Ver6.3

伺服驱动器用户手册

Servo driver user manual

台州一川电机有限公司

TAIZHOU YICHUAN ELECTRIC CO.,LTD.

安全注意事项 Safety precautions

为确保安全使用本产品，必须遵守下列安全标志，以免伤害人员，损坏设备。To ensure the safe use of this product, the following safety signs must be observed so as to avoid damage to personnel or equipment.

警告 Notice	表示错误操作可引发危险，导致轻度或中度人身伤害，损坏设备，甚至引发火灾。Indicates that an error operation can cause danger, mild or moderate bodily harm, damage to equipment, or even fire.
危险 Danger	表示错误操作引发危险，导致伤害或死亡。Represents an error operation that raises danger, causing injury or death.
	表示禁止操作。Inhibit operation.
	表示必须操作。Indicates that operations must be performed.

产品到达后，进行确认、安装、配线、运行维护、检查时，以下是必须遵守的重要事项：After the arrival of the product, the following important matters must be observed when confirming, installing, wiring, running, maintaining and checking the products:

●安装时注意事项：Notes on installation:

警告 Notice
严禁安装在潮湿及会发生腐蚀的环境、有易燃性气体的环境下、可燃物的附近及灰尘、金属粉末较多的环境，否则有可能会发生触电和火灾。It is strictly prohibited to install in humid and corrosive environment, flammable gas environment, near combustible and dust, metal powder environment, otherwise there may be electric shock and fire.

●配线时的注意事项：Precautions for wiring:

警告 Notice
◢ 伺服驱动器的接地端子必须接地，否则，可能会发生触电和火灾。 The ground terminal of the servo driver must be earthed. Otherwise, an electric shock and fire may occur. ◢ 严禁把伺服驱动器的输出端子U，V，W ，连接至三相电源，否则，可能受伤和引发火灾。 Strictly prohibit the servo driver output terminals U, V, W connected to three-phase power supply, otherwise it may hurt and cause fire. ◢ 严禁把220V驱动器连接至380V电源，否则可以触电和引发火灾。 220V drive is strictly prohibited to connect to the 380V power supply, otherwise you can get an electric shock and a fire. ◢ 务必将电源端子、电机输出端子拧紧，否则有可能会引发火灾。 Make sure the power terminals and motor terminals are tightened, or there may be a fire.

●运行时的注意事项 ： Considerations for runtime:

 危险 Danger
◢ 在运行中，严禁触摸任何旋转部件，否则可能会受伤。In operation, it is strictly forbidden to touch any rotating parts, or you may be injured. ◢ 在运行中，严禁触摸电机和驱动器，否则可能会烫伤。In operation, do not touch the motor and drive, or you may be burned.

 警告 Notice
◢ 在运行前，必须选择好正确的电机型号，否则可能人员受到伤害，损伤设备。Before running, you must select the correct motor type, otherwise, may be injured, damage to equipment. ◢ 在运行前，必须设置好与应用场合相适应的用户参数，否则可能受到伤害，损伤设备。Before running, you must set the user parameters that suit the application. Otherwise, you may be harmed and damage the equipment. ◢ 在运行前，确认机械是否可随时紧急停止，否则，可能会受伤。Before running, make sure that the machine can be stopped at any time, or you may get injured.

●保养检查时的注意事项：Precautions for maintenance and inspection:


◢ 严禁触摸伺服驱动器的内部，否则有可能触电。Do not touch the inside of servo drive, or you may get an electric shock. ◢ 关闭电源后，在5分钟内，严禁触摸端子，否则，残留的电压可能会导致触电。After closing the power supply, it is strictly forbidden to touch the terminal within 5 minutes. Otherwise, the residual voltage may cause an electric shock. ◢ 严禁拆装伺服电机，否则有可能触电。Disassembly servo motor is not allowed, otherwise it is possible to get an electric shock.

目录 Catalog

第 1 章产品检查及安装

The first chapter: product inspection and installation

1.1 产品检查 Product inspection

本产品在出厂前均做过完整功能测试，为防止产品运送过程中因疏忽导致产品不正常，拆封后请详细检查下列事项：The products in the factory have done a complete functional test, in order to prevent the process of transporting products caused by negligence are not normal, please check the following items after unpacking:

- 检查伺服驱动器与伺服电机型号是否与订购的机型相同。Check whether servo drive and servo motors are the same as those ordered.
- 检查伺服驱动器与伺服电机外观有无损坏及刮伤现象。运送中造成损伤时请勿接线送电。Check the servo driver and servo motor for damage and scratching. Please do not wire or send electricity when causing damage in transit.
- 检查伺服驱动器与伺服电机有无零件松脱之现象。是否有松脱的螺丝，是否螺丝未锁紧或脱落。Check that the servo drive and servo motor are loose or loose. Is there a loose screw, whether the screws are not locked or broken.
- 检查伺服电机转子轴是否能以手平顺旋转。带制动器的电机无法直接旋转。Check that the rotor shaft of the servo motor can rotate smoothly by hand. The motor with the brake can not be rotated directly.

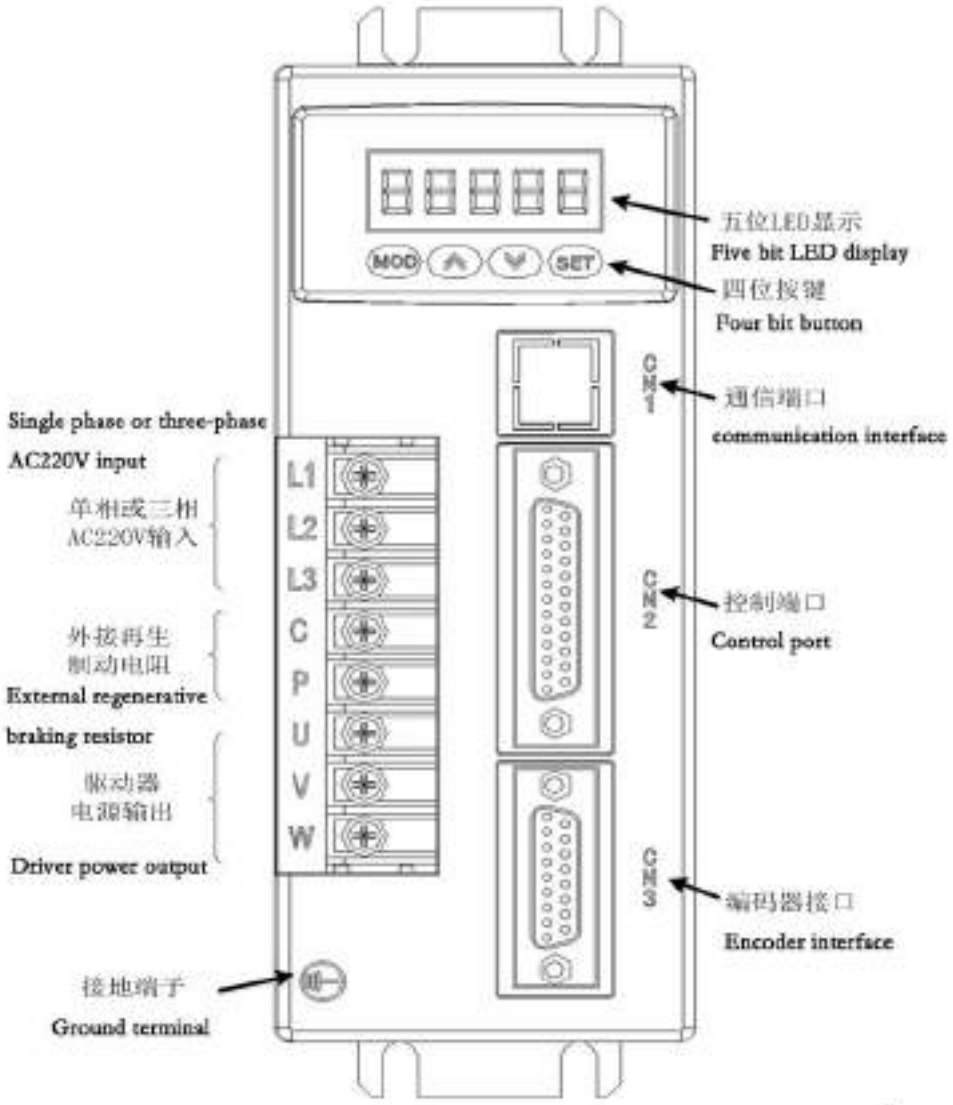
  如果上述各项发生故障或有不正常的现象，请立即与经销商联系。If any of the above is out of order or abnormal, please contact the distributor immediately.

1.2 产品铭牌 id label

Danger: Please follow the instructions, installation, wiring and use, be sure to reliably grounding

High-voltage power supply: Please don't disassemble the driver during the 5 minutes when the power is on and the power is cut off, so as to prevent electric shock

1.3 产品前面板 Product front panel



1.4 驱动器技术规格 Drive specification

输入电源 Input power		① 单相或三相AC220V -15～+10% 50 / 60Hz Single phase or three-phase AC220V -15 to +10% 50 / 60Hz ②单相或三相AC380V -15～+10% 50 / 60Hz Single phase or three-phase AC380V -15 to +10% 50 / 60Hz
环境 environment	温度 temperature	工作：0～55 ℃存贮：-20℃～80℃ Work: store at 0~55 DEG C: -20 ~ 80 DEG C
	湿度 humidity	小于90%（无结露） Less than 90% (without condensation)
	振动 Vibration	小于0.5G(4.9m/S^2)，10～60Hz（非连续运行） Less than 0.5G (4.9m/S2), 10 to 60Hz (non continuous running)
控制方式 control mode		IGBT PWM 正弦波控制 power pwm 正弦波控制
控制模式 control model		① 转矩模式(内部或外部) Torque mode (internal or external) ④位置/速度模式 Position / speed mode ②速度模式(内部或外部) Speed mode (internal or external) ⑤位置/转矩模式 Position / torque model ③位置模式(内部或外部) Location mode (internal or external) ⑥速度/转矩模式 Speed / torque mode
控制输入 control input		伺服使能、报警复位、正转驱动禁止、反转驱动禁止、 外部正转转矩限制、外部反转转矩限制、紧急停机、 零速箝位、内部速度指令选择 1、内部速度指令选择 2 内部速度指令选择 3、内部转矩指令选择 1、 内部转矩指令选择 2、控制模式切换、增益切换、 电子齿轮分子选择 1、电子齿轮分子选择 2、指令取反、 位置偏差清除、脉冲输入禁止、比例控制、原点回归触发、 原点回归参考点、内部位置选择 1、内部位置选择 2、 触发内部位置指令、暂停内部位置指令、内外部位置指令选择 定长位移中断、定长解锁 Servo enable, alarm reset, forward drive, inhibit and reverse drive prohibited, External forward torque limit, external reverse torque limit, emergency stop, Zero speed clamp, internal speed command select 1, internal speed command select 2Internal speed command select 3, internal torque command select 1, Internal torque command select 2, control mode switching, gain switching, The choice of the electronic gear molecule 1, the electronic gear molecule selection 2, the

	instruction counter, The position deviation is cleared, the pulse input is forbidden, the proportional control and the origin return trigger, Origin regression reference point, internal position selection 1, internal position selection 2, Trigger an internal position instruction, pause an internal position command, and select an internal and external position commandFixed length, displacement interruption, fixed length unlocking
控制输出 Control output	报警检出、伺服准备好、紧急停止检出、定位完成、 速度到达、到达预定转矩、零速检测、伺服电机通电、 电磁制动、原点回归完成、定位接近、转矩限制中、速度限制中、 跟踪转矩指令到达 Alarm detection, servo ready, emergency stop detection, positioning completed, Speed arrives, arrives at the predetermined torque, the zero speed examination, the servo motor electrify, Electromagnetic brake, origin return, position approach, torque limit, speed limit, Tracking torque command arrives
编码器反馈 Encoder feedback	① 2500线增量式编码器2500 line incremental encoder ②17位绝对式编码器17 bit absolute encoder
通信方式 communication mode	① RS-232 ②RS-485
显示与操作 Display and operation	① 5位LED显示5 LED display ②4/5个按键4/5 keys
制动方式 Braking mode	通过内置/外接制动电阻进行能耗制动 Energy consumption braking by built-in / external braking resistor
冷却方式 Cooling method	风冷（热传导模具、高速强冷风扇） Air cooling (heat conduction mould, high speed strong cooling fan)
功率范围 Power range	≤10KW

1.5 伺服电机安装 Servo motor installation

安装环境条件 Installation environment condition

- 工作环境温度：0～40℃；工作环境温度：80%以下（无结露）。Working environment temperature: 0~40 degrees centigrade; working environment temperature: 80% below (without dew).
- 贮存环境温度：-40～50℃；贮存环境湿度：80%以下（无结露）。Storage environment temperature: -40 ~ 50 degrees; storage environment humidity: less than 80% (without condensation).
- 振动：0.5G 以下。Vibration: 0.5G below.
- 通风良好、少湿气及灰尘之场所。Well ventilated place with little moisture and dust.
- 无腐蚀性、引火性气体、油气、切削液、铁粉等环境。non corrosive, fire gases, oil and gas, cutting fluid, iron powder and so on.
- 无水汽及阳光直射的场所。no water vapor and direct sunlight.

安装方法 Installation method

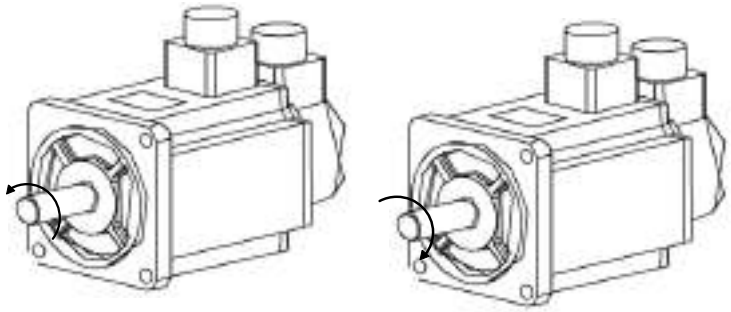
- 水平安装：为避免水、油等液体自电机出线端流入电机内部，请将电缆出口置于下方。horizontal installation: to avoid water, oil and other liquids from the motor outlet end into the motor, please put cable outlet below.
- 垂直按装：若电机轴朝上安装且附有减速机时，须注意并防止减速机内的油渍经由电机轴渗入电机内部。Vertical mounting: if the motor shaft is mounted upwards and attached to the reducer, attention shall be paid to preventing the grease in the reducer from penetrating into the motor through the motor shaft.
- 电机轴的伸出量需充分，若伸出量不足时将容易便电机运动时产生振动。The extension of the motor shaft needs to be sufficient. If the amount of the extension is insufficient, it will vibrate easily when the motor is moving.

- 安装及拆卸电机时，请勿用榔头敲击电机，否则容易造成电机轴及编码器损坏。The installation and disassembly of the motor, with a hammer percussion motor do not, otherwise easy to cause damage to the motor shaft and the encoder.

1.6 电机旋转方向 Motor rotation direction

从电机负载端看，电机轴伸逆时针旋转（CCW）为正转，顺时针旋转（CW）为反转。

From the motor load side, the motor shaft extends counterclockwise (CCW) for the positive rotation, and the clockwise rotation (CW) is reversed.



正转(CCW)　　反转(CW)

1.7 伺服单元与电机型号适配 Servo unit and motor model adaptation

220V 驱动器型号与电机型号适配表如下：The 220V drive model and the motor model adaptation sheet are as follows:

电机型号 Motor model	Pn001	额定转速 Rated speed (r/min)	额定转矩 Rated torque (N.M)	额定功率 Rated power (KW)	KRS 15	KRS 20A	KRS 30A	KRS 50A	KRS 75A
60st_m00630	0	3000	0.6	0.2	√	√	√		
60st_m01330	1	3000	1.3	0.4	√	√	√		
60st_m01930	2	3000	1.9	0.6	√	√	√		
80st_m01330	3	3000	1.3	0.4	√	√	√		
80st_m02430	4	3000	2.4	0.75	√	√	√		
80st_m03520	5	2000	3.5	0.73	√	√	√		

80st_m04025	6	2500	4	1	√	√	√		
90st_m02430	7	3000	2.4	0.75	√	√	√		
90st_m03520	8	2000	3.5	0.73	√	√	√		
90st_m04025	9	2500	4	1	√	√	√		
110st_m02030	10	3000	2	0.6	√	√	√		
110st_m04020	11	2000	4	0.8	√	√	√		
110st_m04030	12	3000	4	1.2		√	√		
110st_m05030	13	3000	5	1.5			√		
110st_m06020	14	2000	6	1.2	√	√	√		
110st_m06030	15	3000	6	1.8			√		
130st_m04025	16	2500	4	1	√	√	√		
130st_m06015	17	1500	6	1	√	√	√		
130st_m05025	18	2500	5	1.3		√	√		
130st_m06025	19	2500	6	1.5			√		
130st_m07725	20	2500	7.7	2			√		
130st_m10010	21	1000	10	1	√	√	√		
130st_m10015	22	1500	10	1.5		√	√		
130st_m10025	23	2500	10	2.6			√	√	√
130st_m15015	24	1500	15	2.3			√		
130st_m15025	25	2500	15	3.8				√	√
150st_m15025	26	2500	15	3.8				√	√
150st_m15020	27	2000	15	3				√	√
150st_m18020	28	2000	18	3.6				√	√
150st_m23020	29	2000	23	4.7				√	√
150st_m27020	30	2000	27	5.5					√
180st_m17215	31	1500	17.2	2.7				√	√
180st_m19015	32	1500	19	3			√	√	√
180st_m21520	33	2000	21.5	4.5				√	√
180st_m27010	34	1000	27	2.9				√	√
220st_m67010	35	1000	67	7					√
180st_m35015	37	1500	35	5.5					√
40st_m00330	39	3000	0.3	0.1	√	√	√		

380V 驱动器型号与电机型号适配表如下：

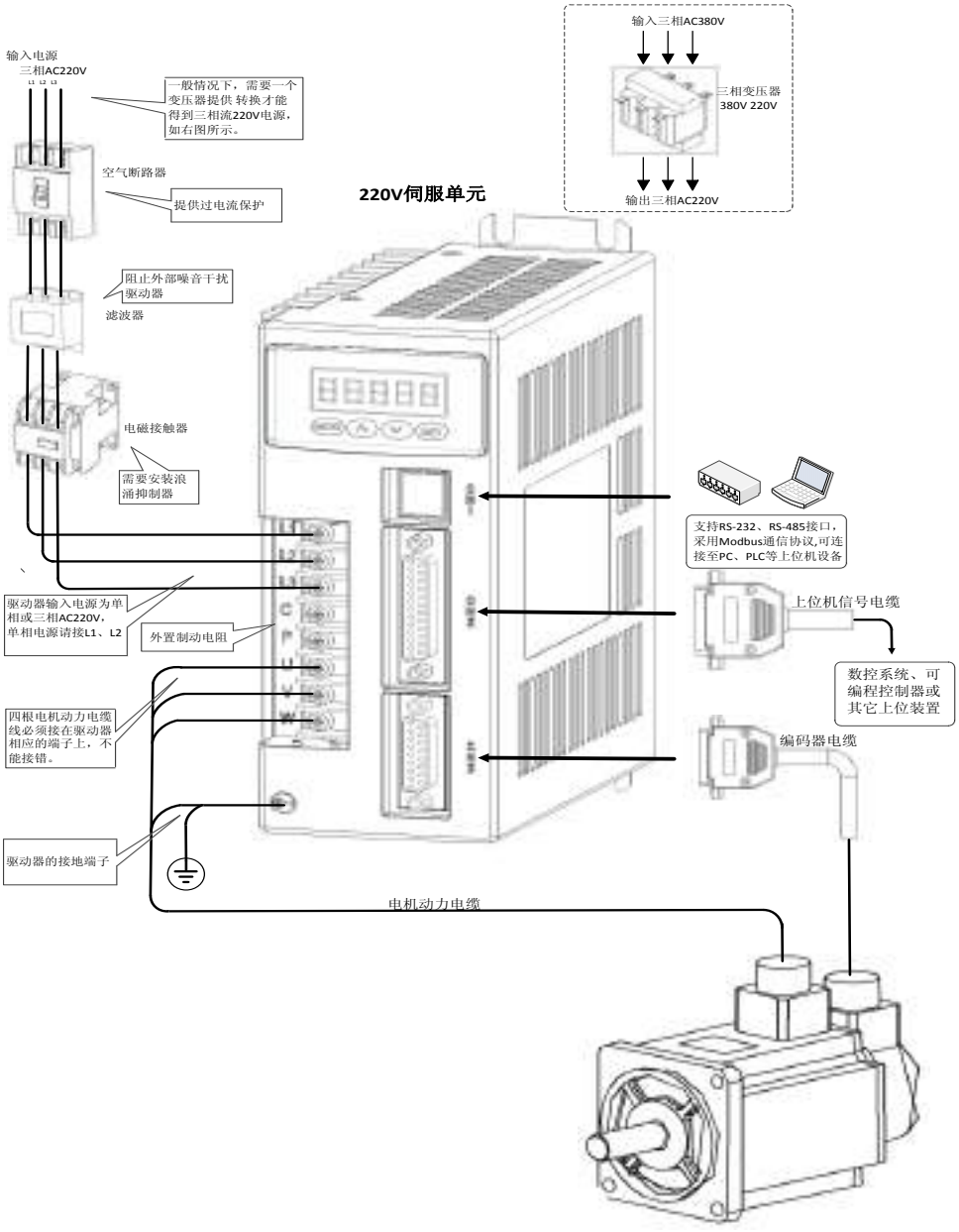
The 380V drive model and the motor model adaptation sheet are as follows:

电机型号 Motor model	Pn001	额定转速 Rated speed (r/min)	额定转矩 Rated torque (N.M)	额定功率 Rated power (KW)	KRS 25	KRS 40	KRS 50	KRS 75
180st_m48020	46	2000	48	10			√	√
180st_m19020	47	2000	19	4		√	√	√
180st_m35020	48	2000	35	7.3		√	√	√
180st_m27020	49	2000	27	5.6		√	√	√
180st_m48015	50	1500	48	7.5			√	√
180st_m19015	51	1500	27	3		√	√	√
180st_m21520	52	2000	27	4.5		√	√	√
180st_m27010	53	1000	27	2.9		√	√	√
180st_m27015	54	1500	27	4.3		√	√	√
180st_m35010	55	1000	35	3.7		√	√	√
180st_m35015	56	1500	35	5.5		√	√	√

