DS100S

DS Series

AC Servo Motor & Drive

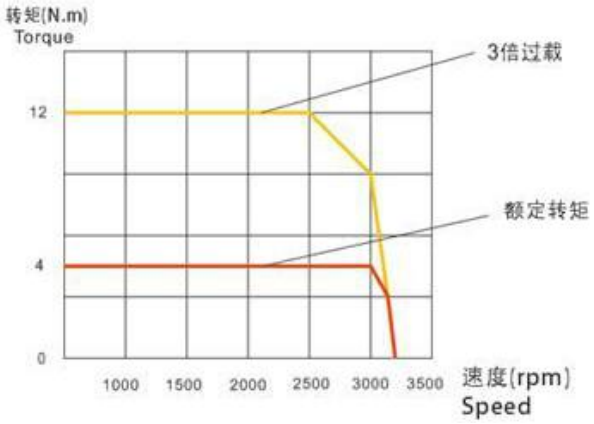
Operating Instructions

DS Series AC Servo Systems

Features

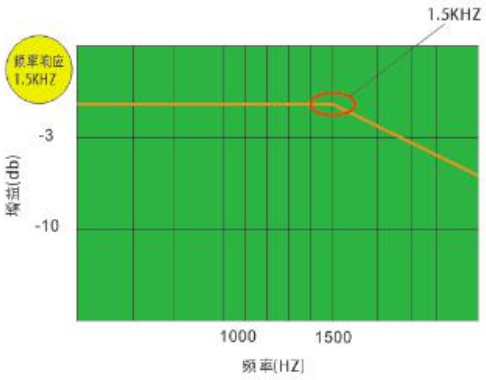
Strong Overload Capability

Because it adopts industrial intelligent power module IPM, it has advantages of strong overload capacity and high starting torque. Moreover the load that it withstands are three times stronger than the rated torque. it is pretty good on the occasion of which the load occurs fluctuations suddenly and that is required to start working quickly.



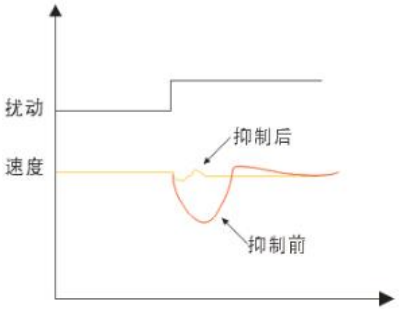
High Response Frequency: 1.5KHz

Due to the perfect use of the advanced PID control algorithm and the feed-forward torque , It greatly improves the dynamic response performance, and effectively shorten the setting time. And the dynamic time of acceleration and deceleration of the motor is short, which is usually within tens of milliseconds.The drive velocity response frequency can be up to 1.5KHz and the rated speed can be up to 3000rpm.



Excellent Anti-interference Ability

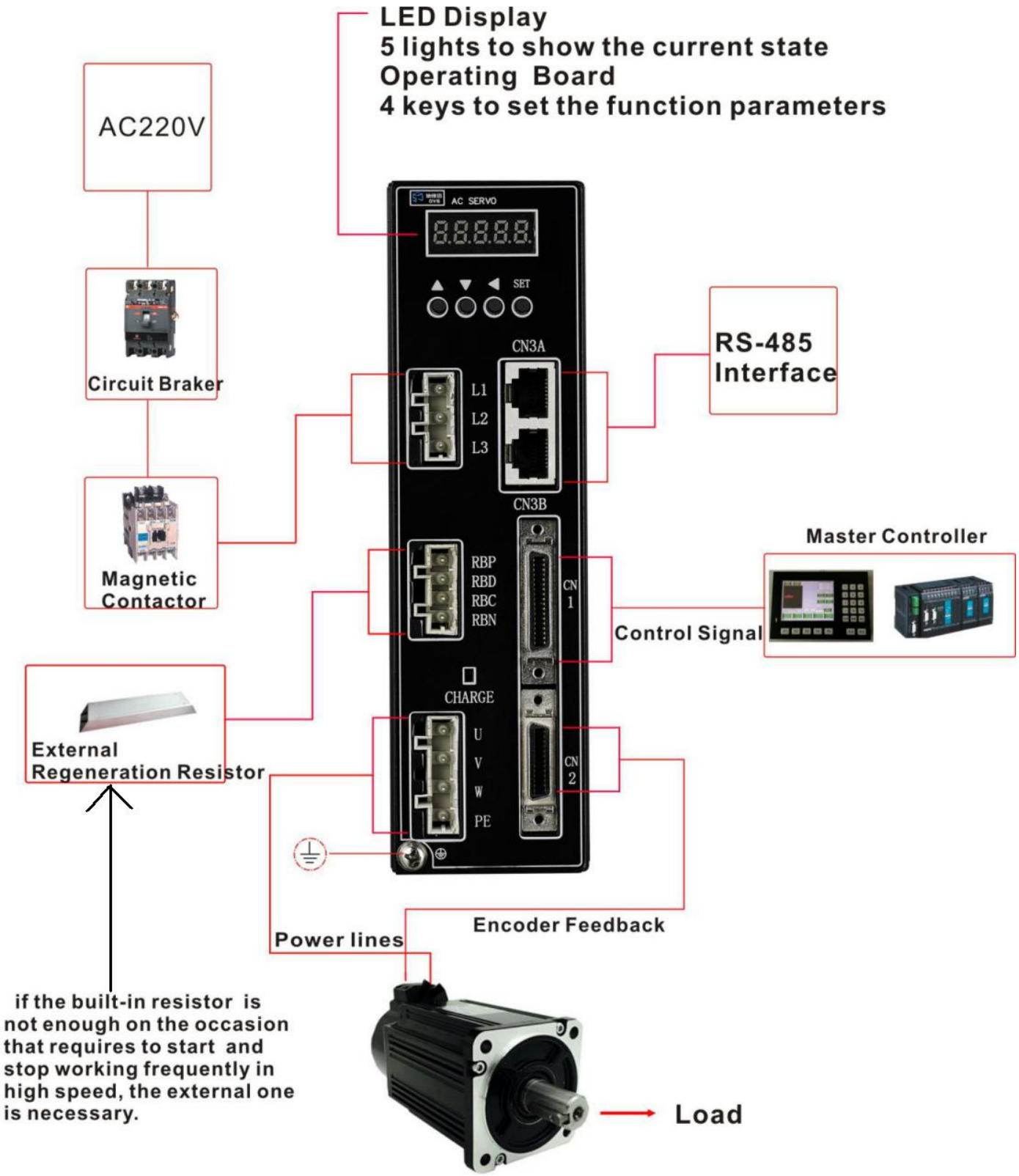
By real-time observation of external disturbance and real-time dynamic compensation, the speed fluctuation and torque fluctuation caused by external disturbance are reduced.



