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Technical manuals

Servo driver:

60ST-M01330

60ST-M01930

90ST-M04025

80ST-M02430

CATALOGUE

Safety Caution

In order to ensure the safe use of this product, must observe the following safety signs, in order to avoid damaging to the people and the equipment

 警告 warning	Said wrong operation will trigger dangerous, leading to mild or moderate personal injury, damage to equipment, and even fire
 危险 dangerous	Said wrong operation will trigger dangerous cause injury or death
	Said Prohibit operation
	Said must operate

After the product arriving, when validation, installation, wiring, operation maintenance, inspection of the product, the following is one of the important matters must abide by:

● Matters needing attention during installation：

 警告 Warning
It is forbidden to install will happen in the damp and corrosion environment, a flammable gas environment, and near combustible dust and metal powder more environment, or you may get an electric shock and fire.

Matters needing attention during installation wiring

 警告 Warning
◢ The earthing terminal of the servo drive must be grounded, otherwise, will get an electric shock and fire could occur ◢ It is forbidden to put the output terminal of the servo drive, U, V, W, connected to a three phase power supply, otherwise, could be injured and fire ◢ It is strictly prohibited to connect the 220v driver to 380 v, 220 v power supply, or you may get an

electric shock and fire

◢ Be sure to tighten power terminal, motor output terminal, otherwise may cause a fire

The matters needing attention when running：

危险 Dangerous

◢ In the operation , it is forbidden to touch any rotating parts, or you might get hurt

◢ In the operation, it is forbidden to touch electric motor and drive, otherwise you may burn

警告 Warning

◢

Before operating, must choose the right motor type, otherwise people wil be hurt and the equipment will be damaged.

◢

Before operating, you must set right parameters and applications that meet the needs of users, or may be hurt, damage to equipment

◢

Before operating, confirm whether the mechanical may at any time the emergency stop, otherwise, you might get hurt.

●

Maintain the points for attention during the inspection：

◢

It is forbidden to touch the inside of the servo drive, or you may get an electric shock

◢

When turn off the power,in the five minutes, do not touch terminals, otherwise, the residual voltage may cause electric shock

◢

It is forbidden to tear open outfit servo motor, or you may get an electric shock

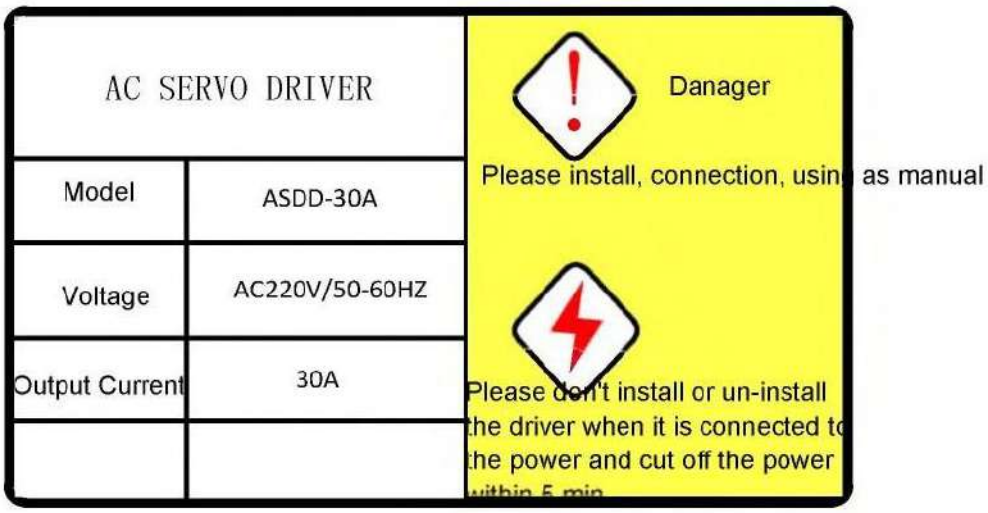
1.1 Product inspection

This product has made the complete function test before the leaving the factory, to prevent the product in the course of transportation for negligence resulted in the product (s) is not functioning properly. Once opened, please check the detailed the following matters:

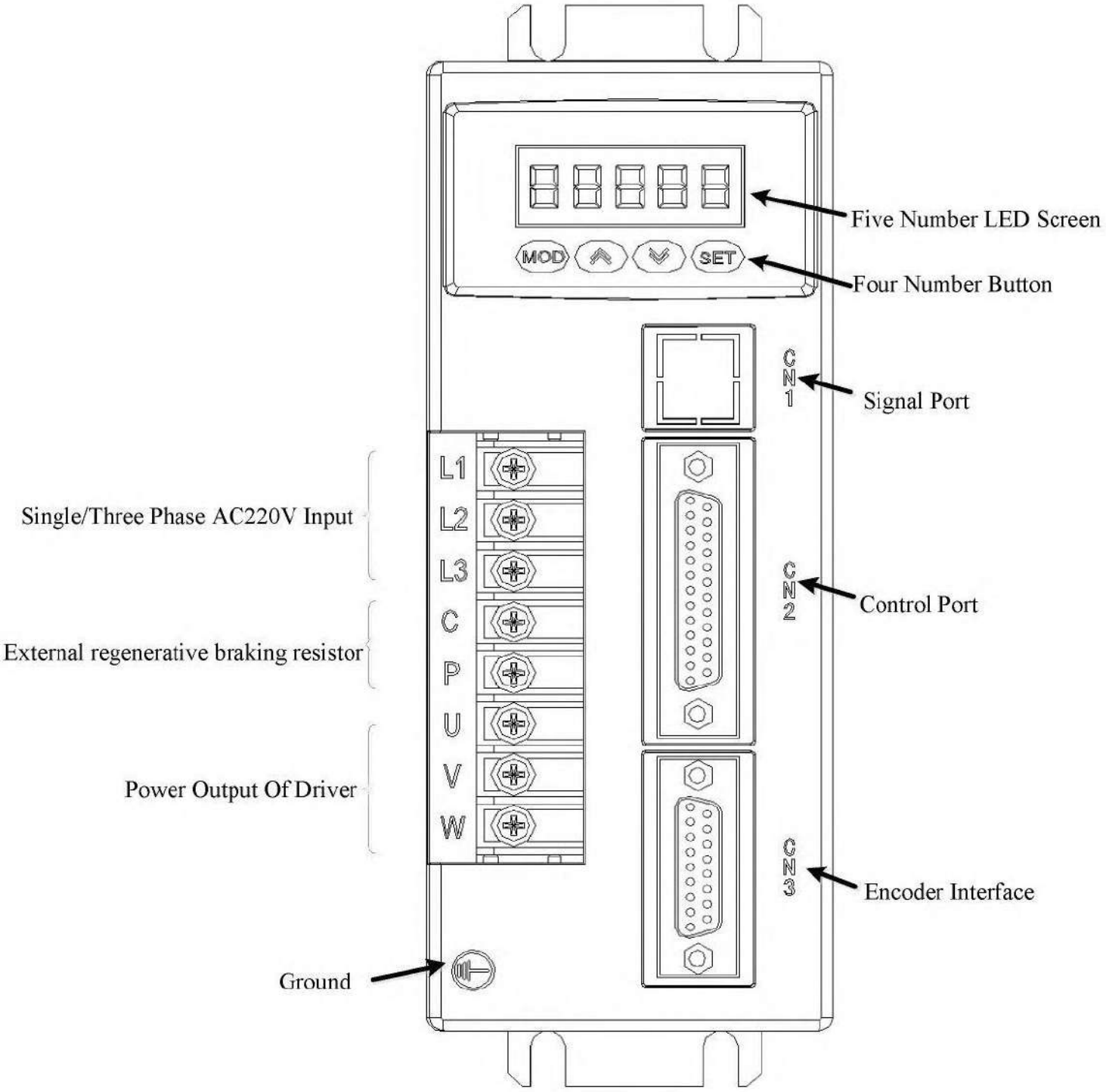
- check the servo drive and servo motor type with the same whether order model
- Check the appearance of the servo drive and servo motor whether there is any damage and scratches phenomenon.If there is any damage during the shipment, please don't wire power transmission.
- Check the servo drive and servo motor if there is any loose parts and other phenomenon. If there is a loose screw, screw not lock or fall off
- Check the servo motor rotor shaft can be smooth rotation. The motor with brake cannot be directly rotation

If there is any fault or unmoral phenomenon, please contact with dealers immediately

1.2 ID label



1.3 The front panel



1.4 The function of AC servo motor driver .

The input power		Single phase or three phase AC220V -15～+10% 50 / 60Hz
environment	temperature	Using: 0～55℃ Storage: -20℃～80℃
	humidity	Below 90% RH No dewing
	vibration	Below0.5G(4.9m/S),10-60 no continue running
Control mode		IGBT PWM sine wave control
Control mode		① Torque mode (internal or external) ② speed mode (internal or external) ③ Position mode (internal or external) ④ Position/velocity model ⑤ Position/torque model ⑥ Speed/torque model
Control input		servo enables alarm reset Forward driving is prohibited Reverse driving is prohibited 、 External forward torque is limited、external reverse torque is limitec Emergency stop, Zero speed clamp, Internal speed command option 1 , Internal speed command option 2 Internal speed command option 3 The internal torque command option 1 The internal torque command option 2 Control mode switch Gain switch Electronic gear molecular option 1 Electronic gear molecular option 2 Instructions for Position deviation to clear Pulse input is prohibited Proportional control The origin return to trigger、

	The origin return reference point Internal location option 1 Internal location option 2、 Trigger internal position command Suspend internal position command
Control the output	Alarm detection ， Servo ready ， Emergency stop checked out、 Positioning to complete ， Speed to reach Reach the predetermined torque Zero speed detection Servo motor current ， Electromagnetic brake The origin return to complete 、 Located close to 、 torque limit、 speed limit、 Tracking arrive torque command
The encoder feedback	2500p/r, 15 line increment model, differential output
Communication mode	RS-232 OR RS-485
Display and operation	① five LED display ② Four buttons
Braking way	Through the internal/external braking resistance braking energy
Cooling way	Air cooled (heat transfer film, the strong cold wind fan)
Power range	≤7.5KW

1.5 Servo motor installation

1.4.1 Installation environment conditions

- Working environment: 0 ~ and ℃; working environment: less than 80% (no condensation)
- Storage environment temperature: - ℃; Storage environment humidity: 80% of the (no condensation)
- Vibration: Below 0.5 G
- Well ventilated, less moisture and dust place

- No corrosive, flash gas, oil and gas, cutting fluid, iron powder and so on environment

- No moisture and direct sunlight place

1.4.2 Installation method

- Level installation: to avoid liquids such as water, oil from motor wire end into the motor internal, please will cable outlet in below

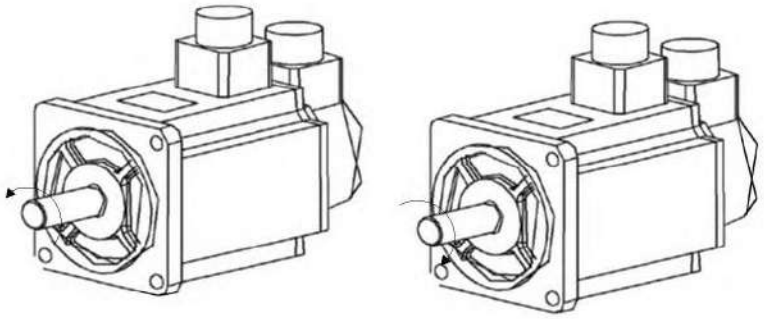
- Vertical installation: if the motor shaft and the installation with reduction unit, must pay attention to and prevent reducer in mark through the motor shaft into the motor internal

- The motor shaft out quantity must be thoroughly, if insufficient out to motor sports generates vibration

- Installation and remove the motor, please do not use hammer knock motor, otherwise easy to cause damage to the motor shaft and encoder

1.6 The motor direction of rotation

Looking from the motor load on the motor shaft and counterclockwise (CCW) for the forward, clockwise (the CW) as the reverse



Forward (CCW) **Reverse** (CW)

1.7 The KRS series drive and motor model adaptation

Motor model	Pn001	Rated speed (r/min)	Rated torque (N.M)	Rated power (W)	KRS 15A	KRS 20A	KRS 30A	KRS 50A	KRS 75A
60st_m00630	0	3000	0.6	200	√	√	√		
60st_m01330	1	3000	1.3	400	√	√	√		
60st_m01930	2	3000	1.9	600	√	√	√		
80st_m01330	3	3000	1.3	400	√	√	√		
80st_m02430	4	3000	2.4	750	√	√	√		
80st_m03520	5	2000	3.5	730	√	√	√		
80st_m04025	6	2500	4	1000	√	√	√		
90st_m02430	7	3000	2.4	750	√	√	√		
90st_m03520	8	2000	3.5	730	√	√	√		
90st_m04025	9	2500	4	1000	√	√	√		
110st_m02030	10	3000	2	600	√	√	√		
110st_m04020	11	2000	4	800	√	√	√		
110st_m04030	12	3000	4	1200		√	√		
110st_m05030	13	3000	5	1500			√		
110st_m06020	14	2000	6	1200	√	√	√		
110st_m06030	15	3000	6	1800			√		
130st_m04025	16	2500	4	1000	√	√	√		
130st_m06015	17	1500	6	1000	√	√	√		
130st_m05025	18	2500	5	1300		√	√		
130st_m06025	19	2500	6	1500			√		
130st_m07725	20	2500	7.7	2000			√		
130st_m10010	21	1000	10	1000	√	√	√		
130st_m10015	22	1500	10	1500		√	√		
130st_m10025	23	2500	10	2600			√	√	√
130st_m15015	24	1500	15	2300			√		
130st_m15025	25	2500	15	3800				√	√
150st_m15025	26	2500	15	3800				√	√
150st_m15020	27	2000	15	3000				√	√
150st_m18020	28	2000	18	3600				√	√