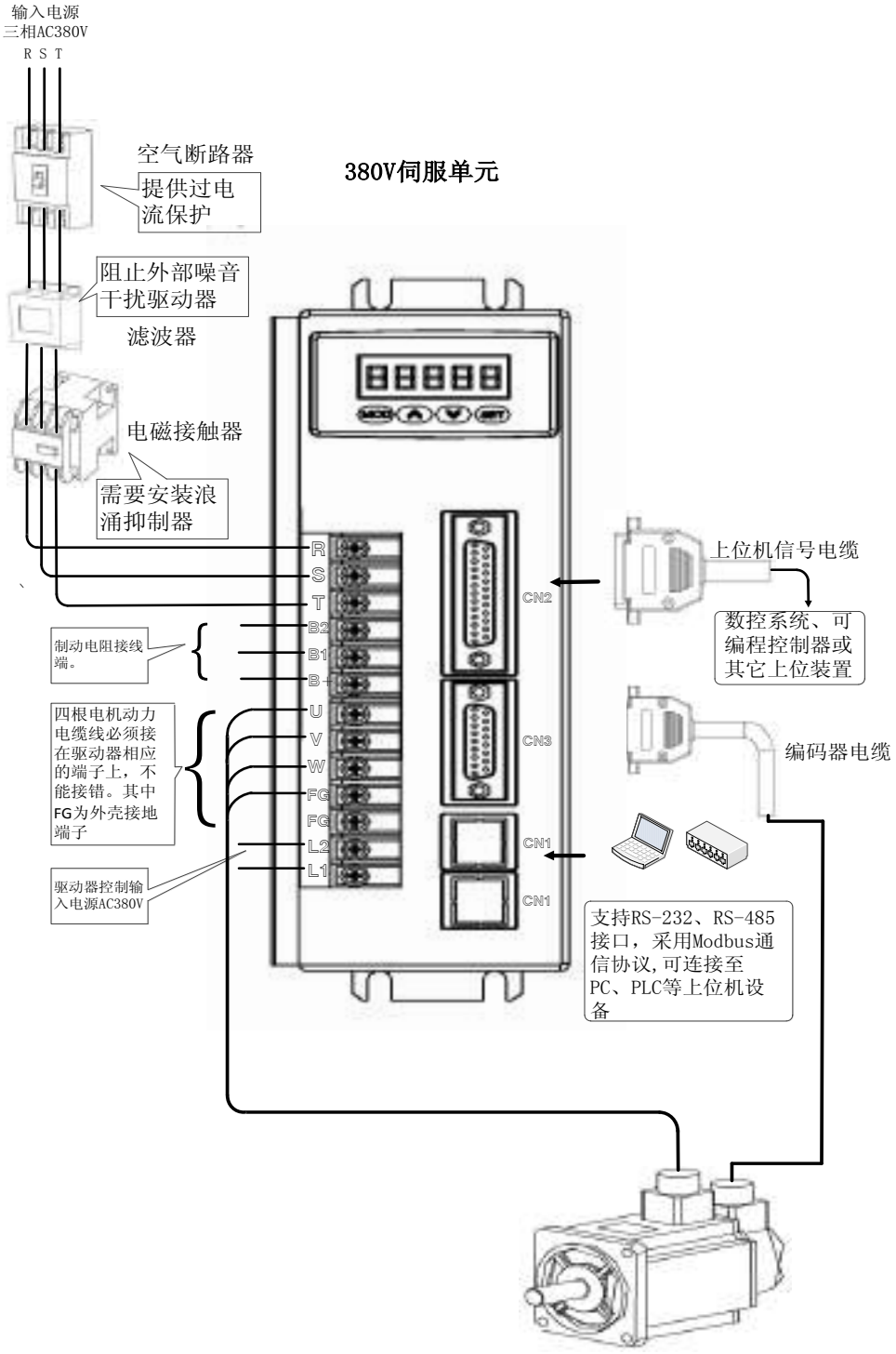
第 2 章接线 The second chapter wiring

2.1 系统组成与接线 System composition and connection

2.1.1 220V 伺服驱动器接线图 220V servo drive wiring diagram



2.1.2 380V 伺服驱动器接线图 380V servo drive wiring diagram



2.1.3 接线说明 Wiring instructions

接线注意事项：Wiring notes:

- 接线材料依照电线规格使用。Wiring materials are used in accordance with wire specifications.
- 电缆长度，指令电缆 3m 以内，编码器电缆 20m 以内。Cable length, instruction cable 3M, less than 20m of encoder cable.
- 220v 驱动器电源 L1、L2、L3 电源接线是否正确，请勿接到 380V 电源上。The 220V drive power L1, L2, L3 power supply wiring is correct, please do not connect to the 380V power supply.
- 380v 驱动器电源 R、S、T 电源接线是否正确，请勿接到 220V 电源上,否则电机运转不正常。控制电源 L1,L2 必须正常接入，否则驱动器无法开机运行。The 380V drive power R, S, T power supply wiring is correct, please do not connect to the 220V power supply, otherwise the motor is not functioning properly.Control power L1, L2 must be normal access, otherwise the drive can not start running.
- 电机输出 U、V、W 端子相序，必须和电机相应端子一一对应。若接错，电机可能不转或飞车，损坏驱动器。不能用调换三相端子的方法来使电机反转，这一点与异步电机完全不同。Motor output U, V, W terminals phase sequence, and the corresponding terminals must correspond to the motor. If the connection is wrong, the motor may not turn or drive, damaging the drive. The motor can not be reversed by replacing the three-phase terminal, which is quite different from the asynchronous motor.
- 必须可靠接地，而且单点接地。must be reliable grounded and single point grounding.
- 装在输出信号的继电器，其吸收用的二极管的方向要连接正确，否则会造成故障无法输出信号。The relay that is mounted on the output signal must be connected correctly in the direction of the diode it is used for, otherwise it will cause a fault and cannot output the signal.
- 为了防止噪声造成的错误动作，请在电源上加入绝缘变压器及噪声滤波器等装置在同一配线管内。in order to prevent the error caused by noise, please add the insulation transformer and noise filter on the power supply in the same wiring tube.
- 请安装非熔断型断路器使驱动器故障时能及时切断外部电源。Please install non fusing circuit breaker so that the driver can cut off the external power supply in time.

2.1.4 电线规格 Wire specification

连接端子 Connection terminal	符号 Symbol	电线规格 Wire specification
电源线 Power cord	U、V、W	0.75～2.5㎜²
电机连接端子 Motor connecting		0.75～2.5㎜²
接地端子 Ground terminal		0.75～2.5㎜²
控制信号端子 Control signal	CN2	≥0.12 ㎜² (AWG26), 含屏蔽线 Shielded wire
编码器信号端子 Encoder signal	CN3	≥0.12 ㎜² (AWG26), 含屏蔽线 Shielded wire

编码器电缆必须使用双绞线。如果编码器电缆太长（>20m），会导致编码器供电不足，其电源和地线可采用多线连接或使用粗电线。The encoder cable must be twisted pair. If the encoder cable is too long (>20m), the encoder will have insufficient power supply, and the power and ground can be connected by multiple wires or using a thick wire.

2.1.5 强电端子说明 Strong terminal description

●220V 驱动器端子 220V drive terminals

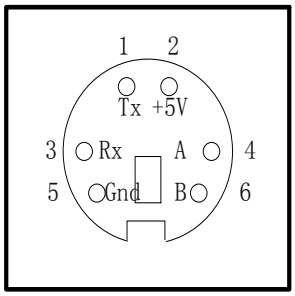
名称 Name	端子符号 Terminal symbol	详细说明 Detailed description
主电路电源 Main circuit power supply	L1、L2、L3	连接外部交流电源三相 220VAC -15%～+10% 50/60Hz 单相电源须接 L1、L2 端子 Connect external AC power, three-phase 220VAC -15% to +10% 50/60Hz The single-phase power supply shall be connected to the L1 and L2 terminals
电机连接端子 Motor connecting terminal	U	输出到电机 U 相电源 Output to the motor U phase power supply
	V	输出到电机 V 相电源 Output to the motor V phase power supply
	W	输出到电机 W 相电源 Output to the motor W phase power supply
接地端子 Ground terminal		电机外壳接地端子 Motor housing earthing terminal
		驱动器接地端子 Driver ground terminal

● 380V 驱动器端子 380V drive terminals

名称 Name	端子符号 Terminal symbol	详细说明 Detailed description
控制电路电源 Control circuit power supply	L1、L2	连接外部交流电源 三相 380VAC -15%～+10% 50/60Hz Connect an external AC power supply Three-phase 380VAC -15% to +10% 50/60Hz
制动电阻接线端子 Braking resistor terminal	B1、B2、B+	若使用内部制动电阻，须短接 B2,B1; If internal braking resistor is used, short B2, B1 shall be used 若使用外部制动电阻，须拆去 B2,B1 端子间的连线，安装制动电阻接在 B2,B+端子上。If an external braking resistor is used, the connections between the B2 and B1 terminals must be removed, and the brake resistance shall be mounted on the B2 and B+ terminals.
电机连接端子 Motor connecting terminal	U	输出到电机 U 相电源 Output to the motor U phase power supply
	V	输出到电机 V 相电源 Output to the motor V phase power supply
	W	输出到电机 W 相电源 Output to the motor W phase power supply
接地端子 Ground terminal	FG	电机外壳接地端子 Motor housing earthing terminal
	FG	驱动器接地端子 Driver ground terminal

2.2 CN1 通信接口 CN1 communication interface

2.2.1 CN1 端口信号定义(标准版) CN1 port signal definition (Standard Version)



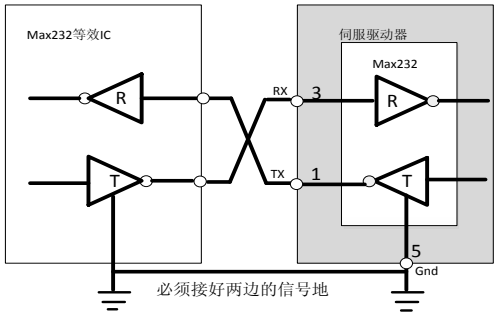
名称 Name	引脚号 Pin number	功能 function
+5V	2	5V
GND	5	地 ground
Tx	1	RS-232 发送端 Sending end
Rx	3	RS-232 接收端 receiving end
A	4	RS-485 A
B	6	RS-485 B

2.2.2 CN1 端口信号定义(进阶版) CN1 port signal definition (Advanced Edition)

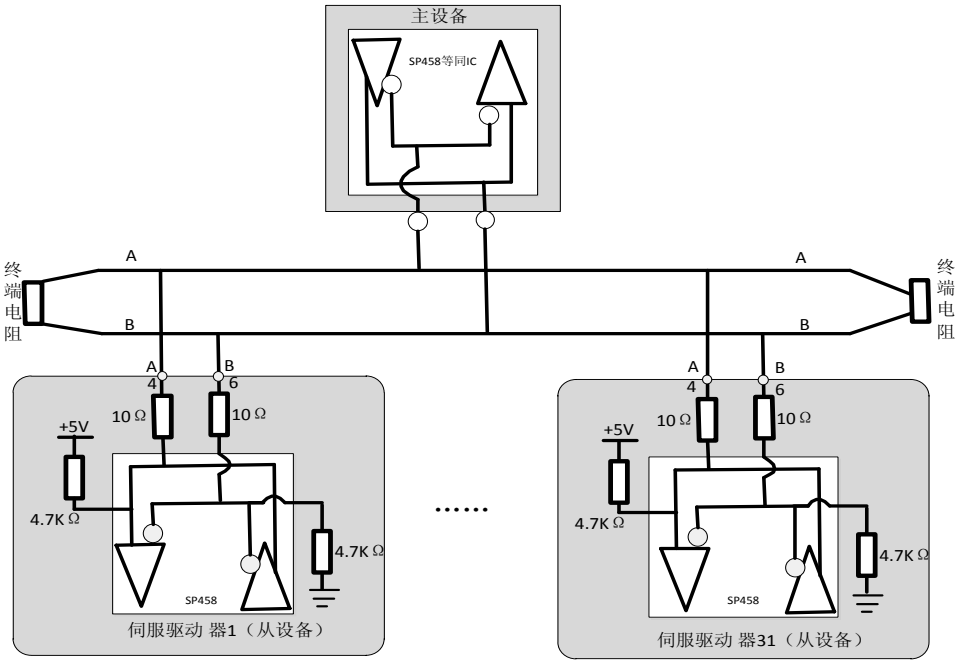
名称 Name	引脚号 Pin number	功能 function
RS485+	1	RS-485 A
空	2	
RS485-	3	RS-485 B
RX232_TX	4	RS-232 发送端 Sending end
RX232_RX	5	RS-232 接收端 receiving end
GND	6	地 ground
FG	7	外壳地 Motor housing ground
+5V	8	5V

2.2.3 CN1 端口类型 CN1 port type

1. RS-232 接口 RS-232 interface



2. RS-485 接口 RS-485 interface



●采用 RS485 通信时，最多可同时连接 31 台伺服驱动器，485 网络末端需分别接一个 120 欧电阻的终端电阻。若欲连接更多的设备，必须用中继器来扩展连接的台数。When using RS485 communication, at most 31 servo drivers can be connected at the same time, and 485 terminals of the network need to be connected with a terminal resistor of 120 ohm respectively. To connect more devices must be used to expand the number of connected repeaters.

2.3 CN2 控制接口 CN2 control interface

CN2 控制信号端子提供与上位控制器边接所需要的信号，使用 DB25 可 DB44 插座，信号包括：The CN2 control signal terminal provides the signal needed for the connection with the upper controller, and uses the DB25 DB44 socket:

●4 个可编程输入(标准版)，10 个可编程输入(进阶版)；4 programmable inputs (Standard Version), 10 programmable inputs (advanced version);

●4 个可编程输出(标准版)，5 个可编程输出(进阶版)；4 programmable outputs (Standard Version), 5 programmable outputs (Advanced Edition);

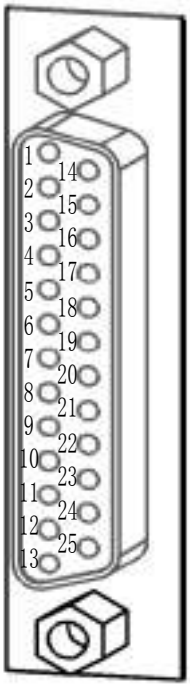
●模拟量指令输入；Analog command input;

●脉冲指令输入；Pulse command input;

●编码器信号输入；Encoder signal input;

●编码器分频输出信号；Encoder frequency division output signal;

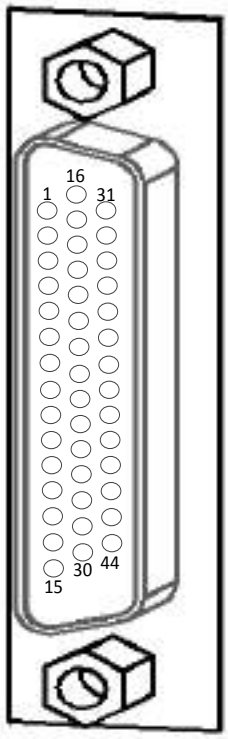
2.3.1 CN2 端口信号定义(标准版) CN2 port signal definition (Standard Version)



引脚 Pin	接口编号 Interface number	名称 Name	功能 function
DC12~24V COM	9 10	控制信号的电源与地 The power and ground of the control signal	输入输出控制信号的输入电源和地 The input and output control signals are input power and ground
SigIn1 SigIn2 SigIn3 SigIn4	6 7 21 8	输入指令信号 Input instruction signal	输入指令信号。出厂时各个输入信号端口指定的功能：Input instruction signal. The function specified by each input port at the factory: SigIn1:伺服使能 Servo enable SigIn2:报警复位 Alarm reset SigIn3:位置偏差清除 Clearance of position deviation SigIn4:脉冲输入禁止 Pulse input inhibit
SigOUT1 SigOUT2 SigOUT3 SigOUT4	11 23 12 24	输出指令信号 Output instruction signal	输出指令信号。出厂时各个输出信号端口指定的功能：Output instruction signal. The function specified by each output signal port at the factory: SigOUT1：伺服准备好 Servo enable SigOUT2：报警检出 Alarm detection SigOUT3：定位完成 Location complete SigOUT4：紧急停止检出 Emergency stop detection
PV PP+ PP- PD+	2 3 14 4	指令脉冲输入端口 Command pulse input port	PV:集电极开路输入电源 PV: open collector input power 指令脉冲可以三种不同方式输入： The instruction pulse can be input in

	PD-	5		three different ways: 1：指令方向和脉冲输入 Command direction and pulse input 2：顺时针/逆时针脉冲输入 Clockwise / anticlockwise pulse input 3：相位差 90 度的正交脉冲输入 Quadrature pulse input with phase difference of 90 degrees
	PA+ PA- PB+ PB- PZ+ PZ- OZ GND	20 19 18 17 15 16 22 1	编码器信号输出 Encoder signal output	编码器信号（ABZ）的输出端口。通过参数设定，AB 信号可分频输出和逻辑取反输出。The output port of the encoder signal (ABZ). Through the parameter setting, the AB signal can be divided into frequency division output and logic fetch reverse output.
	Vref AGND	25 13	模拟量输入 Analog input	模拟电压输入端口。速度或力矩控制时，用于接收速度或力矩指令。电压输入范围-10V~+10V。Analog voltage input port. Speed or torque control used to receive speed or torque instructions. Voltage input range -10V~+10V.

2.3.2 CN2 端口信号定义(进阶版) CN2 port signal definition (Advanced Edition)

	引脚 pin	引脚号 Pin number	名称 Name	功能 Function
	DC12~24V COM	38 40	+12~+24V 控制电源、地 +12~+24V control power, ground	输入输出控制信号的输入电源和地 The input and output control signals are input power and ground
	SigIn1 SigIn2 SigIn3 SigIn4 SigIn5 SigIn6 SigIn7 SigIn8 SigIn9 SigIn10	6 22 7 23 8 24 9 39 25 26	可编程输入端口信号 Programmable input port signal	输入指令信号。出厂时各个输入信号端口指定默认功能：Input instruction signal. When factory leaves, each input signal port specifies the default function: SigIn1:伺服使能 servo enable SigIn2:报警复位 alarm reset SigIn3:位置偏差清除 position bias removal SigIn4: 脉冲输入禁止 pulse input is prohibited SigIn5:正转驱动禁止 positive drive ban SigIn6: 反转驱动禁止 reverse drive prohibited SigIn7:内部速度指令选择 1 internal speed command select 1 SigIn8:内部速度指令选择 2 internal speed command select 2 SigIn9:内部速度指令选择 3 internal speed command select 3 SigIn10:无功能指定: no function specified:
	SigOut1 SigOut2 SigOut3	10 11 12	可编程输出端口信号 Programm	输出指令信号。出厂时各个输出信号端口指定的功能：Output instruction signal. The function specified by each output signal

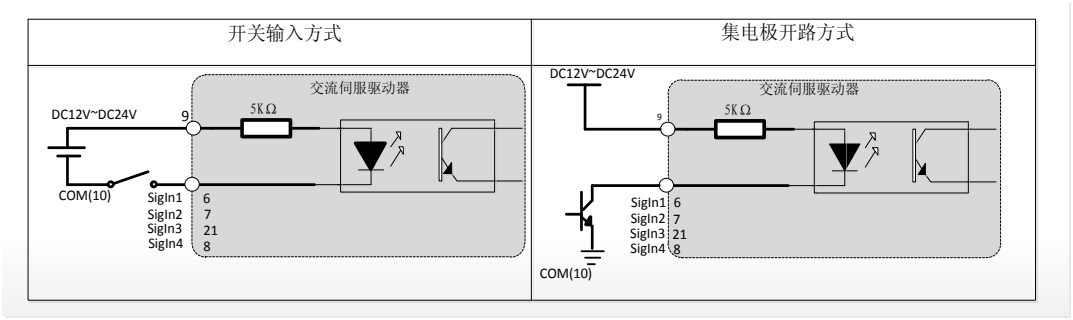
	SigOut4 SigOut5	27 13	able output port signal	port at the factory: SigOut1：伺服准备好 servo ready SigOut2：报警检出 alarm detected SigOut3：定位完成 location completed SigOut4：紧急停止检出 emergency stop detection SigOut5：电磁制动 electromagnetic brake
	PP+24V PP+ PP- PD+24V PD+ PD-	35 4 20 36 21 5	指令脉冲输入端口 Command pulse input port	PP+24V、PD+24V:24V 信号输入 Signal input PP+、PD+:5V 信号输入 Signal input 指令脉冲有三种不同方式输入：There are three different ways to input an instruction pulse: 1：指令方向和脉冲输入 instruction direction and pulse input 2：顺时针/逆时针脉冲输入 clockwise / counterclockwise pulse input 3：相位差 90 度的正交脉冲输入 quadrature pulse input with phase difference of 90 degrees
	PA+ PA- PB+ PB- PZ+ PZ- OA OB OZ GND	17 31 33 18 16 1 19 34 2 32	编码器差分输出与集电极开漏输出信 Encoder differential output with collector open drain output letter	编码器信号（ABZ）的输出端口。通过参数设定，AB 信号可分频输出和逻辑取反输出。PA+与 PA、PB+与 PB、PZ+与 PZ-为差分对结构 The output port of the encoder signal (ABZ). Through the parameter setting, the AB signal can be divided into frequency division output and logic fetch reverse output. PA+ and PA, PB+ and PB, PZ+ and PZ- are differential pairs OA 、OB 、OZ、为集电极开漏结构 OA, OB, OZ, the open drain structure for the collector
	Vref	43	模拟量输入	模拟电压输入端口。速度或力矩控制时，用

	AGND	44	Analog input	于接收速度或力矩指令。电压输入范围 -10V~+10V 。Analog voltage input port. Speed or torque control used to receive speed or torque instructions. Voltage input range -10V~+10V.

2.2.3 CN2 端口类型 CN2 port type

1. 数字输入接口 Digital input interface

数字输入接口电路可由开关、继电器、集电极开路三极管、光电耦合器等进行控制。继电器需选择低电流继电器，以避免接触不良的现象。外部电压范围 DC12V～24V。The digital input interface circuit can be controlled by switch, relay, collector, open circuit triode, photoelectric coupler, etc.. The relay needs to select low current relay to avoid the bad contact. External voltage range DC12V to 24V.



2. 数字输出接口 Digital output interface

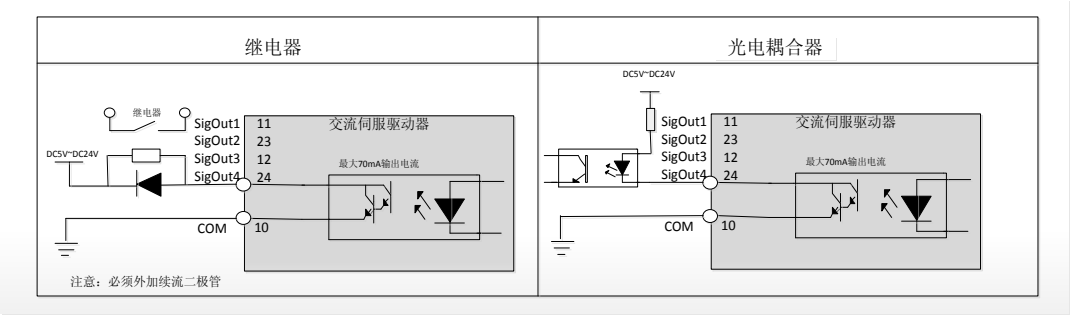
输出电路采用达林顿光电耦合器，可与继电器、光电耦合器连接。The output circuit adopts Darlington photoelectric coupler, and can be connected with relay and photoelectric coupler.