Good Position Following Capability

By adopting load identification and torque feed-forward advanced control algorithm,very small velocity ripple and position error can be achieved. Moreover, we configure 17-bit absolute encoder so that it can largely improve the stability in low speed and positioning accuracy. And it also provides control methods including position, velocity, torque, speed trial operation and JOG for our customers to choose conveniently.

DS Servo System Configuration



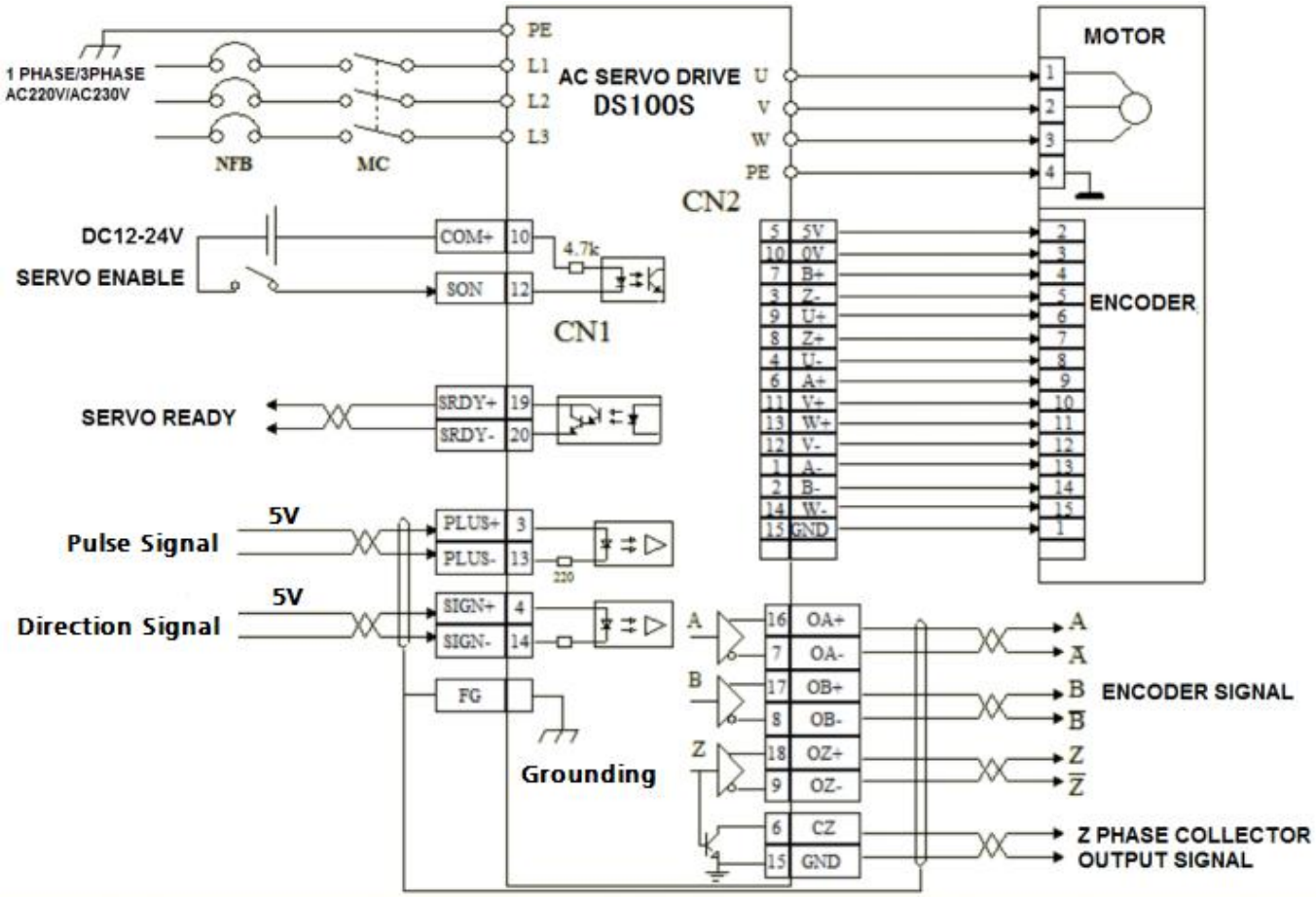
Notes:

"SET" Button: Enter the parameter settings or set the values to the selected parameter and exit.

▲ UP Button: Increase the selected value by 1.
▼ DOWN Button: Decrease the selected value by 1.
◀ BACK Button: Press this to come back to before data.

Wiring Example in Position Mode

DN series Motor Connecting(15-Line Encoder)



DN series 15-line Motor Connecting(60mm、80mm、90mm)

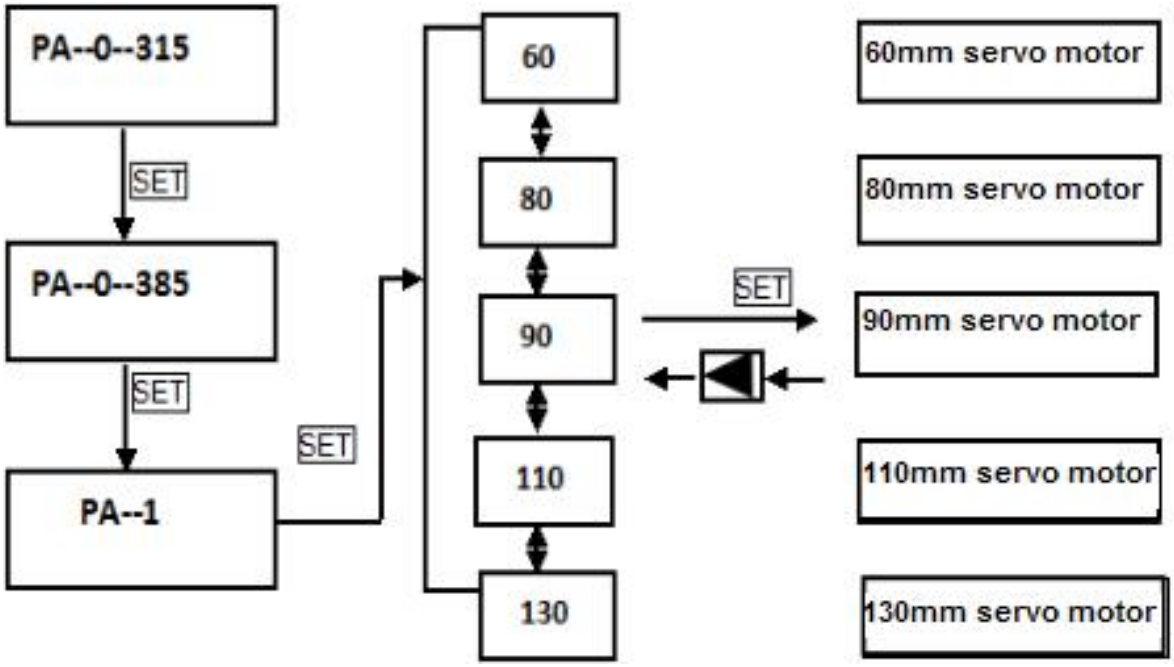
Power Line	Winding	U				V				W				PE		
	Plug	1				2				3				4		
Encoder Line	Signal	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-	PE
	Plug	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

Notes:

1. If use 3 phase AC220V main power supply, please connect with terminal L1,L2,L3.
2. If use 1 phase AC220V main power supply, please connect with terminal L1,L3.
3. Terminal CN2 please connect with the signal terminal of encoder.
4. Terminal CN1 should be connected following the above wiring picture.
5. Rated current of the external power supply(12~24vdc) for digital inputs and outputs should more than 100mA.
6. Recommend use AWG24-26 shielded cables for control and feedback signals, and correctly ground the shielded cable.
7. Cable for control signals(CN1) should be less than 3 meters, and cable for feedback signals(CN2) should be less than 10 meters.
8. Recommend use a circuit braker (NFB) to cut off power in the case of an overload, and use an electromagnetic contactor to switch servo motor on and off.

