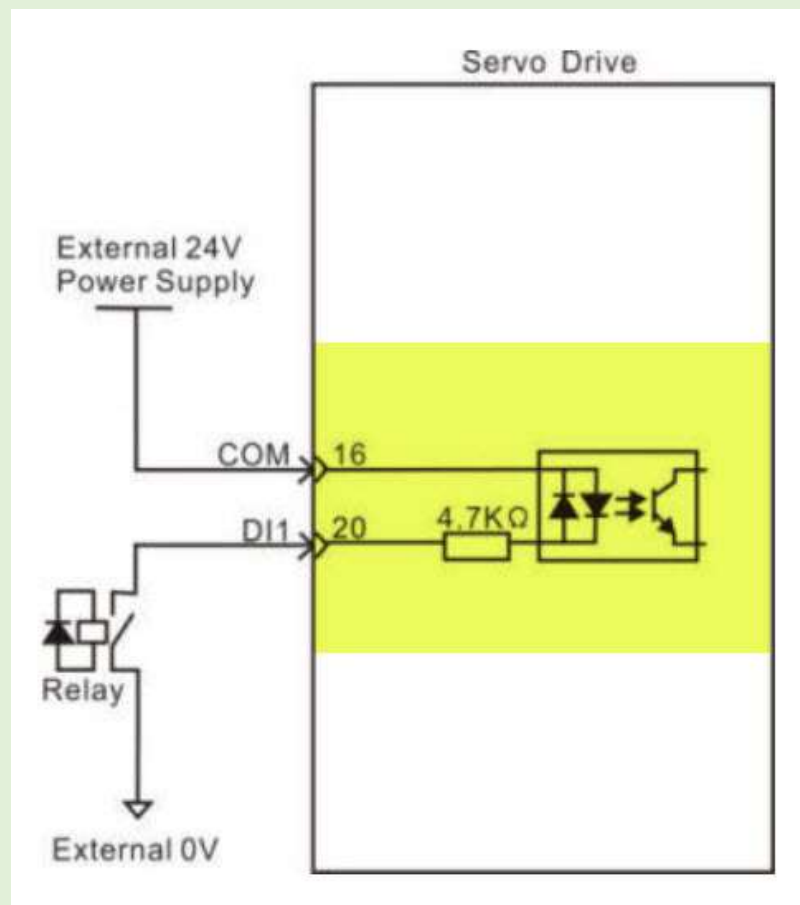
3. Do the followings:

Press the  key to return to the main menu and to select "PA-" with  or  key. Press the **SET** key to enter into the second layer and press the  or  key to make PA=0. Then press the **SET** key to enter into the third layer and set PA0 = 385, pressing the **SET** key to save it. Next, press the  key to return to the "PA-" and set the PA1 = DEF-. Long press the **SET** key for 5 seconds and after the LED indicator lights flicker several times, the operation is completed. Finally, it will work after repower on.

برنامه ریزی ترمینال های ورودی



ترمینال های
ورودی



Digital Input 1 ~ 8

20, 16

P3 – 0 ~ P3 – 7

DI 1 => P3 – 0

DI 2 => P3 – 1

!!

!

DI 8 => P3 – 7

برنامه ریزی ورودی های
دیجیتال

DI 1 $\Rightarrow$ P3 - 0 = 0 ~ 34

مثال

P3 - 0 = 1

Servo ON

Digital Input 1 ~ 8

مثال

P3 - 0 = 1



Digital Input 1

CZERO	ZCLAMP	TCW	TCCW	CWL	CCWL	ARST	SON
8	7	6	5	4	3	2	1
CMODE	NULL	TRQ2	TRQ1	NULL	SP2	SP1	CINV
16	15	14	13	12	11	10	9
NULL	JOGN	JOGP	INH	CLR	GEAR2	GEAR1	NULL
24	23	22	21	20	19	18	17
NULL	POS2	POS1	POS0	CTRG	HOLD	NULL	NULL
32	31	30	29	28	27	26	25
NULL	NULL	NULL	NULL	NULL	NULL	ORGP	SHOM
40	39	38	37	36	35	34	33

SON

SON	Servo Enable	Input terminal of servo enable. OFF: servo driver can not be enabled and serv omotor is not excited. ON:servo driver is enabled and servomotor is excited.
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ARST

ARST	Alarm Clear	Input terminal of alarm clearance. When an alarm occurs and if the alarm is allowed clearance, the rising edge(from OFF becomes ON) of ARST will clear the alarm. Attention: only a part of alarms are allowed to clear.
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CCWL

PA20

Invalid input of drive inhibition

To set:

0: CCW drive inhibition or CW drive inhibition is effective. If the switch of CCW drive inhibition is ON, CCW drive is permitted. If the switch of CCW drive inhibition is OFF, CCW torque keeps 0. The same as CW drive inhibition. If both CCW and CW drive inhibition are OFF, it will come to error alarms of drive inhibition input.

1: Cancel CCW or CW drive inhibition. No matter what state of the switch of CCW or CW drive inhibition is, CCW or CW drive is allowed. Meanwhile, if the switches of CCW and CW drive inhibition are OFF, it will still not alarm.

PA83

CWL/CCWL inhibit way

When the machine touches the mechanical limit switch and strike CW/CCW limit, you can choose the following methods to prohibit with this parameters.

0: To limit the torque in this direction to be 0.

1: To prohibit the input pulse in this direction.

CCWL

CCW Drive Inhibition

1. Input terminal of CCW drive inhibition:

OFF: Inhibit CCW running.

ON: Enable CCW running.

2. Use this function for protection of the mechanical traveling limit. The function is controlled by the parameter PA20. Pay attention to that the default value of PA20 neglects this function. Therefore needs to modify PA20 if need to use this function:

(1): When PA20=0, the function of input inhibition is effective. Whether to inhibit is decided by PA83.

(2): When PA20=1, the function of input inhibition is not effective. Whether to inhibit is not decided by PA83

3. Inhibition function is valid (PA20=0):

(1) PA83=0, CCW torque limit is 0, but it does not limit CCW pulse input.

(2) PA83=1, it does not inhibit CCW pulse input.

CWL

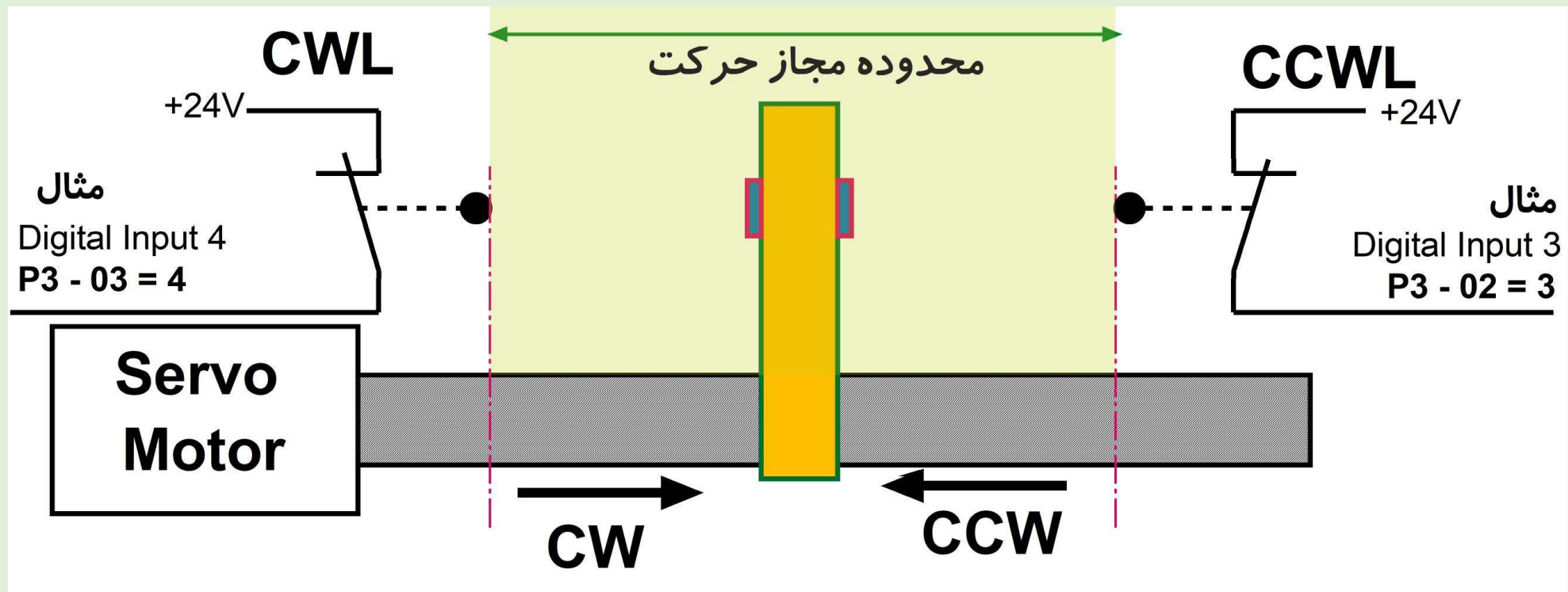
PA20 Invalid input of drive inhibition	To set: 0: CCW drive inhibition or CW drive inhibition is effective. If the switch of CCW drive inhibition is ON, CCW drive is permitted. If the switch of CCW drive inhibition is OFF, CCW torque keeps 0. The same as CW drive inhibition. If both CCW and CW drive inhibition are OFF, it will come to error alarms of drive inhibition input. 1: Cancel CCW or CW drive inhibition. No matter what state of the switch of CCW or CW drive inhibition is, CCW or CW drive is allowed. Meanwhile, if the switches of CCW and CW drive inhibition are OFF, it will still not alarm.
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PA83 CWL/CCWL inhibit way	When the machine touches the mechanical limit switch and strike CW/CCW limit, you can choose the following methods to prohibit with this parameters. 0: To limit the torque in this direction to be 0. 1: To prohibit the input pulse in this direction.
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CWL

CW Drive
Inhibition

- The input terminal of CW drive inhibition
 - OFF: Inhibit CCW running.
 - ON: Enable CW running.
- Use this function for protection of the mechanical traveling limit. The function is controlled by the parameter PA20. Pay attention to that the default value of PA20 neglects this function. Therefore needs to modify PA20 if need to use this function:
 - When PA20=0, the function of input inhibition is effective. Whether to inhibit for CW is decided by PA83.
 - When PA20=1, the function of input inhibition is not effective. Whether to inhibit for CW is not decided by PA83
- Inhibition function is valid (PA20=0):
 - PA83=0, CW torque limit is 0, but it does not limit CW pulse input.
 - PA83=1, it does not inhibit CW pulse input.



TCCW

PA 34	Internal CCW torque limit	1.The setting value is the percentage of rated torque.For example,it is set to 2 times of the rated torque, the value is 200.	0-300%	300
		2. At any time, this restriction is valid.		
		3. If the setting value is over than the max overload capacity, the actual torque limit is the max overload capacity that is permitted.		
PA 36	External CCW torque limit	1.The setting value is the percentage of rated torque, for example, it is set to 1 time of rated torque, the value is 100.	0-300%	100
		2.Only when the input terminal(FIL) of CCW torque limit is ON is it valid.		
		3.When the limit is valid, the actual torque limit is the Minimum value of max overload capacity ,internal CCW torque limit and external CCW torque limit.		

TCCW	CCW Torque Limitation	OFF : Torque is not limited by parameter PA36 in CCW direction. ON : Torque is limited by parameter PA36 in CCW direction. Attention: Whether the TCCW is effective or not, the torque is also limited by PA34 in CCW direction.
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TCW

35	Internal CW torque limit	1.The setting value is the percentage of rated torque.For example,it is set to 2 times of the rated torque, the value is 200.	-300-0%	-300
		2. At any time, this restriction is valid. 3. If the setting value is over than the max overload capacity, the actual torque limit is the max overload capacity that is permitted.		
37	External CW torque limit	Set external torque limit of the motor CW direction. 1.The setting value is the percentage of rated torque, for example, it is set to 1 time of rated torque, the value is -100.	-300-0%	-100
		2.Only when the input terminal(RIL) of CW torque limit is ON is it valid. 3.When the limit is valid, the actual torque limit is the Minimum value of max overload capacity ,internal CCW torque limit and external CCW torque limit.		

TCW	CW Torque Limitation	OFF: Torque is not limited by parameter PA37 in CW direction. ON : Torque is limited by parameter PA37 in CW direction. Attention: Whether the TCW is effective or not, the torque is also limited by PA35 in CW direction.
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ZCLAMP

اگر در مد سرعت بودیم و $PA - 4 = 1$

منبع تغییر سرعت را ولتاژ آنالوگ ورودی $PA - 22 = 0$

انتخاب کرده بودیم و سرعت ما از $PA 75$ کمتر بود اگر این پایه ورودی را یک کنیم موتور فوراً می ایستد

ZCLAMP	Zero Speed Clamping	When it is satisfied with the followings, the function of zero speed clamping is open(speed is forced to zero): 1: speed control mode($PA4=1$), and choose external speed($PA22=0$); 2: ZCLAMP ON; 3: speed command is lower than the value of $PA75$ When any one of the above conditions is not satisfied, it will perform normal speed control.
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ZCLAMP

PA 4	Control mode selection	To set control method:
		0: position control mode
		1: speed control mode
		2: torque control mode
		3: position + speed control mode
		4: position + torque control mode
		5: speed + torque control mode
		6: encoder zeroing mode

PA 75	Zero-speed detection point	1.If the motor running speed is less than the value of this parameter, the ZSP(zero speed) of digital output(DO) is ON, or else OFF. If ZCLAMP of digital input(DI) is ON and speed command is less than the value of this parameter, the value of speed command is forced to be zero.	0-1000 r/min	10
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PA

22

The source of speed command

In speed control mode, it sets the source of speed command. It means:

0: Analog Terminal AS+,AS- input analog speed command.

1:Internal speed command is decided by SP1 and SP2 of digital input(DI):

DI Signal		Speed Command
SP2	SP1	
0	0	Internal Speed1(PA24)
0	1	Internal Speed2(PA25)
1	0	Internal Speed2(PA26)
1	1	Internal Speed2(PA27)

Note: 1=ON, 0=OFF.

2: Analog speed command+internal speed command:

DI Signal		Speed Command
SP2	SP1	
0	0	Analog Speed Command
0	1	Internal Speed2(PA25)
1	0	Internal Speed2(PA26)
1	1	Internal Speed2(PA27)

3: JOG speed command, if carries out JOG operation,it is needed to set.

4: Keyboard speed command, if carries out Sr operation,it needs to set the parameter.

5:IO terminal controls JOG operation.

0-5

0

CZERO

Speed or Torque control

CZERO	Zero Command	In speed or torque control mode, speed or torque command: OFF: Normal command ON:: Zero command
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CINV

CINV 	Instruction Reverse	In speed or torque control mode, speed or torque command: OFF: Normal command ON: Command reversed
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In Speed Control

SP1 & SP2

SP1	Speed Choice 1	In speed control mode(PA4=1), and choose internal speed(PA22=1). SP1 and SP2 combinations are used to select different internal speeds: SP2 OFF SP1 OFF: internal speed 1(PA-24) SP2 OFF SP1 ON: internal speed 2(PA-25) SP2 ON SP1 OFF: internal speed 3(PA-26) SP2 ON SP1 ON: internal speed 4(PA-27)
SP2	Speed Choice 2	

In Speed Control

PA	4	Control mode selection	To set control method:
			0: position control mode 1: speed control mode 2: torque control mode 3: position + speed control mode 4: position + torque control mode 5: speed + torque control mode 6: encoder zeroing mode

PA

22

The source of speed command

In speed control mode, it sets the source of speed command. It means:

0: Analog Terminal AS+,AS- input analog speed command.

1: Internal speed command is decided by SP1 and SP2 of digital input(DI):

DI Signal		Speed Command
SP2	SP1	
0	0	Internal Speed1(PA24)
0	1	Internal Speed2(PA25)
1	0	Internal Speed2(PA26)
1	1	Internal Speed2(PA27)

Note: 1=ON, 0=OFF.

2: Analog speed command+internal speed command:

DI Signal		Speed Command
SP2	SP1	
0	0	Analog Speed Command
0	1	Internal Speed2(PA25)
1	0	Internal Speed2(PA26)
1	1	Internal Speed2(PA27)

3: JOG speed command, if carries out JOG operation, it is needed to set.

4: Keyboard speed command, if carries out Sr operation, it needs to set the parameter.

5: IO terminal controls JOG operation.

0-5

0

24	Internal speed selection 1	1.Set the internal speed 1. 2.In speed control mode(PA22=0), when SC1 and SC2 are OFF, internal speed 1 is the speed command.	-6000- 6000 r/min	100
25	Internal speed selection 2	1.Set the internal speed 2. 2.In speed control mode(PA22=0), when SC1 is ON,while SC2 is OFF, internal speed 2 is the speed command.	-6000- 6000 r/min	500
26	Internal speed selection 3	1.Set the internal speed 3. 2.In speed control mode(PA22=0), when SC1 is OFF,while SC2 is ON, internal speed 3 is the speed command.	-6000- 6000 r/min	1000
27	Internal speed selection 4	1.Set the internal speed 4. 2.In speed control mode(PA22=0), when SC1 and SC2 are ON, internal speed 4 is the speed command.	-6000- 6000 r/min	2000

TRQ1 & TRQ2

PA	4	Control mode selection	To set control method:
			0: position control mode 1: speed control mode 2: torque control mode 3: position + speed control mode 4: position + torque control mode 5: speed + torque control mode 6: encoder zeroing mode

TRQ1	Torque Choice 1	In torque control mode(PA4=2), and choose internal torque(PA32=1). TRQ1 and TRQ2 combinations are used to select different internal torque: TRQ2 OFF TRQ1 OFF: internal torque1(PA64) TRQ2 OFF TRQ1 ON: internal torque2(PA65) TRQ2 ON TRQ1 OFF: internal torque3(PA66) TRQ2 ON TRQ1 ON: internal torque4(PA67)
TRQ2	Torque Choice 2	

TRQ1 & TRQ2

64	Internal torque 1	In torque control mode(PA4=2), when TRQ1=OFF, TRQ2=OFF, internal torque 1 is as the torque command.	-300-300	0
65	Internal torque 2	In torque control mode(PA4=2), when TRQ1=ON, TRQ2=OFF, internal torque 2 is as the torque command.	-300-300	0
66	Internal torque 3	In torque control mode(PA4=2), when TRQ1=OFF, TRQ2=ON, internal torque 3 is as the torque command.	-300-300	0
67	Internal torque 4	In torque control mode(PA4=2), when TRQ1=ON, TRQ2=ON internal torque 4 is as the torque command.	-300-300	0

PA

32

The source of torque command

In torque control mode, it sets the source of torque command. It means:

0:Analog torque command, it inputs by analog terminal AS+ and AS-.