注意事项：Matters needing attention：

●外部电源由用户提供，但是必须注意，如果电源的极性接反，可能导致伺服驱动器损坏。The external power supply is provided by the user, but it must be noted that if the polarity of the power is reversed, the servo drive may be damaged.

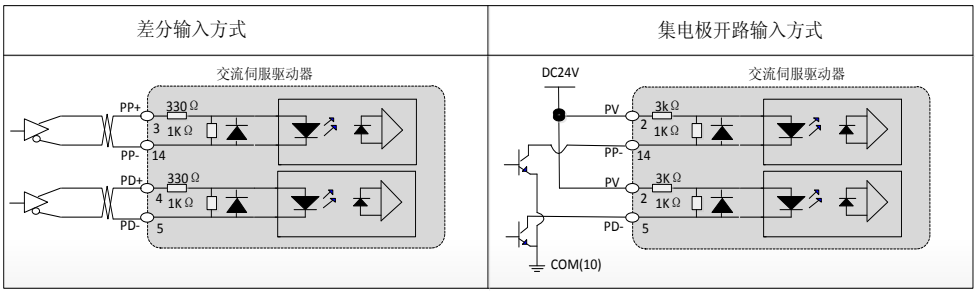
●输出为集电极开路形式，最大电流 70mA，外部电源最大电压 25V。如果超过限定要求或输出直接与电源连接，可能导致伺服驱动器损坏。The output is in the form of an open collector, the maximum current is 70mA, and the maximum voltage of the external power supply is 25V. If the limit request or output is connected directly to the power source, the servo drive may be damaged.

●如果负载是继电器等电感性负载，必须在负载两端反并联续流二极管。如果续流二极管接反，可能导致伺服驱动器损坏。If the load is an inductive load such as a relay, the freewheeling diode must be connected in parallel at both ends of the load. If the freewheeling diode is turned on, the servo drive may be damaged.



3.位置脉冲指令接口 Position pulse instruction interface

有差分驱动和单端驱动两种接法，推荐差分驱动接法。接线宜采用双绞线。There are two ways to drive differential drive and one end drive. Differential drive connection is recommended. Twisted pair should be used for wiring.

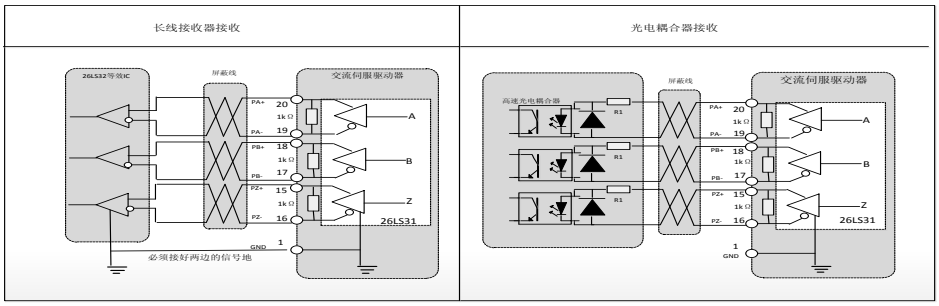


●在差分输入方式下，建议采用 AM26LS31 类似线驱动芯片；为了使传送的脉冲数据有很好的抗干扰能力，建议采用差分驱动方式；最大输入脉冲频率 550kHz(kpps) 。In the differential input mode, the proposed use of AM26LS31 similar line driving chip; in order to make the pulse data transmission have very good anti-interference ability, recommend the use of differential drive mode; the maximum input pulse frequency 550kHz (kpps).

●在采用集电极开路输入方式下，最大输入脉冲频率 200kHz(kpps) 。Under the open collector input mode, the maximum input pulse frequency is 200kHz (kpps).

4. 编码器信号差分驱动输出 Encoder signal differential drive output

将编码器信号分频后通过线驱动器(26LS31)输出到上位控制器。After the encoder signal is divided into frequency, it is output to the upper controller through line driver (26LS31).

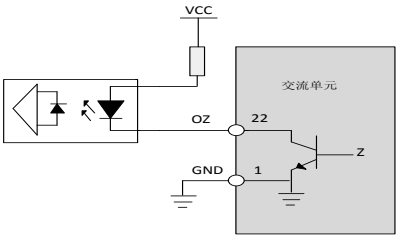


●在长线接收器接收时，驱动器编码器信号地(GND)必须和上位控制器信号地连接。When the long line receiver is received, the driver encoder signal (GND) must be connected to the upper controller signal.

●在光电耦合器接收时，上位控制器使用高速光电耦合器(例如6N137)，限流电阻R1的值220Ω 左右。When the optocoupler is received, the upper controller uses a high-speed optocoupler (for example, 6N137), and the current limiting resistor R1 has a value of about 220.

5. 编码器 ABZ 信号集电极开路输出 Encoder ABZ signal open collector output

伺服驱动器以集电极开路方式输出编码器的 ABZ 信号。由于 Z 信号脉宽较窄，上位机请使用高速光电耦合器接收。The servo drives the ABZ signal of the encoder in an open collector mode. Since the Z pulse width is narrow, the upper computer should be received by high-speed optocoupler.

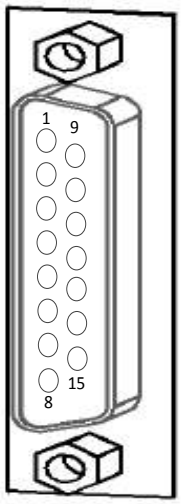


● VCC 最大电压 30V，输出电流最大 50mA。VCC maximum voltage 30V, output current maximum 50mA.

●仅进阶版伺服单元支持 A、B 信号的集电极开路输出功能。Only the advanced servo unit supports the open collector output function of the A and B signals.

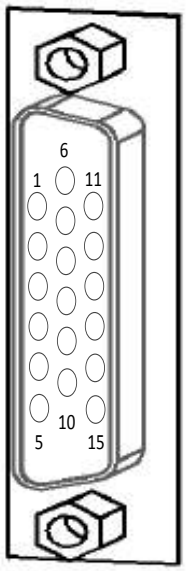
2.4 CN3 编码器接口 CN3 encoder interface

2.4.1 CN3 编码器信号定义(标准版) CN3 encoder signal definition (Standard Edition)



编码器类型 Encoder	引脚号 Pin number	名称 Name
增量式 Incremental encoder	8	+5v
	15	GND
	3	A+
	11	A-
	10	B+
	2	B-
	1	Z+
	9	Z-
	6	U+
	7	U-
	5	V+
	13	V-
	12	W+
	4	W-
	14	PE
绝对式 Absolute encoder	4	SD+
	3	SD-
	14	FG
	15	GND

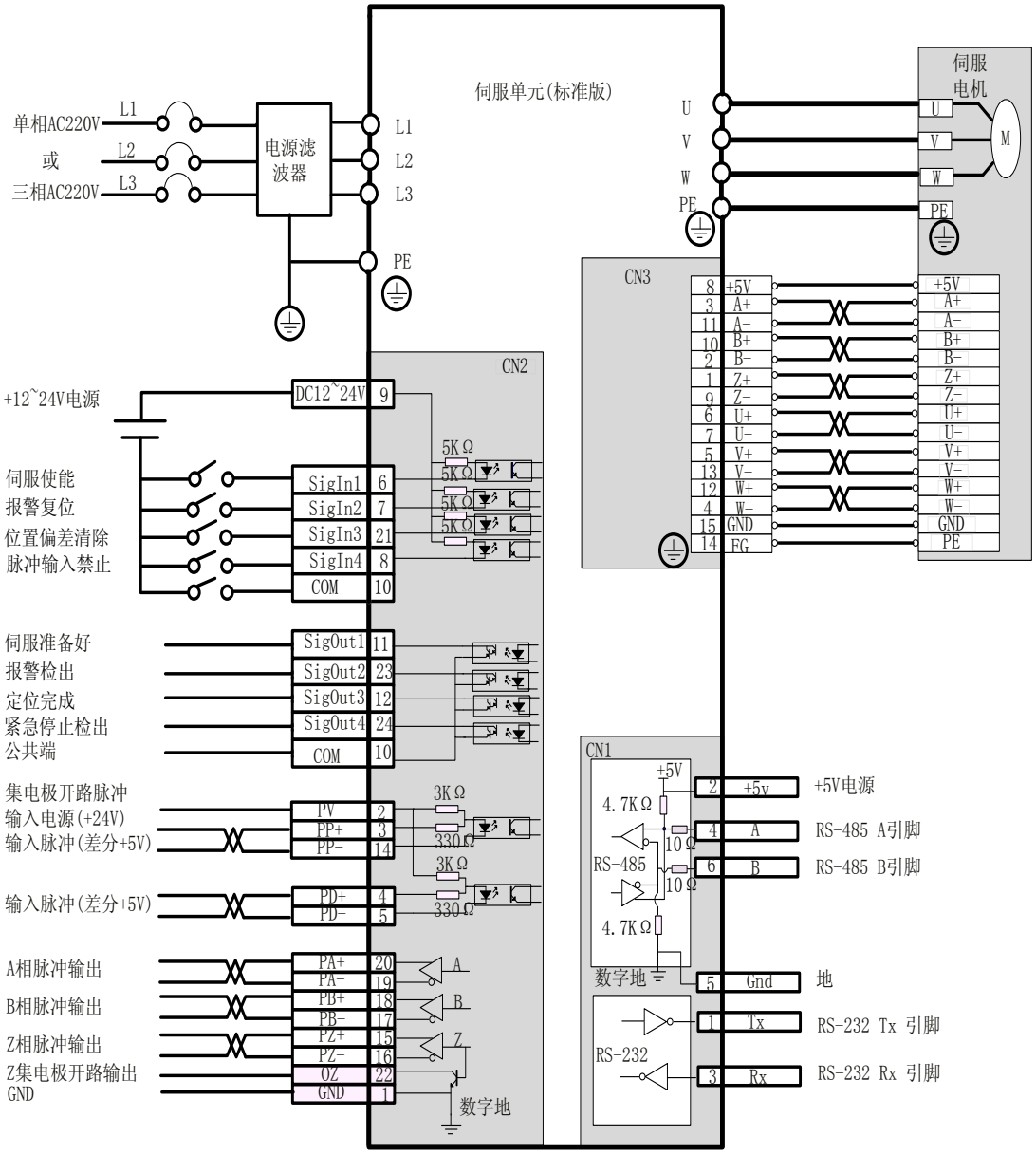
2.4.2 CN3 编码器信号定义(进阶版) CN3 encoder signal definition (Advanced Edition)



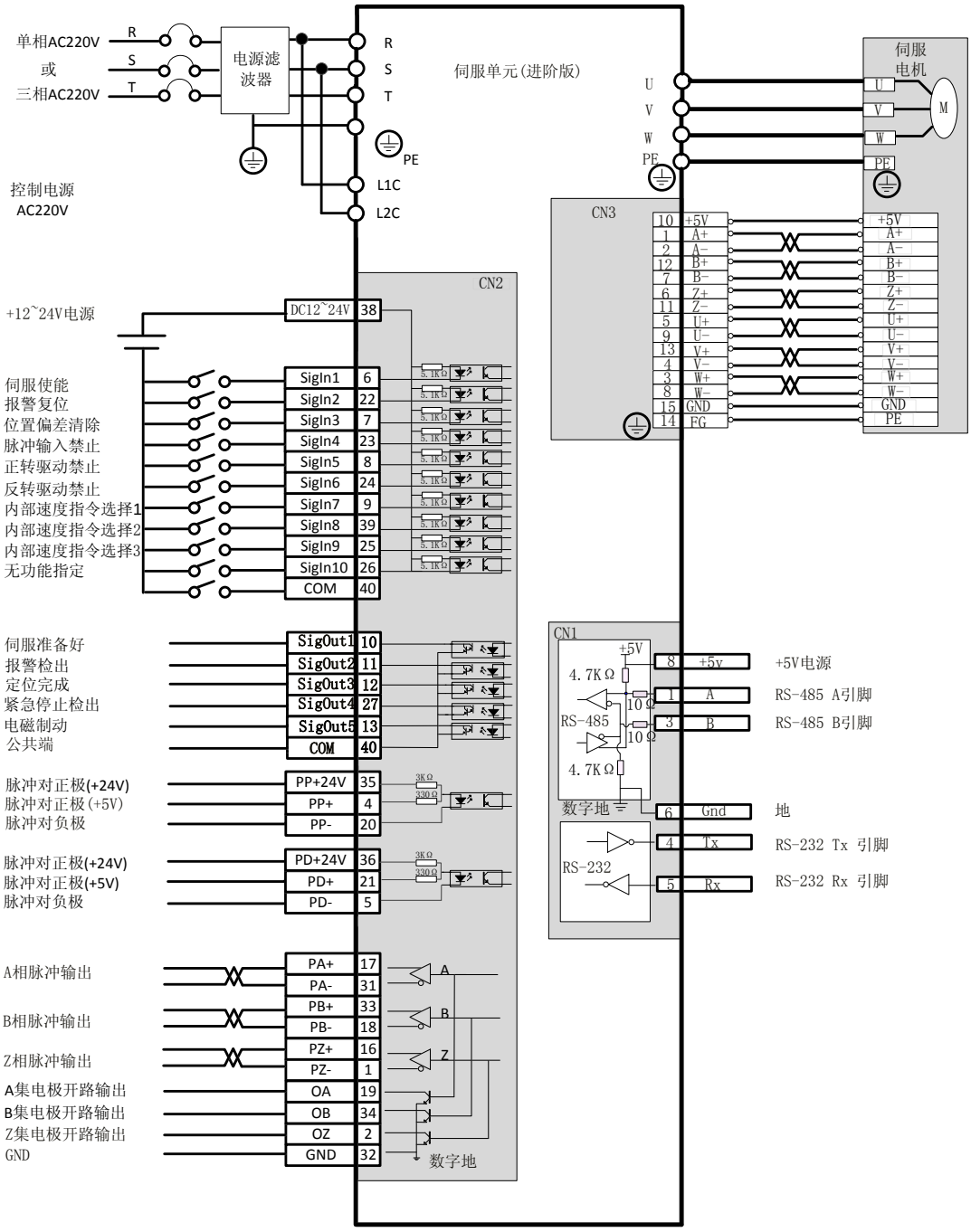
编码器类型 Encoder	引脚号 Pin	名称 Name
增量式 Incremental encoder	1	A+
	2	A-
	3	W+
	4	V-
	5	U+
	6	Z+
	7	B-
	8	W-
	9	U-
	10	+5V
	11	Z-
	12	B+
	13	V+
	14	FG
	15	GND
绝对式 Absolute encoder	6	SD+
	11	SD-
	14	FG
	15	GND

2.3 标准接线 Standard connection

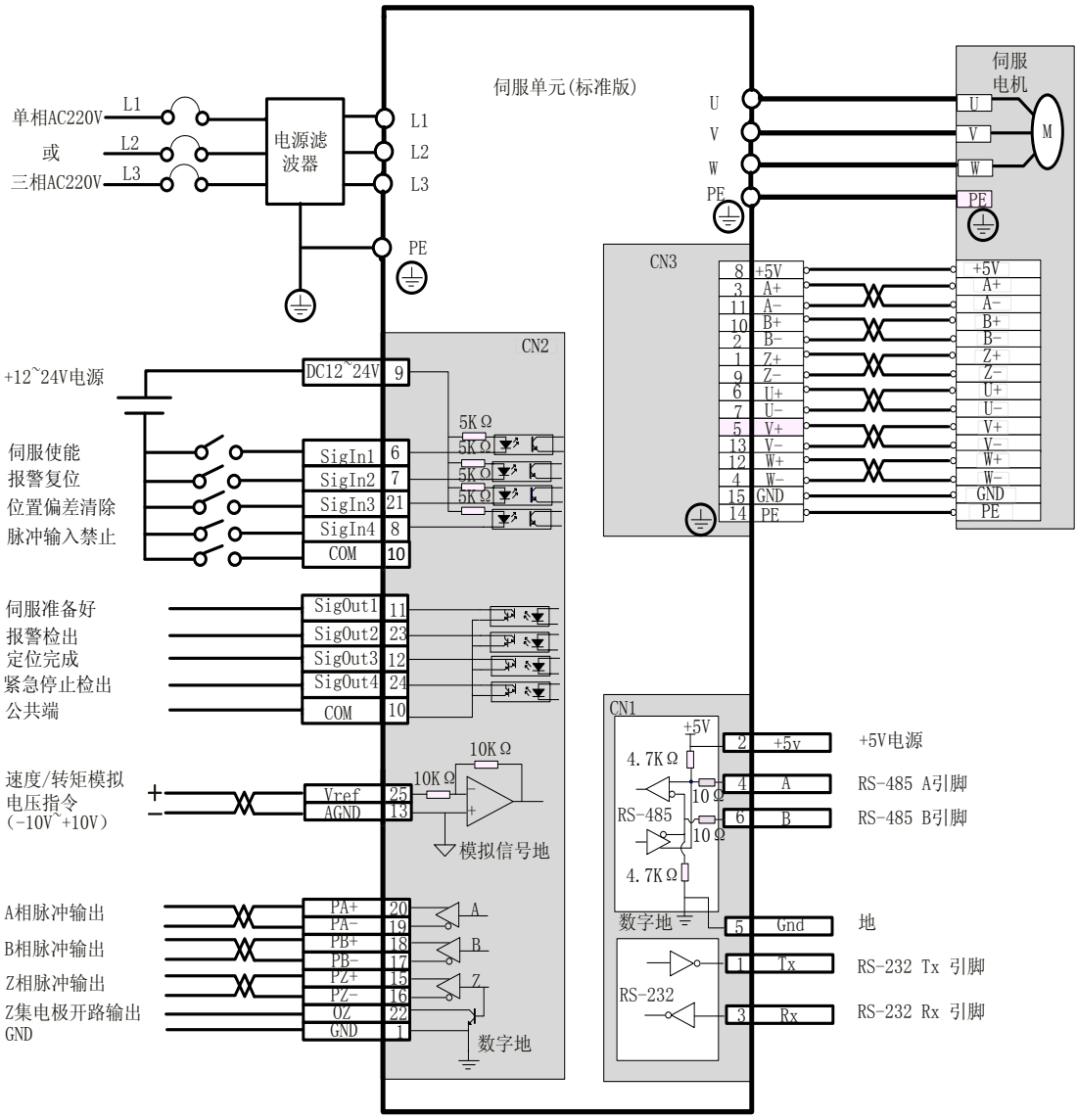
2.3.1 位置控制接线图(标准版) Position control wiring diagram (Standard Version)



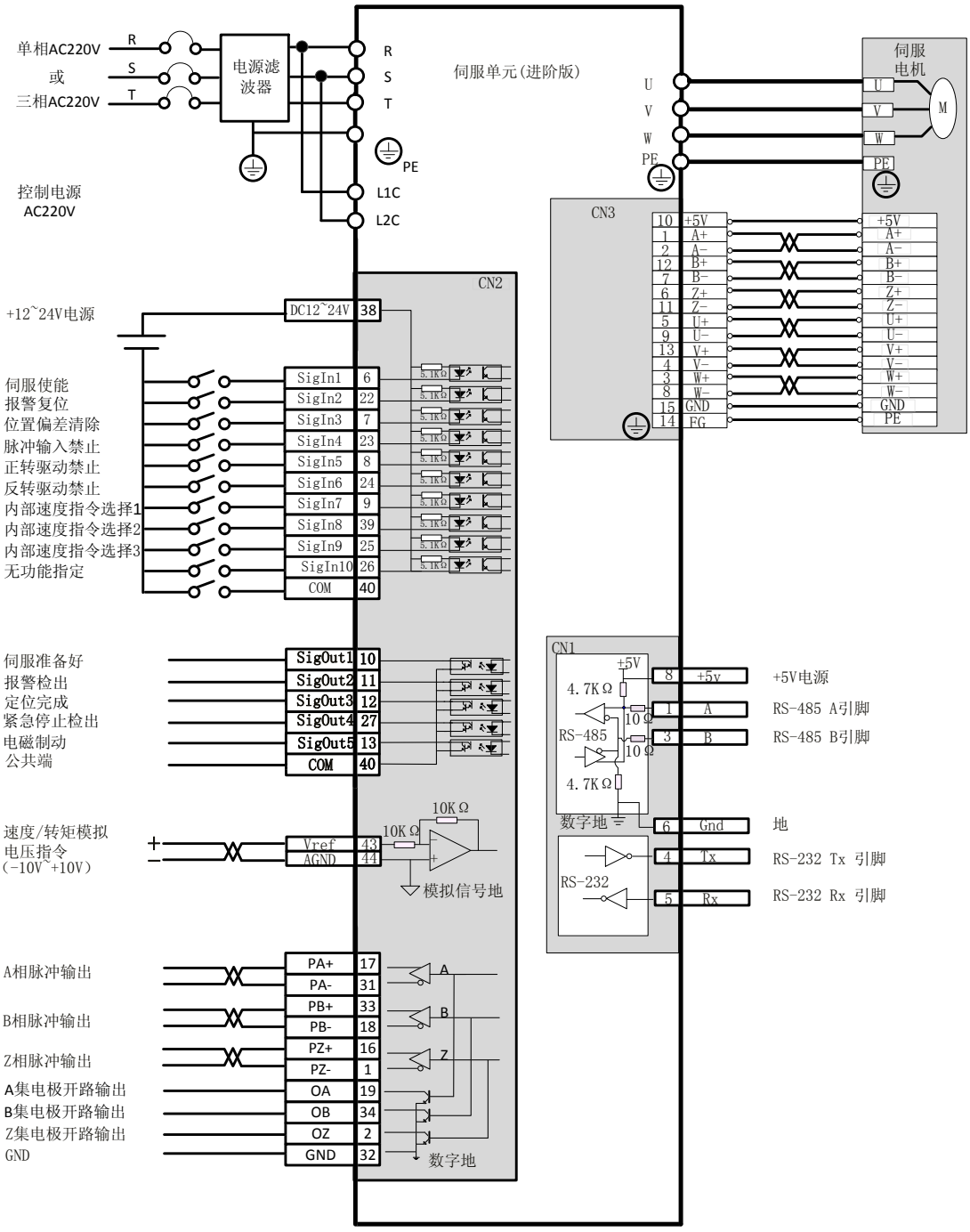
2.3.2 位置控制接线图(进阶版) Position control wiring diagram (Advanced Edition)