Motor Code Parameter Setting Steps

The code parameter PA-01 of a motor must be configured with the exact motor that you use. The value of PA-01 should be set referring to the following table. If there is a mismatching occurred,there will cause degradation or alarm. And needed attention that different types of code have different default parameters. For example, DS100H-75 whose factory default model of ac servo motor is 80ST-M02430. If there is necessary to modify the motor code or restore setting parameters that was set by manufacturer, please firstly modify PA-0 to 385,and then enter into PA-01, and finally press up key or down key to select the appropriate motor. The steps as the following picture showed:



Parameters In Position Mode

The following parameters need to be set when in position mode:

Parameter	Introduction	Value	Default Value
PA4	Controlling Method	0	0
PA11	Command pulses if the motor runs one roll.	Set by yourself	10000
PA14	To select position command pulse mode	Set by yourself	0
PA15	To reverse the direction of position command pulse	Set by yourself	0

Operation and Display Layer

Names Of Keys And Functions

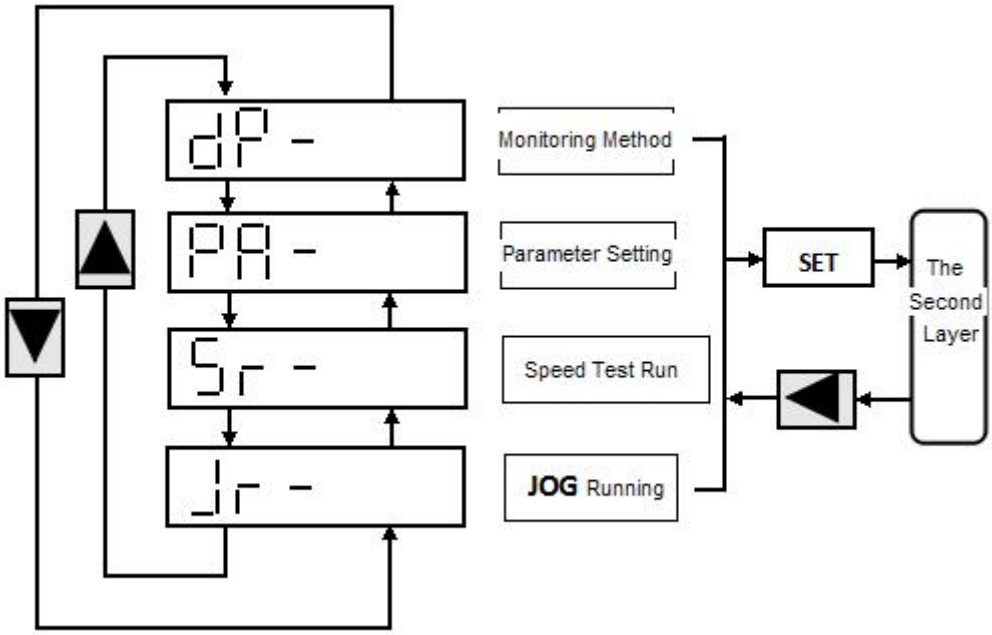
The panel consists of 5 LED and 4 keys including ↑、↓、←、**SET** to display all system status and set parameters. The operation is hierarchical. ← key indicates "back" and **SET** key indicates "forward" while it also has the meaning of "Enter" and ← key also has the meaning of "Cancel" and "Exit". ↑ key indicates "Increasing " and ↓ key indicates "decreasing". If you press the ↑ key or ↓ key and maintain it, you would get a repeated operation, if stay longer, the repetition rate is higher.

Steps To Set Parameters

Please firstly select "PA-", and press SET key to enter the status of parameter setting mode. And use ↑ or ↓ to choose parameters and then press **SET** key for a little while to make sure the value. You can modify the parameter's value with ↑ or ↓. Press ↑ or ↓ key one time, the parameter increases or decreases by 1. Pressing and holding ↑ or ↓ key can make the value increased or decreased continuously. After modifying the value of the parameter,please keep pressing **SET** key until the LED flashes two times, it means changes are completed . Finally please recharge, then the new parameter is effective.

Monitoring Status Content

There are four ways to select the mode of operation in the first layer and ↑ or ↓ key is used to change the way. Press SET key to enter into the second layer and you can turn back to the first layer with ← key.