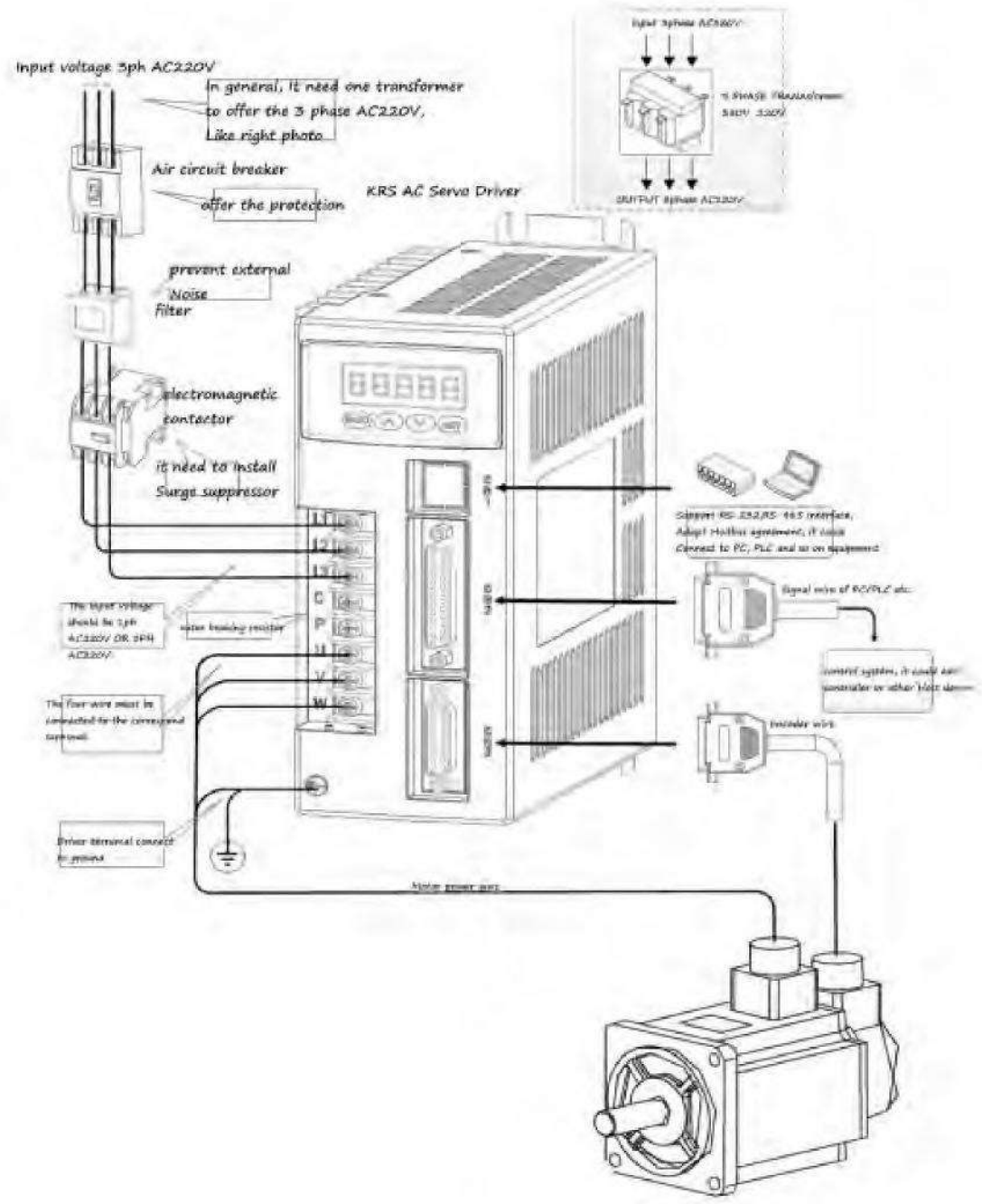
150st_m23020	29	2000	23	4700				√	√
150st_m27020	30	2000	27	5500					√
180st_m17215	31	1500	17.2	2700				√	√
180st_m19015	32	1500	19	3000				√	√
180st_m21520	33	2000	21.5	4500				√	√
180st_m27010	34	1000	27	2900				√	√
220st_m67010	35	1000	67	1000					√

第二章　接线 Chapter 2　wiring

2.1 系统组成与接线 The system composition and wiring

2.1.1 伺服驱动器接线图 Servo driver wiring diagram

In general, It need a transfer to offer the 3phase 220v power, like the right Photo



2.1.2 Wiring instructions

Wiring matters needing attention:

- The wire material should be in accordance with the wire specification.

- Cable length, instruction cable within 3 m, encoder cable within 20 m

- Check the L1, L2, L3 power wiring is correct or not, please do not connect to the 380 v power supply.

- U, V, W terminal phase sequence, must be corresponded to the terminal correspondence of the motor, otherwise, the motor may not transfer or coaster, the motor may not transfer or coaster. Can't use exchange three-phase terminal method to make motor reversal, this is totally different with asynchronous motor

- must be reliable grounding, and single point grounding

- into the output signal of the relay, the absorption of the direction of the diode to connected correctly, otherwise it will cause failure cannot output signal

- in order to prevent noise caused by the wrong action, please add in power transformer and noise filter device in the same wiring tube

- please install the fuse type
circuit breaker that drive failure can promptly cut off the external power supply

2.1.3 Wire specifications

terminals	label	wire specifications
Power cord	U、V、	0.75～2.5mm²
Motor terminals		0.75～2.5mm²
Earthing terminal terminal		0.75～2.5mm²
control symbol	CN2	≥0.12 mm² (AWG26), Including shielded
Encoder signal	CN3	≥0.12 mm² (AWG26), Including shielded

Encoder cable must use twisted-pair cable. If the encoder cable is

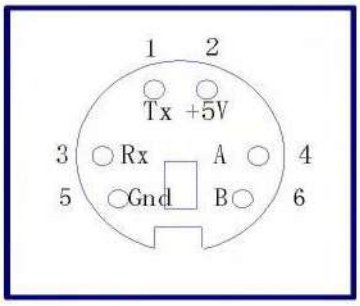
too long (> twenty m), can lead to encoder power supply shortage, its power source and ground can use multiple wire connection or use thick wire

2.1.4 High power Terminal instruction

name	Terminal symbol	Detailed description
Main circuit power	L1、L2、L3	Connect the external ac power three-phase220VAC -15%~+10% 50/60Hz
Motor terminals	U	The output to motor U phase power
	V	The output to motor V phase power
	W	The output to motor W phase power
Earthing terminal		Motor shell earthing terminal
		Drive earthing terminal

2.2 CN1 Communication interface

2.2.1 CN1 Port Numbers



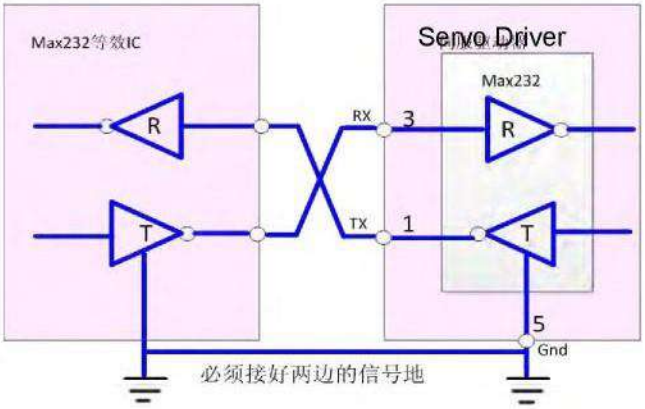
2.2.2 CN1 port

pin	number
+5V	2
GND	5
RS-232 Tx Send pin Tx	1
RS-232 Rx Receiving pin RX	3
RS-485 A	4

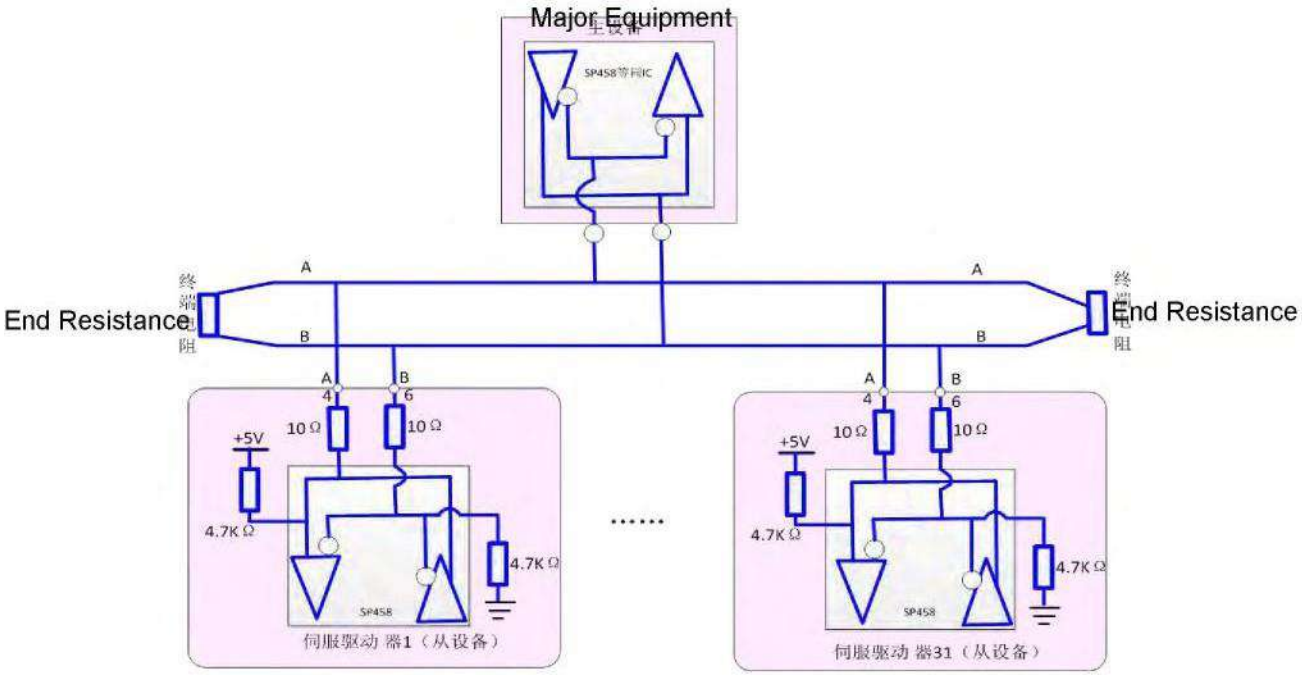
RS-485 B	6

2.2.3 CN1 port type

1. RS-232 interface



2. RS-485 interface



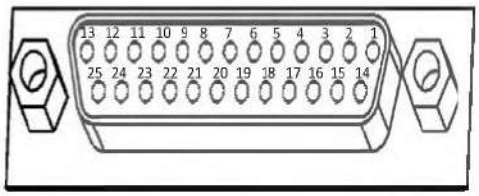
● Adopt RS485 communication, at the same time the most connected and table servo drive, 485 network terminals separately by one euro 120 resistance terminal resistances. If want to connect more equipment, must use Repeaters to expand the connection Numbers

2.3 CN2 Control interface

CN2 control signal terminal to provide and the upper controller connection need signal, use DB25 socket, signs include:

- Four programmable input
- Four programmable output
- Analog quantity order input
- Pulse command input
- Encoder signal input

2.3.1 CN2 port numbers



2.3.2 CN2 port instructions

pin	interface number	name	function
DC12~24V COM	9 10	The control signal of power supply and ground	Input/output control signal input power and ground
SigIn1 SigIn2 SigIn3 SigIn4	6 7 21 8	Input command signal	Input command signal. The factory all input signal port specified functions: SigIn1: Servo Enable SRV-ON SigIn2: alarm reset SigIn3: Zero position

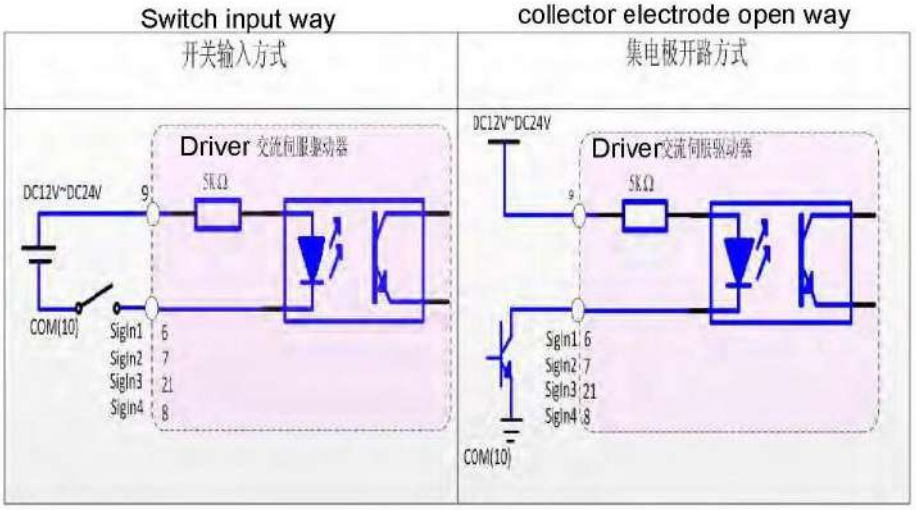
			deviation SigIn4: Zero speed clamp
SigOUT1 SigOUT2 SigOUT3 SigOUT4	11 23 12 24	output command signal	output command signal. The factory all output signal port specified functions: SigOUT1 Servo ready SigOUT2: Alarm detection SigOUT3: Positioningcomplete SigOUT4: Zero speed
PV PP+ PP- PD+ PD-	2 3 14 4 5	Instruction pulse input port	PV:open collector input power Instruction pulse can be three different ways to input 1 Instruction direction and pulse input 2 Clockwise or counterclockwise pulse input 3 Phase difference 90 degrees of orthogonal input
PA+ PA- PB+ PB- PZ+ PZ- OZ GND	20 19 18 17 15 16 22 1	Encoder signal output	Encoder signal (ABZ) output port. Through the parameter setting, AB signal separable frequency output and logic take back output.
Vref AGND	25 13	Analog input	Analog voltage input port. The speed or torque control, used for receiving the speed or torque command. Voltage input range-10V~+10V。

2.2.3 CN2 Port type

1. Digital input interface

DC12V～24V。Digital input interface circuit by switch, relay,

open collector triode, photoelectric coupler of control. Relay required to choose low current relay, in order to avoid the phenomenon of poor contact. External voltage range DC12V ~ 24 V.