2.3.3 速度/转矩控制接线图(标准版) Speed / torque control wiring diagram (Standard Version)



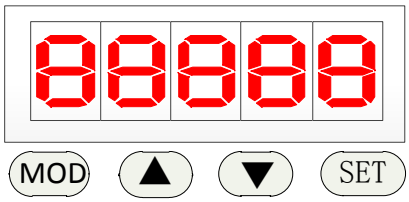
2.3.4 速度/转矩控制接线图(进阶版) Speed / torque control wiring diagram (Advanced Edition)



第 3 章显示与操作 The third chapter shows and operates

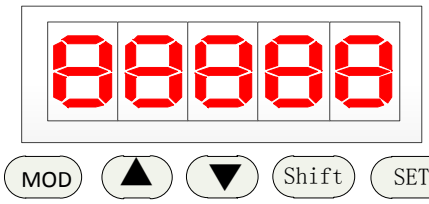
3.1 面板组成 Panel composition

3.1.1 显示屏与按键(标准版) Display and button (Standard Edition)



按键 Key	按键名称 Key name	功能 Function
MODE	模式选择键 Mode select key	1 模式切换 Mode switching 2 返回上级目录 Return to higher directory
▲	数字增加键 Digital add key	增加数字，长按具有重复效果 Add numbers, Long press with repeat effect
▼	数字减小键 Digital reduction key	减小数字，长按具有重复效果 Digital reduction, Long press with repeat effect
SET	移位确定键 Shift key	1 数字移位 Digital shift 2 确定设定（需长按 1 秒钟）Set the setting (press for 1 seconds) 3 结束参数设定（需长按 1 秒钟）End the parameter setting (press for 1 seconds l)

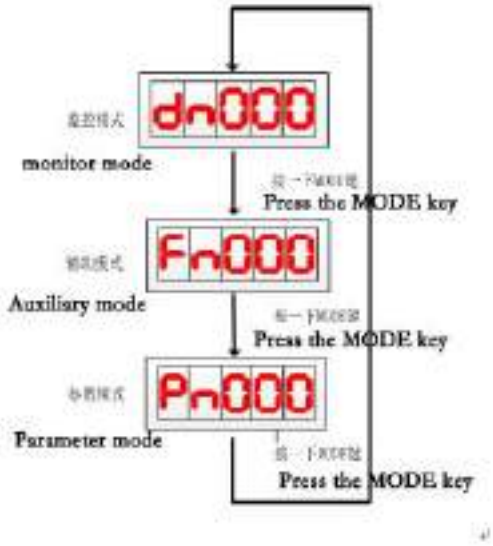
3.1.2 显示屏与按键(进阶版) Display and button (Advanced Edition)



按键 Key	按键名称 Key name	功能 Function
MODE	模式选择键 Mode select key	1 模式切换 Mode switching 2 返回上级目录 Return to higher directory
▲	数字增加键 Digital add key	增加数字，长按具有重复效果 Add numbers, Long press with repeat effect
▼	数字减小键 Digital reduction key	减小数字，长按具有重复效果 Digital reduction, Long press with repeat effect
Shift	移位键 Shift key	光标移位 Cursor shift
SET	确定键 Definite key	1 确定设定 Determine settings 2 结束参数设定 End parameter setting

注意：若显示屏 5 位小数点全部在闪烁，警示有报警产生。必须清除报警后，驱动器才能正常工作。Note: if the 5 decimal points of the display screen are all flashing, the alarm will be generated by the alarm. After the alarm has to be cleared, the drive will work properly.

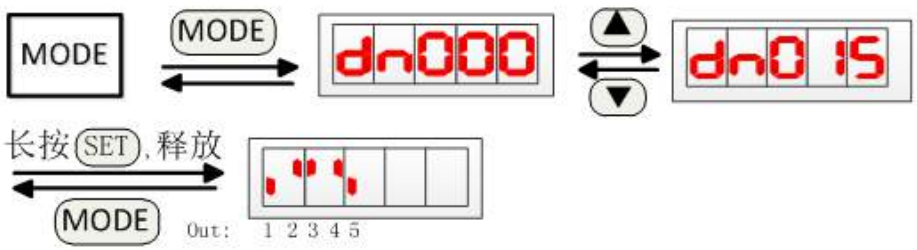
3.2 模式切换 Mode switching



说明：当显示屏显示 Fnxxx,Dnxxx,Pnxxx 时,此时处于顶层目录，mode 键为模式切换功能，可直接向其它模式切换，否则 mode 键为返回上层目录功能。Description: when the screen shows Fnxxx, Dnxxx, Pnxxx, at this time in the top directory, mode key for mode switching function, can be switched directly to other mode, otherwise, mode key to return to the upper directory function.

3.3 监控模式(Dn)操作 Monitoring mode (Dn) operation

例：查看dn015号监控参数,此时sigOut1、sigOut5端口为低电平，sigOut2, sigOut3, sigOut4 端口为高电平。Example: check dn015 monitoring parameters, at this time, sigOut1 and sigOut5 port is low, sigOut2, sigOut3, sigOut4 port is high.



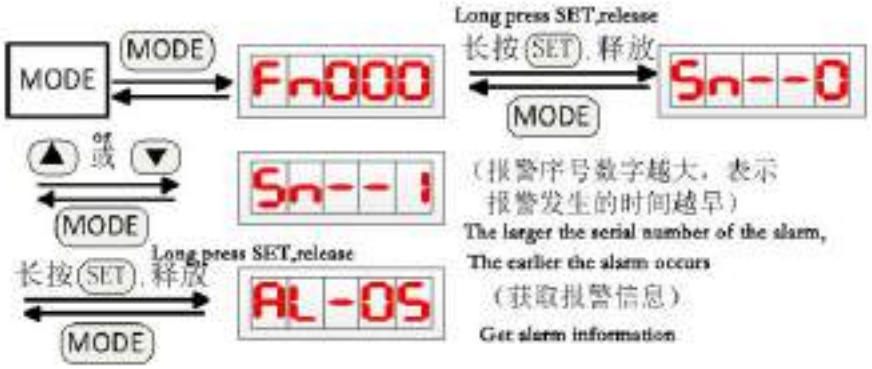
3.4 辅助模式(Fn)操作 Auxiliary mode (Fn) operation

●辅助功能一览表 Auxiliary function list

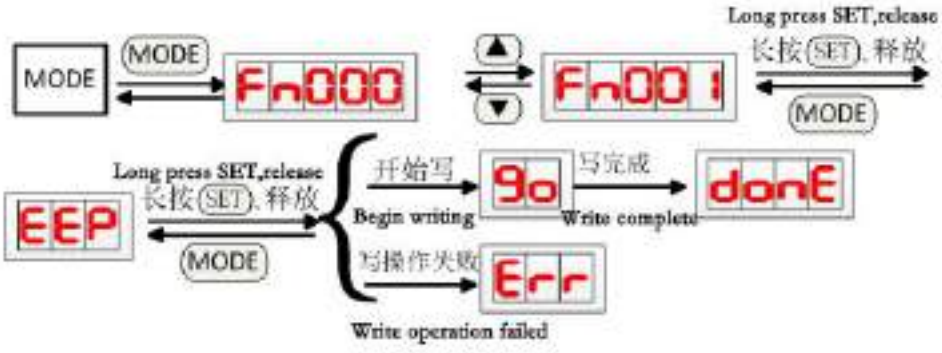
编号 NO.	说明 Description
Fn000	报警记录查询 Alarm record query
Fn001	用户参数永久写入。若用户对 Pn000~Pn280 中的参数进行了设置，为下次上电后，驱动器载入用户修改的参数，必须执行本操作，将参数写入内部 EEPROM 芯片。执行操作后，需要 5 秒左右时间，将所有参数写入 EEPROM 中。User parameters are permanently written. If the user sets the parameters in the Pn000~Pn280, the driver must load the user's modified parameters for the next time they are powered on. The parameter is written to the internal EEPROM chip. After performing the operation, it takes about 5 seconds to write all the parameters into the EEPROM.
Fn002	JOG 试运行操作 JOG commissioning operation
Fn003	对当前检出的报警进行清除 Clear the currently detected alarms
Fn004	将参数表中的 Pn000~Pn280 的参数，根据 Pn000 的设置情况，恢复为出厂默认值。Returns the default factory value of the Pn000~Pn280 parameter in the parameter list, based on the Pn000 settings.
Fn005	位置偏差清零 Clear position deviation
Fn006	SigOut 端口强制输出，强制状态仅限于此操作下有效。The SigOut port forces output, and the force state is valid only for this operation. 0：SigOut 所有端口取消强制状态。SigOut all ports cancel mandatory status. 1：SigOut 所有端口强制输出高电平。SigOut all ports forced output high level. 2：SigOut 所有端口强制输出低电平。SigOut all ports forced output low.
Fn007	模拟转矩指令电压校正 Analog torque command voltage correction

Fn008	模拟速度指令电压校正 Analog speed command voltage correction
Fn009	母线电压校正 busbar voltage crrection
Fn010	温度校正 Temperature correction
Fn011	报警记录初始化 Alarm record initialization
Fn012	编码器调零 Encoder zeroing
Fn015	绝对式编码器多圈数据归零 Absolute encoder, multi circle data, zeroing
Fn016	绝对式编码器报警复位 Absolute encoder, alarm reset
Fn018	负载惯量推定 Load inertia estimation

3.4.1.1Fn000 报警功能查询 Fn000 alarm function inquiry



3.4.1.2Fn001 用户参数永久写入 Fn001 user parameters are permanently written



说明 1：若最后操作显示  ，可能是驱动器内部正在执行写数据操作，请等待几秒钟再尝试。

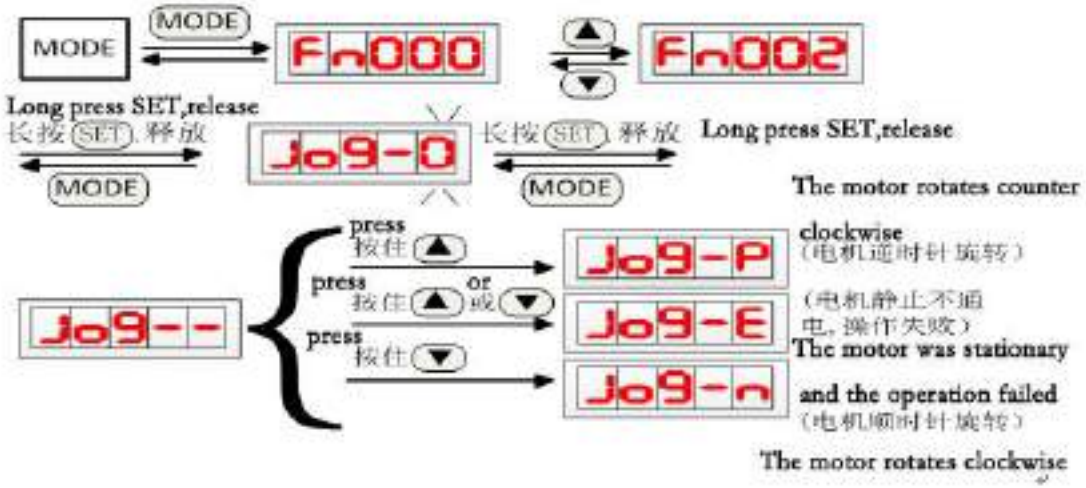
Note 1: if the last operation shows  that it may be a write data operation within the drive, please wait a few seconds to try again.

说明 2：必须等待写完成再断电，否则重新开机后，可能导致存储芯片内容破坏（AL-01 报警）。

Note 2: you must wait for writing to complete the power failure, otherwise, after rebooting, may cause storage chip content damage (AL-01 alarm).

3.4.1.3Fn002 试运行操作 Fn002 commissioning operation

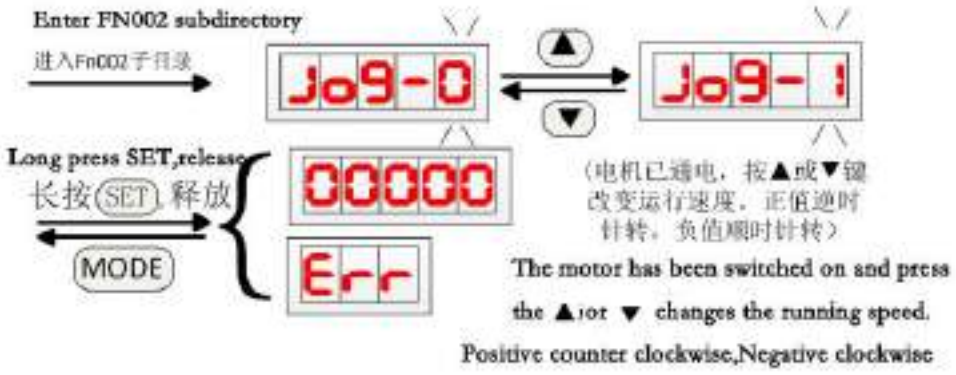
0：点动模式 Inching mode



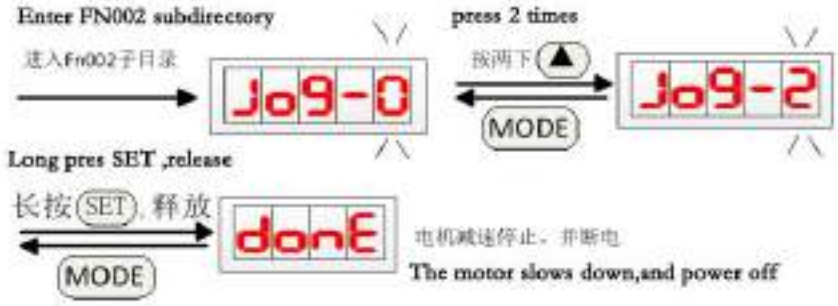
Jog 运行速度与加减速时间可由以下参数设定：Jog running speed and acceleration and deceleration time can be set by the following parameters:

Pn177	JOG 速度 speed	0~5000	200	r/min
Pn178	JOG 加速时间 Acceleration time	5~ 10000	100	ms
Pn179	JOG 减速时间 Deceleration time	5~ 10000	100	ms

1：进入调速模式 Speed regulation mode



2:退出调速模式 Exit speed regulation mode



运行模式 Operation mode	说明 Description
0	点动模式。按住▲或▼键，电机将进行顺时针或逆时针旋转；释放▲或▼键，电机将停止旋转，处于不通电状态。Inching model. Press ▲ or ▼key motor will rotate clockwise or counterclockwise; release ▲ or ▼key, the motor will stop rotating in the energized state.
1	进入调速模式,电机通电工作。驱动器处于速度环模式，运行速度由按键▲或▼输入。在电机运行过程中，可进行其它的菜单操作。若使电机停止旋转，请进入 Jog_2 模式。Enter the speed control mode, the motor power work. Driver in speed loop mode, running speed by the key input ▲ or ▼. During the operation of the motor, other menu operations can be carried out. If the motor is stopped rotating, enter the Jog_2 mode.
2	退出调速模式，电机断电。Exit the speed regulation mode and the motor is out of power.

说明：若操作显示Jog-E或Err，其可能的原因有：Explanation: if the operation is displayed Jog-E or Err possible reasons for:

1：电机已处于使能或旋转状态。在 JOG 试运行操作前，电机须处于非工作状态。建议试运行时，伺服驱动器控制接口不接任何控制线。1: the motor is in the enabling or rotating state. The motor must be in a non working state prior to the JOG commissioning operation. During commissioning, the servo driver control interface does not receive any control lines.

2：伺服驱动器发生过报警，且报警未清除。2: servo drive alarm occurred, and the alarm is not cleared.

3.4.1.4Fn003 报警清除操作 Fn003 alarm cleanup operation

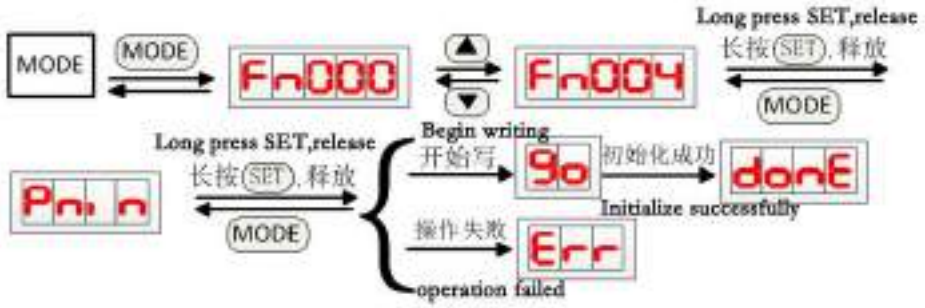
说明：

当最后清除失败，显示Err，则检出的报警只有再上电后才可清除。Explanation: when the final cleanup fails,shows Err ,the detected alarm is cleared only after power on.

通过清除操作可清除的报警 An alarm that can be cleared by clearing operations		再上电才可清除的报警 The alarm can be cleared before power on	
AL--02	低电压 low voltage	AL--01	存储器异常 Memory exception
AL--05	过载 1 Overload 1	AL--03	过电压 Overvoltage
AL--07	电机转速过高 Motor speed is too high	AL--04	智能功率模块异常 Intelligent power module exception
AL--08	散热片过热 Radiator overheating	AL--06	过载 2 Overload 2
AL--10	脉冲频率过高 Too high pulse frequency	AL--09	编码器异常 Encoder exception
AL--11	位置脉冲偏差量过大 The position	AL--13	CPU 内部故障 CPU internal fault

	pulse deviation is too large		
AL--12	电流采样回路可能损坏 The current sampling loop may be damaged	AL--17	编码器信号分频输出设置异常 Encoder signal frequency division output abnormal setting
AL--14	紧急停机 Emergency shutdown	AL--18	电机代码设置不当 Improper motor code setting
AL--15	驱动禁止异常 Drive forbidden exception	AL--20	功能端口重复设置 Function port repeat settings
AL--16	制动平均功率过载 Brake mean power overload	AL--21	存储器内容完全破坏 Memory contents are completely destroyed
AL--19	功率模块过热 Power module overheating	AL--22	看门狗定时器溢出 Watchdog timer overflow
		AL--31~ AL--43	绝对式编码器相关报警 Absolute encoder related alarm

3.4.1.5Fn004 参数初始化操作 Fn004 parameter initialization operation



说明 1：若最后操作显示  ，其可能的原因：Note 1: if the last operation is displayed  , the possible cause of it is shown:

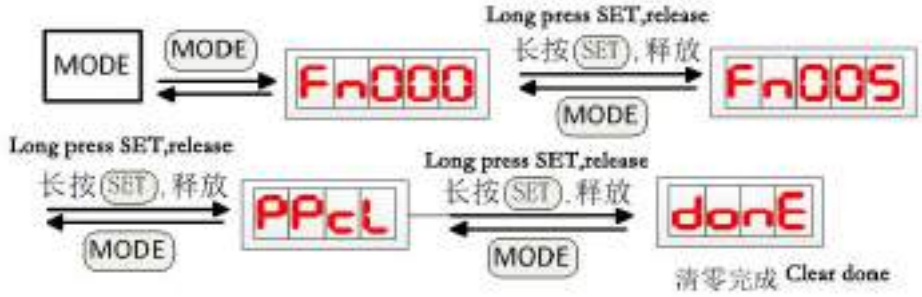
1：驱动器正在执行写操作。1: the driver is performing write operations.

2：参数 Pn000 没有开放参数初始化功能。2: parameter Pn000 has no open parameter initialization function.

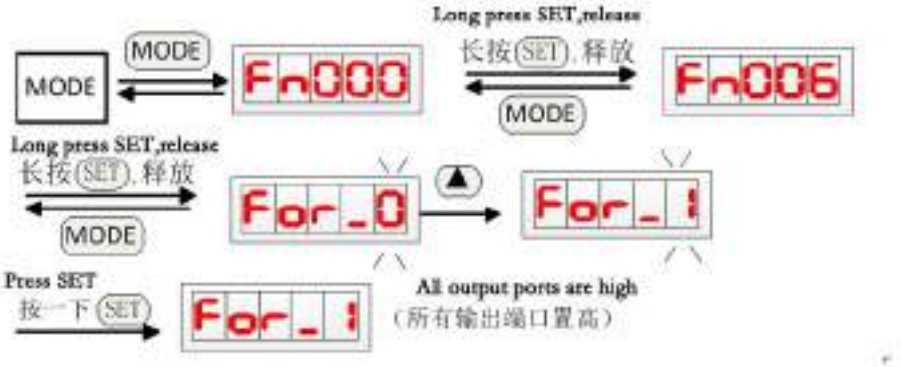
说明 2 ：必须等待写完成再断电，否则重新开机后，可能导致存储芯片内容破坏（AL-01 报警）。

Note 2: you must wait for writing to complete the power failure, otherwise, after rebooting, may cause storage chip content damage (AL-01 alarm).

3.4.1.6Fn005 位置偏差清零操作 Fn005 position offset reset operation

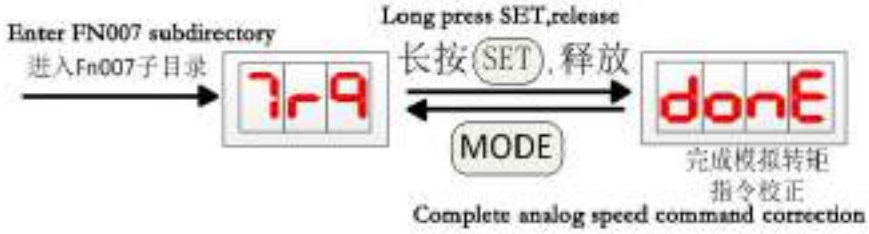


3.4.1.7Fn006 端口强制输出 Fn006 port forced output



参数选择 Parameter selection	说明 Description
0	取消强制状态 Cancel mandatory status
1	所有 SigOut 端口强制置高 All SigOut ports are forced high
2	所有 SigOut 端口强制置低 All SigOut ports are forced low

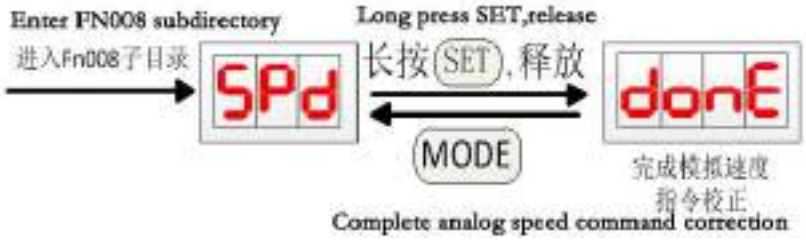
3.4.1.8 Fn007 模拟转矩指令电压校正 Fn007 analog torque command voltage correction



注 1：在进行校正操作前，先将 CN2 的模拟电压输入端口 Vref(25 脚)接入参考零电压。

Note 1: before the calibration operation, the analog voltage input port Vref (25 pin) of the CN2 is connected to the reference zero voltage.