Pic 1. Operating display layer

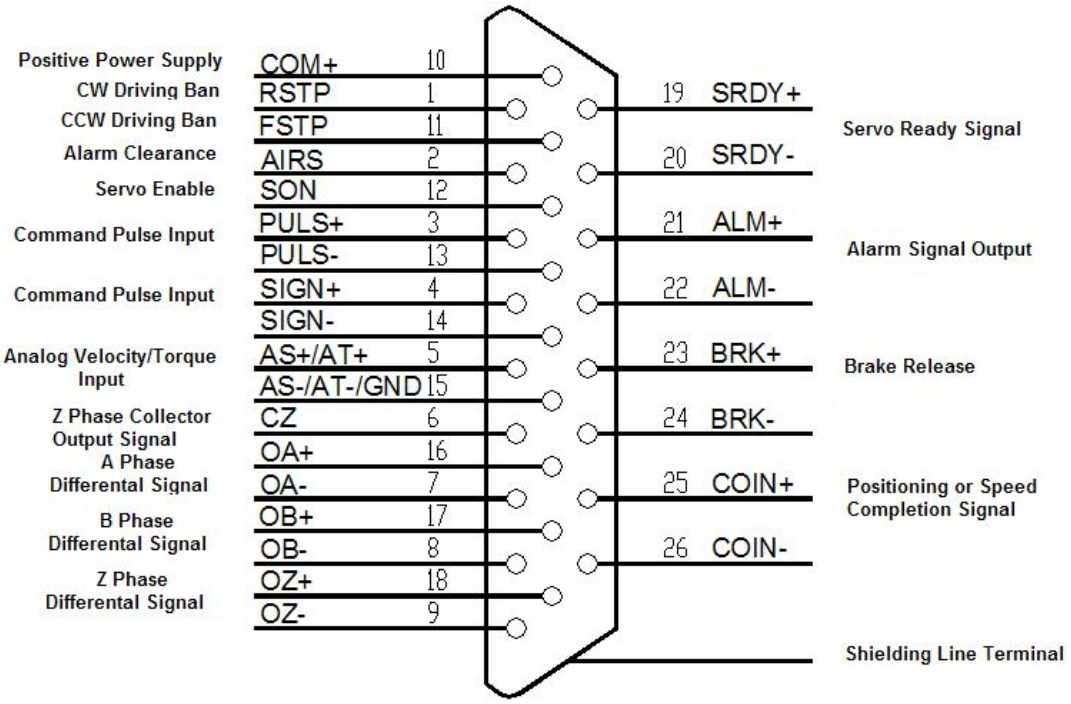
Monitoring

In the first layer, please select "DP--" and press the SET button to enter into monitoring mode. There are 16 displays in total. Users select the desired display mode with ↑ or ↓ key, and then press the SET key to enter into the specific states.

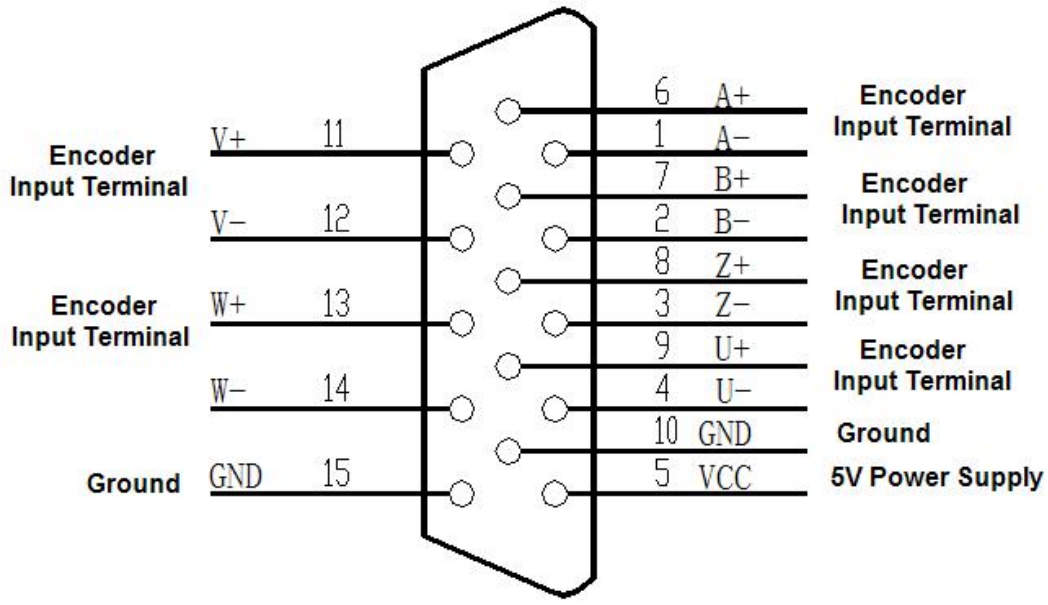
Monitoring	Operation	Example	Introduction
dP-SPd		r 1000	Speed : 1000r / min
dP-PoS		P45806	The current position : 1245806
dP-PoS.		P. 12	
dP-CPo		C45810	Position Command : 1245810
dP-CPo.		C. 12	
dP-EPo	SET	E 4	4 Pulses Of Position Deviation
dP-EPo.	⟶ ⟵	E. 0	
dP-tr9		t 70	Motor Torque 70%
dP- I		I 2.3	Motor Current 2.3A
dP-Cnt		Cnt 0	Control mode 0
dP-APo		A 3265	Rotor Absolute Position 3265
dP- In		In ▮▮▮▮▮	Input Terminal
dP-oUt		oUt ▮▮▮	Output Terminal
dP-Cod		Cod ▮▮▮▮	Encoder Signal
dP- rn		rn - on	Running State
dP-Err		Err 9	No.9 Alarming

Terminals

CN1 Connector



CN2 Connector



CN3A And CN3B Connector

RS485	Can be connected to the PC machine or controller through special serial cable, don't plug it with electric. Twisted pair shielded wires are suggested and less than 2 meters in length				
Terminal	CN3A	Name	CN3B	Name	Picture
1	VCC	Positive power supply	VCC	Positive power supply	
2	GND	Ground	GND	Ground	
3	TX-D	RS485 Transmitting end	TX-D	RS485 Transmitting end	
4	RSB	RS485 Communication signal	RSB	RS485 Communication signal	
5	RSA		RSA		
6	RXD	RS485 Receiving end	RXD	RS485 Receiving end	
7	GND	Ground	GND	Ground	
8	VCC	Positive power supply	NC	Free end	

External Regenerative Resistor Connecting Terminal

Terminal	Signal Name	Function	Induction
1	RBP	External braking resistor	Built-in： Usually shortly connect RBP and RBD。 External： If use external resistor, please disconnect RBP and RBD. And external resistor connect between RBP and PBC. Please do not connect RBP with RBN together.
2	RBD		
3	RBC		
4	RBN	DC high voltage ground	

CN5 Connector

Terminal	Name	Function
1	BAT+	Dedicate power supply 3.6V of absolute encoders.
2	GND	

Parameter Function Introduction

No.	Name	Function	Parameter Range	Default Value
0	Password	1.User password is 315 to set or change parameters. 2.Motor type code is 385.	0-9999	315
1	Motor type selection	1. Corresponding to different drives and motors with different power in the same series. 2. The different motor type code has different default parameters. If you want to use the function of recovering the default parameter, please make sure your current parameter is correct. 3.If want to edit the current parameter, please set the motor type code PA0 to 385 firstly.	80-90	80ST-M02430
3	Initial display status	0: Display the current motor speed 1:Display the current position is 5-bit low . 2：Display the current position is 5-bit high . 3：Display position command(command pulse accumulation) is 5-bit low. 4: Display position command(command pulse accumulation) is 5-bit high. 5:Display position deviation is 5-bit low. 6.Display position deviation is 5-bit high . 7.Display motor torque 8.Display motor current 9.Display current control mode 10.Display current temperature 11.Display speed command 12.Display torque command 13.Display absolute position of the rotor is 5-bit low . 14.Display absolute position of the rotor is 5-bit high . 15.Display input terminal state 16.Display output terminal state 17.Display encoder input signal 18.Display voltage value of main line of main circuit 19.Display alarming code 20.Display logic chip version number 21.Display the actuation state of the relay 22.Display external voltage state	0-23	0
4	Control mode	Through this number you can set drive controlling method: 0: position control mode 1: speed control mode 2: test running control mode 3: JOG control mode 6:torque control mode	0/1/2/3/6	0
5	Velocity proportional gain	1.set the proportional gain of speed loop regulator. 2.The value is bigger, the gain is higher and rigidity is	5-2000Hz	150