2. Digital output interface

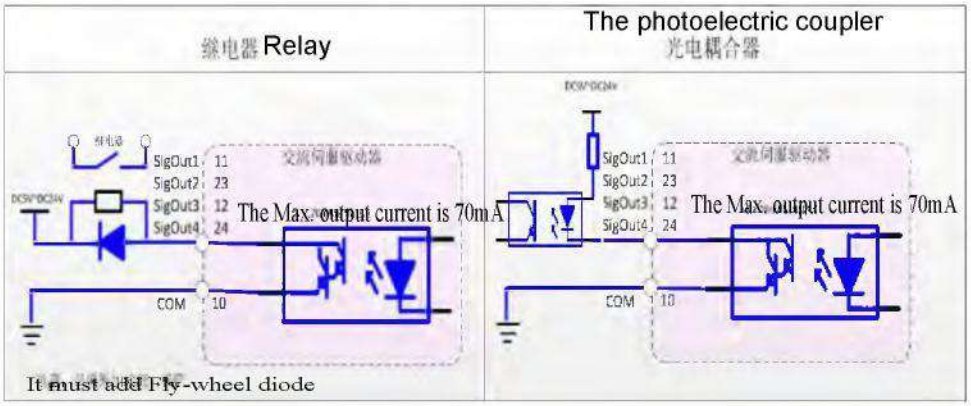
Output circuit adopts darlington photoelectric coupler, but with relay, photoelectric coupler

Note:

- External power supply by users, but must pay attention to, if the power polarity meet back, may cause damage to the servo driver.

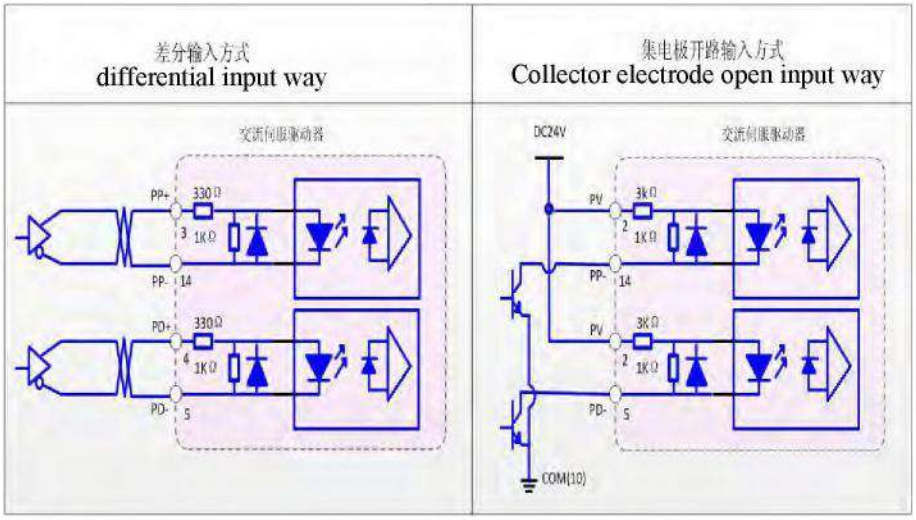
- When the output open collector form, the maximum current is 70 mA, the external power peak voltage is 25 V. If more than limit requirements or output directly with power connection, may cause damage to the servo driver.

● If the load is relay and inductive load, the load must be both ends against parallel fly-wheel diode. If fly-wheel diode picks back, may cause damage to the servo driver.



3. Position pulse command interface

A differential drive and single end drive have two connections , recommend differential drive connection. Connection appropriate USES twisted-pair cable

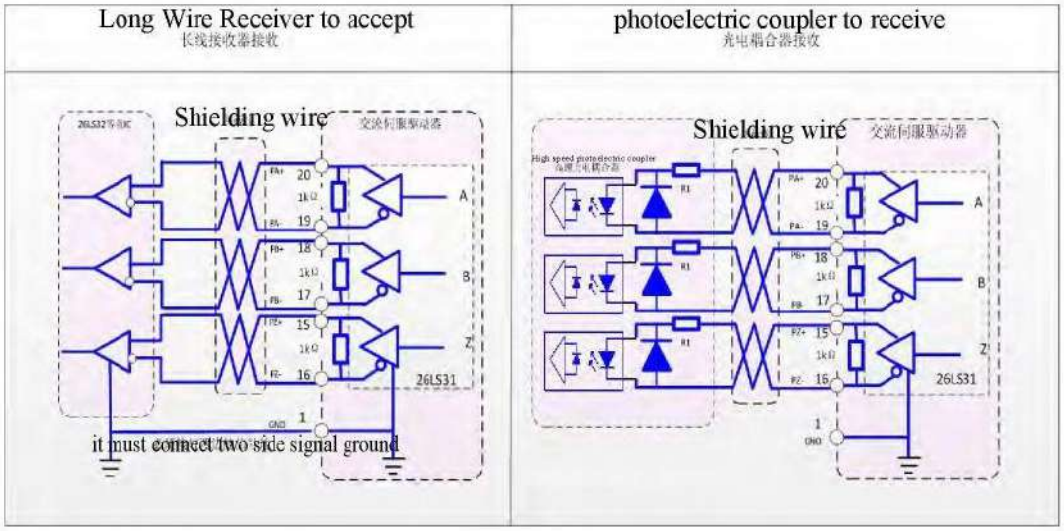


● In the differential input mode, it is recommended AM26LS31 similar line drive; In order to make the transfer of pulse data has good anti interference ability, it is suggested that the differential drive way; Maximum input pulse frequency 500 KHZ (KPPS).

- In the open collector input mode, the maximum input pulse frequency 200 KHZ (KPPS)

4. Encoder signal wire drive output

The encoder signal frequency division through line drive (26 ls31) output to the upper controller



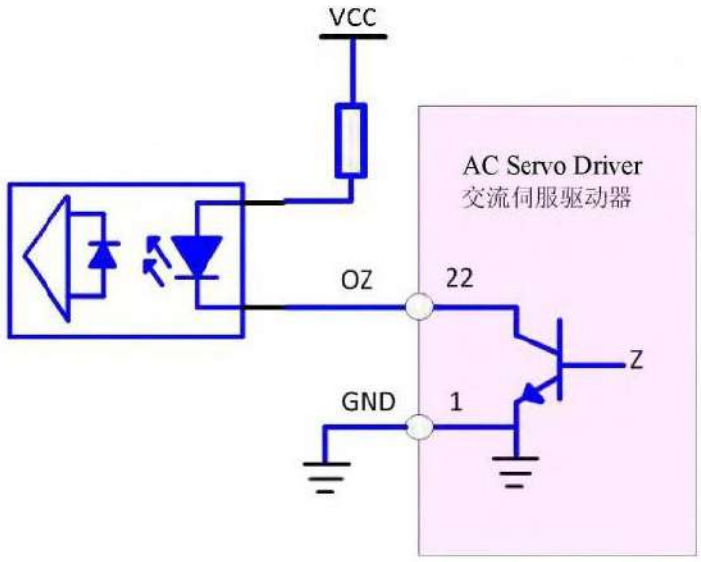
- In the long term receiver receive, the drive encoder signal (GND) must and upper controller signal ground connection

- In the photoelectric coupler receiving, upper controller using high-speed photoelectric coupler (such as 6 n137), current limiting resistor R1 value about 220 Ω.

5. Encoder Z signal open collector output

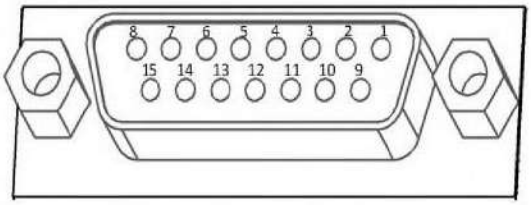
Servo drives to open collector mode on the output signal of the encoder Z. Because Z letter feel the pulse

width is narrower, PC please use high-speed photoelectric coupler receiving



- VCC peak voltage 30 V, output current maximum 50mA

2.4 CN3 Encoder interface



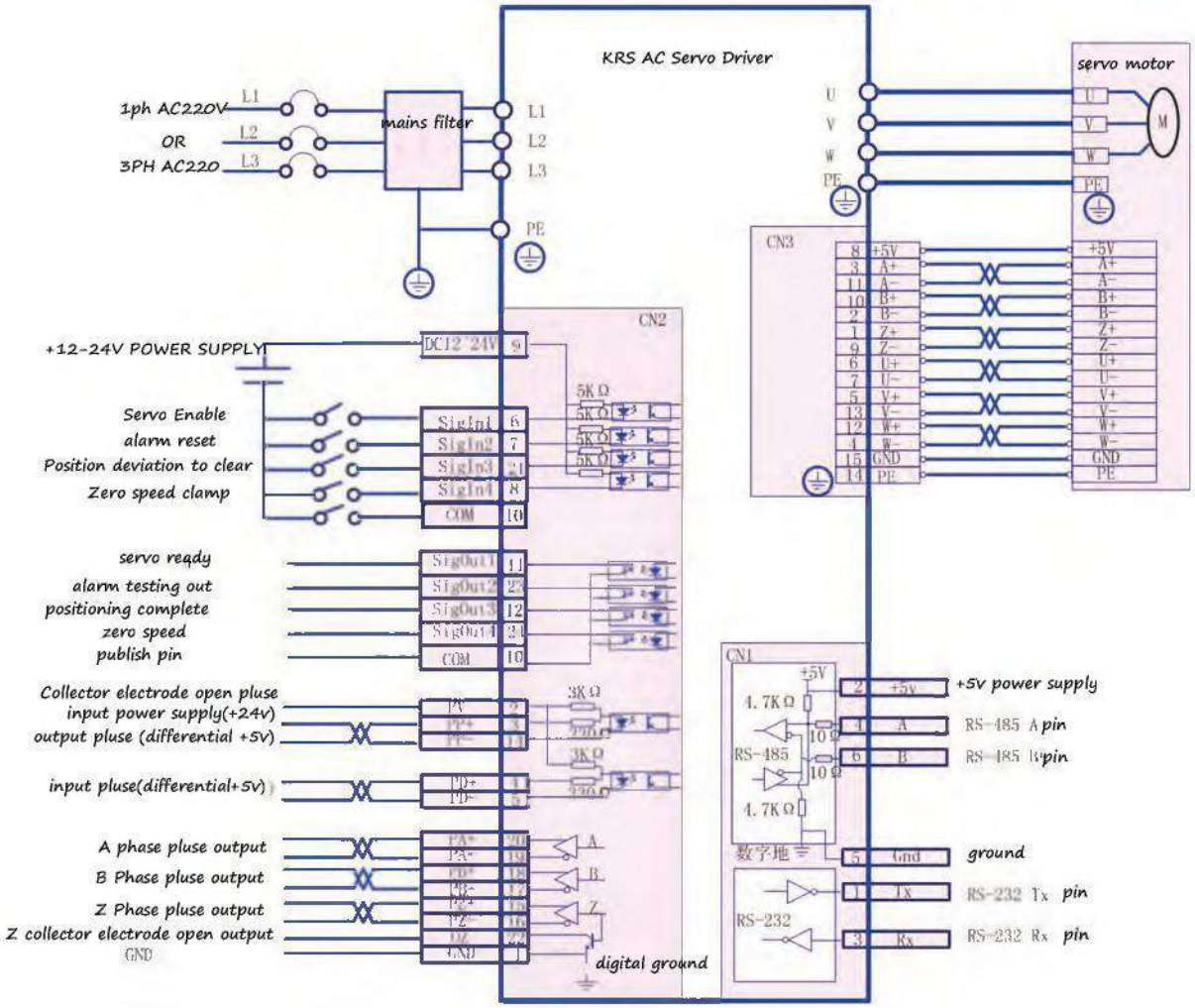
Connect the servo motor encoder signal to CN3 of the servo driver.