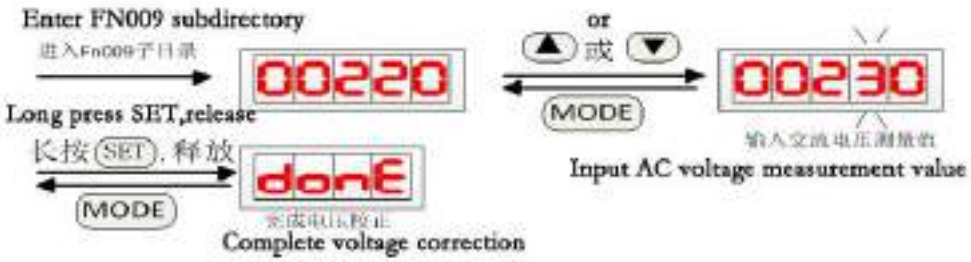
3.4.1.9Fn008 模拟速指令电压校正 Fn008 analog speed command voltage correction



注 1：在进行校正操作前，先将 CN2 的模拟电压输入端口 Vref(25 脚)接入参考零电压。

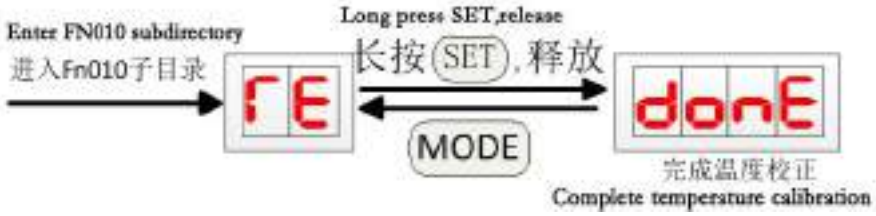
Note 1: before the calibration operation, the analog voltage input port Vref (25 pin) of the CN2 is connected to the reference zero voltage.

3.4.1.10 Fn009 母线电压校正 Fn009 bus voltage correction

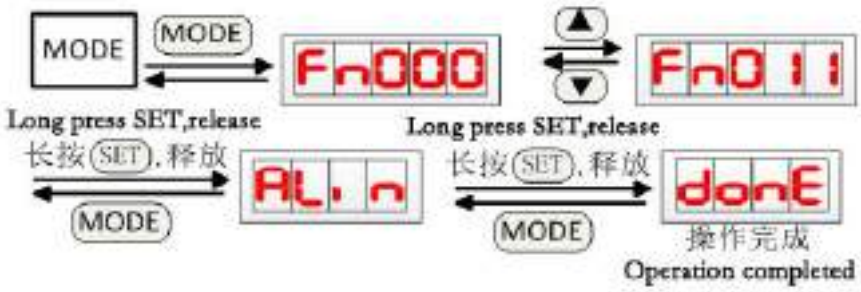


注 1：在进行校正时，必须接入控制电源和动力电源，并测量驱动器输入的交流电压，输入至本操作中。Note 1: when correcting, the control power supply and the power supply must be connected and the AC voltage inputted by the driver is measured and input into the operation.

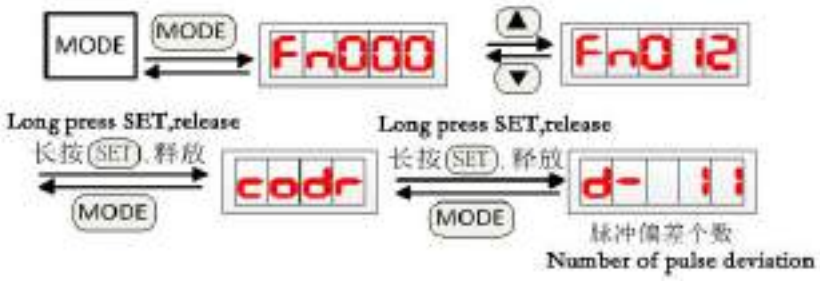
3.4.1.11Fn010 温度校正 Fn010 temperature correction



3.4.1.12Fn011 报警记录初始化操作 Fn011 alarm record initialization operation



3.4.1.13 Fn012 编码器调零 Fn012 encoder zeroing



调零操作前，确认电机代码 Pn001 设置值与实际电机型号一致,否则可能导致电机电流过大，损坏电机。调零时，不需要内部使能或外部使能电机，电机将正转几圈，然后锁定零位。当显示的脉冲偏差个数小于

10 时，可视为电机已对准零位。Before setting the zero operation, confirm the motor code Pn001 setting value is consistent with the actual motor model, otherwise it may cause the motor current is too large, damage the motor. Zero time, no internal enable or external enable motor, the motor will be several laps, and then lock the zero position. When the number of pulses displayed is less than 10, the motor is aligned to zero.

注 1：若电机发热严重，须冷却一段时间。Note 1: if the motor is very hot, it must cool down for a period of time.

注 2：绝对器编码器调零完成后，须等待几秒钟完成数据写入，才能断电。Note 2: absolute encoder, after the zero adjustment is completed, have to wait a few seconds to complete the data written to power off.

3.4.1.14 Fn015 绝对式编码器多圈数据归零 Fn015 absolute encoder multi turn data zeroing

若归零成功，多圈数据将置 0，同时所有锁存的编码器报警被复位；反之，可能由于编码器出现通信故障报警或电机处于使能状态，导致不能进行多圈数据归零操作。If zero success, multi ring data will be set to 0, while all the latch encoder alarm is reset; on the other hand, may be due to the encoder communication fault alarm or the motor is enabled to multi circle data zero operation.

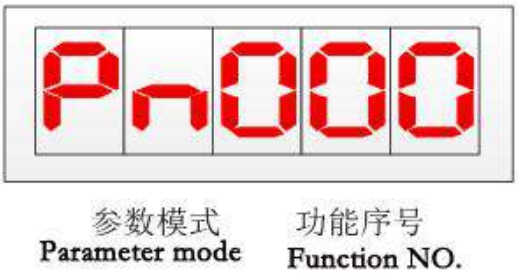
3.4.1.15 Fn016 绝对式编码器报警复位 Fn016 absolute encoder alarm reset

若编码器报警复位成功，所有锁存的编码器报警被复位；反之，可能由于编码器出现通信故障报警或电机处于使能状态，导致不能进行复位操作。If the encoder alarm reset is successful, all latch encoder alarms

are reset; otherwise, there may be a communications malfunction alarm or a motor in the enable state, resulting in no reset operation.

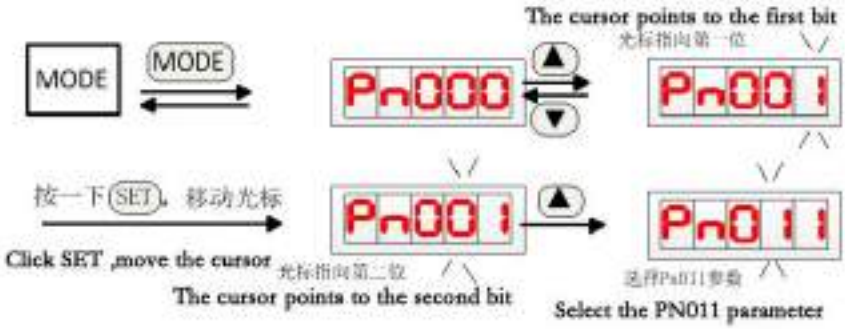
3.4.1.16 Fn018 负载惯量推定 Fn018 load inertia estimation

3.5 用户参数模式(Pn)操作 User parameter mode (Pn) operation



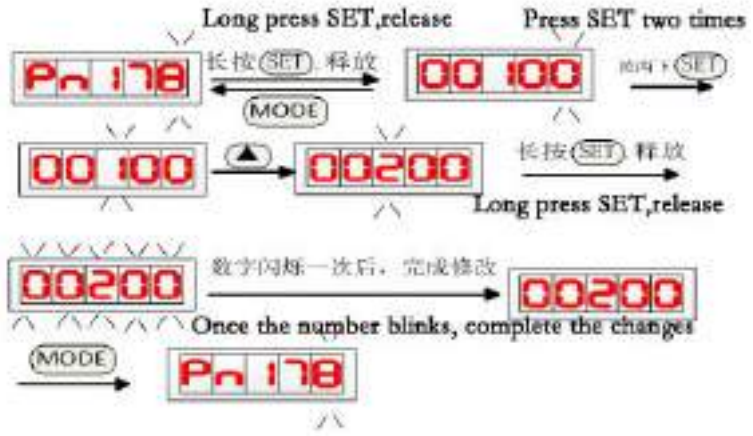
●选择参数编号 Select parameter number

例：选择 Pn011 参数。Example: select the Pn011 parameter.



●参数编辑 Parameter editing

例：把 Pn178 参数的当前值由 100 改成 200,具体操作如下：Example: the current value of the Pn178 parameter is changed from 100 to 200, and the following is the specific operation:



注:参数编辑完成后，请等待 5 秒钟再断电。Note: after editing the parameter, please wait for 5 seconds to power off.

第 4 章 Pn 功能参数 The fourth chapter, Pn function parameter

4.1 参数设置面板操作 Parameter settings panel action

详见第三章的“用户参数模式操作”。See the “user parameter mode operation” in chapter third

4.2 参数一览表 Parameter list

●编号一栏中，若有符号▲，表示参数设置后,须重新上电，才能生效；若有符号◆，表示参数设置后，重新使能电机， 参数才能生效 ；若没有特殊符号，表示立即生效。The number of column, if there is a symbol ▲, parameter setting, to be re energized to take effect; if there is a sign ◆that said, parameter setting, re enable the motor parameters to take effect; if there is no special symbols, immediately effect.

- 适用模式一栏中，All 表示适用于转矩、速度、位置控制，T 表示适用于转矩控制，S 表示适用于速度控制，P 表示适用于位置控制。In the model column, "All" is indicated for torque, speed, position control, T, for torque control, S for speed control, and P for position control.
- 必须谨慎设置参数。若设置不当，可能会导致电机运转不稳定。Parameters must be carefully set. Improper setting may cause motor to run unstable.

4.2.1 系统控制参数 System control parameter

编号 NO.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 apply
Pn000	参数编辑与初始化 Parameter editing and initialization	0~3	1	-	All
Pn001▲	电机代码 Motor code	0~70	7	-	All
Pn002▲	控制模式 control mode	0~5	2	-	All
Pn003	伺服使能方式 Servo enable mode	0~1	0	-	All
Pn004	伺服断使能停机方式 Servo disconnect enable shutdown mode	0~2	0	-	All

Pn005	断使能减速时间 Breaking enable deceleration time	5~10000	100	ms	All
Pn006	使用/不使用正反驱动禁止 Use / do not use positive and negative drive prohibited	0~3	0	-	All
Pn007	正/反驱动禁止停机减速时间 Positive / reverse drive, no stopping, deceleration time	0~10000	60	ms	All
Pn008	内部正转转矩限制(CCW) Internal forward torque limit (CCW)	0~300	300	%	All
Pn009	内部反转转矩限制（CW）Internal reverse torque limit (CW)	-300~0	-300	%	All
Pn010	外部正转转矩限制(CCW) External forward torque limit (CCW)	0~300	300	%	All
Pn011	外部反转转矩限制(CW) External reverse torque limit (CW)	-300~0	-300	%	All
Pn012	正转(CCW)转矩过载 1 报警水平 Forward (CCW) torque overload 1 alarm level	0~300	200	%	All
Pn013	反转(CW)转矩过载 1 报警水平 Reverse (CW) torque overload 1 alarm level	-300~0	-200	%	All
Pn014	转矩过载 1 报警检测时间 Torque overload 1 alarm detection time	1~900	250	100ms	All
Pn015	过载 2 检测时间 Overload 2 detection time	1~300	80	100ms	All
Pn016▲	增量式编码器分频输出之分子 DA Molecular DA for frequency division output of an incremental encoder	1~127	1	-	All
Pn017▲	增量式编码器分频输出之分母 DB The denominator of frequency division output of incremental encoder DB	1~127	1	-	All
Pn018▲	编码器输出脉冲 AB 相位逻辑取反 Encoder output pulse AB phase logic	0~1	0	-	All

	inversion				
Pn019▲	额定电流设置 Rated current setting	0.0~100.0	0	Arms	All
Pn020▲	额定转速设置 Rated speed setting	0~5000	0	r/min	All
Pn021	到达预定速度 Reach a predetermined speed	0~5000	500	r/min	All
Pn022	到达预定速度迟滞比较差值 Arrive at a predetermined speed, lag, compare difference	0~5000	30	r/min	All
Pn023	到达预定速度检测方向 Arrive at a predetermined speed, direction of detection	0~2	0	-	All
Pn024	到达预定转矩 Arrival torque	0~300	100	%	All
Pn025	到达预定转矩迟滞比较差值 Lag difference between arrival torque and preset torque	0~300	5	%	All
Pn026	到达预定转矩方向 Reach the desired torque direction	0~2	0	-	All
Pn027	零速检测幅度设定 Zero speed detection amplitude setting	0~1000	10	r/min	All
Pn028	零速检测回差 Zero speed test return error	0~1000	5	r/min	All
Pn029	电机电磁制动零速检测点 Zero speed detection point of motor electromagnetic brake	0~1000	5	r/min	All
Pn030	电机静止时电磁制动器延时时间 Delay time of electromagnetic brake when the motor is stationary	0~2000	0	ms	All
Pn031	电机运转时电磁制动器等待时间 When the motor is running, the electromagnetic brake wait time	0~2000	500	ms	All
Pn032	电机运转时电磁制动器动作速度 The speed of the electromagnetic brake when the motor is running	0~3000	30	r/min	All

Pn033	原点回归触发方式 Origin regression trigger mode	0~3	0	-	All
Pn034	原点回归参考点模式 Origin regression reference point mode	0~6	0	-	All
Pn035	原点回归原点模式 Origin regression origin mode	0~2	0	-	All
Pn036	原点位置偏移高位 Origin position offset high	-9999~9999	0	万个	All
Pn037	原点位置偏移低位 Origin position offset low	-9999~9999	0	个	All
Pn038	原点回归第一速度 Origin regression first speed	1~3000	200	r/min	All
Pn039	原点回归第二速度 Origin regression second speed	1~3000	50	r/min	All
Pn040	原点回归加速时间 Origin regression acceleration time	5~10000	50	ms	All
Pn041	原点回归减速时间 Origin regression deceleration time	5~10000	50	ms	All
Pn042	原点在位延时 Origin on time delay	0~3000	100	ms	All
Pn043	原点回归完成信号延时 The origin regression completes the signal delay	5~3000	80	ms	All
Pn044	原点回归指令执行模式 Origin return instruction execution mode	0~1	0	-	All
Pn045	增益切换选择 Gain switching selection	0~5	0	-	All
Pn046	增益切换水平 Gain switching level	0~30000	80	-	All
Pn047	增益切换回差 Gain switching back difference	0~30000	6	-	All
Pn048	增益切换延迟时间 Gain switching delay time	0~20000	20	0.1ms	All
Pn049◆	增益切换时间 1 Gain switching time 1	0~15000	0	0.1ms	All

Pn050◆	增益切换时间 2 Gain switching time 2	0~15000	50	0.1ms	All
Pn051	电机运行最高速度限定 Maximum speed limit for motor operation	0~5000	3000	-	All
Pn052▲	SigIn1 端口功能分配 SigIn1 port function allocation	-31~31	1	-	All
Pn053▲	SigIn2 端口功能分配 SigIn2 port function allocation	-31~31	2	-	All
Pn054▲	SigIn3 端口功能分配 SigIn3 port function allocation	-31~31	19	-	All
Pn055▲	SigIn4 端口功能分配 SigIn4 port function allocation	-31~31	20	-	All
Pn056	SigIn1 端口滤波时间 SigIn1 port filtering time	1~1000	2	ms	All
Pn057	SigIn2 端口滤波时间 SigIn2 port filtering time	1~1000	2	ms	All
Pn058	SigIn3 端口滤波时间 SigIn3 port filtering time	1~1000	2	ms	All
Pn059	SigIn4 端口滤波时间 SigIn4 port filtering time	1~1000	2	ms	All
Pn060▲	SigOut1 端口功能分配 SigOut1 port function allocation	-14~14	2	-	All
Pn061▲	SigOut2 端口功能分配 SigOut2 port function allocation	-14~14	1	-	All
Pn062▲	SigOut3 端口功能分配 SigOut3 port function allocation	-14~14	4	-	All
Pn063▲	SigOut4 端口功能分配 SigOut4 port function allocation	-14~14	3	-	All
Pn064▲	通信方式 communication mode	0~2	2	-	All
Pn065	通信站点 Communication station	1~254	1	-	All
Pn066▲	通信波特率Communication baud rate	0~5	5	-	All
Pn067▲	通信模式设定 Communication mode setting	0~8	8	-	All

Pn068	输入功能控制方式选择寄存器 1 The input function control mode selects the register 1	0~32767	0	-	All
Pn069	输入功能控制方式选择寄存器 2 The input function control mode selects the register 2	0~32767	0	-	All
Pn070	输入功能逻辑状态设置寄存器 1 Input function logic status setting register 1	0~32767	32691	-	All
Pn071	输入功能逻辑状态设置寄存器 2 Input function logic status setting register 2	0~32767	32767	-	All
Pn072	输入功能控制方式选择寄存器 3 Input function logic status setting register 3	0~1	0	-	All
Pn073	输入功能逻辑状态设置寄存器 3 Input function logic status setting register 3	0~1	1	-	All
Pn074	风扇开启温度 Fan opening temperature	30~70	50	摄氏度 Centigrade	All
Pn075	风扇运行方式 Fan operation mode	0~2	0	-	All
Pn076	紧急停机(EMG)复位方式 Emergency shutdown (EMG) reset mode	0~1	0	-	All
Pn077	正/反驱动禁止检出 Positive / reverse drive forbidden detection	0~2	0	-	All
Pn078	电压不足检出 Undervoltage detection	0~1	1	-	All
Pn079	系统状态显示项目选择 System status display project selection	0~30	0	-	All
Pn080▲	增量式编码器线数 Incremental encoder line number	0~16000	0	线 line	All
Pn081	用户参数永久写入操作 User parameter permanent write operation	0~1	0	-	All

Pn082	SigOut 端口强制输出 SigOut port forced output	0~4095	0	-	All
Pn083	低压报警检测幅值 Low voltage alarm detection amplitude	50~280	200	V	All
Pn084	高温报警检测幅值 High temperature alarm detection amplitude	0~100	70	摄氏度	All
Pn085▲	电机极对数 Pole count of motor	0~100	0	对	All
Pn086	内部使用 Internal use	-	-	-	-
Pn087▲	制动电阻选择 Selection of braking resistance	0~2	1	-	All
Pn088	制动电阻再生过载报警水平 Brake resistor regeneration overload alarm level	50~250	90	%	All
Pn089▲	外置制动电阻功率 External braking resistance power	20~20000	100	W	All
Pn090▲	外置制动电阻阻值 External braking resistance value	10~1000	100	Ω	All
Pn091	外置制动电阻再生可用容量 External brake resistance, regeneration, available capacity	5~100	20	%	All
Pn092	制动电阻过载检出 Overload detection of braking resistor	0~1	1	-	All
Pn093~Pn095	内部使用 Internal use	-	-	-	-

4.2.2 位置控制参数 Position control parameter

编号 NO.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 apply
Pn096▲	指令脉冲输入方式 Command pulse input mode	0~2	0	-	P
Pn097▲	指令脉冲输入方向逻辑选择	0~1	0	-	P

	Instruction pulse input direction logic selection				
Pn098	脉冲电子齿轮比之分子 1 Pulse electron gear ratio of molecule 1	1~32767	1	-	P
Pn099	脉冲电子齿轮比之分子 2 Pulse electron gear ratio of molecule 2	1~32767	1	-	P
Pn100	脉冲电子齿轮比之分子 3 Pulse electron gear ratio of molecule 3	1~32767	1	-	P
Pn101	脉冲电子齿轮比之分子 4 Pulse electron gear ratio of molecule 4	1~32767	1	-	P
Pn102▲	脉冲电子齿轮比之分母 The denominator of a pulsed electronic gear ratio	1~32767	1	-	P
Pn103	位置偏差超出范围设定 The position deviation is out of range setting	1~ 2000	500	万个 ten thous and	P
Pn104	位置定位完成范围设定 Location setting	0~ 32767	10	个	P
Pn105	位置定位完成回差设定 Position setting complete backlash setting	0~ 32767	3	个	P
Pn106	位置定位接近范围设定 Location approach range setting	0~ 32767	300	个	P
Pn107	位置定位接近回差设定 Location approach back difference setting	0~ 32767	30	个	P
Pn108	位置偏差清除方式 Position deviation clearing mode	0~1	1	-	P
Pn109◆	位置指令加减速方式 Position command acceleration and deceleration mode	0~2	0	-	P
Pn110◆	位置指令一次滤波时间常数 Position instruction, primary filtering, time constant	5~500	50	ms	P

Pn111◆	位置指令 S 形滤波时间常数 Ta Position instruction, S shape filtering, time constant Ta	5~340	50	ms	P
Pn112◆	位置指令 S 形滤波时间常数 Ts Position instruction, S shape filtering, time constant Ts	5~150	20	ms	P
Pn113	位置环前馈增益 Position loop feedforward gain	0~100	0	%	P
Pn114▲	位置环前馈过滤器时间常数Position loop, feedforward filter, time constant	1~50	5	ms	P
Pn115	位置调节器增益 1 Position regulator gain 1	1~2000	100	1/S	P
Pn116	位置调节器增益 2 Position regulator gain 2	1~2000	100	1/S	P
Pn117	位置指令源选择 Location command source selection	0~3	0	-	P
Pn118	内部位置指令暂停方式选择 Internal position instruction pause mode selection	0~1	0	-	P
Pn119	内部位置暂停减速时间 Internal position suspension deceleration time	0~10000	50	ms	P
Pn120	内部位置指令 0 脉冲数高位设定 Internal position command 0 pulse number high setting	-9999~9999	0	万个	P
Pn121	内部位置指令 0 脉冲数低位设定 Internal position command 0 pulse number low setting	-9999~9999	0	个	P
Pn122	内部位置指令 1 脉冲数高位设定 Internal position command 1 pulse number high setting	-9999~9999	0	万个	P
Pn123	内部位置指令 1 脉冲数低位设定 Internal position command 1 pulse	-9999~9999	0	个	P

	number low setting				
Pn124	内部位置指令 2 脉冲数高位设定 Internal position command 2 pulse number high setting	-9999~9999	0	万个	P
Pn125	内部位置指令 2 脉冲数低位设定 Internal position command 2 pulse number low setting	-9999~9999	0	个	P
Pn126	内部位置指令 3 脉冲数高位设定 Internal position command 3 pulse number high setting	-9999~9999	0	万个	P
Pn127	内部位置指令 3 脉冲数低位设定 Internal position command 3 pulse number low setting	-9999~9999	0	个	P
Pn128	内部位置指令 0 运行速度 Internal position instruction 0 running speed	0~3000	100	r/min	P
Pn129	内部位置指令 1 运行速度 Internal position instruction 1 running speed	0~3000	100	r/min	P
Pn130	内部位置指令 2 运行速度 Internal position instruction 2 running speed	0~3000	100	r/min	P
Pn131	内部位置指令 3 运行速度 Internal position instruction 3 running speed	0~3000	100	r/min	P
Pn132	转矩/速度控制切换至位置控制的方式 Torque / speed control switching to position control	0~1	0	-	P
Pn133	转矩/速度控制切换至位置控制的减速时间 Torque / speed control switching to position control deceleration time	5~10000	100	ms	P
Pn134	定长位移方向 Fixed length	0~1	0	-	P

	displacement direction				
Pn135	定长位移高位 Fixed length shift height	0~9999	0	万个	P
Pn136	定长位移低位 Fixed length shift low	0~9999	100	个	P
Pn137	定长最高运行速度 Maximum running speed at fixed length	5~5000	200	r/min	P
Pn138	定长锁定解除方式 Fixed length locking release	0~1	1	-	P
Pn139	停止时振动抑制衰减比 Vibration suppression ratio at stop	10~100	100	%	P
Pn140	停止时振动抑制等待时间 The wait time is suppressed when the vibration is stopped	0~30000	300	ms	P
Pn141	停止时振动抑制条件 Vibration suppression conditions at stop	0~10000	10	脉冲 pulse	P
Pn142~Pn145	内部使用 Internal use	-	-	-	-