		stronger. The parameter value is set according to your exact servo driving system model and the load. Generally, the greater the load inertia, the bigger the value. 3.Please set a little high value if the system condition does not generate oscillation.		
6	Velocity integral constant	1.To set the integration time constant. 2.The value is smaller, the integral speed is faster and the ability of system in resisting deviation is stronger.But if it is too small, it will happen over controlling.	1-1000ms	75
9	Position proportional gain	1.To set the proportional gain of position loop regulator. 2.The value is bigger, the gain is higher and its rigidity is stronger. So the position lag is smaller under the same frequency command pulse condition. But if it is too big, it will happen oscillation. 3.The parameter value is set according to your exact servo driving system model and the load.	1-1000/s	40
11	Number of output pulses of 1 rotation turn of the motor	1.Set the number of output pulses of 1 rotation turn of the motor. 2.When set number “0”, PA-12(position command pulse frequency divider) and PA-13(position command pulse frequency) are effective.	0-30000	10000
12	The numerator of position command pulse	1.To set the electric gear ratio in position command pulse. 2.In position control mode,it is convenient to match all kinds of pulse source through set the parameter PA12 and PA13, which helps to reach ideal control resolution(angle/pulse). 3. P×G=N×C×4 P: pulses of input command; G:electric gear ratio; N: motor rotation number; C:number of photoelectric encoder in per rotation, default value is 2500. 4.For example, input command pulse P is 6000, servo motor rotate a roll: G=(N×C×4)/P=(1×2500×4)/6000=5/3, So PA12 should be set to 5, PA13 should be set to 3.	0-32767	0
13	Denominator of position command pulse	The same as the above	1-32767	10000
14	Position command pulse input mode	1.Set the mode position command pulse. 2. To set one of input modes through parameters: 0: Pulse+Direction 1: CCW pulse/CW pulse 2: phase A and phase B quadrature pulse input. Remark: CCW: observe from the motor axial direction. It defines CCW in counter clock wise and CW in clock wise.	0-2	0
15	Command pulse direction	Setting: 0:Normal 1:Reverse position command pulse	0-1	0
16	Position complete range	1.Setting the pulse range of position complete in position control mode. 2.The drive judges whether it finished position complete	0-30000 pulses	0

		based on this parameter. When the rest pulses are less than or equal with the setting value,the drive determines it finished position and the signal is COIN ON, or else COIN OFF.		
17	Detection of over range of position	1.Setting alarming range of detection of out of position range. 2.Under position control mode, if the value from position deviation counter is out of the setting value, the drive would alarm.	0-30000× 100pulses	400
18	Invalid error of over range of position	Set to: 0: The alarming detection of over range of position is effective. 1: The alarming detection of over range of position is invalid, and stops to detect its error .	0-1	0
19	Position command smooth filter	1.To filter the command pulse. Acceleration and deceleration are with exponential form. The value is time constant. 2.The filter does not lose the input pulse, but the delay of the instruction occurs. 3.The filter applies in (1. PC controller without acceleration and deceleration function. (2. The electronic gear frequency is a little big(>10). (3.The command frequency is a little low. 4.When the motor runs, there is a step to jump. 5.When set the value"0", the filter does not work.	0-30000*0.1ms	300
20	Invalid input of drive inhibition	Set to: 0: CCW drive inhibition or CW drive inhibition is effective. If the switch of CCW drive inhibition is ON, CCW drive is permitted.If the switch of CCW drive inhibition is OFF, CCW torque keeps 0.The same as CW drive inhibition. If both CCW and CW drive inhibition are OFF, it will come to error alarms of drive inhibition input. 1: Cancel CCW or CW drive inhibition. No matter what state of the switch of CCW or CW drive inhibition is, CCW or CW drive is allowed.Meanwhile,if the switches of CCW and CW drive inhibition are OFF, it will still not alarm..	0-1	1
21	JOG speed	Set the running speed of JOG operating.	0-6000r/min	1100
22	Internal speed and external speed command selection	Set to: 0: Speed command is from internal speed. 1: Speed command is from external analog quantity input.	0-1	0
23	Highest speed limit	Set the highest speed of the ac motor. It doesn't matter with rotating direction. If the setting value is beyond of rated speed, the real highest speed is set as the rated speed.	0-6000r/min	5000
24	Internal speed selection 1	Set the internal speed 1. Under speed control mode, when SC1 and SC2 are OFF,	-3000-3000 r/min	100

		internal speed 1 would be chosen to as the speed instruction.		
25	Internal speed selection 2	Set the internal speed 2. Under speed control mode, when SC1 is ON,while SC2 is OFF, internal speed 2 would be chosen to as the speed instruction.	-3000-3000 r/min	500
26	Internal speed selection 3	Set the internal speed 3. Under speed control mode, when SC1 is OFF,while SC2 is ON, internal speed 3 would be chosen to as the speed instruction.	-3000-3000 r/min	1000
27	Internal speed selection 4	Set the internal speed 4. Under speed control mode, when SC1 and SC2 are ON, internal speed 4 would be chosen to as the speed instruction.	-3000-3000 r/min	2000
28	Speed arrival	Set the speed arrival. 1.Under non position control mode,if the motor speed is over than its setting value, SCMP is ON, or else SCMP is OFF.	0-3000 r/min	500
29	Input gain of torque command for analog quantity	1.Set the proportion of analog quantity torque input voltage and the actual running motor torque. 2. The setting value unit is 0.1v/100%. 3. The default value is 30, corresponding to 3v/100%, while it means if the input voltage is 3V, it would generate 100% rated torque.	10-100 (0.1v/100%)	30
33	Reverse the input direction of analog quantity torque command	Reverse the input polarity of analog quantity toque. When it is set to 0 and the analog quantity torque command is positive, torque direction is CCW. When it is set to 1 and the analog quantity torque command is positive,torque direction is CW.	0-1	0
34	Internal CCW torque limit	Set internal torque limit of servo motor CCW direction. The setting value is the percentage of rated torque, for example, it is set to 2 times of rated torque, the value is 200. It is always valid no matter when it is. If the setting value is over than the max overload capacity, the actual torque limit is treat as the max overload capacity that is permitted.	0-300%	300%
35	Internal CW torque limit	Set internal torque limit of servo motor CW direction. 1.The setting value is the percentage of rated torque, for example, it is set to 2 times of rated torque, the value is -200. 2.It is always valid no matter when it is. 3.If the setting value is over than the max overload capacity, the actual torque limit is treat as the max overload capacity that is permitted.	-300-0%	-300%