pin	CN3 number
+5v	8
GND	15
A+	3
A-	11
B+	10
B-	2
Z+	1

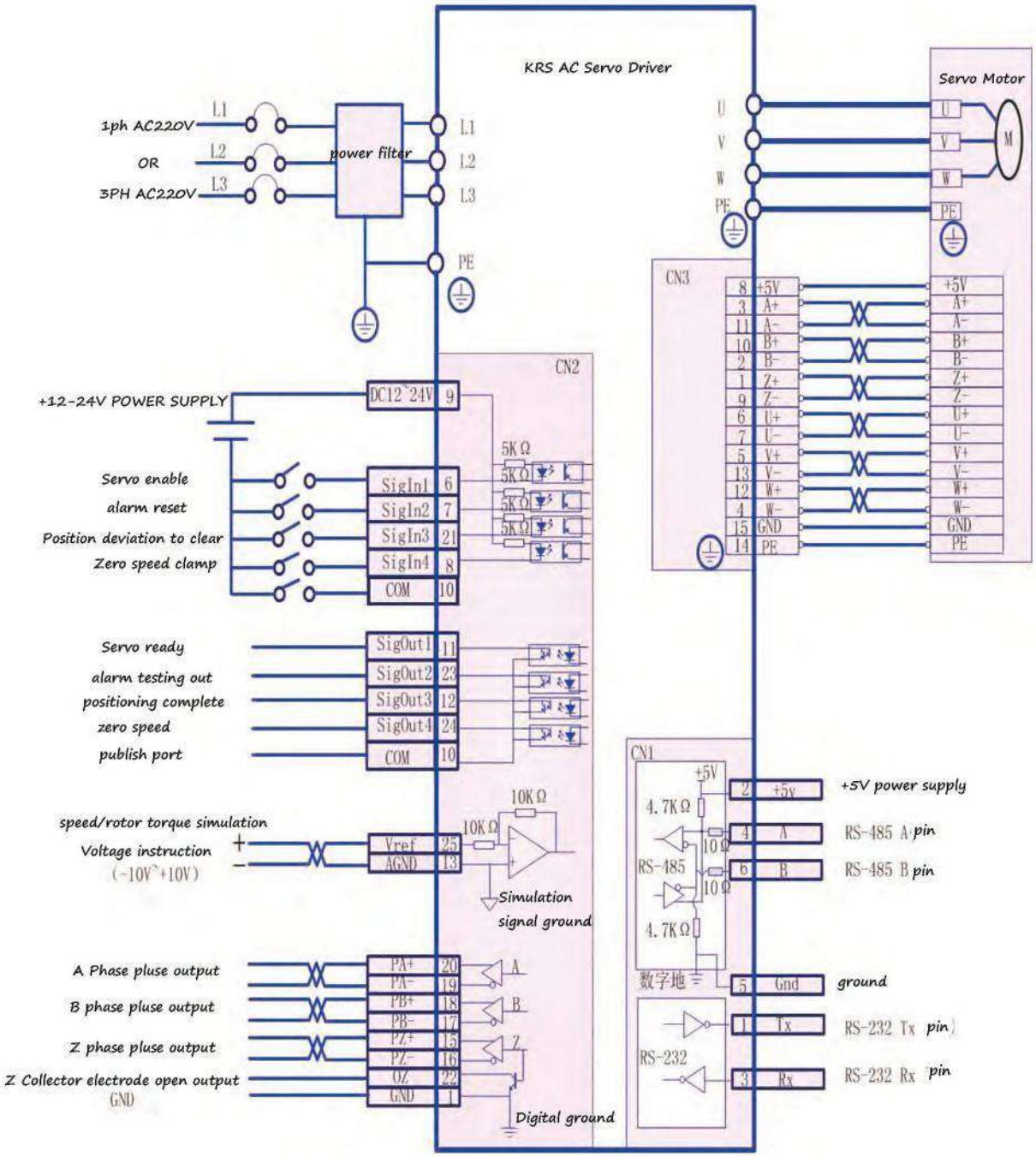
Z-	9
U+	6
U-	7
V+	5
V-	13
W+	12
W-	4
PE	14

2.3 Standard connection

2.3.1 Position control wiring diagram

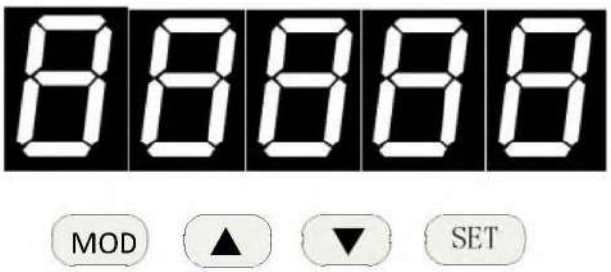


2.3.2 Speed, torque control wiring diagram



Chapter 3 Panel operation

3.1 panel

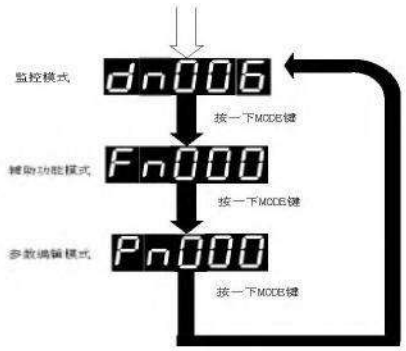


panel instruction:

key	key name	function
MODE	Mode option key	1 mode switch 2 Return to the superior directory
▲	Digital increase key	increase number,long press has the effect of repeat
▼	Digital reduce key	reduce number,long press has the effect of repeat
SET	Shift to determine Key	1 Digital shift 2 Determine the set (long by 1 second) 3 End set parameters (long by 1 second)

Note: if the five decimal points of the display are flashing, there are some alarm.Must clear the alarm,the drive can work normally.

3.2 mode switch



Note: when the screen shows Fnxxx, Dnxxx, Pnxxx, mode key at this time as

the mode switching function, can be to switched to other mode directly, otherwise the mode key is as the function of returnning to the upper directory.

3.3 Monitoring mode operation

Example: see dn015 monitoring parameters, sigOut1 port at this time as the low level, sigOut2, sigOut3, sigOut4 port are the high levels

Long time to press (SET), Release

3.4 Auxiliary mode operation

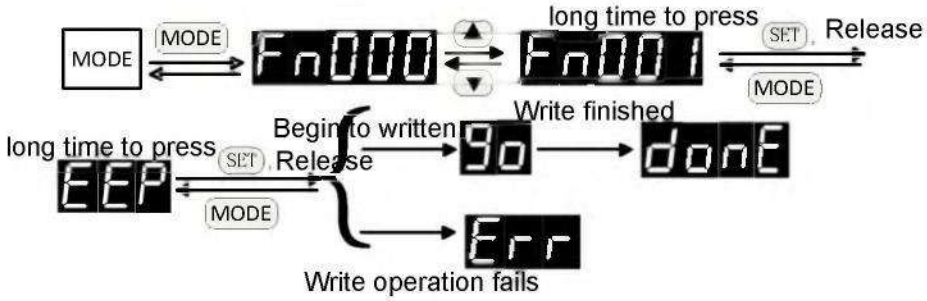
Auxiliary mode function number

3.4.1 Auxiliary function list

number	instruction
Fn000	Alarm record inquires
Fn001	Permanently written to the user parameters. If users set the parameters of Pn000 ~ Pn219, For the next after power on, the drive is loaded the modify parameters by the user, you must perform this operation, the parameter block write internal EEPROM chip. After executing, need about 3 seconds, the block to write all the parameters into the EEPROM
Fn002	JOG Trial operation
Fn003	clear the current detection alarm
Fn004	The parameters of the parameter in the table Pn000 ~ Pn219, according to the setting of Pn000, restore to factory default
Fn005	Zero position deviation
Fn006	SigOut port output force, effectively under the forced state is limited to this operation 0: SigOut all ports to cancel compulsory state 1: SigOut all ports output high level 2: SigOut all ports output low level
Fn007	Simulation of torque command voltage correction
Fn008	Simulation speed reference voltage correction
Fn009	Busbar voltage correction
Fn010	temperature calibration
Fn011	Initialization alarm record
Fn012	encoder zero

3.4.2 Fn000 Alarm function query

3.4.3 Fn001 Permanently written to the user parameters

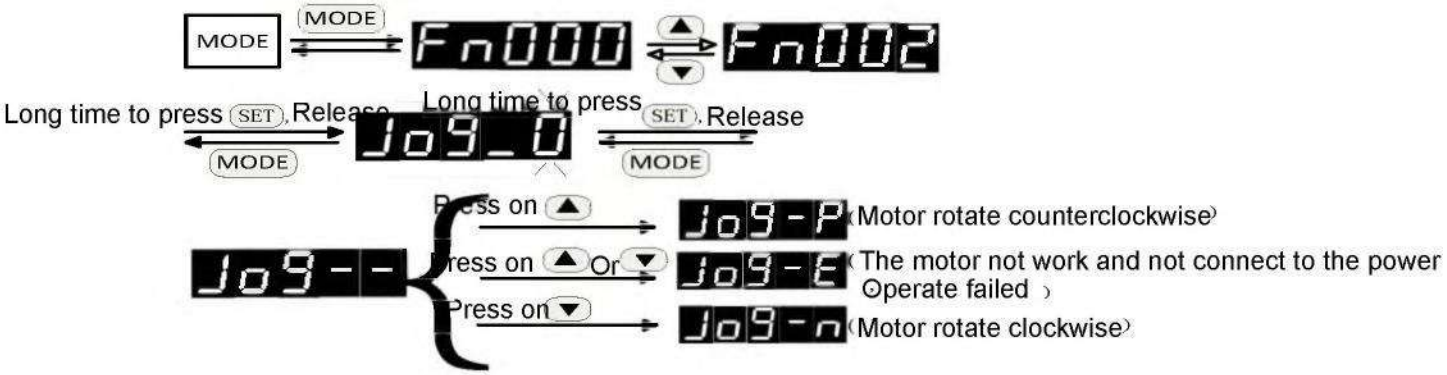


Instructions 1: if the last operation shows Err, may be internal drive is writing data operations performed, please wait a few seconds and try again

2: Power outages after write completint, otherwise may cause memory chip content damage (AL - 01 alarm) after the reboot,

3.4.4 Fn002 Trial operation

0:Inching mode



JOG The speed and deceleration time is set by the following parameters

Pn177	JOG speed	0~5000	200	r/min
Pn178	JOG speed time	5~ 10000	100	ms
Pn179	JOG deceleration time	5~ 10000	100	ms

1： Into speed control mode

2: Exit speed control mode

operation mode	instruction
0	Inching mode. Press ▲ or ▼ button, the motor will be clockwise or counterclockwise rotation; release ▲or ▼ button, the motor will cease to spin, in a state of no electricity
1	Electricity into speed control mode, the

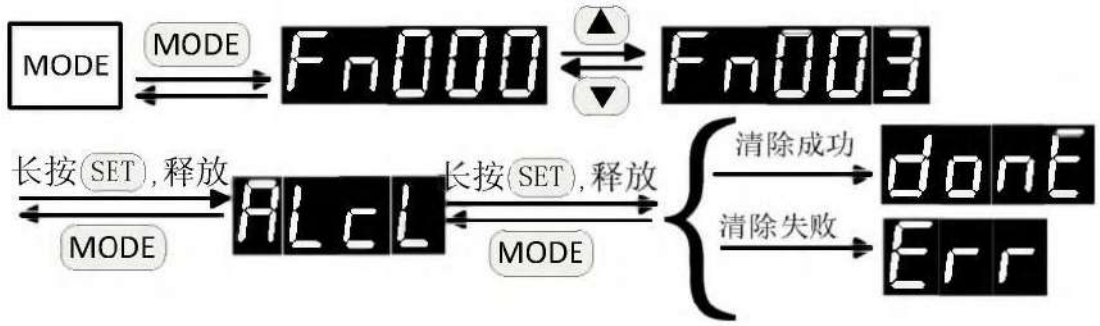
	motor. Drive at a speed loop model, running speed by buttons▲ or ▼ input. In the process of the motor running, the other menu operations can be performed. If the motor stop rotating, please enter Jog_2 mode
2	Exit speed control mode, the motor is power off

Note: if the display JoG-E or Err, the possible reasons are as follows:

1 The motor is in the state of enabling or rotating. JOG trial run before operation, the motor must be in a non -working state. when commissioning,the control interface of the servo drive don't be connected to any control lines.