4.2.3 速度控制参数 Speed control parameter

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn146◆	速度指令加减速方式 Speed command plus deceleration mode	0~2	1	-	S
Pn147◆	速度指令 S 曲线加减速时间常数 Ts Speed command, S curve, acceleration and deceleration time constant Ts	5~ 1500	80	ms	S
Pn148◆	速度指令 S 曲线加速时间常数 Ta Speed command, S curve, acceleration time constant, Ta	5~ 10000	80	ms	S
Pn149◆	速度指令 S 曲线减速时间常数 Td Speed command, S curve,	5~ 10000	80	ms	S

	deceleration time constant Td				
Pn150◆	直线加速时间常数 Linear acceleration time constant	5~30000	80	ms	S
Pn151◆	直线减速时间常数 Linear deceleration time constant	5~30000	80	ms	S
Pn152▲	速度检测滤波时间常数 Speed detection filter time constant	1~380	1	0.1ms	All
Pn153	速度调节器比例增益 1 Speed regulator proportional gain 1	1~ 2000	80	Hz	All
Pn154	速度调节器积分时间常数 1 Speed regulator integration time constant 1	1~ 5000	150	0.1ms	All
Pn155	速度调节器比例增益 2 Speed regulator proportional gain 2	1~ 2000	80	Hz	All
Pn156	速度调节器积分时间常数 2 Speed regulator integration time constant 2	1~ 5000	150	0.1ms	All
Pn157▲	模拟速度指令平滑过滤时间 Simulated speed, instruction smoothing, filtering time	1~500	1	0.1ms	S
Pn158	模拟速度指令增益 Analog speed command gain	1~1500	300	r/min/V	S
Pn159	模拟速度指令偏移调整 Analog speed shift adjustment	-5000~5000	0	mv	S
Pn160	模拟速度指令方向 Analog speed direction	0~1	0	-	S
Pn161	模拟速度指令强制零区间上限 Analog speed command force zero interval upper limit	0~1000	0	10mv	S
Pn162	模拟速度指令强制零区间下限 Analog speed command forced zero interval lower bound	-1000~0	0	10mv	S
Pn163	零速箝位锁定方式 Zero speed	0~1	0	-	S

	clamping lock mode				
Pn164	零速箝位触发方式 Zero speed clamping trigger mode	0~1	0	-	S
Pn165	零速箝位电平 Zero speed clamping level	0~200	6	r/min	S
Pn166	零速箝位减速时间 Zero speed clamping deceleration time	5~10000	50	ms	S
Pn167	内部位置调节器增益 Internal position regulator gain	1~2000	100	1/S	All
Pn168	速度指令来源选择 Speed command source selection	0~2	0	-	S
Pn169	内部速度指令 1 Internal speed command 1	-5000~5000	0	r/min	S
Pn170	内部速度指令 2 Internal speed command 2	-5000~5000	0	r/min	S
Pn171	内部速度指令 3 Internal speed command 3	-5000~5000	0	r/min	S
Pn172	内部速度指令 4 Internal speed command 4	-5000~5000	0	r/min	S
Pn173	内部速度指令 5 Internal speed command 5	-5000~5000	0	r/min	S
Pn174	内部速度指令 6 Internal speed command 6	-5000~5000	0	r/min	S
Pn175	内部速度指令 7 Internal speed command 7	-5000~5000	0	r/min	S
Pn176	内部速度指令 8 Internal speed command 8	-5000~5000	0	r/min	S
Pn177	JOG 速度 JOG speed	0~5000	200	r/min	S
Pn178	JOG 加速时间 JOG Acceleration time	5~ 10000	100	ms	S
Pn179	JOG 减速时间 JOG Deceleration time	5~ 10000	100	ms	S
Pn180~ Pn181	内部使用 Internal use	-	-	-	-

Pn182◆	速度环 PDFF 控制系数 Speed loop PDFF control factor	0~100	100	-	PS
Pn183~	速度反馈补偿 Speed feedback compensation	0~100	0	%	PS
Pn184~ Pn185	内部使用 Internal use	-	-	-	-

4.2.4 转矩控制参数 Torque control parameter

编号 NO..	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn186	转矩指令加减速方式 Torque command acceleration and deceleration mode	0~1	0	-	T
Pn187▲	转矩指令直线加减速时间常数 Torque command linear acceleration and deceleration time constant	1~30000	1	ms	T
Pn188▲	模拟转矩指令平滑过滤时间 Simulated torque command smoothing filtering time	1~500	5	0.1ms	T
Pn189	模拟转矩指令增益 Analog torque command gain	1~300	30	%/V	T
Pn190	模拟转矩指令偏移调整 Analog torque command offset adjustment	-1500~1500	0	mv	T
Pn191	模拟转矩指令方向 Analog torque direction	0~1	0	-	T
Pn192	转矩 Q 轴调节器比例增益 1 Torque Q shaft regulator proportional gain 1	5~ 2000	100	%	All
Pn193	转矩 Q 轴调节器积分时间常数 1 Torque Q axis regulator	5~ 2000	100	%	All

	integration time constant 1				
Pn194	转矩 Q 轴调节器比例增益 2 Torque Q shaft regulator proportional gain 2	5~ 2000	100	%	All
Pn195	转矩 Q 轴调节器积分时间常数 2 Torque Q axis regulator integration time constant 2	5~ 2000	100	%	All
Pn196	转矩指令滤波时间常数 1 Torque instruction filtering time constant 1	1~5000	40	0.01ms	All
Pn197	转矩指令滤波时间常数 2 Torque instruction filtering time constant 2	1~5000	40	0.01ms	All
Pn198	转矩控制时限制速度 Limiting speed during torque control	0~4500	2500	r/min	T
Pn199	转矩控制受限速度来源选择 Torque control, limited speed, source selection	0~2	0	-	T
Pn200	内部转矩 1 Internal torque 1	-300~300	0	%	T
Pn201	内部转矩 2 Internal torque 2	-300~300	0	%	T
Pn202	内部转矩 3 Internal torque 3	-300~300	0	%	T
Pn203	内部转矩 4 Internal torque 4	-300~300	0	%	T
Pn204	转矩指令来源 Torque command source	0~2	0	-	T
Pn205	转矩 D 轴调节器比例增益 Torque D axis regulator; proportional gain	5~2000	100	%	All
Pn206	转矩 D 轴调节器积分时间常数 Torque D axis regulator, integral time constant	5~2000	100	%	All
Pn207	速度反馈调节系数 Speed feedback adjustment factor	1~3000	100	-	T
Pn208	跟踪转矩指令判断误差范围 1 Tracking torque instruction to	0~300	5	%	T

	determine range of error 1				
Pn209	跟踪转矩指令判断误差范围 2 Tracking torque instruction to determine range of error 2	0~300	2	%	T
Pn210	速度限制输出的判定时间 Decision time for speed limited output	0~2000	15	ms	T
Pn211~ Pn215	内部使用 Internal use	-	-	-	-

4.2.5 扩展控制参数 Extended control parameter

编号 NO.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn216▲	绝对式编码器用法选择 Absolute encoder usage selection	0~1	1	-	All
Pn217	绝对式编码器输出线数 Absolute encoder output line	16~16384	2500	线 line	All
Pn218	绝对式编码器绝对位置数据发送方式 Absolute position data transfer mode for absolute encoder	0~1	0	-	All
Pn219	绝对式编码器多圈溢出检出 Multi turn overflow detection for absolute encoder	0~1	1	-	All
Pn220▲	SigIn5 端口功能分配 SigIn5 port function allocation	-31~31	3	-	All
Pn221▲	SigIn6 端口功能分配 SigIn6 port function allocation	-31~31	4	-	All
Pn222▲	SigIn7 端口功能分配 SigIn7 port function allocation	-31~31	9	-	All
Pn223▲	SigIn8 端口功能分配 SigIn8 port function allocation	-31~31	10	-	All
Pn224▲	SigIn9 端口功能分配 SigIn9 port function allocation	-31~31	11	-	All

Pn225▲	SigIn10 端口功能分配 SigIn10 port function allocation	-31~31	0	-	All
Pn226	SigIn5 端口滤波时间 SigIn5 port filtering time	1~1000	2	ms	All
Pn227	SigIn6 端口滤波时间 SigIn6 port filtering time	1~1000	2	ms	All
Pn228	SigIn7 端口滤波时间 SigIn7 port filtering time	1~1000	2	ms	All
Pn229	SigIn8 端口滤波时间 SigIn8 port filtering time	1~1000	2	ms	All
Pn230	SigIn9 端口滤波时间 SigIn90 port filtering time	1~1000	2	ms	All
Pn231	SigIn10 端口滤波时间 SigIn10 port filtering time	1~1000	2	ms	All
Pn232▲	SigOut5 端口功能分配 SigOut5 port function allocation	-14~14	9	-	All
Pn233	内部使用 Internal use	-	-	-	-
Pn234	脉冲指令最高频率 Maximum pulse command frequency	20~2000	550	KHZ	P
Pn235	脉冲指令数字滤波时间 Pulse instruction digital filtering time	0~255	0	100ns	P
Pn236~ Pn239	内部使用 Internal use	-	-	-	-
Pn240	绝对式编码器正向软禁止多圈值 Absolute encoder, forward soft forbidden, multi circle value	0~32000	0	圈 circle	All
Pn241	绝对式编码器正向软禁止单圈值 Absolute encoder, forward soft forbidden, single coil value	0~9999	0	0.0001 圈 circle	All
Pn242	绝对式编码器反向软禁止多圈值 Absolute encoder, reverse soft forbidden, multi circle value	0~32000	0	圈 circle	All
Pn243	绝对式编码器反向软禁止单圈值	0~9999	0	0.0001 圈	All

	Absolute encoder, reverse soft inhibit, single coil value			circle	
Pn244	原点回归定位接近范围 Origin, regression, positioning, approach range	0~3000	20	个	All
Pn245~ Pn256	内部使用 Internal use	-	-	-	-
Pn257	负载转动惯量比 Load inertia ratio	0.00~100.00	1.00	倍 times	PS
Pn258	增益调整模式 Gain adjustment mode	0~1	0	-	PS
Pn259	刚性等级选择 Rigid grade selection	0~20	5	-	PS
Pn260	惯量实时推定方式 Real-time estimation method of inertia	0~1	0	-	All
Pn260~ Pn262	内部使用 Internal use	-	-	-	-
Pn263◆	惯量推定加减速时间 Inertia estimation acceleration and deceleration time	20~500	80	ms	All
Pn264◆	惯量推定允许最高速度 Inertia estimation allows maximum speed	150~1000	400	r/min	All
Pn265◆	惯量推定暂停时间间隔 Inertia estimation pause interval	0~10000	500	ms	All
Pn266◆	惯量推定惯量比预估值 Inertia estimation; inertia ratio; prediction value	1.00~20.00	3.00	倍 times	All
Pn267▲	电机额定转矩 Rated torque of motor	0~320.00	0	N·m	All
Pn268▲	电机最大输出转矩 Maximum output torque of motor	0~300.00	0	倍 times	All
Pn269▲	电机转动惯量 Motor moment of inertia	0~320.00	0	Kg·M^2·10^-4	All
Pn270▲	电机力矩系数 Motor torque coefficient	0~100.00	0	N·m/Arms	All
Pn271▲	电机最大转速 Maximum motor speed	80~5500	80	r/min	All
Pn272~	内部使用 Internal use	-	-	-	-

Pn275					
Pn276	开启可编程运动控制器 Open programmable motion controller	0~1	0	-	All
Pn277~Pn280	内部使用 Internal use	-	-	-	-

4.3 参数详解 Parameter detail

4.3.1 系统参数 system parameter

编号 NO.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn000	参数编辑与初始化 Parameter editing and initialization	0~3	1		All

设定值 Setting value	功能 function
0	禁止参数初始化 Parameter initialization prohibited
1	允许参数初始化，但不初始化 Pn001，Pn080,Pn159,Pn190 等与应用无关的功能参数。Allows parameter initialization, but does not initialize Pn001, Pn080, Pn159, Pn190, and other application independent functional parameters.
2	恢复出厂前设置。Restore settings before shipment.
3	按键查看模式，无法修改参数。Press button to view mode and cannot modify parameters.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn001▲	电机代码 Motor code	0-70	7		All
	须设置与电机相配套的电机代码，电机才能正常工作。The motor code must be set up with the motor, so that the motor can work properly.				

220V 驱动器型号与电机型号适配表如下：The 220V drive model and the motor model adaptation sheet are as follows:

电机型号Motor mode	Pn001	额定转速 Rated speed (r/min)	额定转矩 Rated torque (N.M)	额定功率 Rated power (KW)	KRS 15	KRS 20A	KRS 30A	KRS 50A	KRS 75A
60st_m00630	0	3000	0.6	0.2	√	√	√		
60st_m01330	1	3000	1.3	0.4	√	√	√		
60st_m01930	2	3000	1.9	0.6	√	√	√		
80st_m01330	3	3000	1.3	0.4	√	√	√		
80st_m02430	4	3000	2.4	0.75	√	√	√		
80st_m03520	5	2000	3.5	0.73	√	√	√		
80st_m04025	6	2500	4	1	√	√	√		
90st_m02430	7	3000	2.4	0.75	√	√	√		
90st_m03520	8	2000	3.5	0.73	√	√	√		
90st_m04025	9	2500	4	1	√	√	√		
110st_m02030	10	3000	2	0.6	√	√	√		
110st_m04020	11	2000	4	0.8	√	√	√		
110st_m04030	12	3000	4	1.2		√	√		
110st_m05030	13	3000	5	1.5			√		
110st_m06020	14	2000	6	1.2	√	√	√		
110st_m06030	15	3000	6	1.8			√		
130st_m04025	16	2500	4	1	√	√	√		
130st_m06015	17	1500	6	1	√	√	√		
130st_m05025	18	2500	5	1.3		√	√		
130st_m06025	19	2500	6	1.5			√		
130st_m07725	20	2500	7.7	2			√		
130st_m10010	21	1000	10	1	√	√	√		
130st_m10015	22	1500	10	1.5		√	√		
130st_m10025	23	2500	10	2.6			√	√	√
130st_m15015	24	1500	15	2.3			√		
130st_m15025	25	2500	15	3.8				√	√
150st_m15025	26	2500	15	3.8				√	√

150st_m15020	27	2000	15	3				√	√
150st_m18020	28	2000	18	3.6				√	√
150st_m23020	29	2000	23	4.7				√	√
150st_m27020	30	2000	27	5.5					√
180st_m17215	31	1500	17.2	2.7				√	√
180st_m19015	32	1500	19	3			√	√	√
180st_m21520	33	2000	21.5	4.5				√	√
180st_m27010	34	1000	27	2.9				√	√
220st_m67010	35	1000	67	7					√
180st_m35015	37	1500	35	5.5					√
40st_m00330	39	3000	0.3	0.1	√	√	√		

380V 驱动器型号与电机型号适配表如下：The 380V drive model and the motor model adaptation sheet are as follows:

电机型号 Motor mode	Pn001	额定转速 Rated speed (r/min)	额定转矩 Rated torque (N.M)	额定功率 Rated power (KW)	KRS 25	KRS 40	KRS 50	KRS 75
180st_m48020	46	2000	48	10			√	√
180st_m19020	47	2000	19	4		√	√	√
180st_m35020	48	2000	35	7.3		√	√	√
180st_m27020	49	2000	27	5.6		√	√	√
180st_m48015	50	1500	48	7.5			√	√
180st_m19015	51	1500	27	3		√	√	√
180st_m21520	52	2000	27	4.5		√	√	√
180st_m27010	53	1000	27	2.9		√	√	√
180st_m27015	54	1500	27	4.3		√	√	√
180st_m35010	55	1000	35	3.7		√	√	√
180st_m35015	56	1500	35	5.5		√	√	√

编号 NO.	名称 Name	取值范围 Range of	默认值	单位 Unit	适用

<table>
<tr><th></th><th></th><th>values</th><th>Default value</th><th></th><th>Apply</th></tr>
<tr><td>Pn002▲</td><td>控制模式 Control mode</td><td>0~5</td><td>2</td><td></td><td>All</td></tr>
<tr><td colspan="5">
<table>
<tr><th>设定值Setting value</th><th>控制模式control mode</th></tr>
<tr><td>0</td><td>转矩模式Torque mode</td></tr>
<tr><td>1</td><td>速度模式Speed mode</td></tr>
<tr><td>2</td><td>位置模式Location mode</td></tr>
<tr><td>3</td><td>位置/速度模式Position / speed mode</td></tr>
<tr><td>4</td><td>位置/转矩模式Position / torque model</td></tr>
<tr><td>5</td><td>速度/转矩模式Speed / torque mode</td></tr>
</table>
• 设置为 3，4，5 时，模式之间的切换由输入端口 SigIn 的 Cmode 信号状态决定。When set to 3, 4, and 5, switching between modes is determined by the Cmode signal status of the input port SigIn.

•控制模式切换方式详见附录 B For control mode switching, see Appendix B
</td></tr>
</table>

<table>
<tr><th>编号 No.</th><th>名称 Name</th><th>取值范围 Range of values</th><th>默认值 Default value</th><th>单位 Unit</th><th>适用 Apply</th></tr>
<tr><td>Pn003</td><td>伺服使能方式 Servo enable mode</td><td>0~1</td><td>0</td><td></td><td>All</td></tr>
<tr><td colspan="5">
<table>
<tr><th>设置值 Setting value</th><th>功能 function</th></tr>
<tr><td>0</td><td>由输入端口 SigIn 的 SON 使能驱动器 The SON enable drive from the input port SigIn</td></tr>
<tr><td>1</td><td>上电后自动使能驱动器 Automatically enable drive after power on</td></tr>
</table>
</td></tr>
</table>

编号 No.	名称 Name	取值范围	默认值	单位 Unit	适用

<table>
<tr><td></td><td></td><td>Range of values</td><td>Default value</td><td></td><td>Apply</td></tr>
<tr><td rowspan="2">Pn004</td><td>伺服断使能停机方式 Servo disconnect enable shutdown mode</td><td>0~2</td><td>0</td><td></td><td>All</td></tr>
<tr><td colspan="5">当使能信号变从有效变为无效时，可设置电机停止运行的方式：When the enable signal changes from valid to invalid, the motor can be stopped operating:
<table>
<tr><th>设置值 Setting value</th><th>电磁制动器 Electromagnetic brake</th><th>减速停机 Deceleration stop</th><th>说明 Explain</th></tr>
<tr><td>0</td><td>不使用 Not used</td><td>不使用 Not used</td><td>惯性停车 Inertia stop</td></tr>
<tr><td>1</td><td>不使用 Not used</td><td>使用 Use</td><td>减速停车,减速时间由 Pn005 确定 Slow down and stop. The deceleration time is determined by Pn005</td></tr>
<tr><td>2</td><td>使用 Use</td><td>不使用 Not used</td><td>电磁制动方式停车 (适用带有电磁制动器的电机) Electromagnetic braking mode parking (suitable for motors with electromagnetic brakes)</td></tr>
</table></td></tr>
</table>

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn005	断使能减速时间 Break down to slow down	5-10000	100	ms	All
	使能信号从有效变为无效时，使电机减速至零的时间。在减速过程中，若使能信号再次有效，电机仍会先减速至零 When the signal is changed from valid to invalid, the motor is slowed down to zero. In the deceleration process, if the enable signal is effective again, the motor will slow down to zero				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn006	使用/不使用正反驱动禁止 Use / do not use positive and negative drive prohibited	0-3	0		All

设置本参数值，可以选择使用或不使用驱动禁止功能，其真值表如下：To set the parameter value, you can choose to use or not use the drive disable function. The truth table is as follows:

设置值 Setting value	正转驱动禁止 Forward drive inhibit	反转驱动禁止 Reverse drive inhibit
0	不使用 Not used	不使用 Not used
1	不使用 Not used	使用 Use
2	使用 Use	不使用 Not used
3	使用 Use	使用 Use

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 apply
Pn007	正/反驱动禁止停机减速时间 Positive / reverse drive, no stopping, deceleration time	0-10000	60	ms	All

当发生超程时，SigIn 端口的 ccwl 或 cwl 状态为 OFF，使用 Pn077 可设置是否进行报警检出。超程时，电机可按照减速时间减速，同时清除位置指令脉冲（位置控制），停止后进行内部位置锁定。内部位置增益通过 Pn167 调节。When a overrun occurs, the SigIn port is either ccwl or CWL, and Pn077 is used to set the OFF alarm. Over time, the motor can decelerate in accordance with the deceleration time, while clearing the position command pulse (position control), after stopping, the internal position is locked. The internal position gain is adjusted via

	the Pn167.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn008	内部正转转矩限制(CCW) Internal forward torque limit (CCW)	0-300	300	%	All
Pn009	内部反转转矩限制（CW） Internal reverse torque limit (CW)	-300~0	-300	%	All
Pn010	外部正转转矩限制(CCW) External forward torque limit (CCW)	0-300	300	%	All
Pn011	外部反转转矩限制(CW) External reverse torque limit (CW)	-300~0	-300	%	All
	• 设置电机 CCW/CW 方向的转矩限制。内、外部转矩限制同时有效时，实际转矩取较小限制值。• set the torque limit in the motor CCW/CW direction. When the internal and external torque limits are in effect, the actual torque is taken as a smaller limit. • 外部转矩限制由 SigIn 端口的 TCCWL、TCWL 控制。the external torque limit is controlled by the SigIn port TCCWL and TCWL. • 有些电机最大输出转矩是额定转矩的两倍，则电机输出的最大转矩自动受限于两倍额定转矩以内。The maximum output torque of some motors is two times the rated torque, and the maximum torque output of the motor is limited to two times the rated torque automatically.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn012	正转（CCW）转矩过载 1 报警水平 Forward (CCW)	0-300	200	%	All

	torque overload 1 alarm level				
Pn013	反转（CW）转矩过载 1 报警水平 Reverse (CW) torque overload 1 alarm level	-300-0	-200	%	All
Pn014	转矩过载 1 报警检测时间 Torque overload 1 alarm detection time	1-900	250	100ms	All
Pn015	过载 2 检测时间 Overload 2 detection time	1-300	80	100ms	All
	•过载 1 报警水平指过载过流相对于电机额定输出电流的百分比，过载能力的范围在 0 与最大输出电流之间。过载 1 的过载能力默认为 2 倍扭矩，在设定的时间内，若持续超过 2 倍输出扭矩，将执行过载 1 保护。Overload 1 alarm level refers to the percentage of overload overcurrent relative to the rated output current of the motor. The overload capacity is between 0 and the maximum output current. Overload 1 overload capacity defaults to 2 times torque, in the set time, if more than 2 times the output torque, will perform overload 1 protection. • 在设定的时间内，电机达到允许的额定扭矩输出倍数时，将执行过载 2 保护。During the set time, when the motor reaches the rated torque output multiples, the overload 2 protection will be carried out. • 若过载水平设置大于相应的内/外部转矩限制值时，过载条件可能得不到满足，保护将起不到作用。If the overload level setting is greater than the corresponding internal / external torque limit values, overload conditions may not be met and protection will not work.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn016▲	增量式编码器分频输出之分子 DA Molecular DA for frequency division	1~127	1		All

	output of an incremental encoder				
Pn017▲	增量式编码器分频输出之分母 DB The denominator of frequency division output of incremental encoder DB	1~127	1		All
	增量式编码器输出电子齿比，用于对编码器脉冲信号进行分频输出，仅适用于带有增量式编码器的伺服单元 。分频值必须满足：DA/DB>=1。例如，编码器为 2500 线，分频值 DA/DB=25/8,则分频后的线数：2500/(DA/DB)=2500/(25/8)= 800 线。The output ratio of the incremental encoder is used to segment the pulse signal of the encoder, and only applies to the servo unit with incremental encoder. Frequency division must be satisfied: DA/DB>=1. For example, the encoder is 2500 lines and the frequency division value is DA/DB=25/8. Then the number of lines after dividing is 2500/ (DA/DB) =2500/ (25/8) = 800 lines.				