36	External CCW torque limit	Set external torque limit of servo motor CCW direction. 1.The setting value is the percentage of rated torque, for example, it is set to 1 time of rated torque, the value is 100. 2.Only when the input terminal(FIL) of CCW torque limit is ON is it valid. 3.When the limit is valid, the actual torque limit is the Minimum value of max overload capacity ,internal CCW torque limit and external CCW torque limit.	0-300%	300%
37	External CW torque limit	Set external torque limit of servo motor CW direction. 1.The setting value is the percentage of rated torque, for example, it is set to 1 time of rated torque, the value is -100. 2.Only when the input terminal(RIL) of CW torque limit is ON is it valid. 3.When the limit is valid, the actual torque limit is the Minimum value of max overload capacity ,internal CCW torque limit and external CCW torque limit.	-300-0%	-300%
39	Analog torque command offset	Make an offset adjustment of analog torque command with this parameter.	-2000-2000	0
40	Acceleration time constant	The setting value means the motor of acceleration time from 0r/min to 1000r/min. Linear acceleration and deceleration characteristics. It only applies in speed control mode, while is invalid under position control mode. This parameter should be set to 0 if the drive is used in combination with an external position loop.	1-10000ms	100
41	Deceleration time constant	The setting value means the motor of deceleration time from 0r/min to 1000r/min. 1.Linear acceleration and deceleration characteristics. 2.It only applies in speed control mode, while is invalid under position control mode. 3.This parameter should be set to 0 if the drive is used in combination with an external position loop.	1-10000ms	100
42	Sigmoid acceleration and deceleration time constant	In order to make the motor start or stop working smoothly, you can set the portion time of sigmoid acceleration and deceleration curve.	1-1000ms	10
43	Analog speed command gain	Set the proportion of analog speed input voltage and actual running motor speed.	10-3000 r/min/v	10
44	Reversal of analog speed command	Reverse the input polarity of analog speed. 1. Set to 0 and analog speed command is positive,the speed direction is CCW. 2. Set to 1 and analog speed command is positive,the speed direction is CW.	0-1	0
45	Analog speed command offset	Make an offset adjustment of analog speed command with this parameter.	-5000-5000	0
46	Analog speed command filter	1.The input low pass filter of analog speed 2. The setting value is bigger, the response frequency is	1-1000Hz	100

<table>
<tr><td></td><td></td><td>quicker to speed input analog quantity and the influence of signal noise is louder.</td><td></td><td></td></tr>
<tr><td>47</td><td>Mechanical brake action at stalling</td><td>1.Set the time from when the brake release signal(BRK-ON) turns off to when the motor current is cut off, while the motor is at stall.
2.After setting,the parameter shouldn’t be less than Tb, and then can prevent a micro-travel/drop of the motor work due to the action delay time (tb) of the brake.</td><td>0-200×10ms</td><td>0</td></tr>
<tr><td>48</td><td>Mechanical brake action at motor running</td><td>1.Set the time from when the motor current is cut off to when the brake release signal(BRK-ON) turns off, while the motor turns to servo off during the motor in motion.
2.It prevents from the brake deterioration due to the mechanical brake action after the motor feedback the state from rotating to lower speed.
3.The actual action time is the smaller one between the time of PA48 or the time from the motor slow down to PA49.</td><td>0-200×10ms</td><td>0</td></tr>
<tr><td>49</td><td>Mechanical brake action speed at motor running</td><td>Set the speed from when the motor current is cut off to when the brake release signal (BRK-ON) turns to off, while the motor is running.
2.The actual action time is the smaller one between the time of PA48 or the time from the motor slow down to PA49.</td><td>0-3000r/min</td><td>100</td></tr>
<tr><td>50</td><td>Torque control mode speed limit</td><td>Under torque control, motor running speed is limited in this parameter.
It prevents over speed due to the light load.</td><td>0-5000r/min</td><td>0</td></tr>
<tr><td>51</td><td>Dynamic Electric Gear</td><td>1. If set to 0, the dynamic electric gear is invalid and the function of input terminal INH is command pulse prohibited.</td><td></td><td></td></tr>
<tr><td>52</td><td></td><td></td><td></td><td></td></tr>
<tr><td>53</td><td>8-bit low input terminal force ON control byte</td><td>To set the input terminal to force the ON effectively.
1.For unforced ON terminal, it needs to control ON in the external connection. For forced ON terminal, external connection is unnecessary, and it is automatic to set ON inside the drive.
2.8-bit binary number as representation, if it is 0, it means input terminal does not force ON. If it is 1, it means input terminal forces ON. The binary numbers represent the input terminals as following:
<table>
<tr><td>7</td><td>6</td><td>5</td><td>4</td></tr>
<tr><td>RIL</td><td>FIL</td><td>INH</td><td>CLE</td></tr>
<tr><td>3</td><td>2</td><td>1</td><td>0</td></tr>
<tr><td>RSTP</td><td>FSTP</td><td>ALRS</td><td>SON</td></tr>
</table>
RIL: CW torque limitation
FIL: CCW torque limitation
INH: Command pulse inhibit
CLE: Deviation counter clearance
SON: Servo enable
ALRS: Alarming clearance</td><td>00000000-11111111</td><td>00000000</td></tr>
</table>

<table>
<tr><td></td><td></td><td>FSTP: CCW drive inhibit
RSTP: CW drive inhibit</td><td></td><td></td></tr>
<tr><td>54</td><td>The delay time of Servo-OFF</td><td>Set the delay time to cut off the motor current after the motor turns to Servo-OFF.</td><td>0~30000×
0.1ms</td><td>0</td></tr>
<tr><td>55</td><td>Control byte reversal of 8-bit input terminal</td><td>Set the reversal of input terminal.For the reversal terminal, if the switch is ON, it is invalid, while the switch is OFF, it is effective.
8-bit binary number as representation,when it is 0, the input terminal is not reversal, while it is 1, the terminal reverses.The binary numbers represent the input terminals as following:
<table>
<tr><td>7</td><td>6</td><td>5</td><td>4</td></tr>
<tr><td>RIL</td><td>FIL</td><td>INH</td><td>CLE</td></tr>
<tr><td>3</td><td>2</td><td>1</td><td>0</td></tr>
<tr><td>RSTP</td><td>FSTP</td><td>ALRS</td><td>SON</td></tr>
</table>
RIL: CW torque limit
FIL:CCW torque limit
INH:Command pulse prohibition
CLE:Deviation counter clear
SON: Servo-ON
ALRS: Alarm clear
FSTP: CCW drive prohibition
RSTP: CW drive prohibition</td><td>00000000-11111111</td><td>00000000</td></tr>
<tr><td>57</td><td>Reversal control byte of output terminal</td><td>Set the reversal of output terminal. The definitions of breakover and cut-off is contrary to standard definitions.
Four bit binary as representation, when it is 0, the output terminal is not reversal, while it is 1, the output terminal reverses.The binary numbers represent the output terminals as following:
<table>
<tr><td>3</td><td>2</td><td>1</td><td>0</td></tr>
<tr><td>BRK</td><td>COIN</td><td>ALM</td><td>SRDY</td></tr>
</table>
SRDY: Servo ready
ALM: Servo alarm
COIN: Positioning complete/ Speed arrival
BRK: Brake signal release</td><td>0000-1111</td><td>0000</td></tr>
<tr><td>58</td><td>IO input terminal of removing jitter time constant</td><td>Set the removing jitter filter time of input terminal.
The value is smaller, the terminal input response frequency is quicker.
The value is bigger, the anti-jamming performance of input terminal is better, but the response frequency becomes slow.</td><td>1-1000×
0.1ms</td><td>2</td></tr>
<tr><td>59</td><td>Effective command pulse edge</td><td>Set to:
0: the rising edge is effective
1:the falling edge is effective</td><td>0~1</td><td>0</td></tr>
</table>