2 Servo driver alarm has occurred, and the alarm is not cleared.

3.4.5 Fn003 Alarm clearance operations

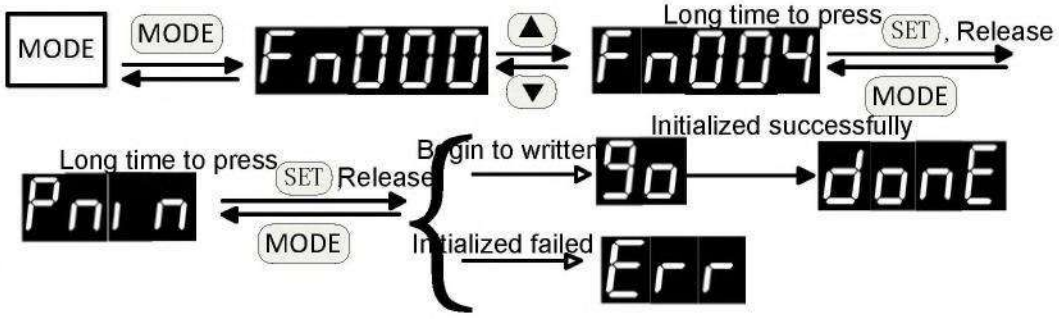


Note:When the clearance is failure at last,display Err,the Checked out alarm can be cleared only after power on again

Through the clear operation to clear the alarm		Electricity can remove alarm again	
AL--02	Low voltage	AL--01	Storage anomaly
AL--05	Overload 1	AL--03	overvoltage

AL--07	Motor speed is too high	AL--04	Intelligent power module is abnormal
AL--08	Heat sink is overheating	AL--06	Overload 2
AL--10	Pulse frequency is too high	AL--09	The encoder abnormal
AL--11	Pulse position deviation value is too large	AL--13	The CPU internal fault
AL--12	Current sampling circuit may be damaged	AL--17	The encoder signal frequency division output Settings abnormal
AL--14	Emergency stop	AL--18	impeoper motor code setting abnormal
AL--15	driving ban Abnormal		
AL--16	Brake average power overload		

3.4.6 Fn004 Initialization parameters



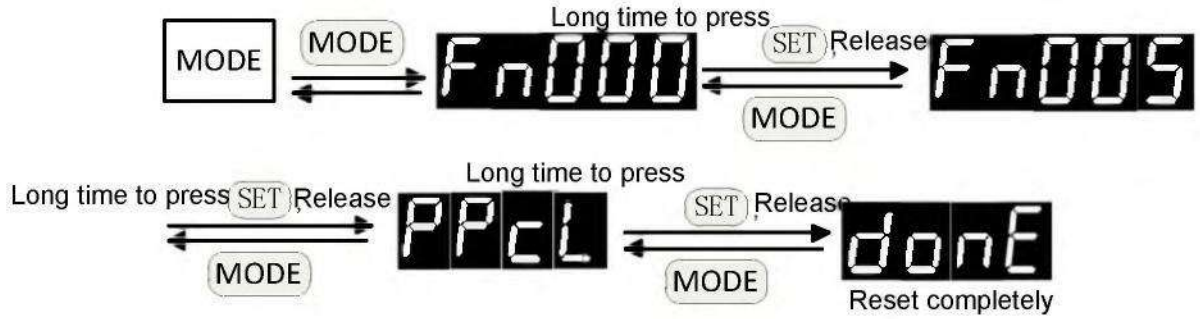
Instructions 1: if the last operation display Err, the possible reason as following:

1: Drives are executing write operations

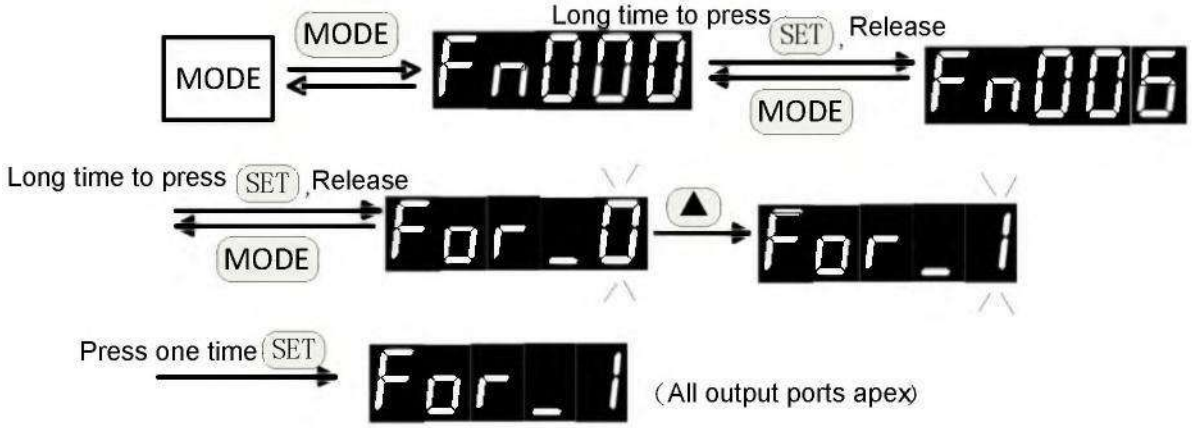
2 Parameters Pn000 doesn't open the parameters initialization function

Instructions 2: must turn off the power after completing the wirting, otherwise ,after the reboot, may cause memory chip content damage (AL - 01 alarm)

3.4.7 Fn005 Clear operation position deviation

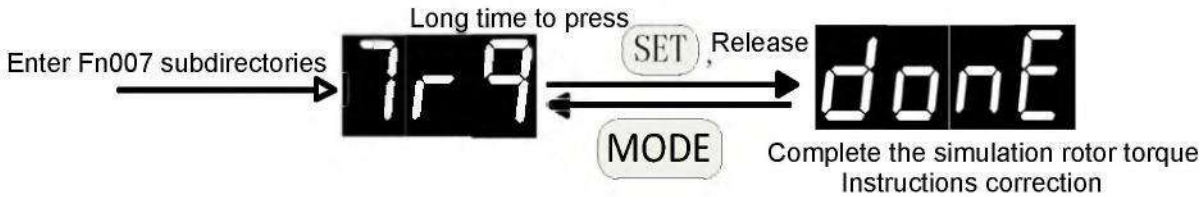


3.4.8 Fn006 The output port is mandatory



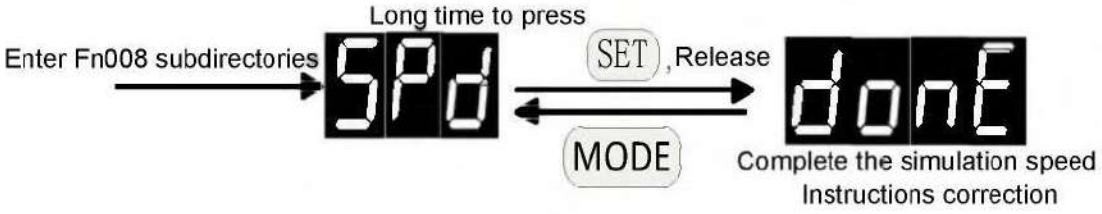
Parameter selection	instructions
0	Cancel the forced state
1	all sigoutall ports are forced high
2	all sigoutall ports are forced low

3.4.9 Fn007 Simulation of torque command voltage correction



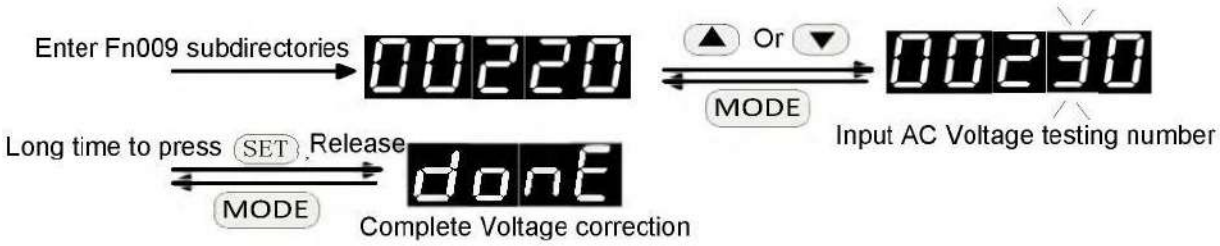
Note 1: before correcting operation, first direct short the CN2 analog voltage input port Vref (25 feet) and AGND circuit (13 feet)

3.4.10 Fn008 Simulation speed command voltage correction



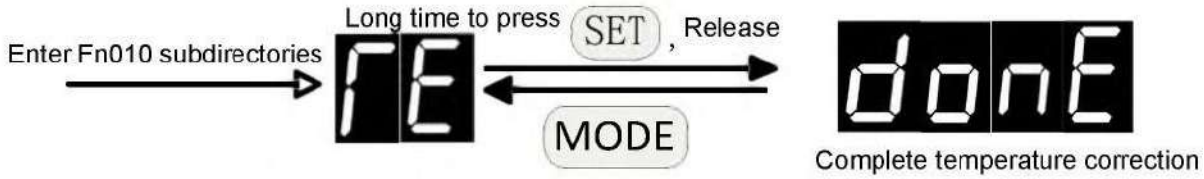
Note 1: before correcting operation, first direct short the CN2 analog voltage input port Vref (25 feet) and AGND circuit (13 feet)

3.4.11 Fn009 Busbar voltage correction



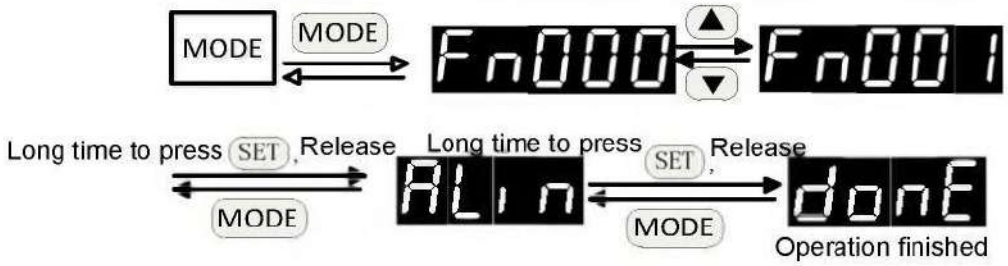
Note 1: when making correction, measurement drive input ac voltage, input to this operation.

3.4.12 Fn010 The temperature calibration

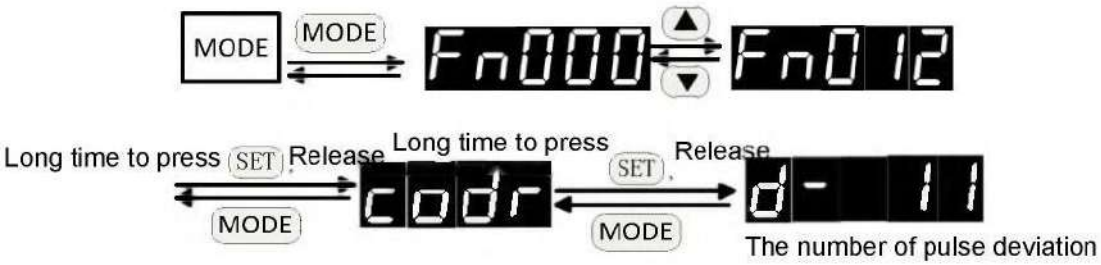


Note 1: before the operation, the temperature sensor is replaced with 1.5 K high precision resistor.

3.4.13 Fn011 Alarm record initialization



3.4.14 Fn012 The encoder zero



Zero before operation, confirm the motor code Pn001 set value and the actual motor model is consistent, otherwise may lead to motor current is too large, damage the motor. Adjust zero, don't need can make internal or external can make the motor, the motor will turn a few laps, and then lock the zero. When the display number of pulse bias of 0, the motor has been aimed at zero.

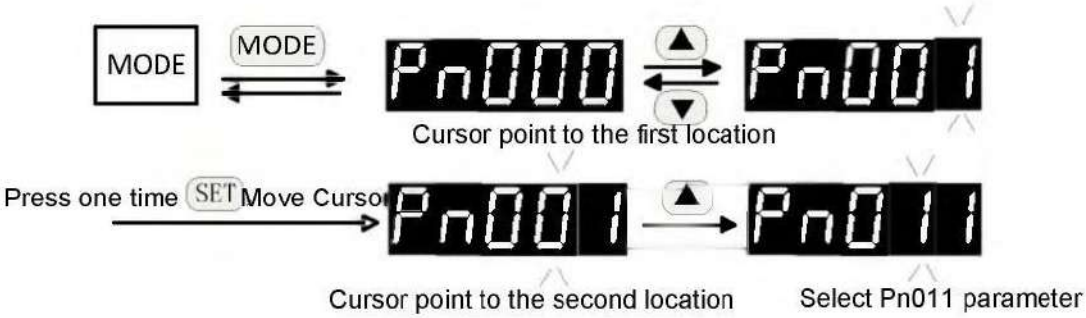
Note 1: if the motor heating, cooling for a period of time

3.5 User parameter mode operation

Parametric model function number

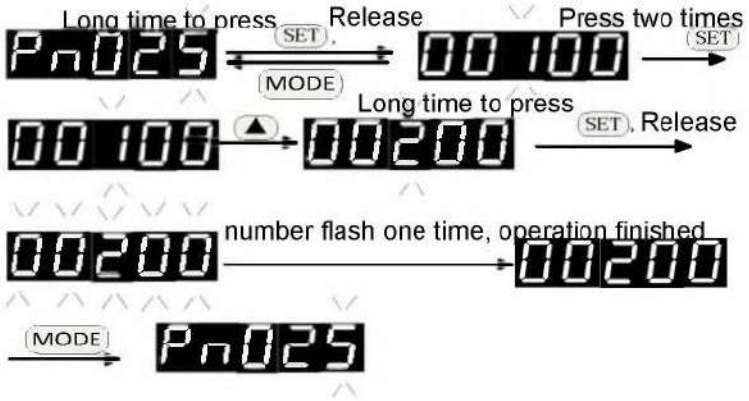
3.5.1 Choose parameter number

Example: select Pn011 parameters



3.5.2 Edit parameters

Example: change the current value of the Pn025 parameters from 100 to 200, the specific operation is as follows:



Note: Pn025 parameters are modified, if it does not have to save operation (Fn001 immortalised),

after the next to electricity, Pn025 parameters still for 100.