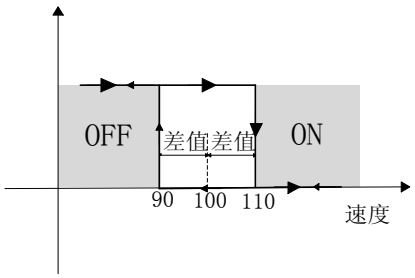
编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn018▲	编码器输出脉冲 AB 相位逻辑取反 Encoder output pulse AB phase logic inversion	0-1	0		All

设置值 Setting value	功能 Function
0	电机逆时针旋转 A 超前 B; 顺时针旋转 B 超前 A The motor counter clockwise rotation A ahead B; clockwise rotation before B ultrasonic A

	1	电机逆时针旋转 B 超前 A; 顺时针旋转 A 超前 B The motor rotates counterclockwise A before the B ultrasonic; clockwise rotation A ahead of B

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn019▲	额定电流设置 Rated current setting	0.0-100.0	0	Arms	All
Pn020▲	额定转速设置 Rated speed setting	0~5000	额定转速	r/min	All
	参数设置为 0，则使用厂家设置的默认值；否则，用户必须严格依照电机的额定电流有效值和额定速度及相应的内部正反转矩限制值设置参数值。若设置不当，电机将不能正常运转。依据驱动器型号及电机代码的不同，可达到的最大实际电流值不同。一般用户请勿修改 If the parameter is set to 0, the default value set by the manufacturer is used; otherwise, the user must set the parameter value strictly according to the rated current, the effective value and the rated speed of the motor and the corresponding internal and forward torque limit values. The motor will not operate properly if it is improperly set up. Depending on the drive type and the motor code, the maximum actual current value available is different. General users, please do not modify				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn021	到达预定速度 Reach a predetermined speed	0~5000	500	r/min	All
Pn022	到达预定速度迟滞比较差值 Arrive at a predetermined speed, lag, compare	0~5000	30	r/min	All

	difference				
Pn023	到达预定速度检测方向 Arrive at a predetermined speed, direction of detection	0-2	0		All
Pn023	• 当电机的运行速度超过设定的判定值时，输出端口 SigOut 的 Sreach 将转变为 ON，否则为 OFF。 When the motor speed exceeds the set decision value, the Sreach of the output port SigOut will be converted to ON, otherwise OFF. • 比较器具有迟滞比较特性。差值设置值过小，输出信号关断频率越高；设置值越大，关断频率小，但同时导致比较器的分辨率降低。例：预定速度设置为 100，差值设置为 10。 The comparator has hysteresis comparison characteristics. The value of the difference setting is too small, the higher the output signal turn off frequency is, the larger the setting value is, the smaller the turn off frequency is, but at the same time the resolution of the comparator is reduced. Example: the preset speed is set to 100, and the difference is set to 10.  speed •可设置速度检测方向,如下表:You can set the speed detection direction as follows:					

Pn023	比较器 comparator
0	正反转都检测 Reverse and reverse detection
1	只检测正转速度;反转时,信号为 OFF Only positive rotation speed is detected; when reversal, the signal is OFF
2	只检测反转速度;正转时,信号为 OFF The reverse speed is detected only. When the signal is positive, the signal is OFF

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn024	到达预定转矩 Arrival torque	0-300	100	%	All
Pn025	到达预定转矩迟滞比较差值 Lag difference between arrival torque and preset torque	0-300	5	%	All
Pn026	到达预定转矩方向 Reach the desired torque direction	0-2	0		All
	• 当电机的运行转矩超过设定的判定值时，输出端口 SigOut 的 Treach 将转变为 ON，否 When the operating torque of the motor exceeds the set decision value, the Treach of the output port SigOut will be converted to ON, or not 则为 OFF。 •可设置转矩检测方向,如下表：Torque detection direction can be set as follows:				

Pn026	比较器 comparator
0	正反转都检测 Reverse and reverse detection
1	只检测正转转矩;反转时，信号为 OFF。Only positive torque is detected; when reversal, the signal is OFF.
2	只检测反转转矩;正转时，信号为 OFF。Reverse torque is detected only when the forward turn signal is OFF.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn027	零速检测幅度设定 Zero velocity detection range set	0~1000	10	r/min	All
Pn028	零速检测回差 Zero speed test return error	0~1000	5	r/min	All
	当电机运行速度低于设定的速度值时，输出端口 SigOut 的 zerospeed 转变为 ON，否				

	则为 OFF。When the motor speed is lower than the set speed value, the zerospeed of the output port SigOut is changed to ON, otherwise OFF.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn029	电机电磁制动零速检测点 Zero speed detection point of motor electromagnetic brake	0~1000	5	r/min	All
	仅在使用电磁制动器功能时，判断电机是否为零速状态。Only when the electromagnetic brake function is used, will the motor be judged to be a zero speed state.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn030	电机静止时电磁制动器延时时间 Delay time of electromagnetic brake when the motor is stationary	0~2000	0	Ms	All
	• 电机静止时，电磁制动器制动开始到电机切断电流的延时时间。When the motor is stationary, the electromagnetic brake starts the delay time of the motor to cut off the current. • 使用电磁制动功能时，伺服断使能方式 Pn004 必须设置为 2。When using the electromagnetic braking function, the servo break enable mode Pn004 must be set to 2.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn031	电机运转时电磁制动器	0~2000	500	ms	All

	等待时间 When the motor is running, the electromagnetic brake wait time				
	电机运转时，电机切断电流到电磁制动器制动之间的等待时间。When the motor is running, the motor breaks the current to the time between the brake of the electromagnetic brake.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn032	电机运转时电磁制动器动作速度 The speed of the electromagnetic brake when the motor is running	0-3000	30	r/min	All
	电机运转时，当电机低于此参数设定的速度时，磁制动器开始制动。When the motor is running, when the motor is less than the speed set by this parameter, the magnetic brake starts to brake.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
	原点回归触发方式 Origin regression trigger mode	0~3	0		All

Pn033

设置值 Setting value	功能 function
0	关闭原点回归功能 Turn off the origin regression function
1	由输入端口 SigIn 的 GOH 电平触发 Triggered by the GOH level of the input port SigIn
2	由输入端口 SigIn 的 GOH 上升沿触发 Triggered by the rising edge of the input port SigIn GOH
3	上电自动执行 Automatic execution of power on

• 原点回归执行方式详见附录 F。The origin regression method is shown in Appendix F.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn034	原点回归参考点模式 Origin regression reference point mode	0~6	0		All

设置值 Setting value	功能 Function
0	正转找 REF(上升沿触发)作参考点 The REF is turned (triggered by the rising edge) as the reference point
1	反转找 REF(上升沿触发)作参考点 Flip for REF (rising edge trigger) as reference point
2	正转找 CCWL(下降沿触发)作参考点 The CCWL is being turned (triggered by the falling edge) as the reference point
3	反转找 CWL(下降沿触发)作参考点 Reverse find CWL (drop edge trigger) as reference point
4	正转找 Z 脉冲作参考点 The Z pulse is being turned to the reference point
5	反转找 Z 脉冲作参考点 Turn the Z pulse for reference point
6	绝对零点作参考点 Absolute zero as reference point

注意：CCWL 或 CWL 作为参考点时，需设置 Pn006 参数，开启功能。Note: when CCWL or CWL is used as a reference point, you need to set the Pn006 parameter and turn on the function.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn035	原点回归原点模式 Origin regression origin mode	0~2	0		All

设置值 Setting value	功能 Function

		0	向后找 Z 脉冲作原点 Look for the origin of the Z pulse backwards	
		1	向前找 Z 脉冲作原点 Look for the origin of the Z pulse forward	
		2	直接以参考点上升沿作原点 The origin is raised directly at the rising edge of the reference point	

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn036	原点位置偏移高位 Origin position offset high	-9999~9999	0	万个脉冲 ten thousand pulse	All
Pn037	原点位置偏移低位 Origin position offset low	-9999~9999	0	脉冲	All
	找到原点后，加上偏移量(Pn036*10000+ Pn037)作实际原点。When the origin is found, the offset (Pn036*10000+, Pn037) is added as the actual origin.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn038	原点回归第一速度 Origin regression first speed	1~3000	200	R/min	All
Pn039	原点回归第二速度 Origin regression second speed	1~3000	50	R/min	All
	执行原点回归操作时，以第一速度寻找参考点，到达参考点后，以第二速度寻找原点。第二速度应小于第一速度。When the origin return operation is performed, the reference point is searched at the first speed, and the original point is searched at the second speed after reaching the reference point. Second the speed should be less than the first speed.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn040	原点回归加速时间	5~10000	50	ms	All

	Origin regression acceleration time				
Pn041	原点回归减速时间 Origin regression deceleration time	5~10000	50	ms	All
	原点回归执行中，电机从零速加速至额定速度的时间，仅用于原点回归操作。In origin regression execution, the motor is accelerated from zero to the rated speed and is used only for origin return operations.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn042	原点在位延时 Origin on time delay	0~3000	60	ms	All
	到达原点后，延时一段时间，让电机完全静止。延时完成后，输出端口 SigOut 的 HOME 输出变为 ON。After reaching the origin, the motor is completely stationary for a period of time delay. After completion of the delay, the HOME output of the output port SigOut is changed to ON.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn043	原点回归完成信号延时 The origin regression completes the signal delay	5~3000	80	ms	All
	HOME 持续的有效时间 HOME sustained effective time				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
	原点回归指令执行模式 Origin return	0~1	0		All

Pn044	instruction execution mode				

设置值 Setting value	功能 Function
0	原点回归完成后，等待 HOME 信号变成 OFF 再接收和执行指令。When the origin return is complete, wait for the HOME signal to become OFF, then receive and execute instructions.
1	原点回归完成后立刻接收和执行指令。When the origin return is complete, the instruction is received and executed immediately.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn045	增益切换选择 Gain switching selection	0~5	0		All

设置值 Setting value	功能 Funtion
0	固定第 1 增益。Fixed first gain.
1	固定第 2 增益。Fixed second gain.
2	由输入端口 SigIn 的 Cgain 端子控制，OFF 为第 1 增益，ON 为第 2 增益。Controlled by the Cgain terminal of the input port SigIn, the OFF is first gain and the ON is second gain.
3	由速度指令控制，速度指令超过 Pn046 时，切换到第 1 增益。Controlled by the speed command, when the speed command exceeds Pn046, the switch is switched to first gain
4	由脉冲偏差控制，位置偏差超过 Pn046 时，切换到第 1 增益。When the position deviation exceeds Pn046, the switch is switched to first gain by pulse bias control.
5	由电机转速控制，位置偏差超过 Pn046 时，切换到第 1 增益。Controlled by the motor speed, when the position deviation exceeds Pn046, the switch is switched to first gain.

	• 增益切换详见附录 A Gain switching is shown in Appendix A

◢

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn046	增益切换水平 Gain switching level	0~30000	80		All
Pn047	增益切换回差 Gain switching back difference	0~30000	6		All
	根据 Pn045 参数的设置 ， 切换的条件和单位都不相同：Depending on the setting of the Pn045 parameter, the conditions and units for switching are different:				

Pn045	增益切换条件 Gain switching condition	单位 Unit
3	速度指令 Speed command	r/min
4	脉冲偏差 Pulse deviation	个脉冲 Pulse
5	电机转速 motor speed	r/min

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn048	增益切换延迟时间 Gain switching delay time	0~20000	20	0.1ms	All
	增益切换条件满足到开始切换的延迟时间 。如果在延迟阶段检测到切换条件不满足,则取消切换。The gain switching condition satisfies the delay time of the start switch. If the switch condition is detected during the delay phase, the switchover is canceled.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn049◆	增益切换时间 1 Gain switching time 1	0~15000	0	0.1ms	All
Pn050◆	增益切换时间 2 Gain switching time 2	0~15000	50	0.1ms	All
	增益切换时，当前增益组合在此时间内线性平滑渐变到目标增益组合，组合内的各个参数同时变化。When the gain is switched, the current gain combination is linearly smoothed at this time, gradually varying to the target gain combination, and each parameter in the combination varies simultaneously.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn051	电机运行最高速度限定 Maximum speed limit for motor operation	0~5000	3000		All
	用于限定电机运行的最高转速。设定值应小于等于额定转速，否则电机可运行的最高转速为额定转速。Used to limit the maximum speed of motor operation. The setting value shall be less than or equal to the rated speed, otherwise the maximum speed at which the motor can run is rated speed.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn052▲	SigIn1 端口功能分配 SigIn1 port function allocation	-31~31	1		All
Pn053▲	SigIn 2 端口功能分配 SigIn2 port function allocation	-31~31	2		All
Pn054▲	SigIn 3 端口功能分配 SigIn3 port function allocation	-31~31	19		All
Pn055▲	SigIn 4 端口功能分配 SigIn4 port function allocation	-31~31	8		All
Pn220▲	SigIn5 端口功能分配 SigIn5	-31~31	3		All

	port function allocation				
Pn221▲	SigIn6 端口功能分配 SigIn6 port function allocation	-31~31	4		All
Pn222▲	SigIn7 端口功能分配 SigIn7 port function allocation	-31~31	9		All
Pn223▲	SigIn8 端口功能分配 SigIn8 port function allocation	-31~31	10		All
Pn224▲	SigIn9 端口功能分配 SigIn9 port function allocation	-31~31	11		All
Pn225▲	SigIn10 端口功能分配 SigIn10 port function allocation	-31~31	0		All

• 具体功能分配参照 SigIn 功能详解表。Specific function allocation, refer to SigIn function detailed table.

• -1~-31 功能号是 1-31 功能号相应的负逻辑， 功能相同，有效电平相反。-1~-31 function number is 1-31 function number, the corresponding negative logic function is the same, the effective level is opposite.

设置值 Setting value	SigIn 输入电平 SigIn input level	SigIn 对应功能号 SigIn corresponding function number
正值 Positive	低电平 Low level	ON
	高电平 High level	OFF
负值 negative	低电平 Low level	OFF
	高电平 High level	ON

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn056	SigIn 1 端口滤波时间 SigIn1 port filtering time	1~1000	2	ms	All

Pn057	SigIn 2 端口滤波时间 SigIn2 port filtering time	1~1000	2	ms	All
Pn058	SigIn 3 端口滤波时间 SigIn3 port filtering time	1~1000	2	ms	All
Pn059	SigIn 4 端口滤波时间 SigIn4 port filtering time	1~1000	2	ms	All
Pn226	SigIn5 端口滤波时间 SigIn5 port filtering time	1~1000	2	ms	All
Pn227	SigIn6 端口滤波时间 SigIn6 port filtering time	1~1000	2	ms	All
Pn228	SigIn7 端口滤波时间 SigIn7port filtering time	1~1000	2	ms	All
Pn229	SigIn8 端口滤波时间 SigIn8 port filtering time	1~1000	2	ms	All
Pn230	SigIn9 端口滤波时间 SigIn9 port filtering time	1~1000	2	ms	All
Pn231	SigIn10 端口滤波时间 SigIn10 port filtering time	1~1000	2	ms	All
	对输入端口 SigIn 进行数字滤波。Perform digital filtering on the input port SigIn.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn060▲	SigOut1 端口功能分配 SigOut1 port function allocation	-14~14	2		All
Pn061▲	SigOut 2 端口功能分配 SigOut2 port function allocation	-14~14	1		All
Pn062▲	SigOut 3 端口功能分配 SigOut3 port function allocation	-14~14	4		All
Pn063▲	SigOut 4 端口功能分配 SigOut4 port function allocation	-14~14	7		All
Pn232▲	SigOut 3 端口功能分配 SigOut3 port function allocation	-14~14	9		All
Pn233▲	SigOut 4 端口功能分配 SigOut4	-14~14	10		All

	port function allocation				

参数值 parameter values	对应功能号 Corresponding function number	SigOut 输出结果 SigOut output results
正值 Positive	ON	低电平 Low level
	OFF	高电平 High level
负值 negative	OFF	低电平 Low level
	ON	高电平 High level

具体功能分配参照 SigOut 功能详解表。Specific function allocation, refer to SigOut function detailed table.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn064▲	通信方式 communication mode	0-2	2		All

设置值 Setting value	功能 Function
0	不通信 No communication
1	RS-232
2	RS-485

•通信协议详见第七章 Modbus 通信功能 The communication protocol is detailed in the seventh chapter Modbus communication function

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn065	通信站点 Communication station	1-254	1		All

使用 Modbus 通信时，每组驱动器都应预先设置不同的站点号;若重复设定站点号，将导致通信瘫痪。When using Modbus communication, each group of drivers should set different site numbers in advance. If the site number is repeatedly set, the communication will be paralyzed.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn066▲	通信波特率Communication baud rate	0-5	5		All

设置值 Setting value	波特率 baud rate
0	4800
1	9600
2	19200
3	38400
4	57600
5	115200

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn067▲	通信模式设定 Communication mode setting	0-8	8		All

参数值定义如下表，详见第七章 Modbus 通信功能 The parameter values are defined in the following table, as shown in Chapter seventh, Modbus communication function

设定 Set up	格式 format
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)

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn068	输入功能控制方式选择寄存器 1 The input function control mode selects the register 1	0~32767	0		All
Pn069	输入功能控制方式选择寄存器 2 The input function control mode selects the register 2	0~32767	0		All

• 确定功能由通信方式或端口输入方式控制。若不进行通信方式控制，设置 0 即可。Certain functions are controlled by means of communication or port input. If the communication mode is not controlled, 0 can be set.

• Pn068 参数：Pn068 parameter:

位	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
功能 Function	ZeroLock	EMG	TCW	TCCW	CWL	CCWL	Alarmrst	Son
默认值 Default value	0	0	0	0	0	0	0	0

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

• Pn069 参数：Pn069 parameter:

位	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
功能 Function	REF	GOH	PC	INH	Pclear	Cinv	Gn2	Gn1
默认值 Default value	0	0	0	0	0	0	0	0

BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
保留 Retain	Punlock	Pdistance	Psource	pstop	ptriger	Pos2	Pos1
0	0	0	0	0	0	0	0

- 在通信控制时，确定以上功能由 CN2 上的输入端口或由通信控制来改变。设置为 0，则由 CN2 上的输入端口控制改变；设置为 1，则由通信控制改变。默认全由输入端口控制。例如：son sp3 sp2 sp1 功能通过通信方式控制，其它通过输入端口控制 ，则设置值为 00000111_00000001(二进制)--> 0x0701(十六进制) -->1793(十进制)，所以设置 Pn068 参数的值为 1793。In communication control, the above functions are determined by the input port on the CN2 or by the communication control. Set to 0, the control is changed by the input port on the CN2; set to 1, then changed by the communication control. The default is entirely controlled by the input port. For example: son SP3 SP2 SP1 function through the communication control and other control through the input port, the setting value is 00000111_00000001 (binary) / 0x0701 (sixteen m) -->1793 (decimal), so set the Pn068 parameter to 1793.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn070	输入功能逻辑状态设置寄存器 3 Input function logic status setting register 3	0~32767	32691		All
Pn071	输入功能逻辑状态设置寄存器 3 Input function logic status setting register 3	0~32767	32767		All

- 在进行 RS232 或 RS485 通信时，并设置 了 Pn068,Pn069 相应的位由通信控制,对本参数与之对应的位进行置位或清零，即可控制输入功能信号的状态。逻辑 0 为有效状态。When RS232 or RS485 communication is carried out, Pn068 is set up, and the corresponding bits of Pn069 are controlled by communication, and the position of the corresponding parameter is set or cleared to control the status of the input function signal. Logical 0 is valid.