60	Soft reset	Set to: 0:Soft reset is invalid 1:Soft reset is effective and the system will be restart.	0-1	0
61	System alarm clear	Set to: 0: System alarm clear is invalid 1: System alarm clear is effective	0-1	0
62	Encoder selection	Set to: 0: IO incremental 2500-line encoder 1:IO 2500-line encoder 2:Magnetic encoder 3:IO single-ring 17-bit absolute encoder 4:IO multi-ring 17-bit absolute encoder	0-4	3
63	Load inertia ratio	Set the load inertia ratio of this motor rotating inertia. The setting value=((load inertia+rotating inertia)/rotating inertia)×100.	1-500	100
64	B phase output pulse of encoder	Set to: 0: The same phase 1: The contrary phase	0-1	0
65	Z phase output pulse Of Encoder	Set to: 0: The same phase 1: The contrary phase	0-1	0
66	MODBUS slave address	The value of MODBUS slave address.	1-254	1
67	MODBUS communication baud rate	MODBUS Communication Baud Rate	48-1152×100	576
75	Zero speed	1.Under speed control mode, when the speed clamping input terminal is effective, if the input speed is lower than the setting value, it is forced to zero. 2.Under speed control mode and torque control mode, the zero-speed detection signal will be fed out when the motor speed falls down below the setting value of the parameter,PA75.	0-3000rpm	0
76	Uniform speed	Under speed control mode, uniform speed signal of the drive will be fed out when the difference between the actual speed and the instruction speed is less than the setting value.	0-1000rpm	0
80	Direction signal level	Set to: 0: High level is positive direction 1: High level is negative direction	0-1	0
81	Command pulse input signal filter	1.To filtering the input PULS signal. The default value is the max pulse input frequency: 500K. The value is bigger, the max input frequency is slower. 2.To filter the noise from the signal line in order to avoid incorrect counting happening. If it goes wrong due to the incorrect counting, you can increase the value of this parameter properly.	0-15	4
82	Direction input signal filter	1.To filter the input SIGN signal. The default value is the max pulse input frequency: 500K.	0-15	1

		The value is bigger, the max pulse input frequency is slower. 2.To filter the () smoothing noise and then avoid incorrect counting happening. If it happens going wrong due to the incorrect counting, you can increase the value of this parameter properly.		
83	CW/CCW inhibit method	When the machine touches the mechanical limit switch and strike CW/CCW limit , you can choose the method to prohibit it with this parameters. 0: To limit the torque of the current direction to be 0. 1: The input pulse of the current direction is prohibited.	0-1	0

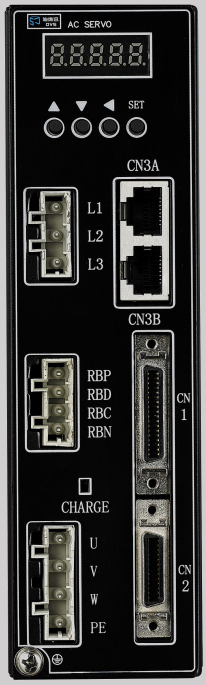
Fault Code indication

Code No.	Fault Name	Indication
--	Normal	
1	Over Speed	Motor speed over than the setting values.
2	Main Circuit Over Voltage	The voltage of main circuit is too high
3	Main Circuit Under Voltage	The voltage of main circuit is too low
4	Position Error	The value of position deviation counter is over than the setting value.
5	Drive Over Heat	The temperature of the drive is high
6	Speed Amplifier Saturation Fault	Speed adjustment for long time saturation
7	Drive inhibit Error	Speed adjustment in saturation for long time
8	Position deviation accumulation was out of range	Absolute value of position deviation accumulation is over than 2^{30}.
9	Encoder Error	Encoder Signal Error
10	Disconnection Alarm	Power line UVW disconnected or one phase disconnected
11	IPM module Error	IPM smart module error
13	Drive Overload	Servo drive and motor overload(overheat instantaneously)
14	Brake Fault	Brake circuit Error
15	Encoder Counter Error	Encoder counts wrongly
20	EEPROM Error	EEPROM error
23	Current Collecting Circuit Fault	Current collecting circuit fault
30	Encoder Z Pulse Missing	Encoder Z pulse Error
32	Encoder UVW Signal Error	All UVW signal in high level or low level. Or the encoder is mismatching.
33	UVW Signal Fault	No high resistance in powering up time series
34	UVW Signal Unstable	UVW Signal Unstable
36	When connecting to 9-line encoder, illegal state states for long time	When connecting to 9-line encoder, illegal state states for long time
42	AC Input Under Voltage	AC input under voltage
47	Over Voltage When Main Circuit In Powering Up	Over voltage when main circuit in powering up
50	Encoder Communication Error	Communication error when connects with the absolute encoder.

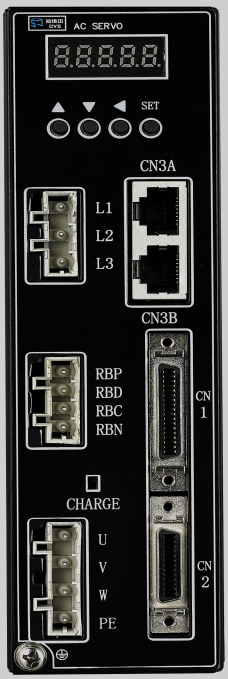
51	Encoder Communication Disconnect	The drive and encoder communication disconnect.
55	Encoder CRC Checking Wrongly	Encoder gets wrong data when transmitting is disturbed.
56	MODBUS frame is too long.	Data Receiving from MODBUS frame is too long

DS Series AC Servo Drives

Module



DS100S



DS200S

Part Number

DS	1 0 0	S	□□□
①	②	③	④

Number	Description
①	DS Series AC Servo Drive
②	100：under 0.75KW , 200: under2.2KW, 300:under 3.4KW
③	S： standard ac servo drive compatible with 2500-line encoder 10000ppr.
④	Power Range : 40:50-400W 75:400W-1000W