Chapter 4 function parameters

4.1 Parameter Settings panel operation

As shown in the third chapter of "user mode"

4.2 Parameter list

- In the column of Numbers, if any symbols ▲ , said after the parameter Settings, be it with electricity, can take effect; If symbol ◆, said after the parameter Settings, to enable motor, parameters take effect; If no special symbols, effective immediately

- The column of applicable mode, All said is suitable for the torque, speed and position control, T is suitable for the torque control, S suitable for speed control, said P is suitable for the position control.

- Must set parameters carefully. If setting undeserved, may cause the motor running is not stable

4.2.1 System parameters

number	name	Value range	The default value	unit	apply
Pn000	Open parameters initialization function	0~2	1		All
Pn001▲	motor code	3-12	3		All
Pn002▲	control mode	0~5	2		All
Pn003	Servo enabled	0~1	0		All
Pn004	Servo broken that can stop	0~2	0		All
Pn005	Can make deceleration time	5-10000	100	ms	All
Pn006	With/without positive driving is prohibited	0-3	0		All
Pn007	Is/reverse the driver stop deceleration time is prohibited	0-10000	60	ms	All
Pn008	(CCW) Internal around are torque limit (CCW)	0-300	300	%	All

Pn009	CW）Around inside the torque limit (the CW)	-300~0	-300	%	All
Pn010	(CCW）External around are torque limit (CCW)	0-300	300	%	All
Pn011	(CW) Around outside the torque limit (the CW)	-300~0	-300	%	All
Pn012	Forward (CCW) torque overload alarm level 1	0-300	200	%	All
Pn013	Inversion (the CW) torque overload alarm level 1	-300-0	-200	%	All
Pn014	Torque overload alarm detection 1 time	0-800	80	100ms	All
Pn015	Overload 2 testing time	0-150	40	100ms	All
Pn016▲	DA The molecular DA of encoder divider output	1~63	1		All
Pn017▲	DB The denominator DB of encoder divider output	1~63	1		All
Pn018▲	Take the encoder output pulse AB phase logic	0-1	0		All
Pn019▲	Rated current Settings	0-50	0	A	All
Pn020▲	Rated speed setting	0~5000	0	r/min	All
Pn021	reach the predetermined speed	0~5000	500	r/min	All
Pn022	Hysteresis comparison difference in speed	0~5000	30	r/min	All
Pn023	Reach the predetermined speed detection direction	0-2	0		All
Pn024	Reach the predetermined torque	0-300	100	%	All

Pn025	Reach the predetermined torque hysteresis comparison difference	0-300	5	%	All
Pn026	Reach the predetermined torque direction	0-2	0		All
Pn027	Zero velocity detection range setting	0~1000	10	r/min	All
Pn028	Zero speed test back tothe poor	0~1000	5	r/min	All
Pn029	Motor electromagnetic brake testing point zero speed	0~1000	5	r/min	All
Pn030	The motor stops electromagnetic brake delay time	0~2000	0	Ms	All
Pn031	The motor electromagnetic brake waiting time during operation	0~2000	500	ms	All
Pn032	The motor speed of electromagnetic brake action during operation	0-3000	30	r/min	All
Pn033	The origin is triggered	0~3	0		All
Pn034	The origin return reference point model	0~5	0		All
Pn035	The origin back to the origin model	0~2	0		All
Pn036	The origin position offset high	-9999~9999	0	hundreds of Pulse	All
Pn037	The origin position offset low	-9999~9999	0	Pulse	All
Pn038	The origin back to the first speed	1~3000	200	R/min	All
Pn039	The origin back to the second speed	1~3000	50	R/min	All

Pn040	The accelerating time of origin	5~10000	50	ms	All
Pn041	The origin return to slow down time	5~10000	50	ms	All
Pn042	The origin in the delay	0~3000	60	ms	All
Pn043	Complete signal delay of origin	5~3000	80	ms	All
Pn044	The origin of origin instruction execution mode	0~1	0		All
Pn045	Gain switch to choose	0~5	5		All
Pn046	Gain switch level	0~30000	80		All
Pn047	Gain switch back to the poor	0~30000	6		All
Pn048	Gain switch delay time	0~20000	20	0.1ms	All
Pn049◆	Gain switch time 1	0~15000	0	0.1ms	All
Pn050◆	Gain switch time 2	0~15000	50	0.1ms	All
Pn051	The motor running top speed limit	0~5000	3000		All
Pn052▲	SigIn1 port functional allocation	-27~27	1		All
Pn053▲	SigIn 2 port functional allocation	-27~27	2		All
Pn054▲	SigIn 3 port functional allocation	-27~27	19		All
Pn055▲	SigIn 4 port functional allocation	-27~27	8		All
Pn056	SigIn 1 port filtering time	1~1000	2	ms	All
Pn057	SigIn 2 port filtering time	1~1000	2	ms	All
Pn058	SigIn 3 port filtering time	1~1000	2	ms	All
Pn059	SigIn 4 port filtering time	1~1000	2	ms	All
Pn060▲	SigOut 1 port	-14~14	2		All

	functional allocation				
Pn061▲	SigOut 2 port functional allocation	-14~14	1		All
Pn062▲	SigOut 3 port functional allocation	-14~14	4		All
Pn063▲	SigOut 4 port functional allocation	-14~14	7		All
Pn064▲	Communication mode	0-2	0		All
Pn065	Communications site	1-254	1		All
Pn066▲	Communication baud rate	0-3	1		All
Pn067▲	Communication mode setting	0-8	8		All
Pn068	Input function control mode select register 1	0~32767	0		All
Pn069	Input function control mode select register 2	0~4095	0		All
Pn070	Input function logic state set register 1	0~32767	32691		All
Pn071	Input function logic state set register 2	0~4095	4095		All
Pn072	Internal use				
Pn073	Internal use				
Pn074	Fan function temperature	30~70	50	摄氏度	All
Pn075	Fan operation mode	0~2	0		All
Pn076	Emergency stop reset (EMG)	0-1	0		All
Pn077	Positive and negative riving ban checked out	0-2	0		All
Pn078	Lack of voltage detection	0~1	1		All
Pn079	The system status display project selection	0-23	0		All
Pn080▲	The encoder to choose	0~0	0		All
Pn081	User preferences permanent write	0-1	0		All

	operation				
Pn082	SigOut port force output	0	0~255		All
Pn083	Low pressure alarm detect amplitude	50~280	200	V	All
Pn084	High pressure alarm detect amplitude	290~380V	365	V	All
Pn085▲	Motor pole logarithmic	1~100	4	对	All
Pn086	Renewable circuit discharge cycle	0~2000	70	ms	All
Pn087~ pn095	Internal use	-	-	-	-

4.2.2 Position control parameters

number	name	Value range	The default value	unit	apply
Pn096▲	The command pulse input mode	0-2	0		P
Pn097▲	Instruction selection logic pulse input direction	0-1	0		P
Pn098	Pulse electronics gear than the molecules of 1	1~32767	1		P
Pn099	Pulse electronics gear than the molecules of 2	1~32767	1		P
Pn100	Pulse electronics gear than the molecules of 3	1~32767	1		P
Pn101	Pulse electronics gear than the molecules of 4	1~32767	1		P
Pn102▲	Pulse electronics gear than the	1~32767	1		P

	denominator				
Pn103	Beyond the scope of setting position deviation	1~ 500	500	Thous and pulse	P
Pn104	Complete range set position location	0~ 32767	10	pilse	P
Pn105	Positioning to complete set	0~ 32767	3	pilse	P
Pn106	Position location close to the range of Settings	0~ 32767	300	pilse	P
Pn107	Position location close to the poor se back	0~ 32767	30	pilse	P
Pn108	Position deviation clear way	0-1	1		P
Pn109◆	Position command deceleration mode	0-2	1		P
Pn110◆	Position command a filtering time constant	5~1750	50	ms	P
Pn111◆	Ta S-shaped filtering time constant Ta position instruction	5~1200	50	ms	P
Pn112◆	position instruction Ts S-shaped filtering time constant Ts	5~550	20	ms	P
Pn113▲	The position loop feedforward gain	0-100	0	%	P
Pn114▲	Position loop feedforward filter time constant	1-50	5	ms	P
Pn115	The position	5-2000	100	%	P

	controller gain 1				
Pn116	The position controller gain 2	5-2000	100	%	P
Pn117	Position command source selection	0~1	0		P
Pn118	Internal position instruction suspend mode selection	0~1	0		P
Pn119	Internal position suspended deceleration time	0~10000	50		P
Pn120	Internal position 0 high pulse number set up	-9999~9999	0	万个脉冲 ten thousand pulse	P
Pn121	Internal position instruction 0 pulse number low set	-9999~9999	0	个 a	P
Pn122	Internal position instruction 1 pulse number high set	-9999~9999	0	万个脉冲 ten thousand pulse	P
Pn123	Internal position instruction 1pulse number low set	-9999~9999	0	个 a	P
Pn124	Internal position instruction 2pulse number high set	-9999~9999	0	万个脉冲 ten thousand pulse	P

Pn125	Internal position instruction 2 pulse number set low	-9999~9999	0	个 a	P
Pn126	Internal position instruction 3 pulse high setting	-9999~9999	0	万个脉冲 ten thous and pulse	P
Pn127	Internal position instruction 3 pulse number set low	-9999~9999	0	个 a	P
Pn128	Internal position command zero speed	0~3000	100	r/min	P
Pn129	Internal position command 1 speed	0~3000	100	r/min	
Pn130	Internal position command 2speed	0~3000	100	r/min	P
Pn131	Internal position command 3 speed	0~3000	100	r/min	P
Pn132	Torque/speed control switch to the position control	0~1	0		P
Pn133	Torque/speed control switch to the position control of the deceleration time	5-10000	100	ms	P
Pn134~ Pn145	internal use	-	-	-	

4.2.3 Speed control parameter

number	name	value range	The default value	unit	apply
Pn146◆	Speed instruction deceleration mode	0~2	1		S
Pn147◆	Ts Speed instruction S curve and deceleration time constant Ts	5~ 1500	80	ms	S
Pn148◆	Ta Speed instruction S curve acceleration time constant of Ta	5~ 10000	80	ms	S
Pn149◆	Td Speed instruction S curve deceleration time constant of Td	5~ 10000	80	ms	S
Pn150◆	Linear acceleration time constant	5~30000	80	ms	S
Pn151◆	Linear deceleration time constant	5~30000	80	ms	S
Pn152▲	Speed detection filter time constant	1~380	10	0.1ms	All
Pn153	The speed regulator proportional gain 1	5~ 2000	100	%	All
Pn154	Speed regulator integral time constant of 1	5~ 2000	100	%	All
Pn155	The speed regulator proportional gain 2	5~ 2000	100	%	All
Pn156	Speed regulator integral time constant 2	5~ 2000	100	%	All
Pn157▲	Simulation speed instruction smoothing filtering time	1~500	1	0.1ms	S
Pn158	The directive gain simulation speed	1~1500	300	r/min/ V	S
Pn159	Simulation speed instruction offset adjustment	-5000~5000	mv		S

Pn160	Simulation speed instruction direction	0-1	0		S
Pn161	Simulation speed instruction to enforce zero range	0~1000	0	10mv	S
Pn162	Simulation speed instruction to enforce zero range limit	-1000~0	0	10mv	S
Pn163	Zero speed clamp lock mode	0-1		0	S
Pn164	Zero speed clampis triggered	0~1		0	S
Pn165	The clamp level zero speed	0~200	6	r/min	S
Pn166	Zero speed clamp deceleration time	5~10000	50	ms	S
Pn167	Internal position controller gain	5~2000	100	%	All
Pn168	Speed instruction source select	0~1	0		S
Pn169	Internal speed reference 1	-5000-5000	0	R/min	S
Pn170	Internal speed instruction 2	-5000-5000	0	R/min	S
Pn171	Internal speed instruction 3	-5000-5000	0	R/min	S
Pn172	Internal speed instruction 4	-5000-5000	0	R/min	S
Pn173	internal speed instruction 5	-5000-5000	0	R/min	S
Pn174	internal speed instruction 6	-5000-5000	0	R/min	S
Pn175	internal speed instruction 7	-5000-5000	0	R/min	S
Pn176	Internal speed instruction 8	-5000-5000	0	R/min	S

Pn177	JOG speed	0~5000	200	r/min	S
Pn178	JOG speed up the time	5~ 10000	100	ms	S
Pn179	JOG Deceleration time	5~ 10000	100	ms	S
Pn180~ Pn185	internal use				