1:Internal torque command, it is decided by TRO1 and TRQ2 of digital input(DI):

DI Signal		Torque Command
TRQ2	TRQ1	
0	0	Internal Torque1(PA64)
0	1	Internal Torque2(PA65)
1	0	Internal Torque3(PA66)
1	1	Internal Torque4(PA67)

Note: 0=OFF, 1=ON

2:Analog torque command+internal torque command:

DI Signal		Torque Command
TRQ2	TRQ1	
0	0	Analog Torque Command
0	1	Internal Torque2(PA65)
1	0	Internal Torque3(PA66)
1	1	Internal Torque4(PA67)

CMODE

PA 4	Control mode selection	To set control method:
		0: position control mode 1: speed control mode 2: torque control mode 3: position + speed control mode 4: position + torque control mode 5: speed + torque control mode 6: encoder zeroing mode

CMODE	Composite Mode	When PA4 is set to 3, 4, 5, it is in mix control mode. It can change control mode with this input terminal: (1)PA4=3, CMODE OFF, it is position control mode; CMODE ON, it is speed control mode; (2)PA4=4, CMODE OFF, it is position control mode; CMODE ON, it is torque control mode; (3)PA4=5, CMODE OFF, it is speed control mode; CMODE ON, it is torque control mode.
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GEAR1 & GEAR2

GEAR1	Electronic Gear 1	When PA11=0, Gear1 and Gear2 combinations are used to select different numerator of gear ratio: GEAR2 OFF GEAR1 OFF: numerator 1(PA-12) GEAR2 OFF GEAR1 ON: numerator 2 (PA-77) GEAR2 ON GEAR1 OFF: numerator 3(PA-78) GEAR2 ON GEAR1 ON: numerator 4(PA-79)
GEAR2	Electronic Gear 2	

PA 11	Command pulses of each motor revolution	1.To set command pulses of each motor revolution. 2.When it is set to 0, PA12(numerator of electronic gear for position command pulses), PA13(denominator of electronic gear for position command pulses) are valid.	0-30000	10000
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PA

12

1st
numerator of
electronic
gear for
position
command
pulse

1.Set the electric gear ratio for position command pulse.

2.In position control mode,it is convenient to match all kinds of pulse source through set the parameter PA12 and PA13, which helps to reach ideal control resolution(angle/pulse).

3. $P \times G = N \times C \times 4$

P: pulses of input command; G:electric gear ratio; N:numbers of motor rotation ; C:solutions of photoelectric encoder in per rotation, the default value is 2500.

4.For example, input command pulse P is 6000, servo motor rotate a roll:

$G = (N \times C \times 4) / P = (1 \times 2500 \times 4) / 6000 = 5/3$, So PA12 should be set to 5, PA13 should be set to 3.

5.The numerator of electronic gear for command pulse is decided by Gear1 and Gear2. The denominator is decided by PA13. The details as following:

DI Signal		Denominator
Gear 2	Gear 1	
0	0	1 st Numerator(PA12)
0	1	2 nd Numerator(PA77)
1	0	3 rd Numerator(PA78)
1	1	4 th Numerator(PA79)

Remark: 0=OFF, 1=ON.

0-32767

0

GEAR1 & GEAR2

77	2 nd numerator of electronic gear for position command pulse	Refers to parameter PA12.	0-32767	0
78	3 rd numerator of electronic gear for position command pulse	Refers to parameter PA12.	0-32767	0
79	4 th numerator of electronic gear for position command pulse	Refers to parameter PA12.	0-32767	0

In Position Control

CLR

CLR	Position Deviation Clear	In position control mode, the position deviation counter clear input terminals.
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In Position Control

INH

INH	Pulse Input Inhibition	In position control mode, position command pulse inhibit terminals: OFF: The input command pulse is valid. ON : The input command pulse input is prohibited.
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In Speed Control

JOGP



JOGP	CCW Inching	In speed control mode, PA22=5, connect to the signal, the motor is in inching in CCW and speed is set by PA21. Attention: If the signal is connected to CW inching, inching function does not work.		
PA21 21	JOG running speed	Set the speed at which the JOG operation will run.	0-6000 r/min	100

PA22

Speed
command
source

During speed control, set the source of the speed command, the meaning of the parameter:

0: Analog speed command is input by analog port AS+, AS-;

1: Internal speed command, determined by SP1 and SP2 input by DI:

DI Signals (Notes)		Command pulsed electronic gear denominator
SP2	SP1	
0	0	Internal speed 1 (parameter PA24)
0	1	Internal speed 2 (parameter PA25)
1	0	Internal speed 3 (parameter PA26)
1	1	Internal speed 4 (parameter PA27)

PA22

Speed
command
source

2: Analog speed command + internal speed command:

DI Signals (Notes)		Command pulsed electronic gear denominator
SP2	SP1	
0	0	Analog volume speed instructions
0	1	Internal speed 2 (parameter PA25)
1	0	Internal speed 3 (parameter PA26)
1	1	Internal speed 4 (parameter Pa27)

Note: 0 means OFF, 1 means ON.

3: JOG speed command, when inching (JOG) operation,
Need to be set.

4: Keyboard speed command, when performing keyboard speed regulation (Sr) operation,
Need to be set.

5: IO terminal controls jog operation.

JOGP

PA				
21	JOG speed	Set the running speed of JOG operating.	0-6000 r/min	100

PA22

The source
of speed
command

In speed control mode, it sets the source of speed command. It means:

0: Analog Terminal AS+,AS- input analog speed command.

1: Internal speed command is decided by SP1 and SP2 of digital input(DI):

DI Signal		Speed Command
SP2	SP1	
0	0	Internal Speed1(PA24)
0	1	Internal Speed2(PA25)
1	0	Internal Speed2(PA26)
1	1	Internal Speed2(PA27)

Note: 1=ON, 0=OFF.

2: Analog speed command+internal speed command:

DI Signal		Speed Command
SP2	SP1	
0	0	Analog Speed Command
0	1	Internal Speed2(PA25)
1	0	Internal Speed2(PA26)
1	1	Internal Speed2(PA27)

3: JOG speed command, if carries out JOG operation, it is needed to set.

4: Keyboard speed command, if carries out Sr operation, it needs to set the parameter.

5: IO terminal controls JOG operation.

0-5

0

In Speed Control

JOGN

JOGN	CW Inching	In speed control mode, PA22=5, connect to the signal, the motor is in inching in CW and speed is set by PA21. Attention: If the signal is connected to CCW inching, inching function does not work.		
PA21 21	JOG running speed	Set the speed at which the JOG operation will run.	0-6000 r/min	100

JOGN

PA				
21	JOG speed	Set the running speed of JOG operating.	0-6000 r/min	100

PA22

22

The source
of speed
command

In speed control mode, it sets the source of speed command. It means:

0: Analog Terminal AS+,AS- input analog speed command.

1: Internal speed command is decided by SP1 and SP2 of digital input(DI):

DI Signal		Speed Command
SP2	SP1	
0	0	Internal Speed1(PA24)
0	1	Internal Speed2(PA25)
1	0	Internal Speed2(PA26)
1	1	Internal Speed2(PA27)

Note: 1=ON, 0=OFF.

2: Analog speed command+internal speed command:

DI Signal		Speed Command
SP2	SP1	
0	0	Analog Speed Command
0	1	Internal Speed2(PA25)
1	0	Internal Speed2(PA26)
1	1	Internal Speed2(PA27)

3: JOG speed command, if carries out JOG operation, it is needed to set.

4: Keyboard speed command, if carries out Sr operation, it needs to set the parameter.

5: IO terminal controls JOG operation.

0-5

0

HOLD

HOLD	Internal position control command stop	When the internal position register mode is on, the signal is switched on and the motor will stop running (only in the internal position mode PA-14-3).
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توجه داشته باشیم که دستور فوق کانترا را
صفر نمی کند

PA 14	Input mode of position command pulse	1. Set the input mode of position command pulse. 2. To set one of 4 input modes: 0: Pulse+Direction. 1: CCW pulse/CW pulse. 2: phase A and phase B orthogonal input. 3: Internal position input. Remark: CCW: observe from the motor axial direction. It defines CCW in counter clock wise and CW in clock wise.	0-3	0
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CTRG

CTRG	Internal Position Command Triggers	In internal position register mode, the signal will be triggered once the internal position register control commands(POS0-2) are chosen, and then the motor will rotate according to the internal position register command. Only when ZSPD=1(digital output) it would receive a next internal position command trigger.
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POS0

POS1

POS2

Com mand	POS2	POS1	POS0	CTRG	Parame ter	Induction	Moving Speed Register
P1	0	0	0	↑	P4-2	circle(+/-30000)	P4-4
					P4-3	pulse(+/-max cnt)	(V1)
P2	0	0	1	↑	P4-5	circle(+/-30000)	P4-7
					P4-6	pulse(+/-max cnt)	(V2)
P3	0	1	0	↑	P4-8	circle(+/-30000)	P4-10
					P4-9	pulse(+/-max cnt)	(V3)
P4	0	1	1	↑	P4-11	circle(+/-30000)	P4-13
					P4-12	pulse(+/-max cnt)	(V4)
P5	1	0	0	↑	P4-14	circle(+/-30000)	P4-16
					P4-15	pulse(+/-max cnt)	(V5)
P6	1	0	1	↑	P4-17	circle(+/-30000)	P4-19
					P4-18	pulse(+/-max cnt)	(V6)
P7	1	1	0	↑	P4-20	circle(+/-30000)	P4-22
					P4-21	pulse(+/-max cnt)	(V7)
P8	1	1	1	↑	P4-23	circle(+/-30000)	P4-25
					P4-24	pulse(+/-max cnt)	(V8)

P4-2	The setting of position cycle numbers for internal position command 1	To set position cycles of the first internal position.	-30000-30000	0
P4-3	The setting of pulse number in position cycle for internal position command 1	1. To set position pulses of the first internal position. 2. Internal position command=the setting value of the first internal position cycles+the setting value of the first internal position pulses. (Max is the pulse number of the motor rotation for each roll, please refer to the settings of PA11,PA12 and PA13).	+/-max.cnt/rev	0
P4-4	The move speed of Internal position instruction 1	To set the move speed of internal position instruction 1.	0-5000 r/min	1000

P4-5	The number of position cycles of internal position instruction 2	To set the number of position cycles of the second stage internal position.	-30000-30000	0
P4-6	The pulse number setting in position loop of internal position instruction 2	1. To set the position pulses of the second stage internal position. 2. Internal position instruction 2=the position cycles setting of the second internal position+the pulse number setting of the second internal position.	+/-max. cnt/rev	0
P4-7	The move speed of internal position instruction 2	To set the move speed of internal position instruction 2.	0-5000 r/min	1000

SHOM

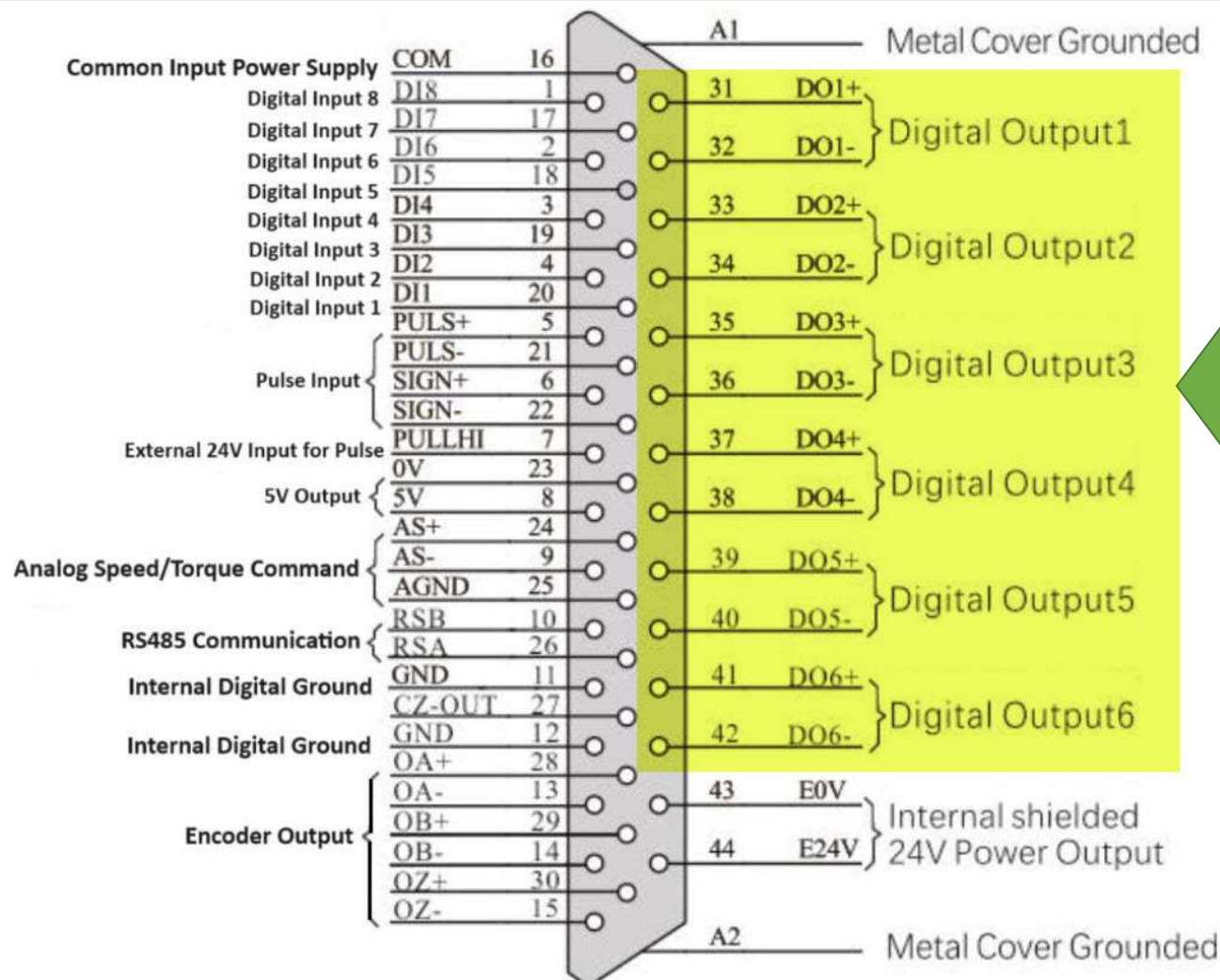
SHOM	Starting Origin Regression	In internal position register mode,it needs to search for origin. The signal turns on and starts searching for the origin function(Refer to the setting of P4-34).
------	----------------------------	---

P4-34	Origin trigger start mode	0: Close origin regression function. 1: Automatically perform origin regression when it is powering on. 2: Trigger the origin regression function by the input contact of the origin search function.	0-2	0
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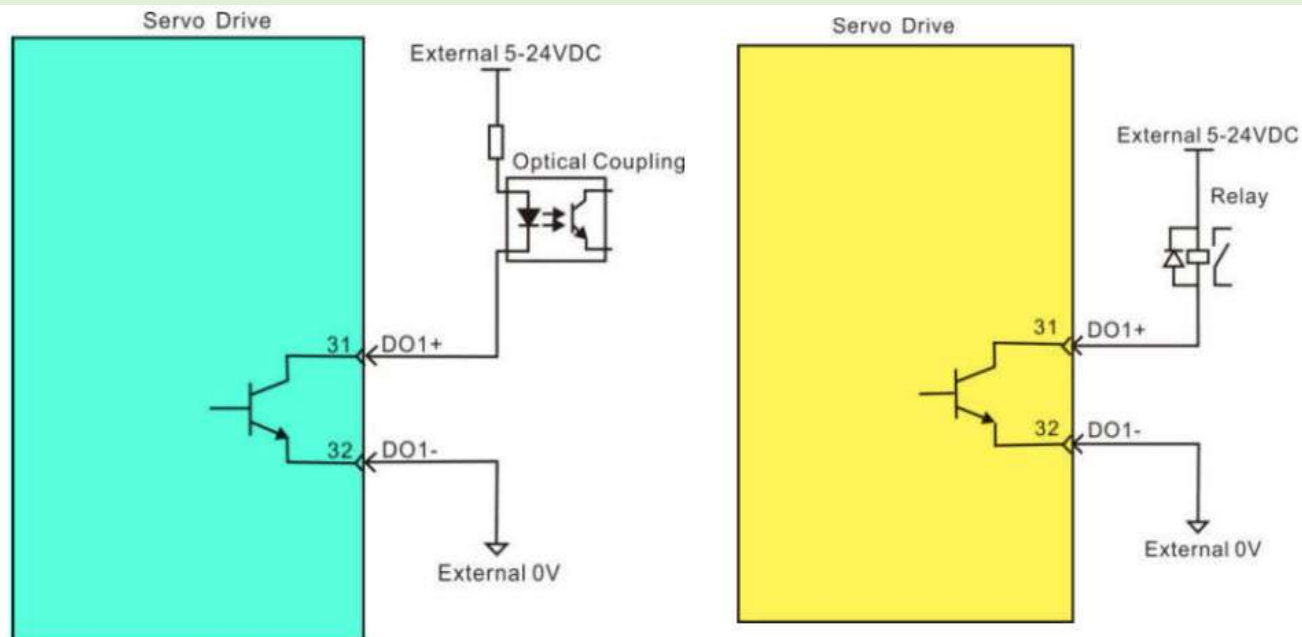
ORGP

ORGP	Origin Of Regression	In internal position register mode,it needs to search for origin. The signal turns on and starts searching for the origin function(Refer to the setting of P4-32).
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برنامه ریزی رله های خروجی



رله های
خروجی



- ◆ Be sure to connect a continuation diode when the upper device is a relay, otherwise it may damage DO ports or cause strong signal interference.
- ◆ The maximum allowable voltage and current capacity of the optocoupler output circuit in the servo drive are as follows:
 - Voltage: DC30V
 - Current: DC50mA

توجه

Digital Output 1 ~ 6

P3 - 20 ~ P3 - 25

DO 1 =>	P3 - 20	2
DO 2 =>	P3 - 21	3
DO 3 =>	P3 - 22	5
DO 4 =>	P3 - 23	8
DO 5 =>	P3 - 24	6
DO 6 =>	P3 - 25	7

DO 1 => P3 - 20

DO 2 => P3 - 21

!!

!