Compatible Table

Flange	Model	Power	Velocity	Suitable Dirve	Encoder
40mm	DN40ST-M00130(B)	50W	3000rpm	DS100S-40	2500-line Incremental Encoder
	DN40ST-M00330(B)	100W	3000rpm	DS100S-40	
60mm	DN60ST-M00630(B)	200W	3000rpm	DS100S-40	
	DN60ST-M01330(B)	400W	3000rpm	DS100S-40	
	DN60ST-M01930(B)	600W	3000rpm	DS100S-40	
80mm	DN80ST-M01330(B)	400W	3000rpm	DS100S-75	
	DN80ST-M02430(B)	750W	3000rpm	DS100S-75	
	DN80ST-M03520(B)	730W	2000rpm	DS100S-75	
	DN80ST-M04025(B)	1000W	2500rpm	DS100S-75	
110mm	DN110ST-M02030(B)	600W	3000rpm	DS200S	
	DN110ST-M04020(B)	800W	2000rpm	DS200S	
	DN110ST-M04030(B)	1200W	3000rpm	DS200S	
	DN110ST-M05030(B)	1500W	3000rpm	DS200S	
	DN110ST-M06020(B)	1200W	2000rpm	DS200S	
	DN110ST-M06030(B)	1800W	3000rpm	DS200S	
130mm	DN130ST-M04025(B)	1000W	2500rpm	DS200S	
	DN130ST-M05025(B)	1300W	2500rpm	DS200S	
	DN130ST-M06025(B)	1500W	2500rpm	DS200S	
	DN130ST-M07725(B)	2000W	2500rpm	DS200S	
	DN130ST-M10010(B)	1000W	1000rpm	DS200S	
	DN130ST-M10015(B)	1500W	1500rpm	DS200S	
	DN130ST-M10025(B)	2600W	2500rpm	DS200S	

Specifications

Parameters	DS100S-40	DS100S-75	DS200S
Output Power	50W-400W	400W-1000W	1000W-2600W
Main Supply	1 phase/3 phase AC220V-240V 50/60Hz		
Power Supply for Control Circuit	1 phase 220VAC		
Control Method	0: position control 1: velocity control 2: test trial control 3: JOG control 4: torque control		
Protect Function	over speed/under voltage/over voltage/over current/over load/encoder error/control supply error/position error		
Monitoring Function	velocity/current position/command pulse accumulation/position error/motor torque/motor current/working state		
Control Input	1.servo enable 2.alarm clearance 3.CCW driving ban 4.CW driving ban 5.deviation counter clear zero 6.command pulse ban 7.CCW torque limitation 8. CW torque limitation		
Control Output	servo ready/servo alarm/GPS test/mechanical brake		
Resistance Braking	Built-in/Built-out		
Suitable Load	Less than 5 times of the motor inertia		
Display	5 LEDs , 4 keys		
Command Input	1: pulse+direction 2: CCW/CW 3: A phase/B phase		
Electronic Gear Ratio	1/32767-32767		

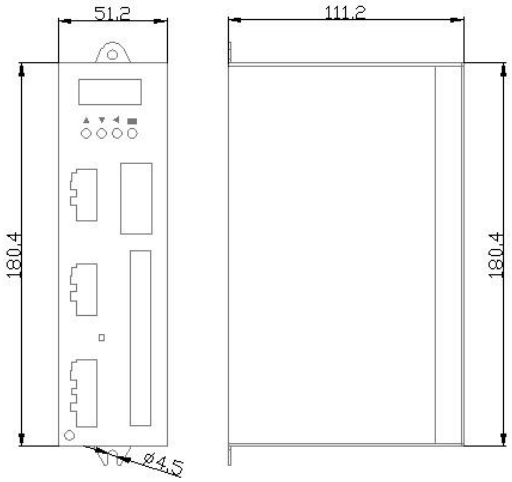
Operating Environment

Cooling		Natural Cooling or Forced Cooling
Operating	Environment	Avoid dust, oil fog and corrosive gases

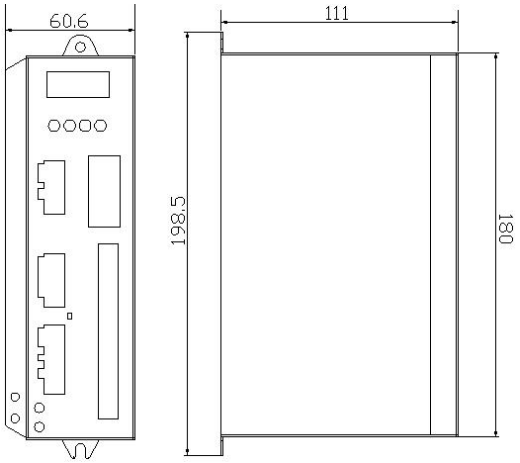
Environment	Ambient Temp	0~+40℃
	Humidity	40%RH to 90%RH, no condensation
	Vibration	5.9m/s^2 MAX
Storage Temperature		-20℃ to 80℃

Dimension

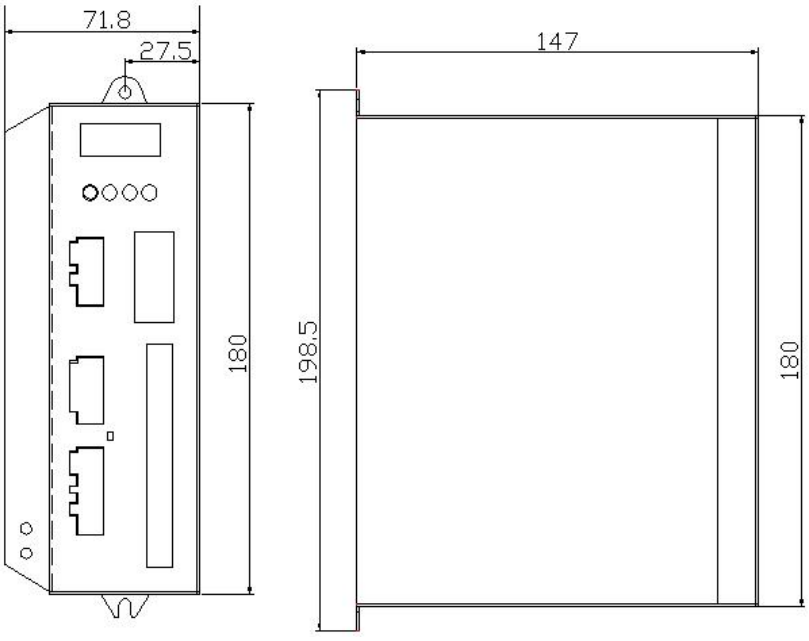
DS100S-40(50W~400W)



DS100S-75(400W~750W)



DS200S(1KW~2.2KW)



NOTE:

1. Install the drives indoors, where the drives are not subjected to rain or direct sun beams.The drives are not waterproof.
2. Install the drives where the products are not subjected to corrosive atmospheres,and free from splash of inflammable gas, grinding oil, oil mist,iron powder or chips etc.
3. Install the drives in a well-ventilated and low humidity and dust-free place.
4.Install in vertical position, and reserve enough space around the servo drive for ventilation or effective cooling.