4.2.4 Torque control parameters

number	name	value range	The default value	unit	apply
Pn186	Torque command deceleration mode	0~1	0		T
Pn187▲	torque instruction near deceleration time constant	1~30000	1	ms	T
Pn188▲	Analog torque instruction smooth filtering time	1~500	1	0.1ms	T
Pn189	Analog torque instruction gain	1-300	30	%/V	T
Pn190	Analog torque instruction offset adjustment	-1500~1500	0	mv	T
Pn191	Simulation of torque command direction	0-1	0		T
Pn192	Q shaft torque regulator proportional gain is 1	5~ 2000	100	%	All
Pn193	Q shaft torque regulator integral time constant of 1	5~ 2000	100	%	All
Pn194	Proportional gain 2 Q shaft torque regulator	5~ 2000	100	%	All

Pn195	Q shaft torque regulator integral time constant 2	5~ 2000	100	%	All
Pn196	Torque Q axis filter time constant of 1	1-500	1	0.1ms	All
Pn197	Filtering time constant torque Q 2	1~500	1	0.1ms	All
Pn198	Torque control speed limit	0~4500	2500	r/min	T
Pn199	Source of limited torque control speed choice	0~2	0		T
Pn200	The internal torque 1	-300~300	0	%	T
Pn201	The internal torque 2	-300~300	0	%	T
Pn202	The internal torque 3	-300~300	0	%	T
Pn203	The internal torque 4	-300~300	0	%	T
Pn204	Torque command source	0~1	0		T
Pn205	D shaft torque regulator proportional gain	5~2000	100	%	All
Pn206	D shaft torque regulator integral time constant	5~2000	100	%	All
Pn207	Speed feedback adjustment coefficient	1~3000	100		T
Pn208	track torque instruction judgment error range 1	0~300	5	%	T
Pn209	tracking torque instruction judgment error range 2	0~300	2	%	T
Pn210~ Pn219	internal use				

4.2.5 Extension control parameters

4.3 Parameters

4.3.1 System parameters

number	name	value range	default value	unit	apply
Pn000	Open parameters initialization function	0~2	1		All

◢ 0:Open parameters initialization function

◢ 1: Allow to initialize to all parameters, but not initialized Pn001 code (motor), Pn159 (simulated speed instruction offset adjustment), Pn190 (analog torque instruction offset adjustment), and other parameter values

◢ 2: Allow to initialize all parameters

number	name	value range	default value	unit	apply
Pn001▲	Motor code	3-12	3		All

◢ Must set up the right motor type code, the motor can work normally. Drive model and motor model fit the table below

Motor model	Pn001	Rated speed (r/min)	rated torque (N.M)	Rated power (W)	KRS 15A	KRS 20A	KRS 30A	KRS 50A	KRS 75A
60st_m00630	0	3000	0.6	200	√	√	√		
60st_m01330	1	3000	1.3	400	√	√	√		
60st_m01930	2	3000	1.9	600	√	√	√		
80st_m01330	3	3000	1.3	400	√	√	√		
80st_m02430	4	3000	2.4	750	√	√	√		
80st_m03520	5	2000	3.5	730	√	√	√		
80st_m04025	6	2500	4	1000	√	√	√		
90st_m02430	7	3000	2.4	750	√	√	√		
90st_m03520	8	2000	3.5	730	√	√	√		
90st_m04025	9	2500	4	1000	√	√	√		
110st_m02030	10	3000	2	600	√	√	√		
110st_m04020	11	2000	4	800	√	√	√		

110st_m04030	12	3000	4	1200		√	√		
110st_m05030	13	3000	5	1500			√		
110st_m06020	14	2000	6	1200	√	√	√		
110st_m06030	15	3000	6	1800			√		
130st_m04025	16	2500	4	1000	√	√	√		
130st_m06015	17	1500	6	1000	√	√	√		
130st_m05025	18	2500	5	1300		√	√		
130st_m06025	19	2500	6	1500			√		
130st_m07725	20	2500	7.7	2000			√		
130st_m10010	21	1000	10	1000	√	√	√		
130st_m10015	22	1500	10	1500		√	√		
130st_m10025	23	2500	10	2600			√	√	√
130st_m15015	24	1500	15	2300			√		
130st_m15025	25	2500	15	3800				√	√
150st_m15025	26	2500	15	3800				√	√
150st_m15020	27	2000	15	3000				√	√
150st_m18020	28	2000	18	3600				√	√
150st_m23020	29	2000	23	4700				√	√
150st_m27020	30	2000	27	5500					√
180st_m17215	31	1500	17.2	2700				√	√
180st_m19015	32	1500	19	3000			√	√	√
180st_m21520	33	2000	21.5	4500				√	√
180st_m27010	34	1000	27	2900				√	√
220st_m67010	35	1000	67	1000					√

number	name	value range	the default value	unit	apply
Pn002▲	control mode	0~5	2		All

◢ All kinds of control mode in the following table

Pn002	control mode
0	Torque mode
1	speed mode
2	location mode

3	location/speed mode
4	location/torque mode
5	speed/torque mode

◢ Set to three, four, five, mode between the switch is determined by the input port SigIn Cmode signal state

Pn002	Cmode	control mode
3	OFF	location mode
	ON	speed mode
4	OFF	location mode
	ON	torque mode
5	OFF	speed mode
	ON	toeque mode

◢ Please refer to the appendix B for switching control mode

number	name	value range	the default value	unit	apply
Pn003	Servo enabled mode	0~1	0		All

◢ 0 By the input port of the SigIn SON can drive

◢ 1 After power on can automatically make the drive

number	name	value range	the default value	unit	apply
Pn004	Servo is broken can stop the way	0~2	0		All

◢ When make the can signal from effective becomes invalid, can set the motor to stop running mode

Pn004	Electromagnetic brake	Slowing down	instructions
0	Do not use	Do not use	Inertial parking
1	Do not use	use	Determined by Pn005 decelerate parking, deceleration time

2	use	Do not use	Electromagnetic braking parking with electromagnetic brake (for motor)

number	name	value range	the default value	unit	apply
Pn005	Can make deceleration time	5-10000	100	ms	All

◢ Can make the signal from the effective becomes invalid, the motor speed to zero time. If in the process of reduction, enabling signal effectively again, the motor will slow down to zero

number	name	value range	the default value	unit	apply
Pn006	With/without positive driving is prohibited	0-3	0		All

◢ Set this parameter values, you can choose to use or not use driving ban function, the truth table below

Pn006	Forward driving ban	Reverse driving ban
0	Do not use	Do not use
1	Do not use	use
2	use	Do not use
3	use	use

number	name	value range	the default value	unit	apply
Pn007	forward/reverse driving stop deceleration time is prohibited	0-10000	60	ms	All

◢ When happening overtravel, SigIn port CCWL or.cwl status is OFF; use Pn077 on whether can be set up alarm detection. Distance, the motor can be in accordance with the slow time to slow down, clear position instruction pulse (position control) at the same time, after stop for internal position lock. Internal position gain through Pn167 regulation

number	name	value range	the default value	unit	apply
Pn008	Internal around are torque limit (CCW)	0-300	300	%	All
Pn009	Around inside the torque limit (the CW)	-300~0	-300	%	All
Pn010	External around are torque limit (CCW)	0-300	300	%	All
Pn011	Around outside the torque limit (the CW)	-300~0	-300	%	All

◢ Set the CCW/the CW direction of motor torque limit. Internal and external torque limit effectively at the same time, the actual torque smaller limit

◢ External torque limit by SigIn TCCWL, TCWL control of the port

◢ Some motor maximum output torque is twice the rated torque, the maximum torque of the motor output automatically restricted to within two times the rated torque

number	name	value range	the default value	unit	apply
Pn012	Forward (CCW) torque overload alarm level 1	0-300	200	%	All
Pn013	Inversion (the CW) torque overload alarm level 1	-300-0	-200	%	All

Pn014	Torque overload 1 alarm detection time	0-800	80	100ms	All
Pn015	Overload 2 testing time	0-150	40	100ms	All

◢ Overload 1 alarm level refers to the overload overcurrent rated output current percentage, relative to the motor overload capacity range between 0 and the maximum output current. Torque overload 1 the overload capacity of the default value is 2 times, in the setting time, lasts for more than 2 times the output torque, will perform overload 1 protection

◢ In a set time, the motor to allow the rated torque output ratio, will perform overload 2 protection

◢ If the overload level sets is greater than the corresponding internal/external torque limit, overload conditions may not be met, the protection will not work

number	name	value range	the default value	unit	apply
Pn016▲	The molecular DA of encoder divider output	1~63	1		All
Pn017▲	The denominator DB of encoder divider output	1~63	1		All

◢ Encoder output, a electronic gear used for dividing the encoder pulse signal output. Frequency division value must be satisfied: DA/DB > = 1. Encoder, for example, to line 2500, DA/DB crossover value = 25/8, then after frequency division line number: 2500 / (DA/DB) = 2500 / (25/8) = 800 line

number	name	value range	the default value	unit	apply
Pn018▲	Take the encoder output pulse	0-1	0		All

	AB phase logic				

◢ 0: motor counterclockwise A, B in advance. Clockwise ahead of A B

◢ 1: motor counterclockwise B ahead; Clockwise ahead of B

number	name	value range	the default value	unit	apply
Pn019▲	Rated current Settings	0-15	0	A	All
Pn020▲	Rated speed setting	0~5000	Rated speed	r/min	All

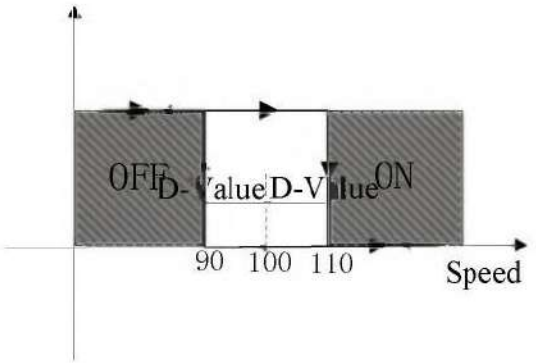
◢ Parameter is set to 0, use the manufacturer to set a default value; Otherwise, the user must be strictly in accordance with the motor rated current RMS, rated speed and the corresponding internal positive and negative torque limit setting parameter values. If set incorrectly, the motor will not be able to run properly. According to the code of different types and motor drive, can achieve the largest actual current value is different. Please do not modify the average user.

number	name	value range	the default value	unit	apply
Pn021	reach to predetermined speed	0~5000	500	r/min	All
Pn022	Hysteresis comparison difference in predetermined speed	0~5000	30	r/min	All
Pn023	Reach to predetermined speed detection direction	0-2	0		All

◢ When the motor is running at a faster rate than the decision value set, the output port SigOut Sreach will turn ON, or to OFF.

◢ More instruments include

hysteresis comparison. The setting of the difference is too small, the output signal cut-off frequency is higher; The set value, the greater the cut-off frequency is small, but at the same time reduce the resolution of the comparator. Example: booking speed is set to 100, difference set to 10.



◢ Can be set up speed detection direction, in the following table

Pn023	The comparator
0	Positive &negative were detected
1	Testing only forward speed; Inversion, the signal is OFF
2	Only detect reverse speed; Forward, the signal is OFF

number	name	value range	the default value	unit	apply
Pn024	reach to the predetermined torque	0-300	100	%	All
Pn025	Reach a predetermined torque hysteresis comparison difference	0-300	5	%	All
Pn026	Reach the predetermined torque direction	0-2	0		All

◢ When the motor running torque than the decision value set, the output port SigOut Treach will turn ON, or to OFF

◢ Can install torque detection direction, in the following table:

Pn026	The comparator

0	Positive &negative were detected
1	Testing is only around moment; Inversion, the signal is OFF
2	Only testing around the moment; Forward, the signal is OFF

number	name	value range	the default value	unit	apply
Pn027	Zero velocity detection range setting	0~1000	10	r/min	All
Pn028	Zero speed test back to the poor	0~1000	5	r/min	All

◢ When the speed of the motor speed is lower than the set value, the output port SigOut zerospeed into ON, otherwise to OFF

number	name	value range	the default value	unit	apply
Pn029	Motor electromagnetic brake testing point zero speed	0~1000	5	r/min	All

◢ Only when using electromagnetic brake function, state whether the motor is zero speed

number	name	value range	the default value	unit	apply
Pn030	Motor static electromagnetic brake delay time	0~2000	0	Ms	All

◢ Motor static, electromagnetic brake braking began to delay time of cut off the current to the motor

◢ When using the electromagnetic brake function, servo way can make Pn005 must be set to 2

number	name	value range	the default value	unit	apply
Pn031	The motor	0~2000	500	ms	All

	electromagnetic brake waiting time during operation				

◢ Motor operation, cut off the current tothe waiting time between electromagnetic brake

number	name	value range	the default value	unit	apply
Pn032	Electromagnetic brake movement speed while the machine running	0-3000	30	r/min	All

◢ Motor operation, when the speed of motor is lower than the set parameters, magnetic brakes brake

number	name	value range	the default value	unit	apply
Pn033	The origin is triggered	0~3	0		All

◢ 0: Close the origin regression function

◢ 1 By the input port of the SigIn GOH level trigger

◢ 2 By the input port of the SigIn GOH rising along the trigger

◢ 3 Power on automatically

◢ See the appendix F origin point execution way

number	name	value range	the default value	unit	apply
Pn034	The origin return reference point model	0~5	0		All