DO 6 => P3 - 25

برنامه ریزی خروجی
های دیجیتال

DO 1 $\Rightarrow$ P3 – 20 = 0 ~ 16

مثال

P3 – 20 = 2

Servo Ready

Default

DO 1 $\Rightarrow$ P3 – 20 = 2 Servo Ready

DO 2 $\Rightarrow$ P3 – 21 = 3 Alarm

DO 3 $\Rightarrow$ P3 – 22 = 5 Positioning Complete

DO 4 $\Rightarrow$ P3 – 20 = 8 Electromagnetic Brake

DO 5 $\Rightarrow$ P3 – 20 = 6 Speed Reached

DO 6 $\Rightarrow$ P3 – 20 = 7 Torque Reached

1	ON	Always effective	Force output ON.
2	RDY	Servo ready	OFF: Servo main power supply is not closed or has an alarm; ON: Servo main power supply is OK, no alarm.
3	ALM	Call the police	OFF: Alarms; ON: No alarm.
4	ZSP	Zero speed	Speed and torque control, OFF: Motor speed is higher than parameter PA-75 (regardless of direction); ON: The motor speed is lower than the parameter PA-75 (regardless of direction).
5	COIN	Positioning completed	When position control is in place, OFF: The position deviation is greater than the parameter PA-16; ON: The position deviation is less than the parameter PA-16.

مثال

PA – 75 =50

PA 16	<i>Position Control</i>	1. Position the complete pulse range under position control. 2. This parameter provides the basis for the drive to determine whether to complete the positioning under position control. When the remaining pulses in		
16	Positioning completion range	the position deviation counter are less than or equal to the set value of this parameter, the digital output DO's COIN (positioning complete) ON, otherwise OFF. 3. Comparator has a return function. Set by parameter Pa84.	0-30000 pulses	130
PA 75	Zero speed detection point	1. When the motor speed is lower than this parameter, the ZSP (zero speed) of the digital output DO is ON, otherwise it is OFF. 2. When the ZCLAMP of the digital input DI is ON and the speed command value is lower than this value, the speed command value is forced to zero.	0-1000 r/min	10


مثال
PA - 75 = 50

PA 84	Positioning complete return difference	1. Position the complete pulse range under position control. 2. When the remaining pulses in the position deviation counter are less than or equal to the set value of this parameter, the digital output DO's COIN (positioning complete) ON, otherwise OFF. 3. The comparator has a return function, set by parameter Pa85.	0-32767 pulse	65
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6	ASP	Speed reached	Speed and torque control, OFF: Motor speed is lower than parameter PA-28; ON: The motor speed is higher than the parameter PA-28. With polarity setting function, refer to the description of parameter PA-28.
7	ATRQ	Torque reached	OFF: The motor torque is lower than the parameter PA-89; ON: The motor torque is higher than the parameter PA-89. With polarity settings, refer to the description of parameter PA-89.
8	BRK	Electromagnetic brake	OFF: electromagnetic brake; ON: Electromagnetic brake release.

PA

28

Arrival speed

1. When the motor speed exceeds this parameter, the ASP of the digital output DO

(Speed reached) ON, otherwise OFF.

2. The comparator has a hysteresis function, which is set by parameter Pa87.

3. With polarity setting function:

PA88	PA28	Comparator
0	>0	Speed regardless of direction
1	>0	Only positive speed is detected
	<0	Only the reversal speed is detected

0-3000
r/min

3000

PA

89

Reach torque

1. When the motor torque exceeds this parameter, the ATRQ (torque arrival) of the digital output DO is ON, otherwise it is OFF.

2. The comparator has a hysteresis function, which is set by the parameter Pa90.

3. With polarity setting function:

PA88	PA28	Comparator
0	>0	Speed regardless of direction
1	>0	Only positive torque is detected
	<0	Only the reversal speed is detected

-300%-
300%

100

9	RUN	Servo running	OFF: Servo motor is not powered on; ON: The servo motor is powered on.
10	NEAR	Positioning close	When position control is in place, OFF: The position deviation is greater than the parameter PA-85; ON: Position deviation small residual parameter PA-85.
11	TRQL	Torque limit	OFF: the motor torque does not reach the limit value; ON: The motor torque reaches the limit. The torque limit method is passed by parameters PA-34, PA-35, PA-36, PA-37.
12	SPL	Speed limit	When torque is controlled, OFF: the motor speed does not reach the limit value; ON: Motor speed reaches the limit. The speed limit method is set by parameter PA-50.

PA 34	Internal CCW torque limit	1.The setting value is the percentage of rated torque.For example,it is set to 2 times of the rated torque, the value is 200. 2. At any time, this restriction is valid. 3. If the setting value is over than the max overload capacity, the actual torque limit is the max overload capacity that is permitted.	0-300%	300
PA 35	Internal CW torque limit	1.The setting value is the percentage of rated torque.For example,it is set to 2 times of the rated torque, the value is 200. 2. At any time, this restriction is valid. 3. If the setting value is over than the max overload capacity, the actual torque limit is the max overload capacity that is permitted.	-300-0%	-300

PA 36	External CCW torque limit	1.The setting value is the percentage of rated torque, for example, it is set to 1 time of rated torque, the value is 100. 2.Only when the input terminal(FIL) of CCW torque limit is ON is it valid. 3.When the limit is valid, the actual torque limit is the Minimum value of max overload capacity ,internal CCW torque limit and external CCW torque limit.	0-300%	100
PA 37	External CW torque limit	Set external torque limit of the motor CW direction. 1.The setting value is the percentage of rated torque, for example, it is set to 1 time of rated torque, the value is -100. 2.Only when the input terminal(RIL) of CW torque limit is ON is it valid. 3.When the limit is valid, the actual torque limit is the Minimum value of max overload capacity ,internal CCW torque limit and external CCW torque limit.	-300-0%	-100
PA50 Speed limit during torque control		1. When torque control is in place, the motor operating speed is limited to this parameter. 2. Speeding on light loads can be prevented.	0-5000 r/min	3000

PA

85

Positioning proximity

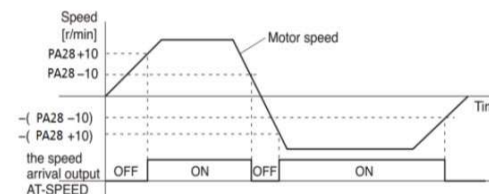
1. Position close to pulse range under position control.
2. When the remaining pulses in the position deviation counter are less than or equal to the set value of this parameter, the DIGITAL output DO's NEAR (nearby positioning) ON, otherwise OFF.
3. The comparator has a return function, set by parameter Pa86.
4. Used to prepare for the next step by accepting the NEAR signal when the positioning is about to be completed. The general parameter value is greater than the positioning completion range.

0-32767 pulse

28

Speed arrival

1. Set the detection timing of the speed arrival output. When the servomotor speed surpasses this parameter, the digital output (DO) ASP (arrival speed) is ON, otherwise is OFF.
 2. The comparator has hysteresis function set by PA87.
- Detection is associated with 10 r/min hysteresis.



3. It also has the polarity setting function:

PA88	PA28	Comparator
0	>0	No direction for speed
1	>0	Only detect CCW speed

0-3000 r/min

3000

13	VCOIN	Consistent speed	OFF: The absolute value of the difference between the actual speed and the command speed is greater than Pa76; ON: The absolute difference between the actual speed and the command speed is less than Pa76.
15	HOME	Return to origin completed	OFF: No signal is output when origin regression is not completed; ON: Signal output when origin regression is complete.
16	CMDOK	Internal position command completed	OFF: Do not output a signal when the internal position command is not completed or the internal location command is not stopped; ON: When the internal position command is complete or the internal position command is stopped, the signal is output after P4-1 set time.

PA 76	Speed coincidence range	When the difference between the actual speed and the instruction speed is less than this setting, the UCO2N(speed coincidence) is ON, otherwise OFF.	0-1000 r/min	10
P4-1	The digital output delay of internal position completion	1. When the internal position command is completed or stops,the output internal position command completes (CMDOK) this DO signal after the delay time set by P4-1. 2. Only when the delay time P4-1=0 and CMDOK=1 can it receive trigger internal position command. 3. Only when the delay time P4=1 is not 0 and CMDOK=1 can it receive the internal position command triggered by CTRG.	0-200 ms	0

JOG

Operation

DI 1 P3 – 0 =1 Servo ON

DI 3 P3 – 2 =22 JOGP

DI 4 P3 – 2 =22 JOGN

PA – 4 =1 Speed Control Mode

PA – 22 =5 5: I/O terminal controls jog operation.
0: The enable signal is controlled by the

PA – 53 =0 SON input of DI;
1: Software force enablement.

PA – 21 =300 JOG running speed

تنظیمات مربوط به
JOG

CZERO	ZCLAMP	TCW	TCCW	CWL	CCWL	ARST	SON
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8 7 6 5 4 3 2 1

CMODE	NULL	TRQ2	TRQ1	NULL	SP2	SP1	CINV
-------	------	------	------	------	-----	-----	------

16 15 14 13 12 11 10 9

NULL	JOGN	JOGP	INH	CLR	GEAR2	GEAR1	NULL
------	------	------	-----	-----	-------	-------	------

24 23 22 21 20 19 18 17

NULL	POS2	POS1	POS0	CTRG	HOLD	NULL	NULL
------	------	------	------	------	------	------	------

32 31 30 29 28 27 26 25

NULL	NULL	NULL	NULL	NULL	NULL	ORGP	SHOM
------	------	------	------	------	------	------	------

40 39 38 37 36 35 34 33

PA 4	Control method selection	This parameter allows you to set the way the drive is controlled: 0: Position control mode; 1: speed control mode; 2: torque control mode; 3: Position speed mixed control mode; 4: Position torque mixing control mode; 5: Speed torque mixing control mode; 6: Encoder zero mode.
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21	JOG running speed	Set the speed at which the JOG operation will run.	0-6000 r/min
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53	Servo forced enable	Set to: 0: The enable signal is controlled by the SON input of DI; 1: Software force enablement.	0-1
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PA22

Speed
command
source

During speed control, set the source of the speed command, the meaning of the parameter:

0: Analog speed command is input by analog port AS+, AS-;

1: Internal speed command, determined by SP1 and SP2 input by DI:

DI Signals (Notes)		Command pulsed electronic gear denominator
SP2	SP1	
0	0	Internal speed 1 (parameter PA24)
0	1	Internal speed 2 (parameter PA25)
1	0	Internal speed 3 (parameter PA26)
1	1	Internal speed 4 (parameter PA27)

PA22

Speed
command
source

2: Analog speed command + internal speed command:

DI Signals (Notes)		Command pulsed electronic gear denominator
SP2	SP1	
0	0	Analog volume speed instructions
0	1	Internal speed 2 (parameter PA25)
1	0	Internal speed 3 (parameter PA26)
1	1	Internal speed 4 (parameter Pa27)

Note: 0 means OFF, 1 means ON.

3: JOG speed command, when inching (JOG) operation,
Need to be set.

4: Keyboard speed command, when performing keyboard speed regulation (Sr) operation,
Need to be set.

5: IO terminal controls jog operation.

 38	Temperature alarm value	Set the drive temperature to the upper alarm value.	200- 1350
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P4-1	The digital output delay of internal position completion	1. When the internal position command is completed or stops, the output internal position command completes (CMDOK) this DO signal after the delay time set by P4-1. 2. Only when the delay time P4-1=0 and CMDOK=1 can it receive trigger internal position command. 3. Only when the delay time P4=1 is not 0 and CMDOK=1 can it receive the internal position command triggered by CTRG.	0-200 ms	0
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P4-2	The setting of position cycle numbers for internal position command 1	To set position cycles of the first internal position.	-30000-30000	0
P4-3	The setting of pulse number in position cycle for internal position command 1	1. To set position pulses of the first internal position. 2. Internal position command=the setting value of the first internal position cycles+the setting value of the first internal position pulses. (Max is the pulse number of the motor rotation for each roll, please refer to the settings of PA11,PA12 and PA13).	+/-max.cnt/rev	0
P4-4	The move speed of Internal position instruction 1	To set the move speed of internal position instruction 1.	0-5000 r/min	1000

P4-5	The number of position cycles of internal position instruction 2	To set the number of position cycles of the second stage internal position.	-30000- 30000	0
P4-6	The pulse number setting in position loop of internal position instruction 2	1. To set the position pulses of the second stage internal position. 2. Internal position instruction 2=the position cycles setting of the second internal position+the pulse number setting of the second internal position.	+/-max. cnt/rev	0
P4-7	The move speed of internal position instruction 2	To set the move speed of internal position instruction 2.	0-5000 r/min	1000

P4-8	The position cycles of internal position instruction 3	To set the position cycles of the third stage internal position instruction.	-30000-30000	0
P4-9	The pulse number setting in position loop of internal position instruction 3	1. To set the position pulses of the third stage internal position. 2. Internal position instruction 3=the position cycles setting of the third internal position+the pulse number setting of the third internal position.	+/-max. cnt/rev	0
P4-10	The move speed of internal position instruction 3	To set the move speed of internal position instruction 3.	0-5000 r/min	1000

P4-11	The number of position cycles of internal position instruction 4	To set the number of position cycles of the fourth stage internal position.	-30000-30000	0
P4-12	The pulse number setting in position loop of internal position instruction 4	1. To set the position pulses of the 4th stage internal position. 2. Internal position instruction 4=the position cycles setting of the 4th internal position+the pulse number setting of the 4th internal position.	+/-max. cnt/rev	0
P4-13	The move speed of internal position instruction 4	To set the move speed of internal position instruction 4.	0-5000 r/min	1000

P4-17	The number of position cycles of internal position instruction 6	To set the number of position cycles of the sixth stage internal position.	-30000-30000	0
P4-18	The pulse number setting in position loop of internal position instruction 6	1. To set the position pulses of the 6th stage internal position. 2. Internal position instruction 6=the position cycles setting of the 6th internal position+the pulse number setting of the 6th internal position.	+/-max.cnt/rev	0
P4-19	The position cycles of internal position instruction 6	To set the position cycles of the 6 th stage internal position instruction.	0-5000 r/min	1000

P4-20	The position cycles of internal position instruction 7	To set the position cycles of the 7 th stage internal position instruction.	-30000-30000	0
P4-21	The pulse number setting in position loop of internal position instruction 7	1. To set the position pulses of the 7th stage internal position. 2. Internal position instruction 7=the position cycles setting of the 7th internal position+the pulse number setting of the 7th internal position.	+/-max.cnt/rev	0
P4-22	The move speed of internal position instruction 7	To set the move speed of internal position instruction 7.	0-5000 r/min	1000

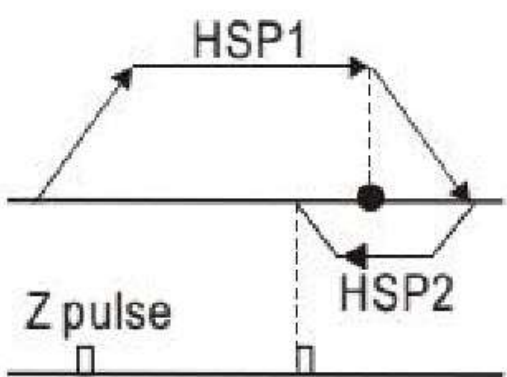
P4-23	The number of position cycles of internal position instruction 8	To set the number of position cycles of the eighth stage internal position.	-30000-30000	0
P4-24	The pulse number setting in position loop of internal position instruction 8	1. To set the position pulses of the 8th stage internal position. 2. Internal position instruction 8=the position cycles setting of the 8th internal position+the pulse number setting of the 8th internal position.	+/-max. cnt/rev	0
P4-25	The move speed of internal position instruction 8	To set the move speed of internal position instruction 8.	0-5000 r/min	1000