- Pn070 参数：Pn070 parameter:

位 position	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
功能 Function	ZeroLock	EMG	TCW	TCCW	CWL	CCWL	Alarmrst	Son
默认值 Default value	1	0	1	1	0	0	1	1

BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
保留 Retain	Cgain	Cmode	TR2	TR1	Sp3	Sp2	Sp1

0	1	1	1	1	1	1	1

• Pn071 参数：Pn071 parameter:

位 Position	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
功能信号 Functional signal	REF	GOH	PC	INH	Pclear	Cinv	Gn2	Gn1
默认值 Default value	1	1	1	1	1	1	1	1

BIT15	BIT14	BIT13	BIT12	BIT11	BIT10	BIT9	BIT8
保留 Retain	Punlock	Pdistance	Psource	Pstop	Ptriger	Pos2	Pos1
0	1	1	1	1	1	1	1

• 在通信控制方式下，通过设置本寄存器的位，即可达到 CN2 外部输入信号控制的效果。例如：驱动器在位置控制模式下，要禁止脉冲指令，设置 Pn071 的 BIT4 设置 0，则输入的脉冲变为无效。非通信控制下，设置本参数值，一律无效。In the communication control mode, by setting the bits of this register, we can achieve the effect of CN2 external input signal control. For example: the driver in the position control mode, to prohibit the pulse command, set the Pn071 BIT4 settings 0, then the input pulse becomes invalid. Non communication control, set the value of the reference, are invalid.

注意：每次上电后，驱动器会自动载入 Pn070, Pn071 寄存器的值，并马上执行相应的操作。所以，在使能电机前，确定输入功能信号进入正确的工作状态。Note: each time the power is on, the drive automatically loads the values of the Pn070, Pn071 registers, and executes the corresponding operations immediately. Therefore, before the enable motor, the input function signal is determined to enter the correct working state.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn072	输入功能控制方式选择寄存器 3 The input function control mode selects the register 3	0~1	0		All
Pn073	输入功能逻辑状态设置寄存器 3 Input function logic status setting register 3	0~1	1		All

• Pn072 参数：Pn072 parameter:

位 Position	BIT15~BIT1	BIT0
功能 Function	保留 Retain	Sen

默认值 Default value	0	0

• Pn073 参数 Pn073 parameter

位 Position	BIT15~BIT1	BIT0
功能 Function	保留 Retain	Sen
默认值 Default value	0	1

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn074	风扇开启温度 Fan opening temperature	30~70	50	℃	All
Pn075	风扇运行方式 Fan operation mode	0~2	0		All

Pn075	风扇运行方式 Fan operation mode
0	感温自动运行 Temperature sensing automatic operation
1	开机运行 Boot operation
2	关闭 Close

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
	紧急停机(EMG)复位方式 Emergency shutdown (EMG) reset mode	0-1	0		All

Pn076

・解除 EMG 状态 OFF 后，清除 EMG (AL-14)报警的条件：Clear the EMG (AL-14) alarm condition after the EMG status OFF is lifted:

设置值 Setting value	功能 Function
0	必须在伺服使能 OFF 下，通过手动或端口 SigIn：AlarmRst 清除。The servo must enable the OFF to be cleared by manual or port SigIn:AlarmRst.
1	无论伺服使能 ON 或 OFF，EMG 再次变为 ON，会自动清除。No matter the servo enable ON or OFF, the EMG changes to ON again and will be automatically cleared.

・在使能 ON 的状态下，若外部有指令输入，EMG 报警自动清除后，指令立即被执行。In the enabling ON state, if the external command input, the EMG alarm is automatically cleared, the instructions are executed immediately.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn077	正/反驱动禁止检出 Positive / reverse drive forbidden detection	0-2	0		All

若使用了ccwl或cwl功能，当ccwl或cwl为OFF状态时，可设置是否发出AL-15报警：
If you use the ccwl or CWL function, when ccwl or CWL is the OFF state, you can set whether or not to issue a AL-15 alarm:

设置值 Setting value	功能 function

	0	不发出报警,减速停止。Do not alarm, slow down and stop.
	1	电机运行时，减速停止后，发出报警，电机不再通电。When the motor is running, when the deceleration is stopped, the alarm is sent out, and the motor is no longer energized.
	2	立刻发出报警，电机断电，自由停机。Alarm immediately, motor power off, free stop.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn078	电压不足检出 Undervoltage detection	0~1	1		All

设置值 Setting value	功能 Function
0	不检出 Not detected
1	检出 detection

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn079	系统状态显示项目选择 System status display project selection	0-30	0		All

驱动器上电后，自动进入监视模式菜单Dn000子菜单。默认情况下，按厂家的方式显示系统状态（电机转速），用户可以设置本参数值，使Dn000显示特定的系统状态参数，具体说明参见“监控模式一览表”。After the drive is powered on, automatically enter the monitor mode menu Dn000 submenu. By default, the state display system according to the manufacturer the way (motor speed), the user can set the parameter values, the Dn000 display system state specific parameters, specifically refer to "monitor model list".

0 系统默认(电机运行速度) 0 system defaults (motor speed)1 速度指令 1 speed command 2 平均转矩 2 average torque 3 位置偏差量 3 position deviation 4 交流电源电压 4 AC power supply voltage 5 最大瞬时力矩 5 maximum instantaneous

	torque 6 脉冲输入频率 6 pulse input frequency 7 散热片温度 7 heat sink temperature 8 当前电机运行速度 8 current motor speed 9 有效输入指令脉冲累计值低位9 the effective input command pulse accumulated value is low 10有效输入指令脉冲累计值高位10 the effective input command pulse accumulation value is high 11位置控制时，编码器有效反馈脉冲累计值低位11 position control, the encoder effective feedback pulse accumulated value is low 12位置控制时，编码器有效反馈脉冲累计值高位12 position control, the encoder effective feedback pulse accumulation value is high 13再生制动负载率 13 regenerative braking load rate 14输入端口信号状态 14 input port signal status 15输出端口信号状态15 output port signal status 16模拟转矩指令电压 16 analog torque command voltage 17模拟速度指令电压 17 analog speed command voltage 18输出功能状态寄存器 18 output function status register 19伺服上电后，编码器反馈脉冲累计值低位 19 after servo power on, the encoder feedback pulse accumulated value is low 20伺服上电后，编码器反馈脉冲累计值高位After 20 servo power on, the encoder feedback pulse accumulation value is high 21驱动器软件版本 21 drive software version 22编码器UVW信22 encoder UVW letter 23转子绝对位置23 rotor absolute position 24 驱动器型号24 drive type 25绝对器编码器单圈数据低位 25 absolute encoder single loop low data 26 绝对器编码器单圈数据高位26 absolute encoder single loop data high 27绝对器编码器多圈数据低位 27 absolute encoder multi ring data low 28绝对器编码器多圈数据高位 28 absolute encoder multi ring data high 30 负载惯量比显示30 load inertia ratio display

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
	增量式编码器线数 Incremental encoder line number	0~16000	0	线 line	All
	• 安装在电机轴上的编码器线数。设置值必须与编码器规定的线数标称值完全一样，				

Pn080	编码器安装的电机角度及接线符合驱动器的接线定义，否则出现电机卡死、跑飞或执行位置指令出现偏差等非正常现象。一般用户不需修改本参数，默认值即可。若编码器为绝对式编码器，本参数设置无效。The number of encoders mounted on the motor shaft. Setting values must be specified with the encoder line number nominal values are exactly the same, the motor angle encoder installation and wiring connection with defined drive, otherwise blocking of the motor run or position deviation and other non normal instruction execution. General users do not need to modify this parameter, the default value can be. If the encoder is absolute encoder, this parameter setting is invalid. • 取 0 值时，为电机标配编码器的线数值。When 0 values are taken, it is the line value of the motor standard encoder.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn081	用户参数永久写入操作 User parameter permanent write operation	0-1	0		All
	对应辅助模式 Fn001 操作。将当前 Pn000~Pn219 的所有参数值写入到 EEPROM 中。当参数值由 0 变为 1，驱动器就会执行一次写操作。此操作只在通信时有效(Pn064>0)。Corresponding auxiliary mode Fn001 operation. Writes all parameter values of the current Pn000~Pn219 to EEPROM. When the parameter value is changed from 0 to 1, the driver will execute a write operation. This operation is only valid when communicating (Pn064>0).				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn082	SigOut 端口强制输出 SigOut port forced output	0~4095	0		All

• 强制 SigOut 端口输出固定电平。通过设置本参数，强制输出端口的电平状态。Force the SigOut port to output the fixed level. By setting this parameter, the output level of the output port is forced.

	保留 Retain	SigOut5	SigOut4		SigOut3		SigOut2		SigOut1	
位 position	BIT15~BIT10	BIT19~BIT8	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
默认值 Default value	0	0	0	0	0	0	0	0	0	0

输出端口真值表如下：The output port truth table is as follows:

SigOut2			SigOut1		
BIT3	BIT2	输出电平 Output level	BIT1	BIT0	输出电平 Output level
0	0	非强制态 Non coercive state	0	0	非强制态 Non coercive state
0	1	强制高电平 Forced high level	0	1	强制高电平 Forced high level
1	0	强制低电平 Forced low level	1	0	强制低电平 Forced low level
1	1	非强制态 Non coercive state	1	1	非强制态 Non coercive state

SigOut4			SigOut3		
BIT7	BIT6	输出电平 Output level	BIT5	BIT4	输出电平 Output level
0	0	非强制态 Non coercive state	0	0	非强制态 Non coercive state
0	1	强制高电平 Forced high level	0	1	强制高电平 Forced high level
1	0	强制低电平 Forced low level	1	0	强制低电平 Forced low level
1	1	非强制态 Non coercive state	1	1	非强制态 Non coercive state

SigOut5		
BIT9	BIT8	输出电平 Output level
0	0	非强制态 Non coercive state
0	1	强制高电平 Forced high level
1	0	强制低电平 Forced low level
1	1	非强制态 Non coercive state

例：输出端口 SigOut2 强制输出低电平，其它端口状态非强制输出，则设置 Pn082 参数值为 8。Example: the output port SigOut2 forces the output to be low, and the other port states are not forced to output. The Pn082 parameter is set to 8.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn083	低压报警检测幅值 Low voltage alarm detection amplitude	50~280	200	V	All
	当母线电压低于此幅值时，由 Pn078 决定是否发出报警。When the bus voltage is below this amplitude, the Pn078 determines whether or not the alarm is given.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn084	高温报警检测幅值 High temperature alarm detection amplitude	0~100	70	摄氏度-	All
	当散热片温度高于此幅值时，将发出报警。若设置为 0，则屏蔽报警。When the heat sink temperature is higher than this amplitude, the alarm will be sent out. If set to 0, screen the alarm.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn085▲	电机极对数 Pole count of motor	0~100	0	对 Right	All
	参数为 0 时，为驱动器默认取值。Default value for the drive when the parameter is 0.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn087▲	制动电阻选择 Selection of braking resistance	0~2	1	-	All

设置值 Setting value	功能 Function
0	未安装制动电阻 No braking resistors are installed
1	使用内置制动电阻 Use built in brake resistors
2	使用外置制动电阻 Use an external braking resistor

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn088	制动电阻再生过载报警水平 Brake resistor regeneration overload alarm level	50~250	90	%	All
	・制动电阻再生过载率越高，电阻表面温度越高。The higher the overload rate of the resistor regeneration, the higher the resistance surface temperature. ・当内置或外置制动电阻再生制动负载率低于报警水平时，不进行过载报警。When the internal or external braking resistor, the regenerative braking load rate is lower than the alarm level, the overload alarm is not carried out. ・设置 Pn092=0,蔽再生过载报警。Set Pn092=0, shield regeneration overload alarm.				

◢

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn089▲	外置制动电阻功率 External braking resistance power	20~20000	100	W	All
Pn090▲	外置制动电阻阻值 External braking resistance value	10~1000	100	Ω	All
Pn091	外置制动电阻再生可用容量 External brake resistance, regeneration, available capacity	5~75	20	%	All
	・当使用外置制动电阻(Pn087=2)时，必须设置标称的电阻功率值和阻值。When using an external braking resistor (Pn087=2), a nominal resistance, power value, and resistance must be set. ・设置制动电阻可用容量时，须考虑环境温度、通风强度及电阻散热特性等散热因素，应降额使用电阻。制动电阻可用容量不宜过高，否则电阻表面温升可达几百摄氏度，烧毁电阻，引发火灾。请在安全条件选配制动电阻。当制动电阻安装在大片散热器上时，若进行自然冷却，可尝试设置 25%，若进行强风对吹，可尝试设置 45%。系统动作一段时间后，检查电阻温度是否过高。尝试多次后，仍出现再生过载报警，而电阻温度处于容许范围内，可设置 Pn092=0，即禁止制动电阻相关报警 。When the available capacity of the brake resistance is set, heat dissipation factors such as ambient temperature, ventilation intensity and resistance, heat dissipation characteristics must be taken into account, and the resistance shall be decreased. Braking resistor				

	available capacity should not be too high, otherwise the resistance surface temperature up to several hundred degrees Celsius, burning resistance, causing fire. Please choose the brake resistor in safe condition. When the brake resistance is mounted on a large radiator, if it is naturally cooled, try to set 25%. If a strong wind blows, try setting 45%. After checking the system for a period of time, check whether the resistance temperature is too high. After repeated attempts, the regenerative overload alarm still occurs, while the resistance temperature is within the allowable range, and the Pn092=0 can be set, that is to say, no braking resistance is concerned.

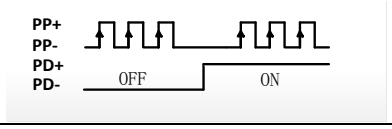
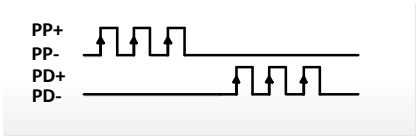
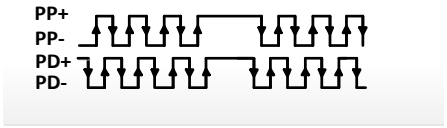
编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn092	制动电阻过载检出 Overload detection of braking resistor	0~1	1	-	All

设置值 Setting value	功能 function
0	再生过载时，不发出报警 Do not issue alarm when regenerative overload occurs
1	再生过载时，发出报警 Issue alarm when regenerative overload occurs

4.3.2 位置控制参数 Position control parameter

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
	指令脉冲输入方式 Command pulse input mode	0-2	0		P

Pn096▲

Pn096		正命令 Direct order	负命令 Negative command
0	脉冲+方向 Pulse + direction		
1	正转/反转脉冲 Forward / reverse pulse		
2	正交脉冲 Quadrature pulse		

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn097▲	指令脉冲输入方向逻辑选择 Instruction pulse input direction logic selection	0-1	0		P

设置值 Setting value	功能 Function
0	输入正命令，电机逆时针(ccw)旋转 Enter the positive command and turn the motor counter clockwise (CCW)
1	输入正命令，电机顺时针(cw)旋转 Enter the positive command and turn the motor clockwise (CW)

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn098	脉冲电子齿轮比之分子 1Pulse	1~32767	1		P

	electron gear ratio of molecule 1				
Pn099	脉冲电子齿轮比之分子 2Pulse electron gear ratio of molecule 2	1~32767	1		P
Pn100	脉冲电子齿轮比之分子 3Pulse electron gear ratio of molecule 3	1~32767	1		P
Pn101	脉冲电子齿轮比之分子 4Pulse electron gear ratio of molecule 4	1~32767	1		P
Pn102 ▲	脉冲电子齿轮比之分母 The denominator of a pulsed electronic gear ratio	1~32767	1		P
	电子齿轮比之分子 N 由输入端口 SigIn 的 GN1,GN2 决定 。分母固定。分子选择如下表：The molecular N of the electronic gear ratio is determined by GN1, GN2 of the input port SigIn. Denominator fixing. Molecular selection follows:				

GN2	GN1	电子齿轮比分子 N Electronic gear ratio, molecular N
OFF	OFF	分子 1 Molecule 1
OFF	ON	分子 2 Molecule 2
ON	OFF	分子 3 Molecule 3
ON	ON	分子 4 Molecule 4

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn103	位置偏差超出范围设定 The position deviation is out of range setting	1~2000	500	万个脉冲 ten thousand pulse	P
	当脉冲偏差计数器的脉冲数超过所设定的值时(即：当前位置与目标位置相差过大)，驱动器就发出报警信号。When the pulse number of the pulse deviation counter exceeds the set value (i.e., the difference between the current position and the target position), the driver sends out an alarm signal.				

编号	名称 Name	取值范围	默认值	单位 Unit	适用

No.		Range of values	Default value		Apply
Pn104	位置定位完成范围设定 Location positioning complete range setting	0~ 32767	10	脉冲 pulse	P
Pn105	位置定位完成回差设定 Location positioning complete backlash setting	0~ 32767	3	脉冲 pulse	P
	当偏差计数器的剩余脉冲数低于本参数设定值时,输出端口 SigOut::Preach 信号就 ON，否则 OFF。When the residual pulse number of the offset counter is lower than the parameter setting value, the output port SigOut:: Preach signal is ON, otherwise OFF.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn106	位置定位接近范围设定 Location positioning complete range setting	0~ 32767	300	脉冲 pulse	P
Pn107	位置定位完成回差设定 Location positioning complete backlash setting	0~ 32767	30	脉冲 pulse	P
	当偏差计数器的剩余脉冲数低于本参数设定值时，输出端口 SigOut 的 Pnear 信号就 ON，否则 OFF。When the residual pulse number of the offset counter is lower than the parameter setting value, the Pnear signal of the output port SigOut is ON, otherwise OFF.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
	位置偏差清除方式 Position deviation clearing mode	0-1	1		P
	位置控制时，可使用 SigIn 的 Pclear 功能，清除位置偏差计数器的值。位置偏差清除发生在：Position control, you can use the SigIn's Pclear function to clear the				

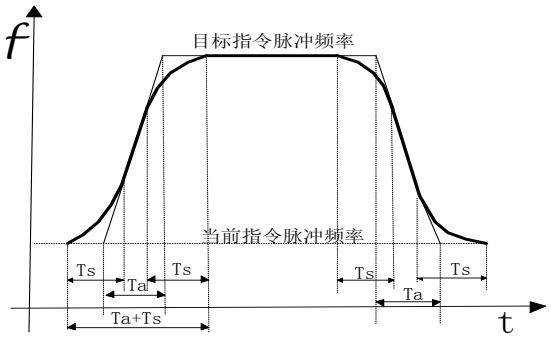
Pn108	value of the position offset counter. Positional error clearing occurs at:

设置值Setting value	功能 Function
0	Pclear 电平 ON 期间 Pclear Level ON period
1	Pclear 上升沿时刻(由 OFF 到 ON) Pclear Rising edge time (from OFF to ON)

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn109◆	位置指令加减速方式 Position command acceleration and deceleration mode	0-2	0		P

设置值 Setting value	功能 Function
0	不使用滤波 No filtering
1	一次平滑滤波 One time smooth filtering
2	S 形滤波 S shape filtering

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn110◆	位置指令一次滤波时间常数 Position instruction, primary filtering, time constant	5~500	50	ms	P
Pn111◆	位置指令 S 形滤波时间常数 Ta Position instruction, S shape filtering, time constant Ta	5~340	50	ms	P
Pn112◆	位置指令 S 形滤波时间常数 Ts Position instruction, S shape filtering, time constant Ts	5~150	20	ms	P
	·滤波时间常数定义：由当前位置指令频率运行到目标指令频率的时间。滤波时间越长，				

	位置指令的频率平滑性越好 ，但指令响应延迟越大。在指令脉冲频率阶跃性变化的场合，起到平滑运行电机的作用。滤波对指令脉冲个数没有影响。Filter time constant definition: the time from the current position, the instruction frequency, to the target instruction frequency. The longer the filtering time, the better the frequency smoothness of the position instruction, but the greater the instruction response delay. On the occasions of step change of the instruction pulse frequency, the motor is operated smoothly. Filtering has no influence on the number of instruction pulses. • 滤波时间 T=Ta+Ts 。Ta:直线部分时间，Ta 越小，加减速越快。Ts:弧线部分时间，Ts 越大， 速度越平滑，冲击越小。Filter time T=Ta+Ts. Ta: straight part of time, the smaller the Ta, the faster the acceleration and deceleration. Ts: arc part time, the greater the Ts, the smoother the speed, the smaller the impact.  设置规则: $\frac{Ta}{2} \geq Ts$

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn113	位置环前馈增益 Position loop feedforward gain	0-100	0	%	P
Pn114▲	位置环前馈过滤器时间常数 Position loop, feedforward filter, time constant	1-50	5	ms	P
	位置控制时，位置前馈直接加于速度指令上，可以减小位置的跟踪误差，提高应答。如果前馈增益过大，可能导致速度过冲。可对前馈命令进行平滑处理。In position control,				

	the position feedforward is directly applied to the speed command, which can reduce the tracking error of position and improve the response. If the feed forward gain is too large, it may cause velocity overshoot. The feedforward commands can be smoothed.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn115	位置调节器增益 1 Position regulator gain 1	1-2000	100	1/S	P
Pn116	位置调节器增益 2 Position regulator gain 2	1-2000	100	1/S	P
	在机械系统不产生振动或是噪音的前提下，增加位置环增益值，以加快反应速度，缩短定位时间。On the premise that the mechanical system does not produce vibration or noise, the position loop gain is increased to accelerate the reaction speed and shorten the positioning time.				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn117	位置指令源选择 Location command source selection	0~3	0		P

设置值 Setting value	功能 Function
0	外部脉冲输入 External pulse input
1	内部位置指令（详见附录 G）Internal position instructions (see Appendix G)
2	由 SigIn：psource 确定指令源。On:内部位置指令；Off：外部脉冲输入 The command source is determined by the SigIn:psource. On: internal position instruction; Off: external pulse input
3	运动控制器指令 Motion controller instruction

编号 No.	名称 Name	取值范围 Range	默认值 Default	单位	适用

		of values	value	Unit	Apply
Pn118	内部位置指令暂停方式选择 Internal position instruction pause mode selection	0~1	0		P

设置值 Setting value	功能 Function
0	当 pstop 触发动作后，ptriger 再次触发时，驱动器根据当前选择的内部位置指令运行。When the pstop trigger action is triggered again, the ptriger is driven according to the currently selected internal location command.
1	当 pstop 触发动作后，ptriger 再次触发时，驱动器继续完成上次剩余的内部位置指令脉冲数。When the pstop trigger action is triggered again, the ptriger continues to complete the last remaining internal position command pulses.

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn119	内部位置暂停减速时间 Internal position suspension deceleration time	0~10000	50	ms	P
	在内部位置控制时，pstop 下降沿出现后，电机由当前运行速度将减速至 0，其减速时间可由本参数设置(仅用于内部位置控制)。In the internal position control, when the falling edge of the pstop occurs, the motor will decelerate from the current running speed to 0, and its deceleration time can be set by this parameter (for internal position control only).				

编号 No.	名称 Name	取值范围 Range of values	默认值 Default value	单位 Unit	适用 Apply
Pn120	内部位置指令 0 脉冲数高位设定 Internal position command 0 pulse number high setting	-9999~9999	0	万个脉冲 Tens of thousands	P