◢ 0: Forward looking for REF (rising along the trigger) as a reference point

◢ 1: Inversion for REF (rising along the trigger) as a reference point

◢ 2: Forward looking for CCWL falling edge (trigger) as a reference point

◢ 3 Inversion to find.cwl falling edge (trigger) as a reference point

◢ 4: Forward looking for Z pulse as a reference point

◢ 5: Pulse inversion for Z as a reference point

Note: CCWL or.cwl as a reference point, need to set the Pn006 parameters, open the function

number	name	value range	the default value	unit	apply
Pn035	The origin back to the origin model	0~2	0		All

◢ 1 Backward looking for Z pulse as the origin

◢ 2 Forward looking for Z pulse as the origin

◢ 3 Directly with reference point rise along the origin

number	name	value range	the default value	unit	apply
Pn036	The origin position offset high	-9999~9999	0	ten thousand pulse	All
Pn037	The origin position offset low	-9999~9999	0	pulse	All

◢ After finding the origin, plus the offset (10000 + Pn037 Pn036 *) as a real origin

number	name	value range	the default value	unit	apply
Pn038	The origin back to the first speed	1~3000	200	R/min	All
Pn039	The origin back to the second speed	1~3000	50	R/min	All

◢ Perform operation on the origin, looking for reference points at the first speed, arrived at the reference point, seeking the origin at the second rate. The second speed should be less than the first speed

number	name	value range	the default value	unit	apply
Pn040	The accelerating time of origin	5~10000	50	ms	All
Pn041	The originreturn to slow down time	5~10000	50	ms	All

◢ In the execution of origin point, motor from zero speed accelerated to the rated speed of the time, only for the origin returning operation

	name	value	the	unit	

number		range	default value		apply
Pn042	The origin in the delay	0~3000	60	ms	All

◢ On arriving at the origin, the delay for a period of time, let the motor is perfectly still. After the completion of the delay, output port SigOut HOME output ON

number	name	value range	the default value	unit	apply
Pn043	Complete the signal delay of origin	5~3000	80	ms	All

◢ HOME last valid time

number	name	value range	the default value	unit	apply
Pn044	The origin return instruction execution mode	0~1	0		All

◢ 0 After the completion of the origin, waiting for the HOME signal into OFF to receive and executes instructions

◢ 1 The origin return immediately after the completion of receiving and executes instructions

number	name	value range	the default value	unit	apply
Pn045	Gain switch to choose	0~5	5		All

◢ 0: Fixed gain 1

◢ 1: Fixed gain 2

◢ 2: Controlled by input port SigIn Cgain terminals, OFF as gain 1, ON 2 gain

◢ 3:Controlled by speed command, speed command exceeds Pn046, switch to gain 1

◢ 4:Controlled by pulse bias, position deviation exceeds Pn046, switch to gain 1

◢ 5:By the motor speed control, feedback speed exceeds Pn046, switch to gain 1

◢ See the appendix A for gain switch

number	name	value range	the default value	unit	apply
Pn046	Gain switch level	0~30000	80		All
Pn047	Gain switch back to the poor	0~30000	6		All

◢ According to Pn045 parameter setting, switching condition and the unit is not the same

Pn044	Gain switching conditions	unit
3	Speed instruction	R/min
4	Pulse bias	a pilse
5	Motor speed	r/min

number	name	value range	the default value	unit	apply
Pn048	Gain switch delay time	0~20000	20	0.1ms	All

◢ Gain switching conditions meet the delay time to start switch. If detected in delayed phase switching conditions are not met, then cancel the switch

number	name	value range	the default value	unit	apply
Pn049◆	Gain switch time 1	0~15000	0	0.1ms	All
Pn050◆	Gain switch time 2	0~15000	50	0.1ms	All

◢ Gain switch, current gain linear smoothing gradient combination in this time to the target gain combination, combination of the various parameters change at the same time

number	name	value range	the default value	unit	apply
Pn051		0~5000	3000		All

	The motor running top speed limit				

◢ Used to restrict the highest speed of the motor running. Value should be less than or equal to the rated speed, otherwise the motor can run a maximum speed of the rated speed

number	name	value range	the default value	unit	apply
Pn052▲	SigIn1 port functional allocation	-27~27	1		All
Pn053▲	SigIn2port functional allocation	-27~27	2		All
Pn054▲	SigIn3 port functional allocation	-27~27	19		All
Pn055▲	SigIn4 port functional allocation	-27~27	8		All

◢ 1: Specific functional allocation reference SigIn function, a table

◢ 2: -1 ~ 27 function number is 1-27 corresponding negative logic function, function is the same, the effective level instead

Parameter values	SigIn input level	SigIn corresponding function
positive values	low level	ON
	high level	OFF
negative	low level	OFF
	high level	ON

◢ 3 If the same overlapped functions assigned to different port, the port number of ports real effective, small number of port doesn't work. Example: SigIn1 - > 6; SigIn - > 3-6; The functions assigned to SigIn 3, 6 and logic is negative, and SigIn 1 port status is ignored

number	name	value range	the default value	unit	apply
Pn056	SigIn filtering time 1 port	1~1000	2	ms	All
Pn057	SigIn filtering time 2 port	1~1000	2	ms	All

Pn058	SigIn filtering time 3 port	1~1000	2s	ms	All
Pn059	SigIn filtering time 4 port	1~1000	2	ms	All

◢ For digital filter input port SigIn

number	name	value range	the default value	unit	apply
Pn060▲	SigOut1 port functional allocation	-14~14	2		All
Pn061▲	SigOut2port functional allocation	-14~14	1		All
Pn062▲	SigOut3 port functional allocation	-14~14	4		All
Pn063▲	SigOut4port functional allocation	-14~14	7		All

◢ Specific functional allocation reference to SigOut function, a table.

Parameter values	Corresponding function	SigOut output
positive values	ON	low level
	OFF	high level
negative	OFF	low level
	ON	high level

number	name	value range	the default value	unit	apply
Pn064▲	Communication mode	0-2	0		All

◢ 0：No communication

◢ 1：RS-232

◢ 2： RS-485

◢ See chapter 7 Modbus communication protocol communication function

number	name	value range	the default value	unit	apply
Pn065	Communications site	1-254	1		All

◢ When using the Modbus communication, drive in each group should be set in advance different sites; If repeat setting site, will lead to paralysis of communication

number	name	value range	the default value	unit	apply
Pn066▲	Communication baud rate	0-3	1		All

◢ 0 : 4800

◢ 1 : 9600

◢ 2 : 19200

◢ 3 : 38400

number	name	value range	the default value	unit	apply
Pn067▲	Communication mode setting	0-8	8		All

◢ Parameter values are defined as follows table, see chapter 7 of the Modbus communication function

set	instructions
0	7 , N , 2 (Modbus ,ASCII)
1	7 , E , 1 (Modbus , ASCII)
2	7 , O , 1 (Modbus , ASCII)
3	8 , N , 2 (Modbus , ASCII)
4	8 , E , 1 (Modbus , ASCII)
5	8 , O , 1 (Modbus , ASCII)
6	8 , N , 2 (Modbus , RTU)
7	8 , E , 1 (Modbus , RTU)
8	8 , O , 1 (Modbus , RTU)

number		value range	the default value	unit	apply
Pn068	Choose to register 1 input function control way	0~32767	0		All
Pn069	Choose to register 2 input	0~4095	0		All

	function control way				

◢ Determine the function or port input mode control by way of communication. If you don't communicate mode control, set the zero

Pn068 parameters

bit	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
function	Zero Lock	EMG	TCW	TCCW	CWL	CCWL	Alarm rst	Son
The default value	0	0	0	0	0	0	0	0

BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
keep	Cgain	Cmode	TR2	TR1	Sp3	Sp2	Sp1
0	0	0	0	0	0	0	0

Pn069 parameters

bit	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
function	REF	GOH	PC	INH	Pclear	Cinv	Gn2	Gn1
The default value	0	0	0	0	0	0	0	0

BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
keep	keep	keep	keep	pstop	ptriger	Pos2	Pos1
0	0	0	0	0	0	0	0

◢

When the communication control, determine the above function from the input port or on the CN3 from c ommunication control to change. Set to 0, the

controlled by the input port on the CN3 change; Is set to 1, is controlled by the communication change. The default all controlled by the input port. For example: son sp3 sp2 sp1 function through communication control, other control, through the input port is set value is 00000111 _00000001 (binary) -- - > 0 x0701 (hexadecimal) -- - > 1793 (decimal), so set Pn065 parameter value is 1793.

number	name	value range	the default value	unit	apply

Pn070	Input function logic state set register 1	0~32767	32691		All
Pn071	Input function logic state set register 2	0~4095	4095		All

◢ On RS232 or RS485 communication,

and set the Pn068, Pn069 corresponding controlled by communication, this parameter with the corresponding bit to set or reset, can control the state of the function of input signal. Logic 0 for valid state.

Pn070 parameters

bit	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
function	ZeroLock	EMG	TCW	TCCW	CWL	CCWL	Alarmrst	Son
The default value	1	0	1	1	0	0	1	1

BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
keep	Cgain	Cmode	TR2	TR1	Sp3	Sp2	Sp1
0	1	1	1	1	1	1	1

Pn071 parameters

bit	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Function signal	REF	GOH	PC	INH	Pclear	Cinv	Gn2	Gn1
The default value	1	1	1	1	1	1	1	1

BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
keep	keep	keep	keep	pstop	ptriger	Pos2	Pos1
0	0	0	0	1	1	1	1

◢

In a communication control mode, by setting the register, CN3 external input signal control could be achieved.

Drive in position control mode, for example, to

ban pulse command, set Pn071 BIT4 set 0, input pulse becomes invalid. The communication control, set the parameter value, shall be invalid.

Note: after each access to electricity,
drive will automatically load the Pn070, Pn071 register values, and perform the corresponding operation immediately. So, before enabling the motor to determine the function of input signal into the proper working condition

number	name	value range	the default value	unit	apply
Pn074	Fan temperature	30~70	50	℃	All
Pn075	Fan operation mode	0~2	0		All

◢ Fan operation mode are: 0: heat automatically
1 boot operation
2: don't run

number	name	value range	the default value	unit	apply
Pn076	Emergency stop reset (EMG)	0-1	0		All

◢ Lift its state of EMG OFF after the removal of EMG (AL-14) alarm conditions:

0 Must be under the servo can make OFF, by manual or port SigIn: AlarmRst cleared.

1 Regardless of servo enabled ON or OFF, EMG again into ON, will be automatically removed

◢ In can make ON the state, if the external command input, EMG alarm automatically remove, instructions are executed immediately

number	name	value range	the default value	unit	apply
Pn077	Is/the driving ban checked out	0-2	0		All

◢ If use the function of CCWL or.cwl, when CCWL or.cwl for the OFF state, whether can be set up from AL -15 police

0 Don't send out alarm

1 Motor is running, reducing stopped, send out alarm, motor is no longer current

2 Immediately issued a warning, motor power, free downtime

number	name	value range	the default value	unit	apply
Pn078	Lack of voltage detection	0~1	1		All

◢ 0 not check out

◢ 1 Check out

number	name	value range	the default value	unit	apply
Pn079	The system status display project selection	0-23	0		All

◢ Drive, automatic Dn000 submenu into monitor mode menu. By default, according to the manufacturer to display the system status (motor speed), the user can set the parameter value, so it shows Dn000 particular state of the system parameters, details see the list of "monitoring mode".

0 The default system (motor speed) 1 Speed instruction 2 The average torque 3 Position deviation value 4 The ac power voltage 5 Maximum instantaneous torque 6 Pulse input frequency 7 Temperature of the heat sink 8 The current motor speed 9 Effective input command pulse accumulative total value is low 10 Effective input command pulse accumulative total value is high 11 Position control, effective feedback pulse encoder accumulative total value is low 12 Position control, effective feedback pulse encoder cumulative value high 13 Regenerative braking load factor 14 Input port signal state 15 Signal output port state 16 Analog voltage torque instruction 17 Simulate the speed reference voltage 18 Output function status register 19 After power on the servo, pulse encoder feedback accumulative total value is low 20 After power on the servo, pulse encoder feedback accumulative total value is high 21 Driver soft ware 22 encoder UVW letter 23 rotor absolute position

number	name	value range	the default value	unit	apply
Pn080▲	The encoder to choose	0~1	0		All

◢ 0: Incremental encoder 2500 line

◢ 1：Absolute encoder 130000 line

number	name	value range	the default value	unit	apply
Pn081	User preferences permanent write operation	0-1	0		All

◢ The corresponding auxiliary mode Fn001 operation. The current Pn000 ~ Pn219 block all parameter value written to the EEPROM. When the parameter value from 0 to 1, the driver will perform a write operation. This operation is only valid at the time of communication (Pn064 > 0)

number	name	value range	the default value	unit	apply
Pn082	SigOut port output	0	0~255		All

◢ Mandatory SigOut port output fixed level. By setting the parameters, the force output port level

	keep	SigOut4		SigOut3		SigOut2		SigOut1	
bit	BIT15~BIT8	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
The default value	0	0	0	0	0	0	0	0	0

Output port truth table below

SigOut 2			SigOut 1		
BIT3	BIT2	Output level	BIT1	BIT0	Output level
0	0	Optional state	0	0	Optional state
0	1	Forced to high level	0	1	Forced to high level
1	0	Forced to low level	1	0	Forced to low level
1	1	Optional state	1	1	Optional state

SigOut 4			SigOut 3		
BIT7	BIT6	Output level	BIT5	BIT4	Output level
0	0	Optional state	0	0	Optional state