P4-32	The type of origin detector and setting of finding direction	0: Forward direction origin regression and CCWL is as regression origin. 1: Reverse direction origin regression and CWL is as regression origin. 2: Forward direction origin regression and ORGP is as regression origin. 3: Reverse direction origin regression and ORGP is as regression origin. 4: Forward looking for Z pulse as the origin of regression. 5: Reverse looking for Z pulse as the origin of regression.	0-5	0
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P4-33	Set the mode of short distance movement to the origin	0: Find the reference origin and return to search for the Z phase pulse as the mechanical origin. 1: Find the reference origin and keep forward for the Z phase pulse as the mechanical origin. 2: Find the rising edge of the detector ORGP as the mechanical origin. (when it is 2, only the type of origin detector and the setting value of the search direction can be used as 2, 3,4 or 5.)	0-2	0
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P4-34	Origin trigger start mode	0: Close origin regression function. 1: Automatically perform origin regression when it is powering on. 2: Trigger the origin regression function by the input contact of the origin search function.	0-2	0
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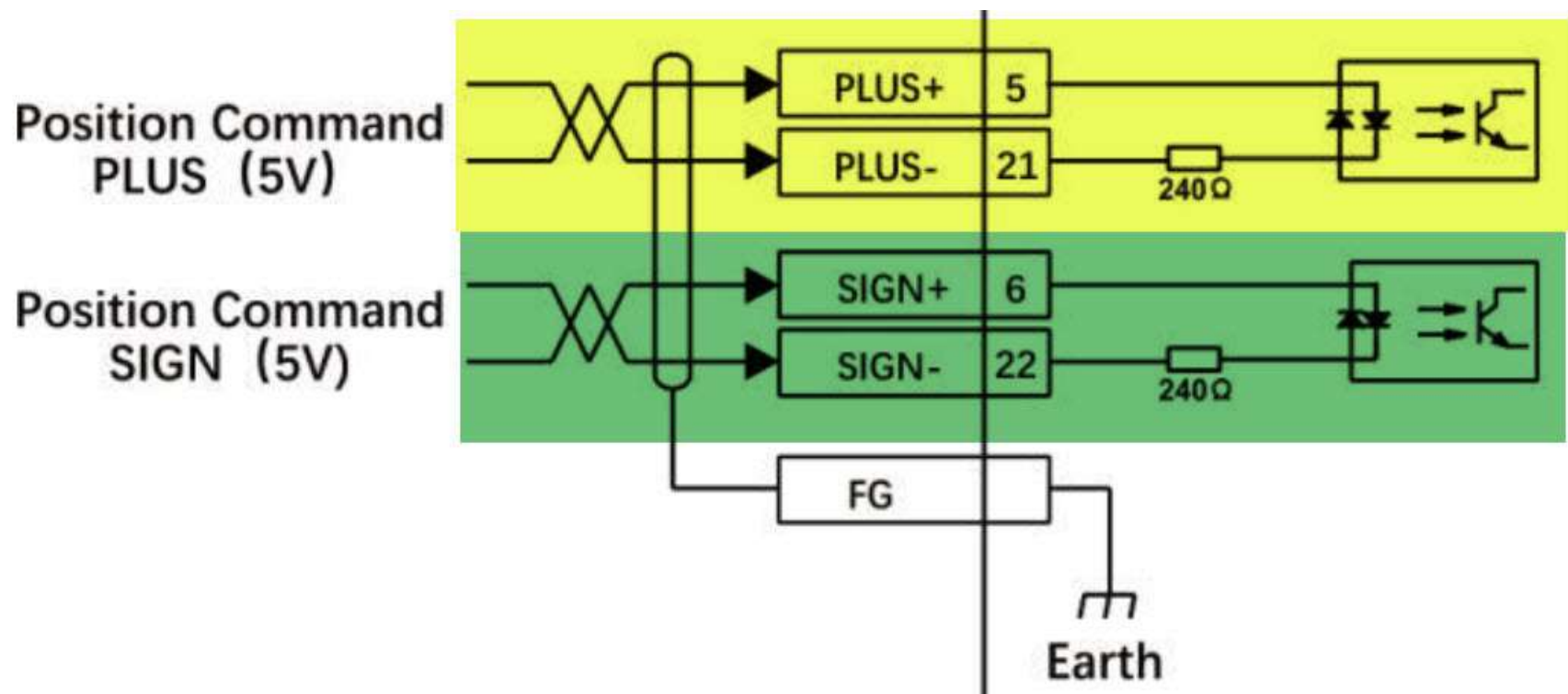
P4-35	The setting of origin stop mode	0: The motor slows down and pulls back to the origin when the origin detection completed. 1: The motor slows forward and stops when the origin detection completed.	0-1	0
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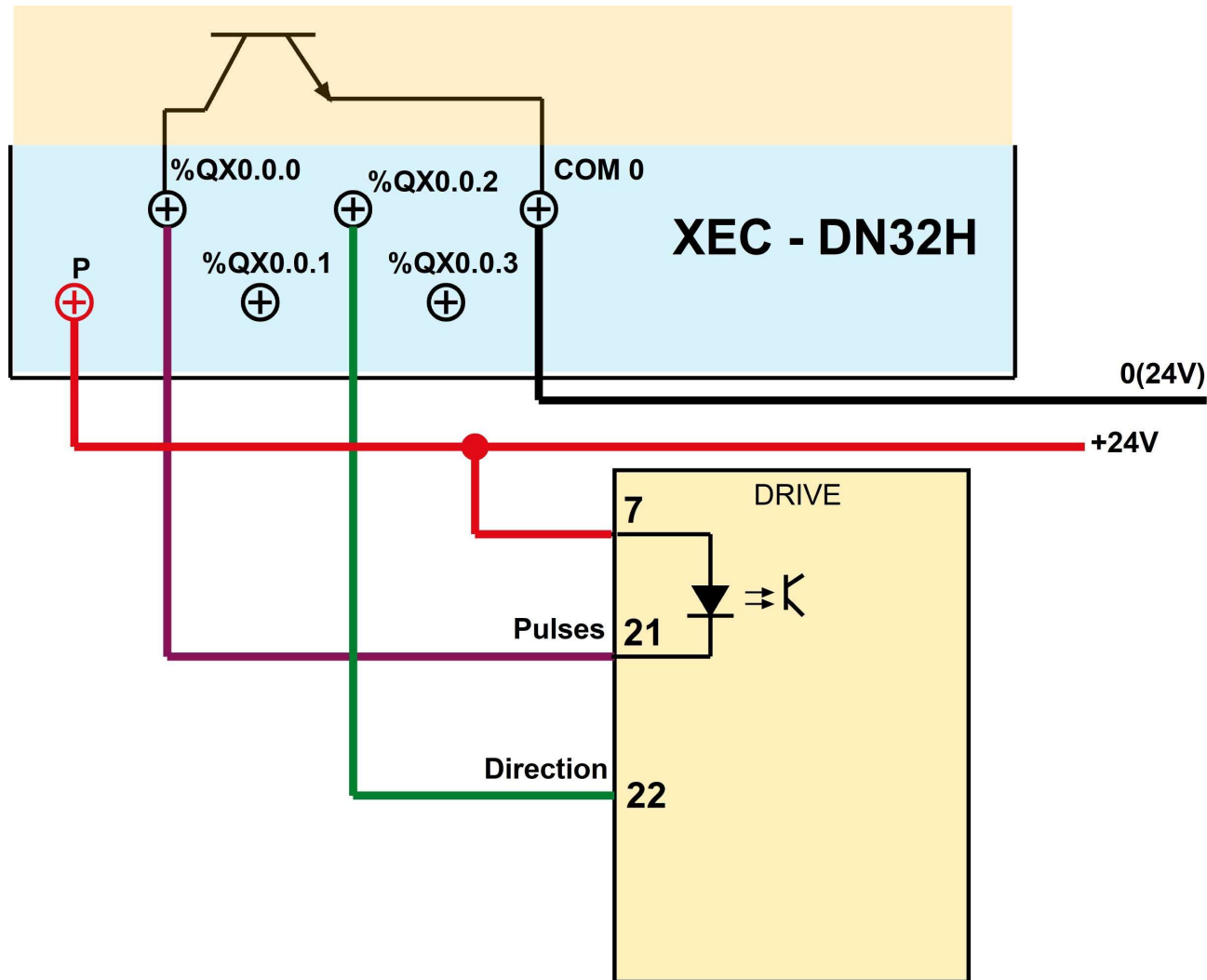
P4-36	The speed setting of origin regress in the first stage of high speed (HSPD1)	To set homing speed at 1st stage. 	1-2000 r/min	1000
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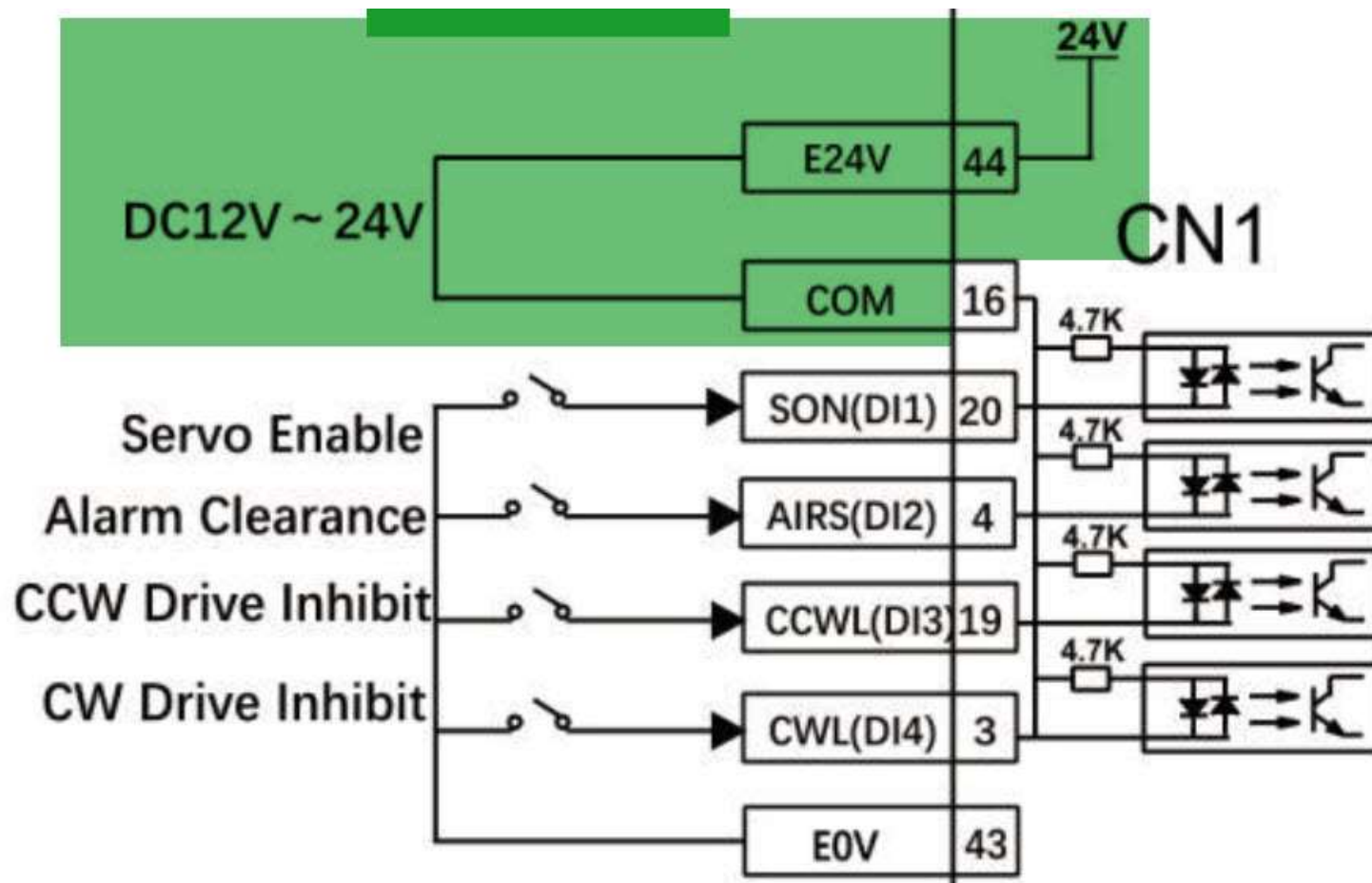
P4-37	The speed setting of origin regress in the first stage of high speed(HSPD2)	To set the speed of origin regression in the second stage of high speed.	1-500 r/min	50
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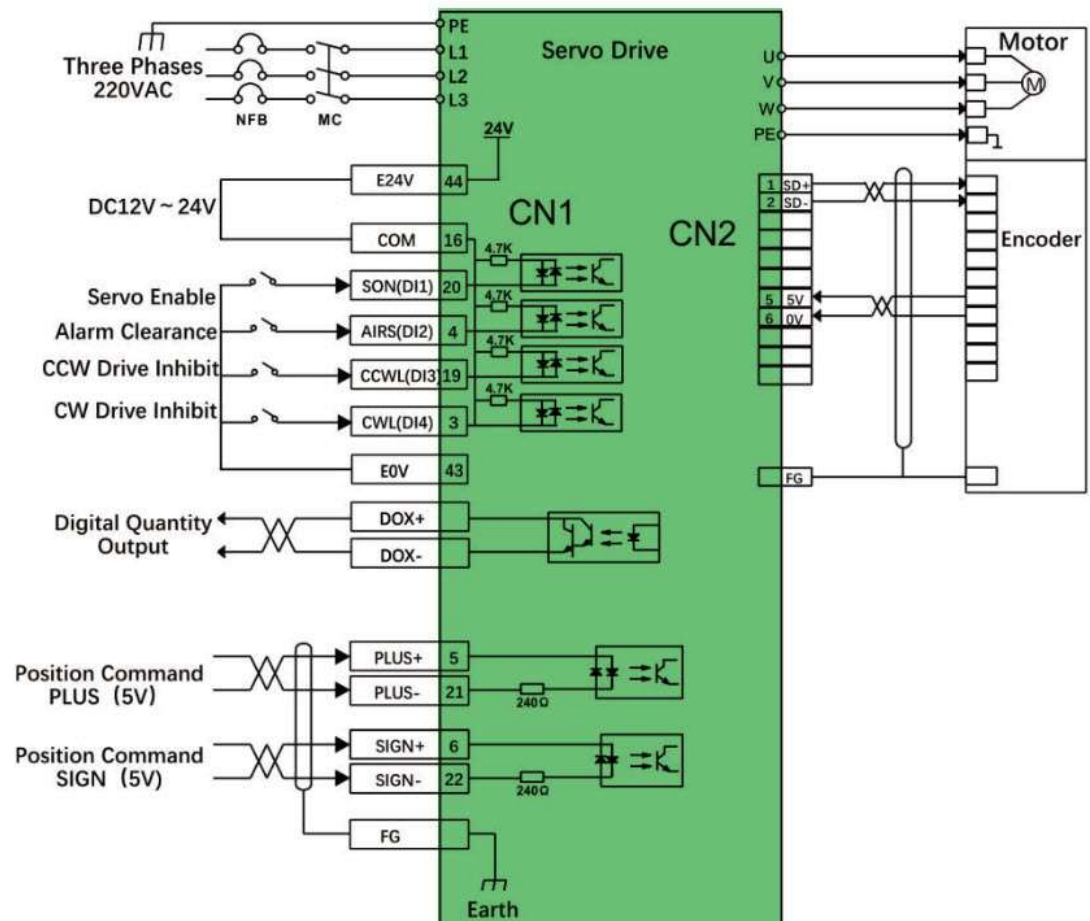
P4-38	The cycle number of origin regression offset(HOF1)	To set the cycle number of origin regression offset.	-30000- 30000	0
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P4-39	The pulse number of origin regression offset(HOF2)	1: To set the pulse number of origin regression offset. 2: When the parameter function HOF1 and HOF2 are set to 0, the origin is defined as Z pulse or ORGP by the origin regression mode. If they are not 0, the origin will define the above Z pulse plus last pulse offset $HOF1 \times 10000 + HOF2$ as the new origin.	+/-max. cnt/rev	0
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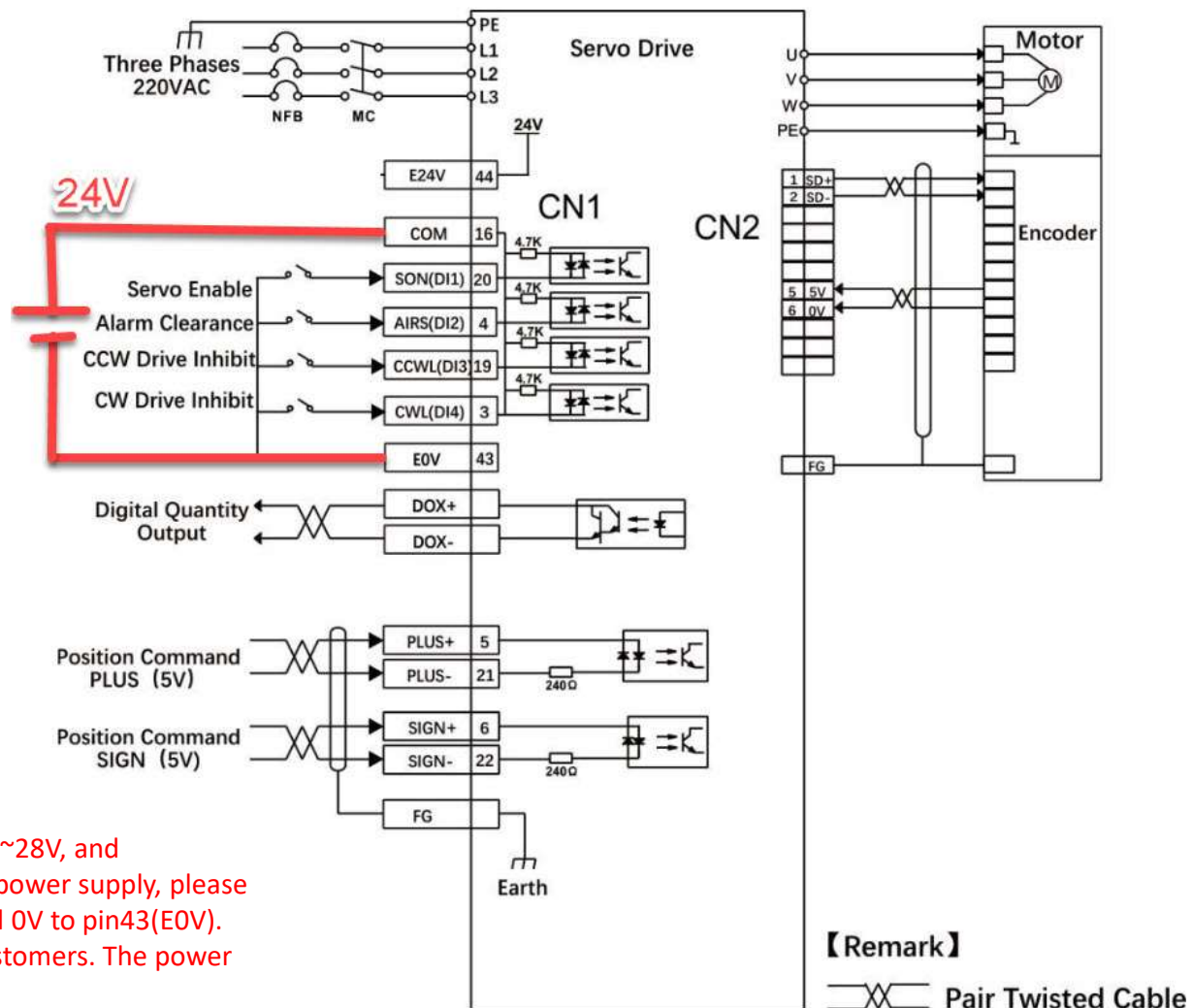






【Remark】

Pair Twisted Cable



Parameter Settings In Position Mode

- **Gain And Smooth Filter**

Parameter	Introduction	Range	Default Value
PA4	Control mode	0	0
PA9	Position Proportional Gain	1-1000	80
PA19	Position Command Smooth Filter	0-1000×0.1ms	100
PA100	Command Filter Selection	0-1	0

● **Digital Input**

Parameter	Introduction	Range	Default Value
PA11	Command pulses for each rotation	0-30000	10000
PA12	1 st numerator of electronic gear for position command pulse	1-32767	0
PA13	Denominator of electronic gear for position command pulse	1-32767	10000
PA14	Input mode of position command pulse	0-3	0
PA15	reverse direction of position command pulse	0-1	0
PA59	The effective edge of command pulse	0-1	0
PA77	2 nd numerator of electronic gear for position pulse	1-32767	0
PA78	3 rd numerator of electronic gear for position pulse	1-32767	0
PA79	4 th numerator of electronic gear for position pulse	1-32767	0
PA80	Effective level of command direction signal	0-1	0
PA81	Command pulse(PULS)signal filter	0-15	4
PA82	Command pulse(SIGN)signal filter	0-15	4

● **Digital Output(DO)**

Parameter	Introduction	Range	Default Value
PA16	Range of positioning completion	0-3000 pulses	130
PA17	Position deviation limit	0-30000×100 pulses	6000
PA18	Position deviation error	0-1	0
PA83	CWL,CCWL prohibited mode	0-1	0
PA84	Hysteresis for position completion	0-32767	65
PA85	Range for approach positioning	0-32767	6500
PA86	Hysteresis for approach positioning	0-32767	650

به ازای این عدد پالس محور موتور یک دور کامل می چرخد

➔ به شرط این که PA - 11 مخالف
صفر باشد

PA 11	Command pulses of each motor revolution	1.To set command pulses of each motor revolution.	0-30000	10000
		2.When it is set to 0, PA12(numerator of electronic gear for position command pulses), PA13(denominator of electronic gear for position command pulses) are valid.		

12	1 st numerator of electronic gear for position command pulse	1.Set the electric gear ratio for position command pulse. 2.In position control mode,it is convenient to match all kinds of pulse source through set the parameter PA12 and PA13, which helps to reach ideal control resolution(angle/pulse). 3. $P \times G = N \times C \times 4$ P: pulses of input command; G:electric gear ratio; N:numbers of motor rotation ; C:solutions of photoelectric encoder in per rotation, the default value is 2500. 4.For example, input command pulse P is 6000, servo motor rotate a roll: $G = (N \times C \times 4) / P = (1 \times 2500 \times 4) / 6000 = 5/3$, So PA12 should be set to 5, PA13 should be set to 3.	0-32767	0
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5.The numerator of electronic gear for command pulse is decided by Gear1 and Gear2. The denominator is decided by PA13. The details as following:

DI Signal		Denominator
Gear 2	Gear 1	
0	0	1 st Numerator(PA12)
0	1	2 nd Numerator(PA77)
1	0	3 rd Numerator(PA78)
1	1	4 th Numerator(PA79)

Remark: 0=OFF, 1=ON.

PA 13	Denominator of position command pulse	PA - 13 Refers to parameter PA12. مخرج كسر	1-32767	10000
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اگر $PA-11=0$ باشد ضریب کیربکس لحاظ می شود

Gear 2	Gear 1	
0	0	$G = \frac{PA-12}{PA-13}$
0	1	$G = \frac{PA-77}{PA-13}$
1	0	$G = \frac{PA-78}{PA-13}$
1	1	$G = \frac{PA-79}{PA-13}$

$$G * P = C * N * 4$$

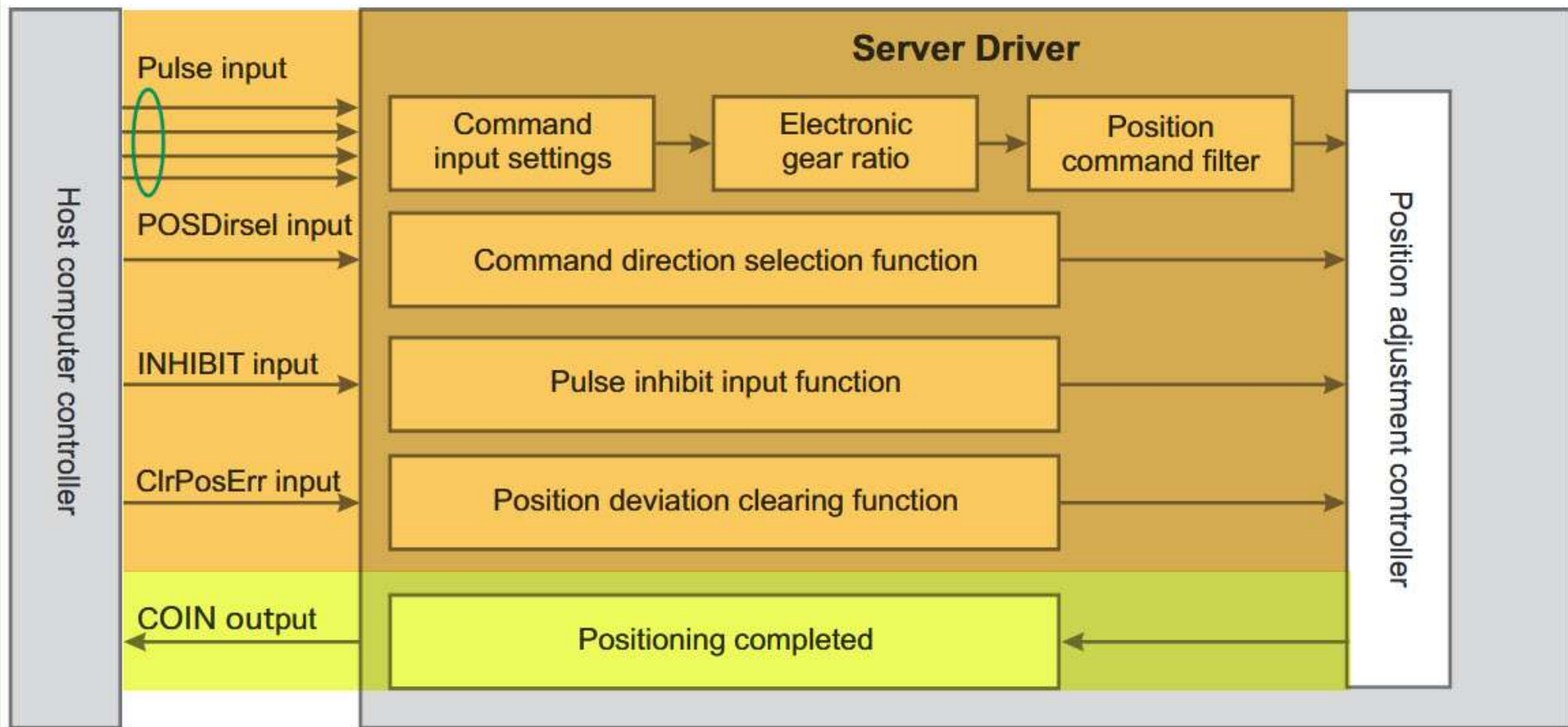
$$G = \frac{C * N * 4}{P}$$

$$G = \frac{131072 * 1 * 4}{8192}$$

$$G = \frac{524288}{8192} = \frac{128}{2}$$

$$PA-12=128 \quad PA-13=2$$

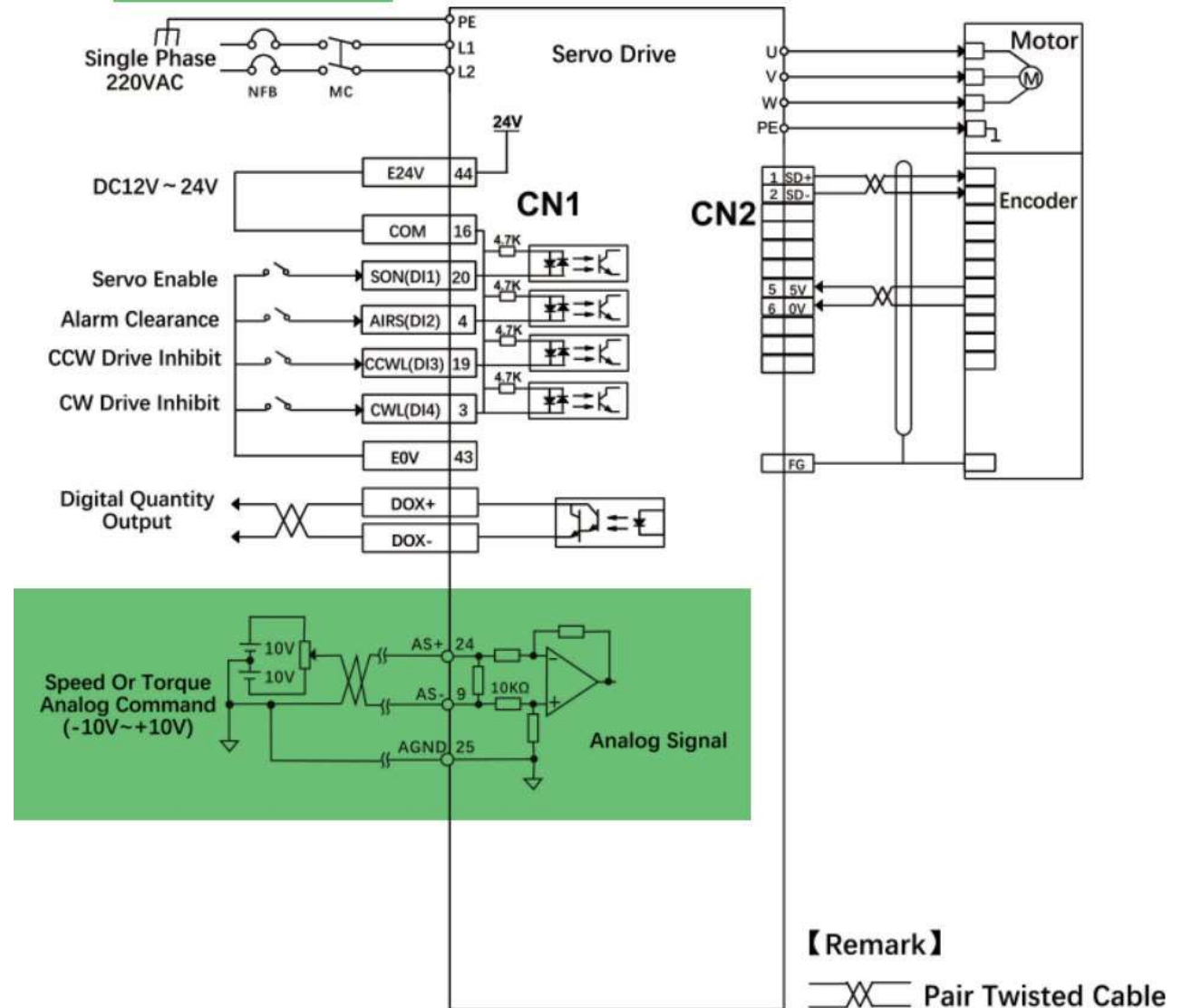
Position control mode



PA43	Gain Of Analog Speed Command	10-3000r/min/v	300
PA44	Direction Of Analog Speed Command	0-1	0
PA45	Zero Offset Compensation Of Analog Speed Command	-5000-5000	0
PA46	Filter Of Analog Speed Command	1-300Hz	300
PA75	Zero-speed Detection Point	0-1000r/min	10
PA76	The Setting Value For Speed Consistent	0-1000r/min	10
PA87	Hysteresis Of Arrival Speed	0-5000r/min	30
PA88	Polarity Of Arrival Speed	0-1	0
PA92	Hysteresis For Zero Speed Detection	0-1000r/min	5

**Speed
Mode**

Speed Mode Wiring



Parameter Settings In Speed Mode

Parameter	Introduction	Range	Default Value
PA4	Control Mode	1	0
PA5	Speed Proportional Gain	5-2000Hz	150
PA6	Speed Integral Constant	1-1000ms	75
PA22	Internal And External Speed Instruction Selection	0-5	0
PA24	Internal Speed 1	-6000-6000r/min	100
PA25	Internal Speed 2	-6000-6000r/min	500
PA26	Internal Speed 3	-6000-6000r/min	1000
PA27	Internal Speed4	-6000-6000r/min	2000
PA28	Arrival Speed	0-3000r/min	3000
PA40	Acceleration Time Constant	1-10000ms	100
PA41	Deceleration Time Constant	1-10000ms	100
PA42	S Type Acceleration And Deceleration Time Constant	0-1000ms	0

PA43	Gain Of Analog Speed Command	10-3000r/min/v	300
PA44	Direction Of Analog Speed Command	0-1	0
PA45	Zero Offset Compensation Of Analog Speed Command	-5000-5000	0
PA46	Filter Of Analog Speed Command	1-300Hz	300
PA75	Zero-speed Detection Point	0-1000r/min	10
PA76	The Setting Value For Speed Consistent	0-1000r/min	10
PA87	Hysteresis Of Arrival Speed	0-5000r/min	30
PA88	Polarity Of Arrival Speed	0-1	0
PA92	Hysteresis For Zero Speed Detection	0-1000r/min	5

44	Direction of analog speed command	Reverse the input polarity of analog speed. 1. Set to 0 and analog speed command is positive,the speed direction is CCW. 2. Set to 1 and analog speed command is positive,the speed direction is CW.	0-1	0
----	--	---	-----	---

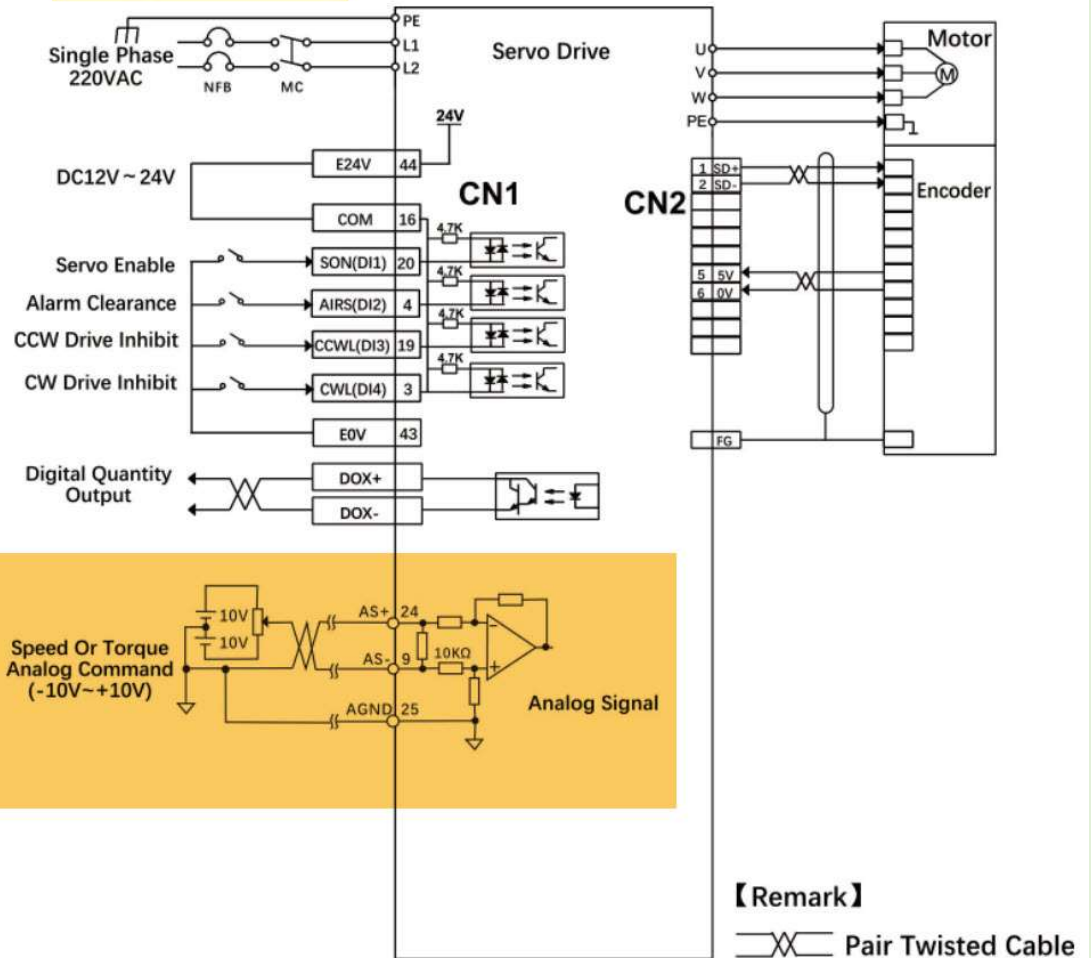
Virtual I/O

P3-38	Virtual I/O input DI1 function	0-99	0
P3-39	Virtual I/O input DI2 function	0-99	0
P3-40	Virtual I/O input DI3 function	0-99	0
P3-41	Virtual I/O input DI4 function	0-99	0
P3-42	Virtual I/O input DI5 function	0-99	0
P3-43	Virtual I/O input DI6 function	0-99	0
P3-44	Virtual I/O input DI7 function	0-99	0
P3-45	Virtual I/O input DI8 function	0-99	0

Remark:

1. P3-30=0, the number of IO input is 4 decided by DI1~DI4 and the corresponding parameter P3-0~P3-3.
2. P3-30=1, the number of IO input is 8 decided by P3-31 and the corresponding parameter P3-38~P3-45.
3. P3-30=2, the number of IO input is 12 decided by DI1~DI4 and P3-31 and the corresponding parameter P3-0~P3-3 and P3-38~P3-45.
4. This port can be set to differential output when PA104=1 for P3-24.

**Torque
Mode**



تنظیمات مربوط به مد گشتاور

Parameter Settings In Torque Mode

Parameter	Introduction	Range	Default Value
PA4	Control mode	2	0
PA29	Gain of analog torque command	Set by yourself	30
PA32	Selection for internal and external torque command	0-2	0
PA33	Direction of analog torque command	0	0
PA39	Zero offset compensation of analog torque command	0	0
PA50	Speed limit in torque control mode	Set by yourself	Rated Speed
PA64	Internal torque 1	-300-300	0
PA65	Internal torque 2	-300-300	0
PA66	Internal torque 3	-300-300	0
PA67	Internal torque 4	-300-300	0
PA83	Inhibition method	0-1	0
PA89	Arrival torque	-300%-300%	100
PA90	Hysteresis of arrival torque	0%-300%	5
PA91	Polarity of arrival torque	0-1	0

PA

29

Analog
torque
command
input gain

1. Set the proportional relationship between the analog torque input voltage and the actual running torque of the motor.

2. The unit of the set value is 0.1v/100%.

3. The default value is 30, corresponding to 3v/100%, that is, inputting 3v voltage produces 100% rated torque.

10-100
(0.1v/
100%)

30

PA50

Speed limit
during
torque
control

1. When torque control is in place, the motor operating speed is limited to this parameter.
2. Speeding on light loads can be prevented.

0-5000
r/min

3000

PA

32

Torque
command
source

During torque control, set the source of torque command:

0: Analog torque command, input by analog ports AS+ and AS-.

1: Internal torque command, determined by TRQ1 and TRQ2 input by DI:

DI Signals (Notes)		Torque command
TRQ2	TRQ1	
0	0	Internal torque 1 (parameter PA64)
0	1	Internal torque 2 (parameter PA65)
1	0	Internal torque 3 (parameter PA66)
1	1	Internal torque 4 (parameter PA67)

2: Analog torque command + internal torque command:

DI Signals (Notes)		Torque command
TRQ2	TRQ1	
0	0	Analog torque command
0	1	Internal torque 2 (parameter PA65)
1	0	Internal torque 3 (parameter PA66)
1	1	Internal torque 4 (parameter Pa67)

Note: 0 means OFF, 1 means ON.

0-1

PA
64

Internal
torque 1

In torque control mode (PA4=2), when TRQ1 is OFF, when TRQ2 is OFF, select internal torque 1 as torque command.

-300-
300

0

PA
65

Internal
torque 2

In torque control mode (PA4=2), when TRQ1 is ON, when TRQ2 is OFF, select internal torque 2 as torque command.

-300-
300

0

PA
66

Internal
torque 3

In torque control mode (PA4=2), when TRQ1 is OFF, when TRQ2 is ON, select internal torque 3 as torque command.

-300-
300

0

PA
67

Internal
torque 4

In torque control mode (PA4=2), when TRQ1 is ON, when TRQ2 is ON, select internal torque 4 as torque command.

-300-
300

0

PA4

Control
method
selection

This parameter allows you to set the way the drive is controlled:

0: Position control mode;

1: speed control mode;

2: torque control mode;

3: Position speed mixed control mode;

4: Position torque mixing control mode;

5: Speed torque mixing control mode;

6: Encoder zero mode.

PA83

CWL, CCWL
direction
prohibition
method

1. This parameter is used to select the prohibited method when the machine touches the mechanical limit switch and triggers the CWL, CCWL limit.

Parameter meaning:

0: Limit the torque in this direction to 0;

1: Pulse input in this direction is prohibited.

0-1

0

PA

89

Reach torque

1. When the motor torque exceeds this parameter, the ATRQ (torque arrival) of the digital output DO is ON, otherwise it is OFF.

2. The comparator has a hysteresis function, which is set by the parameter Pa90.

3. With polarity setting function:

PA88	PA28	Comparator
0	>0	Speed regardless of direction
1	>0	Only positive torque is detected
	<0	Only the reversal speed is detected

-300%-
300%

100

PA 90	Reached torque difference	1.When the motor torque exceeds this parameter, the ATRQ (torque arrival) of the digital output DO is ON, otherwise it is OFF. 2.The comparator has a hysteresis function, which is set by parameter PA90. 3.With polarity setting function: <table><tr><th>PA88</th><th>PA28</th><th>Comparator</th></tr><tr><td>0</td><td>>0</td><td>Speed regardless of direction</td></tr><tr><td rowspan="2">1</td><td>>0</td><td>Only positive torque is detected</td></tr><tr><td><0</td><td>Only the reversal speed is detected</td></tr></table>	PA88	PA28	Comparator	0	>0	Speed regardless of direction	1	>0	Only positive torque is detected	<0	Only the reversal speed is detected	0-300%	5
PA88	PA28	Comparator													
0	>0	Speed regardless of direction													
1	>0	Only positive torque is detected													
	<0	Only the reversal speed is detected													
PA 91	Reached torque polarity	1.When the motor torque exceeds this parameter, the ATRQ (torque arrival) of the digital output DO is ON, otherwise it is OFF. 2.The comparator has a hysteresis function, which is set by parameter PA90. 3.With polarity setting function: <table><tr><th>PA88</th><th>PA28</th><th>Comparator</th></tr><tr><td>0</td><td>>0</td><td>Speed regardless of direction</td></tr><tr><td rowspan="2">1</td><td>>0</td><td>Only positive torque is detected</td></tr><tr><td><0</td><td>Only reverse torque is detected</td></tr></table>	PA88	PA28	Comparator	0	>0	Speed regardless of direction	1	>0	Only positive torque is detected	<0	Only reverse torque is detected	0-1	0
PA88	PA28	Comparator													
0	>0	Speed regardless of direction													
1	>0	Only positive torque is detected													
	<0	Only reverse torque is detected													

Homing

(Homing) Origin

P4-34	Origin trigger start mode	0: Close origin regression function. 1: Automatically perform origin regression when it is powering on. 2: Trigger the origin regression function by the input contact of the origin search function.
-------	---------------------------	--

آیا هومینگ را لازم داریم؟

خیر

پس $P4 - 34 = 0$ قرار دهید

P4-34	Origin trigger start mode	0: Close origin regression function. 1: Automatically perform origin regression when it is powering on. 2: Trigger the origin regression function by the input contact of the origin search function.
-------	---------------------------	--

آیا هومینگ را لازم داریم ؟

بله

پس ابتدا $PA - 14 = 3$ قرار دهید

14	Input mode of position command pulse	PA 1. Set the input mode of position command pulse. 2. To set one of 4 input modes: 0: Pulse+Direction. 1: CCW pulse/CW pulse. 2: phase A and phase B orthogonal input. 3: Internal position input. Remark: CCW: observe from the motor axial direction. It defines CCW in counter clock wise and CW in clock wise.	0-3	0

ادامه اسلایدهای بعدی

اگر می خواهید فقط و فقط یکبار و زمانی که برق سروو

را وصل می کنیم و Servo ON را فعال می کنیم انجام پذیرد

باید $P4 - 34 = 1$ لحاظ شود

P4-34	Origin trigger start mode	0: Close origin regression function.
		1: Automatically perform origin regression when it is powering on.
		2: Trigger the origin regression function by the input contact of the origin search function.

ادامه اسلایدهای بعدی

اگر می خواهید (به دفعات) **با یک فرمان ورودی**
هومینگ را اجرا کنید

باید 2 = 34 – P4 لحاظ شود

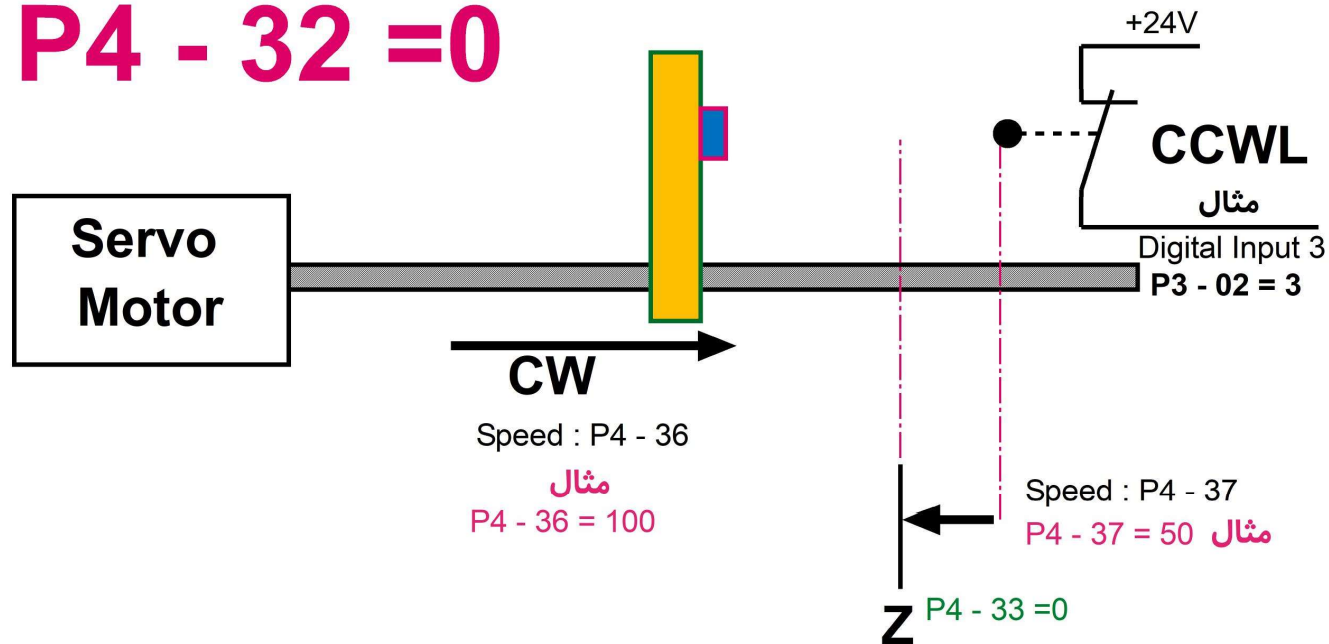
P4-34	Origin trigger start mode	0: Close origin regression function. 1: Automatically perform origin regression when it is powering on. 2: Trigger the origin regression function by the input contact of the origin search function.
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ادامه اسلایدهای بعدی

خیلی مهم

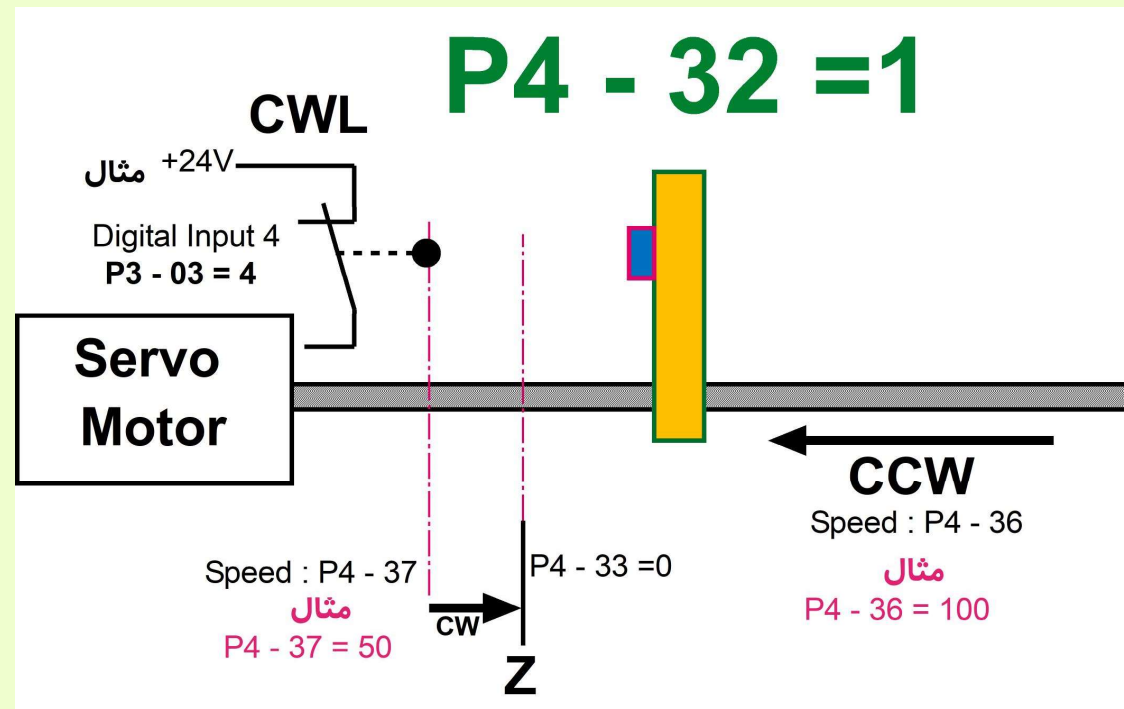
P4-32	The type of origin detector and setting of finding direction	0: Forward direction origin regression and CCWL is as regression origin. 1: Reverse direction origin regression and CWL is as regression origin. 2: Forward direction origin regression and ORGP is as regression origin. 3: Reverse direction origin regression and ORGP is as regression origin. 4: Forward looking for Z pulse as the origin of regression. 5: Reverse looking for Z pulse as the origin of regression.	0-5	0
-------	--	--	-----	---

P4 - 32 = 0



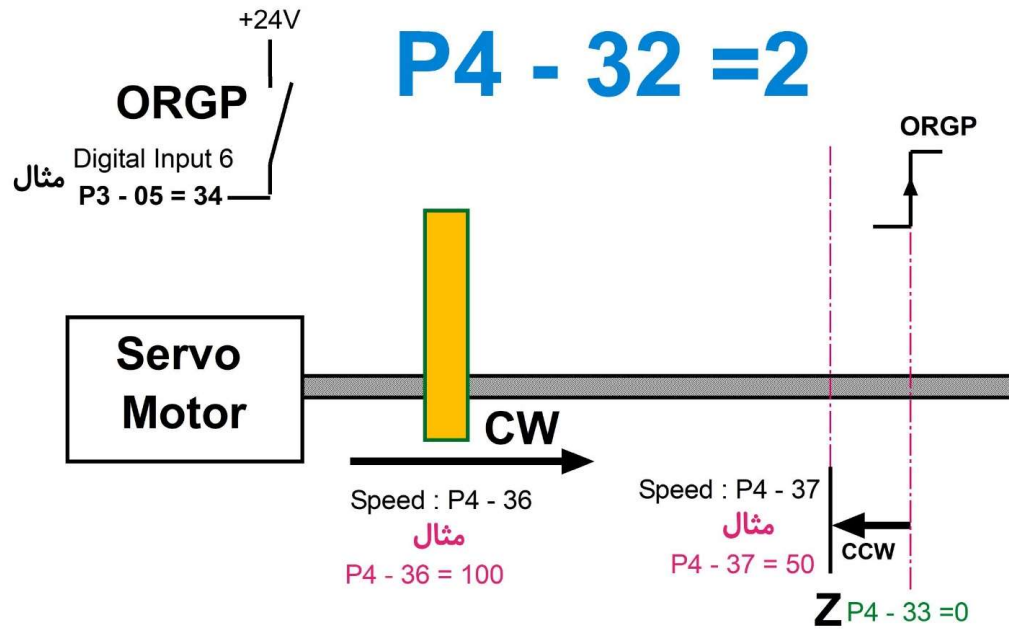
P4-32=0: CW direction finds the origin and use CCWL limit as a rough reference point. When completing origin positioning, CCWL is limit input function. The subsequent retrigger will occur limit warning. When using limit input point as a rough reference point, recommended to set Z pulse(P4-33) as the precise mechanical origin.

P4-33=0: after the origin point has been found, the servo motor returns at the second stage of speed to search the nearest Z pulse as the mechanical origin point.



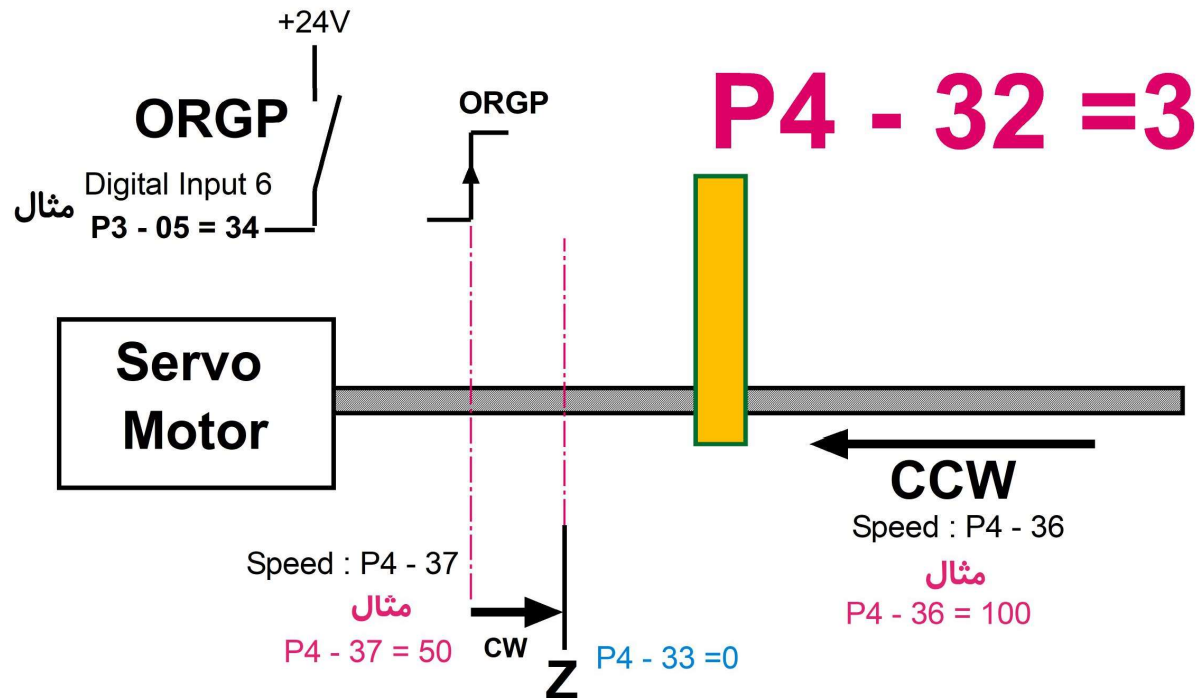
P4-32=1: CCW direction finds the origin point and use CWL limit as a rough reference point. CWL is limit input function. The subsequent retrigger will occur limit warning. When using limit input point as a rough reference point, recommended to set Z pulse(P4-33) as the precise mechanical origin.

P4-33=0: after the origin point has been found, the servo motor returns at the second stage of speed to search the nearest Z pulse as the mechanical origin point.



P4-32=2: CW direction finds the origin point and use ORGP(external detector input point) as the origin point reference. Then Z pulse of return search(P4-33=0) or do not return search(P4-33=1) can be set as the precise mechanical origin point. If do not use Z pulse as the mechanical origin point, the positive edge of ORGP can be also set as the mechanical origin point(P4-33=2).

P4-33=0: after the origin point has been found, the servo motor returns at the second stage of speed to search the nearest Z pulse as the mechanical origin point.

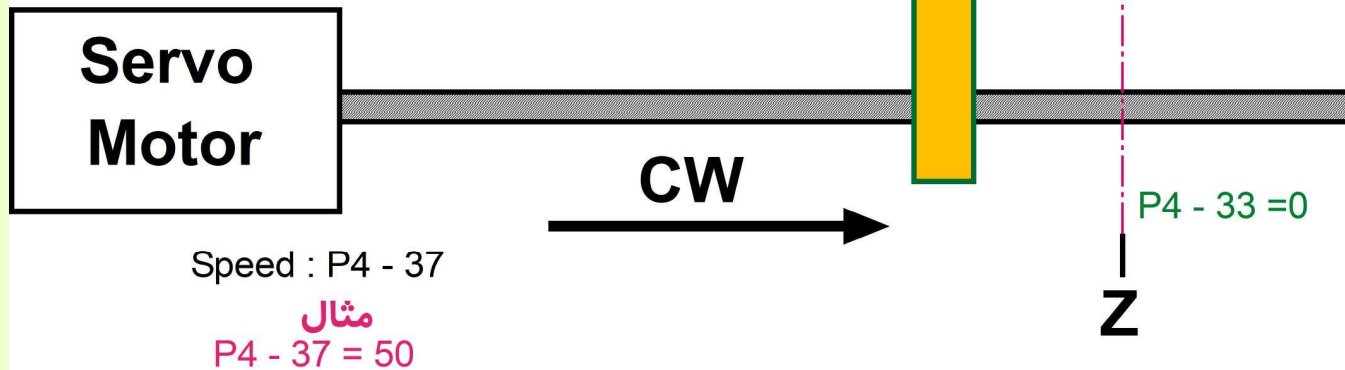


P4-32=3: CCW direction finds the origin point and use ORGP(external detector input point) as the origin point reference. Then Z pulse of return search(P4-33=0) or do not return search(P4-33=1) can be set as the precise mechanical origin point. If do not use Z pulse as the mechanical origin point, the positive edge of ORGP can be also set as the mechanical origin point(P4-33=2).

P4-33=0: after the origin point has been found, the servo motor returns at the second stage of speed to search the nearest Z pulse as the mechanical origin point.

$P4 - 32 = 4$

$$P4 - 33 = 0$$



حداکثر فقط و فقط موتور سروو یک دور کامل می چرخد!

P4-32=4: CW direction finds Z pulse origin point directly. This function is usually used for servo motor motion control in only one rotation range and now any detector switches are unnecessary connected.

$$P4 - 32 = 5$$

$$P4 - 33 = 0$$

**Servo
Motor**

Speed : $P4 - 37$

مثال
 $P4 - 37 = 50$

Z

$$P4 - 33 = 0$$

CCW

حداکثر فقط و فقط موتور سروو یک دور کامل می چرخد!

P4-32=5: CCW direction finds Z pulse origin point directly. This function is usually used for servo motor motion control in only one rotation range and now any detector switches are unnecessary connected.

P4 – 35 = 1 The mode setting of origin point stops (P4-35)

P4-35=0: after the origin detection has been completed, the motor slows down and is pulled back to the origin point. The motor slows down and stops when it gets the signal of origin detection at the second stage of speed. Then it moves back to the mechanical original position.

P4-35=1: after the origin detection has been completed, the motor decelerates and stops in the forward direction. The motor slows down and stops when it get the signal of origin detection at the second stage of speed. Then position overrun is no longer modified and the mechanical original position would not change even there are different position overruns.

P4 – 35 = 1

به محض سنس CCWL , CWL , ORGP فوراً موتور می ایستد

Modbus RTU

Modbus RTU

PA 71 ~ 74

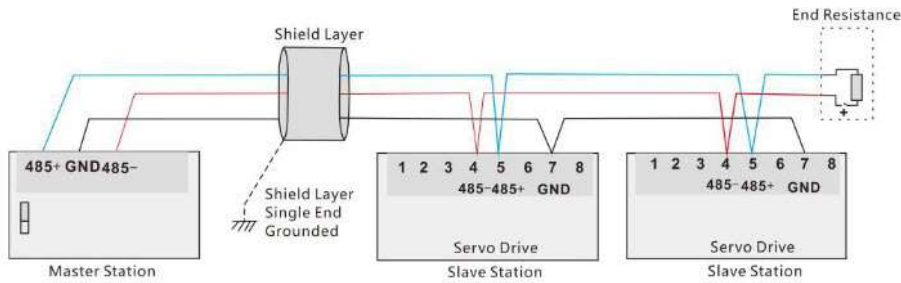
71	MODBUS ID NO.	MODBUS communication address.	1-254	1
72	MODBUS communication baud rate	MODBUS communication baud rate.	48-1152×10 ⁰	96
73	MODBUS protocol selection	0: 8, N, 2 (MODBUS, RTU) 1: 8, E, 1 (MODBUS, RTU) 2: 8, O, 1 (MODBUS, RTU) The parameter decide the communication protocol. Value 8 represents the transmitted data is 8 bits; N,E,O indicate odd or even: N: do not use this bit. E: it represents 1 is even bit. O: it represents 1 is odd bit. Value 1 or 2 indicates communication of 1 bit or 2 bits.	0-3	0
74	Communication error handling	When communication happens error, if choose: 0: keep working. 1: alarm and stop working.	0-1	0

PA

Stop Bit

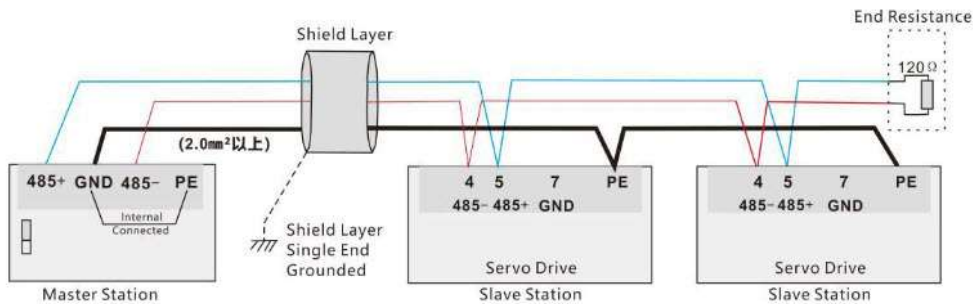
RS485 Communication Grounding Precaution

When using RS485 communication, the GND terminal of the upper device is connected with the GND terminal of the servo drive as shown in the following picture:



RS485 Communication Diagram

As shown in the picture below, when using RS485 communications, the ground signal of the upper device is connected with the earth:



- ◆ PLC is built in RS485 communication terminal resistor.
- ◆ It is suggested that the shield layer should be ground at one end.
- ◆ Never connect the GND terminal of the upper device with the servo drive E0V terminal, otherwise the machine will be damaged.

خیلی

مهم

Write Parameters And Read Parameters

1、 Write PA group parameters

PA group parameters of the servo drive refer to the chapter 6 of the servo manual.

Each parameter is represented by 16 bits and their communication address is determined by the parameter No..For example,parameter 1(PA-0) is 0X0000; Parameter 2(PA-1) is 0X0001 and other parameters are like this.

PA 00

2、 Write P3 group parameters

P3 group parameters of the servo drive refer to the chapter 6.2 of the servo manual.

Each parameter is represented by 16 bits and their communication address is determined by the parameter No..For example, parameter 1 (P3-0) is 0X0100H; Parameter 16(P3-15) is 0X010FH. Other parameters are deduced in turn.

P3 01

3、 Write P4 group parameters

P4 group parameters of the servo drive refer to the chapter 6.3 of the servo manual.

Each parameter is represented by 16 bits and their communication address is determined by the parameter No..For example, parameter 1 (P4-0) is 0X0200H; Parameter 16(P3-15) is 0X020FH. Other parameters are deduced in turn.

P4 02

The format of writing parameters and reading parameters

The introduction of the format of writing parameters and reading parameters (state volume reading refers to chapter 1.5):

The parameter must be a decimal integer. The values of parameters with decimal points displayed on the drive are amplified in the process of reading and writing, which leads to make them converted into decimal integer.

PA Group Parameters	Drive Display	Communication Operation	Transformed Mode
1	315	315	No
63	1.00	100	Magnify 100 times
57	0100(binary)	4(decimal)	Binary to decimal

The values of parameters in the manual can be read and wrote through communication.

The details refer to corresponding introductions of parameters in the manual.

Status Monitoring

The internal states in the servo drive can be read through the terminal of RS485 communication, but it can not be wrote.

The states are saved as 16-bit data. And when values of parameters with decimal points are read by the communication terminal, they are amplified to 10 times or 100 times.

This is like as the parameter reading. The order of status are as follows:

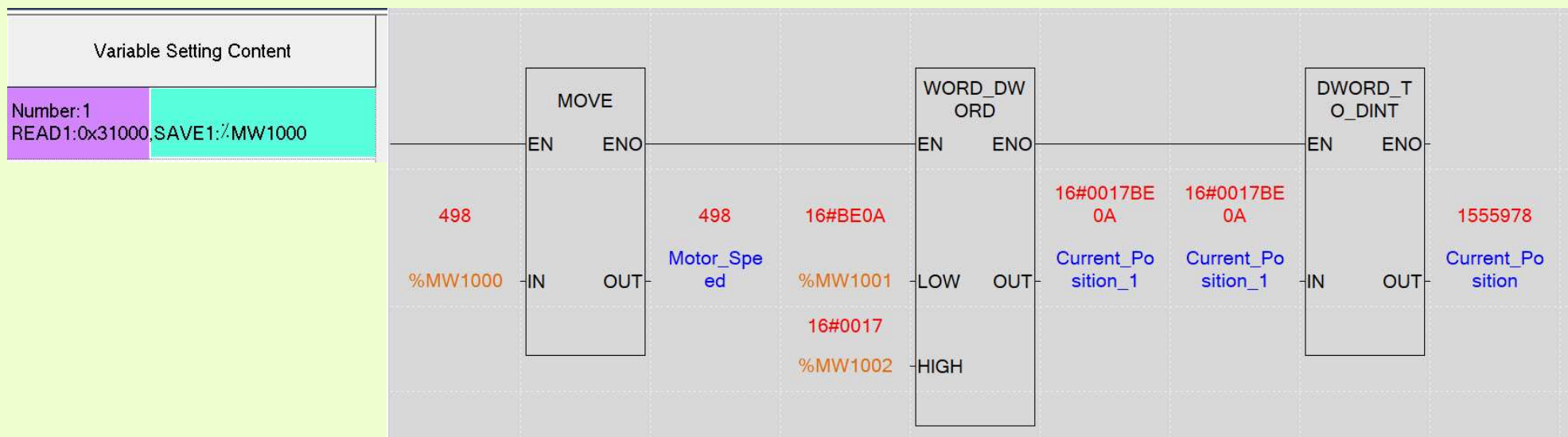
1000H	Display motor speed
1001H	Display the current position is 5-bit low
1002H	Display the current position is 5-bit high
1003H	Display position command(command pulse accumulation) is 5-bit low.
1004H	Display position command(command pulse accumulation) is 5-bit high.
1005H	Display position deviation is 5-bit low.
1006H	Display position deviation is 5-bit high .
1007H	Display motor torque
1008H	Display motor current
1009H	Display control mode
100AH	Display temperature
100BH	Display speed command
100CH	Display torque command
100DH	Display absolute position of the rotor in a roll is 5-bit low
100EH	Display absolute position of the rotor in a roll is 5-bit high .
100FH	Display input terminal state
1010H	Display output terminal state
1011H	Display encoder input signal
1012H	Display voltage value of main line of main circuit
1013H	Display alarm code
1014H	Display logic chip version number

Communication Wiring Definition

Rs485 Communication Signal		
Pin	Definition	Picture
4	Rs485-	Connect with No.4 and No.5 pin 
5	Rs485+	



Driver Setting	P2P function	Conditional flag	Command type	Data Type	No. of variables	Data size	Destination station	Destination station number	Frame	Setting	Variable Setting Content
Modbus RTU client	READ	_T100MS	2. Continuous	WORD	1	28	☒	1		Setting	Number:1 READ1:0x31000,SAVE1:%MW1000



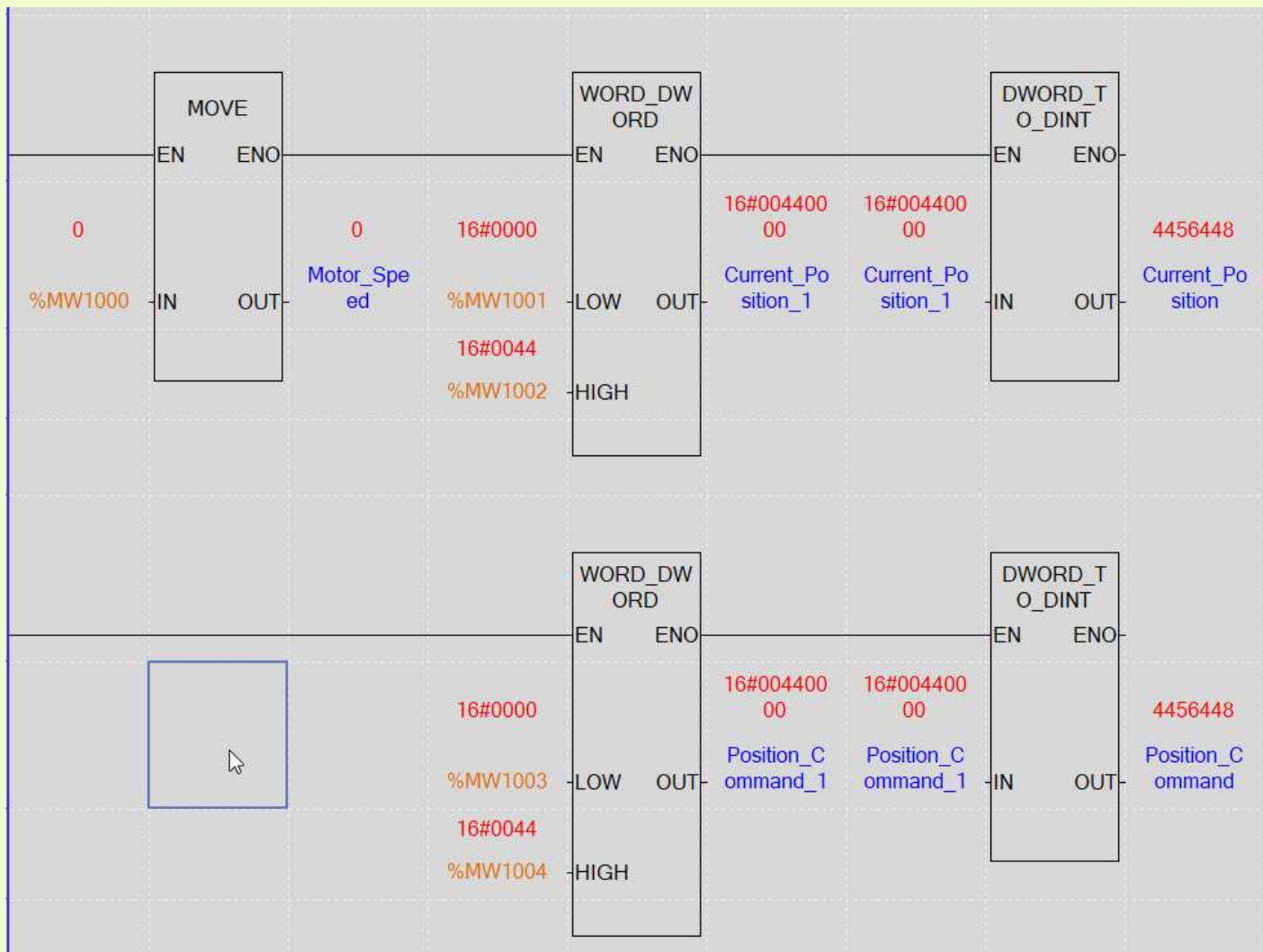
پوزیشن فوق بر مبنای هر دور گردش محور موتور ۱۳۱۰۷۲ لحاظ شده است

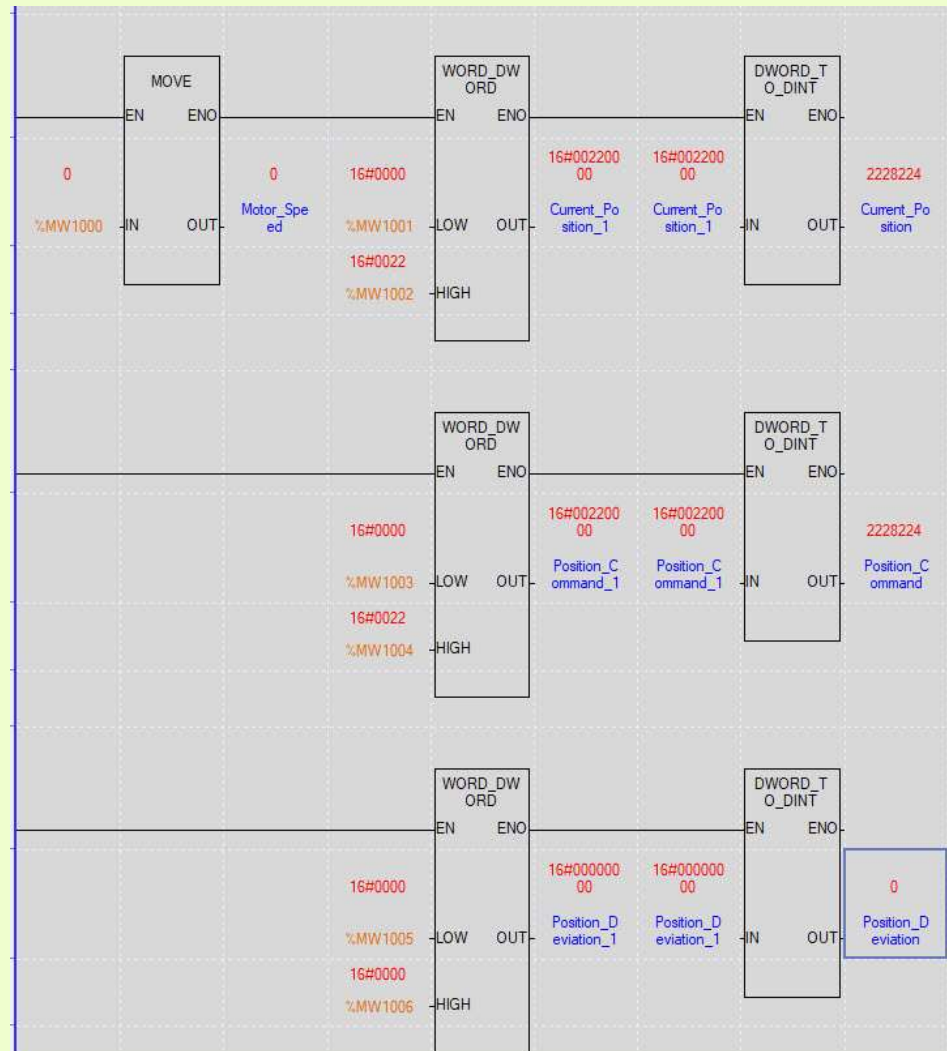


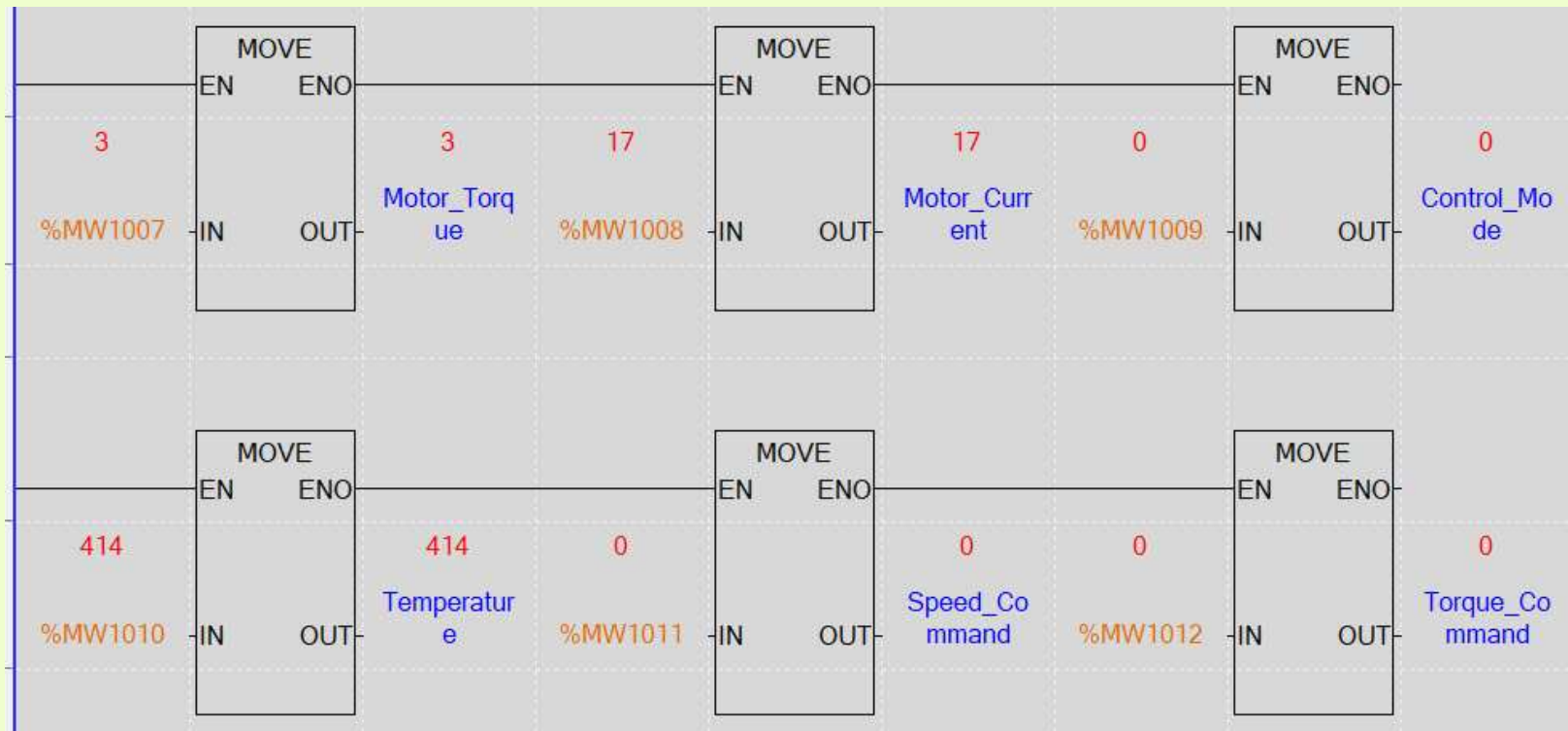
0 ~ 131071

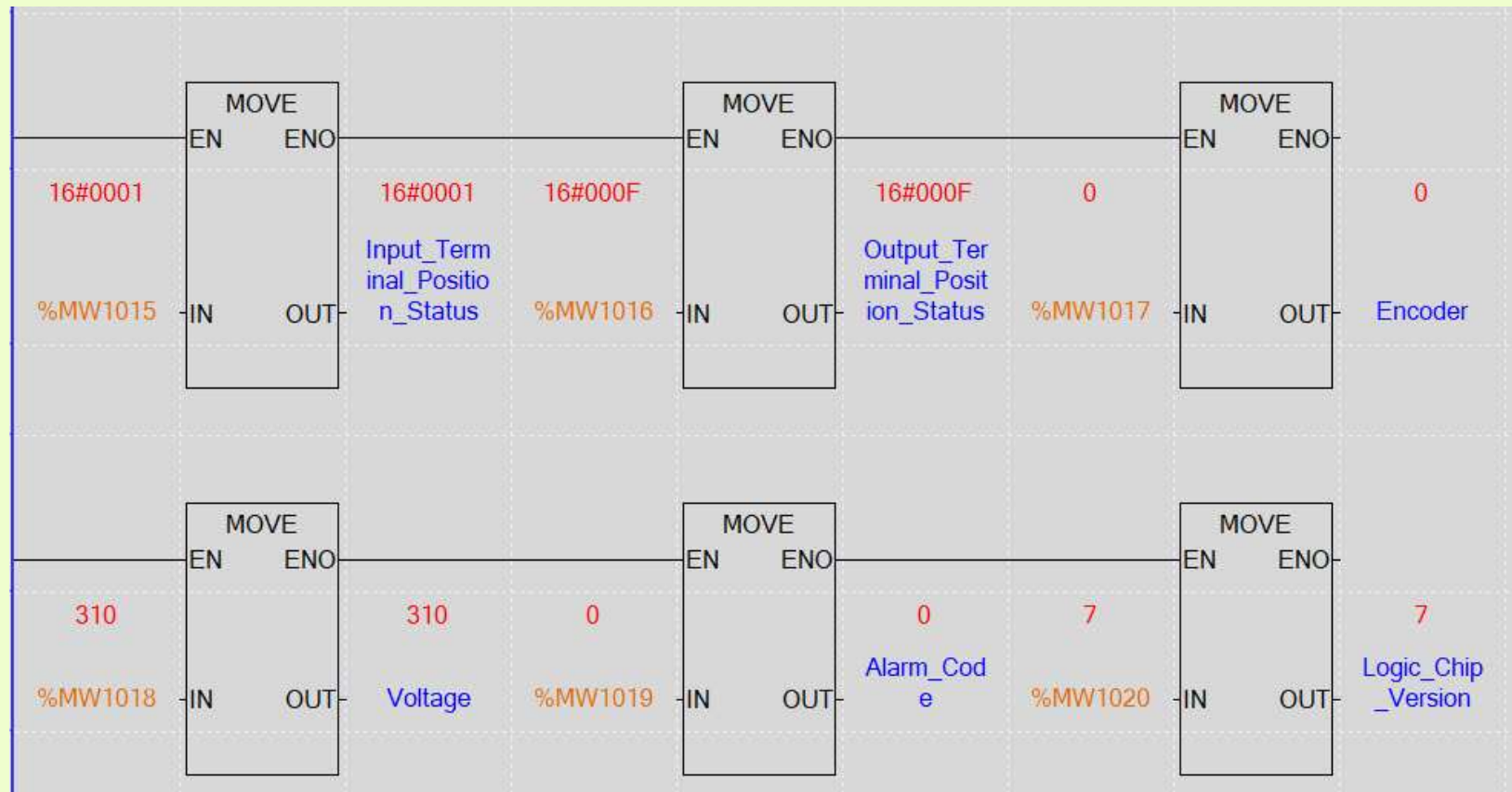
میزان انحراف از نقطه Z

فوق العاده مهم









CZERO	ZCLAMP	TCW	TCCW	CWL	CCWL	ARST	SON
-------	--------	-----	------	-----	------	------	-----

8 7 6 5 4 3 2 1

CMODE	NULL	TRQ2	TRQ1	NULL	SP2	SP1	CINV
-------	------	------	------	------	-----	-----	------

16 15 14 13 12 11 10 9

NULL	JOGN	JOGP	INH	CLR	GEAR2	GEAR1	NULL
------	------	------	-----	-----	-------	-------	------

24 23 22 21 20 19 18 17

NULL	POS2	POS1	POS0	CTRG	HOLD	NULL	NULL
------	------	------	------	------	------	------	------

32 31 30 29 28 27 26 25

NULL	NULL	NULL	NULL	NULL	NULL	ORGP	SHOM
------	------	------	------	------	------	------	------

40 39 38 37 36 35 34 33

PA – 14 = 3

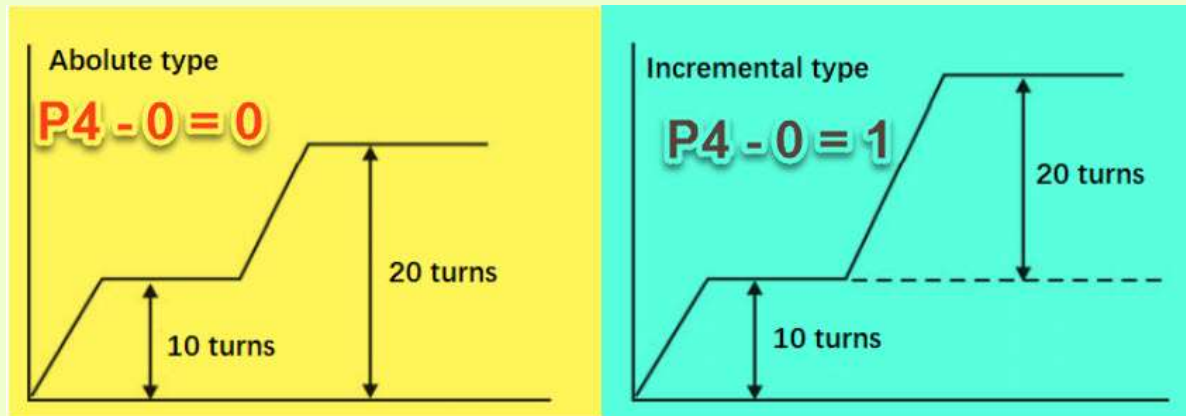
PA – 4 = 0

Internal Position

چگونه از Internal Position استفاده کنیم!

$$PA - 14 = 3$$

$$P4 - 0 = \begin{matrix} 0 = \text{Absolute} \\ 1 = \text{Incremental} \end{matrix}$$



P4-0	Internal position command control mode	0: Absolute position command;	0-1	0
		1: Incremental position command.		

PA 14	Position command pulse input method	1. Set the input form of the position command pulse.		
		2. Set the parameters to one of the three input modes:		
		0: Pulse-plus direction;		
		1: CCW pulse/CW pulse;		
		2: A, B two-phase orthogonal pulse input;	0-3	0
		3: Internal location input.		3
		Note: CCW is axial observation from the servo motor, rotating in an anti-clockwise direction, defined as forward, and CW is observed from the axial direction of the servo motor, rotating clockwise, defined as reverse.		

به ازای این عدد پالس محور موتور یک دور کامل می چرخد

به شرط این که $PA - 11$ مخالف صفر باشد

مثال $PA - 11 = 5000$

CTRG

تعیین یک ترمینال ورودی برای استارت زدن

مثال $P3 - 3 = 28$

تعیین حداقل یک ترمینال ورودی برای $POS 0$

مثال $P3 - 2 = 29$

تعیین یک ترمینال ورودی برای توقف **HOLD**

مثال $P3 - 7 = 27$

$$PA - 11 = 5000$$

$$PA - 4 = 1$$

$$P4 - 2 = 12$$

چند دور کامل بزند

$$P4 - 3 = 2500$$

چند درصد یک دور کامل بزند

$$P4 - 4 = 500$$

سرعت (پالس در ثانیه)

به ازای تعریف یک پایه ورودی POS 0 می توانیم تا دو تنظیم مانند بالا داشته باشیم

به ازای تعریف دو پایه ورودی POS 0 , POS1 می توانیم تا چهار تنظیم مانند بالا داشته باشیم

به ازای تعریف سه پایه ورودی POS 0 , POS1 , POS 2 می توانیم تا هشت تنظیم مانند بالا داشته باشیم

CZERO	ZCLAMP	TCW	TCCW	CWL	CCWL	ARST	SON
8	7	6	5	4	3	2	1
CMODE	NULL	TRQ2	TRQ1	NULL	SP2	SP1	CINV
16	15	14	13	12	11	10	9
NULL	JOGN	JOGP	INH	CLR	GEAR2	GEAR1	NULL
24	23	22	21	20	19	18	17
NULL	POS2	POS1	POS0	CTRG	HOLD	NULL	NULL
32	31	30	29	28	27	26	25
NULL	NULL	NULL	NULL	NULL	NULL	ORGP	SHOM
40	39	38	37	36	35	34	33

وقتی سروو را به برق وصل میکنیم کدام پارامتر را می خواهیم روی صفحه نمایش آن ببینیم !

PA - 3

PA

3

Initial
display
state

0: Display motor speed;
1: Display the lower 5 digits of the current position;
2: Display the upper 5 digits of the current position;
3: Display the lower 5 digits of position command (accumulated amount of command pulse);
4: Display position command (accumulated amount of command pulse) high 5 digits;
5: Display the lower 5 digits of the position deviation;
6: Display position deviation high 5 digits;
7: Display motor torque;
8: Display motor current;

0-25

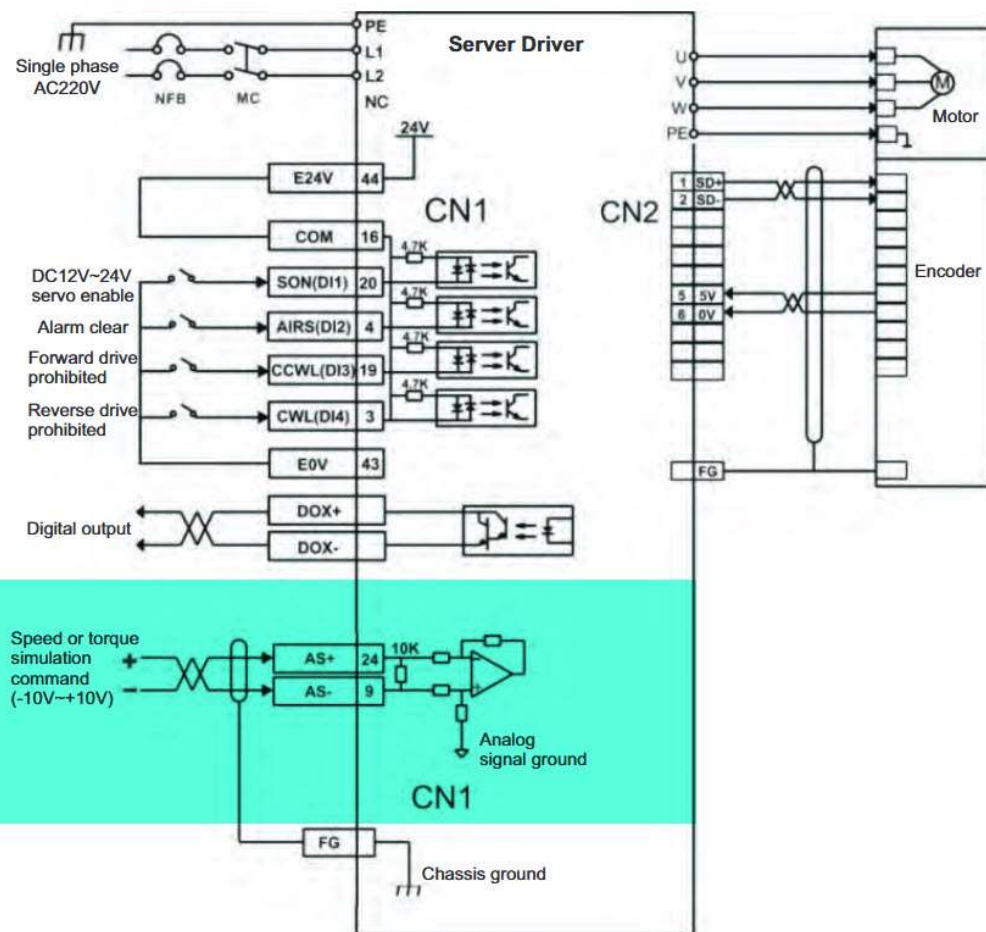
0

PA

3	Initial display state	9: Current control mode; 10: Display the current temperature; 11: Display speed command; 12: Display torque command; 13: Display the lower 5 positions of the absolute position of the rotor in one revolution; 14: Display the upper 5 digits of the absolute position of the rotor in one revolution; 15: Display the status of the input terminal; 16: Display the status of the output terminal; 17: Display the encoder input signal; 18: Display the bus voltage value of the main circuit; 19: Display the alarm code; 20: Display the version number of the logic chip; 21: Display the pull-in state of the relay; 22: Display running status; 23: Display the external voltage status; 24: Display the lower 5 digits of the absolute value position; 25: Display the upper 5 digits of the absolute value position.	0-25	0
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Necessary parameters	Parameter Description	Parameter value	Factory default
PA4	Control method selection	1	0
PA5	Speed proportional gain	5-2000Hz	150
PA6	Speed integral constant	1-1000ms	75
PA22	Internal and external speed command selection	0-5	0
PA24	Internal speed 1	-6000-6000r/min	100
PA25	Internal speed 2	-6000-6000r/min	500
PA26	Internal speed 3	-6000-6000r/min	1000
PA27	Internal speed 4	-6000-6000r/min	2000
PA28	Arrival speed	0-3000r/min	3000
PA40	Acceleration time constant	1-10000ms	100
PA41	Deceleration time constant	1-10000ms	100
PA42	S type acceleration and deceleration time constant	0-1000ms	0
PA43	Analog speed command input gain	10-3000r/min/v	300
PA44	The direction of the analog speed command is reversed	0-1	0
PA45	Analog speed command zero offset compensation	-5000-5000	0
PA46	Analog speed command filter	1-300Hz	300
PA75	Zero speed detection point	0-1000r/min	10
PA76	Speed consistent setting value	0-1000r/min	10
PA87	Arrival speed difference	0-5000r/min	30
PA88	Polarity of arrival speed	0-1	0
PA92	Zero speed detection hysteresis	0-1000r/min	5

Speed Mode Wiring



PA

4

Control
method
selection

This parameter allows you to set the way the drive is controlled:

- 0: Position control mode;
 1: speed control mode;
 2: torque control mode;
 3: Position speed mixed control mode;
 4: Position torque mixing control mode;
 5: Speed torque mixing control mode;
 6: Encoder zero mode.

PA

43

Analog speed
command
input gain

Sets the proportional relationship between the analog speed input voltage and the actual running speed of the motor.

10-3000
r/min/v

300

Necessary parameters	Parameter Description	Parameter value	Factory default
PA4	Control method selection	1	0
PA5	Speed proportional gain	5-2000Hz	150
PA6	Speed integral constant	1-1000ms	75
PA22	Internal and external speed command selection	0-5	0
PA24	Internal speed 1	-6000-6000r/min	100
PA25	Internal speed 2	-6000-6000r/min	500
PA26	Internal speed 3	-6000-6000r/min	1000
PA27	Internal speed 4	-6000-6000r/min	2000
PA28	Arrival speed	0-3000r/min	3000
PA40	Acceleration time constant	1-10000ms	100
PA41	Deceleration time constant	1-10000ms	100
PA42	S type acceleration and deceleration time constant	0-1000ms	0
PA43	Analog speed command input gain	10-3000r/min/v	300
PA44	The direction of the analog speed command is reversed	0-1	0
PA45	Analog speed command zero offset compensation	-5000-5000	0
PA46	Analog speed command filter	1-300Hz	300
PA75	Zero speed detection point	0-1000r/min	10
PA76	Speed consistent setting value	0-1000r/min	10
PA87	Arrival speed difference	0-5000r/min	30
PA88	Polarity of arrival speed	0-1	0
PA92	Zero speed detection hysteresis	0-1000r/min	5

28

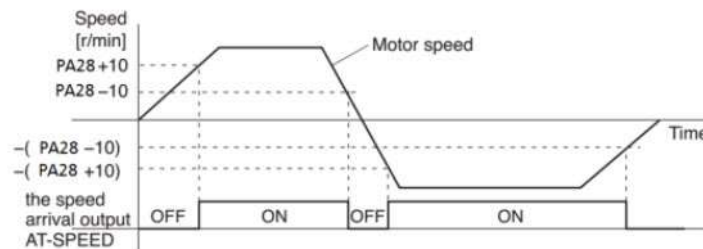
Speed
arrival

1.Set the detection timing of the speed arrival output.

When the servomotor speed surpasses this parameter, the digital output (DO) ASP (arrival speed) is ON, otherwise is OFF.

2.The comparator has hysteresis function set by PA87.

Detection is associated with 10 r/min hysteresis.



3.It also has the polarity setting function:

PA88	PA28	Comparator
0	>0	No direction for speed
1	>0	Only detect CCW speed

0-3000

r/min

3000

PA
23

Maximum
speed limit

Set the maximum speed limit for the servo motor.

1. Independent of the direction of rotation.
2. If the setting exceeds the rated speed, the actual maximum speed limit is the rated speed.

0-6000
r/min

5000