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Estun servo

sales agent training course

Estun Overseas Dept. 2009.05

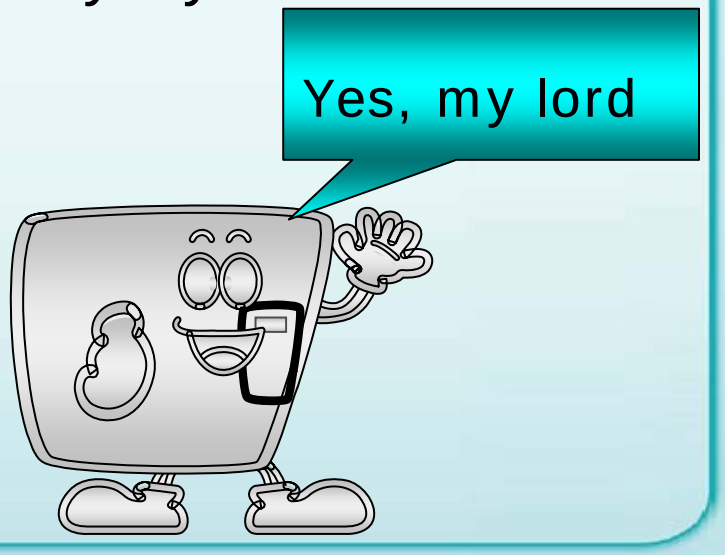
Contents

AC Servo principle

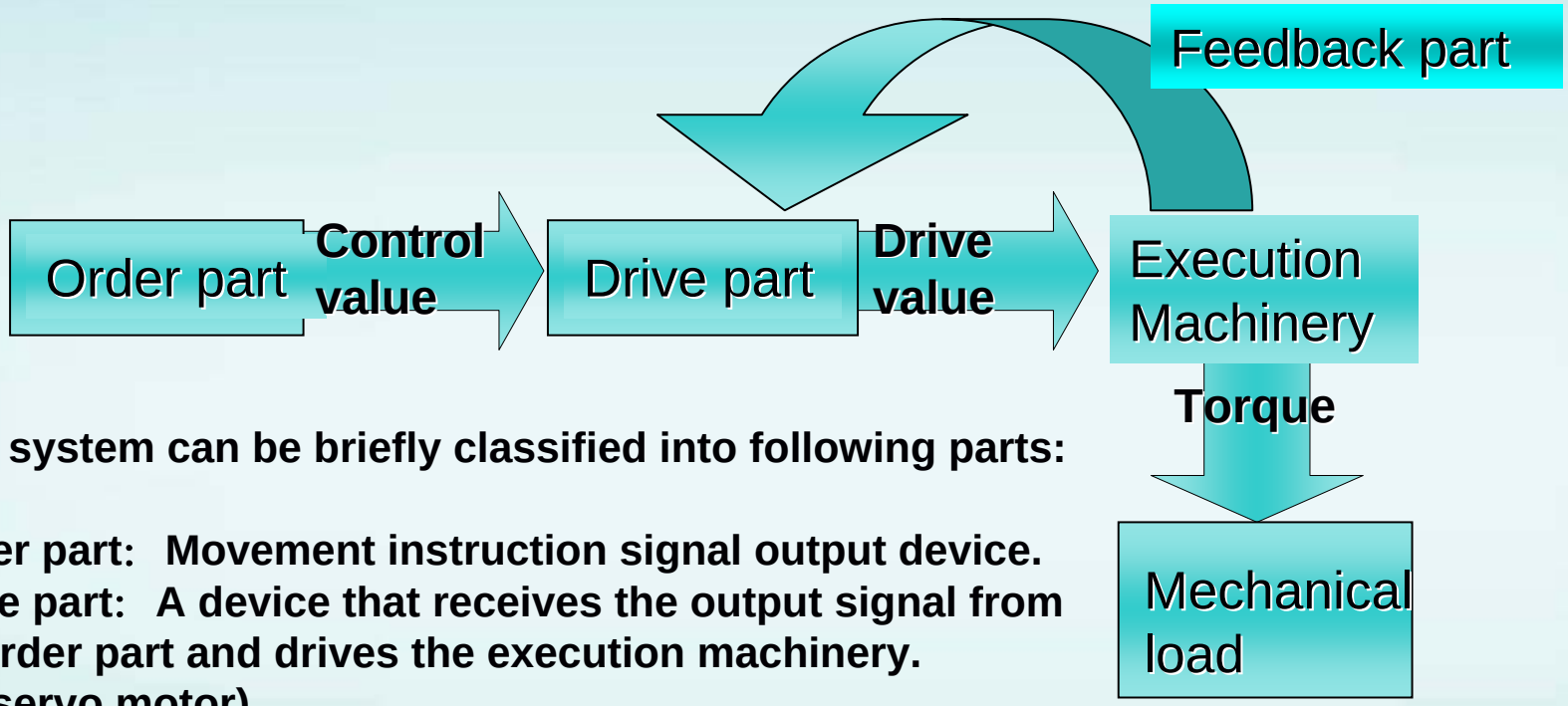
What is a Servo?

A servo is a device which controls the angle of a piece of machinery. A motor attached to the servo controls a rotating shaft which changes the angle of the shaft.
Servo originates from Latin Servus. (English as Slave)
The function of a Slave is to work with loyalty under his lord's orders. That is a

Servo system



AC Servo system structure

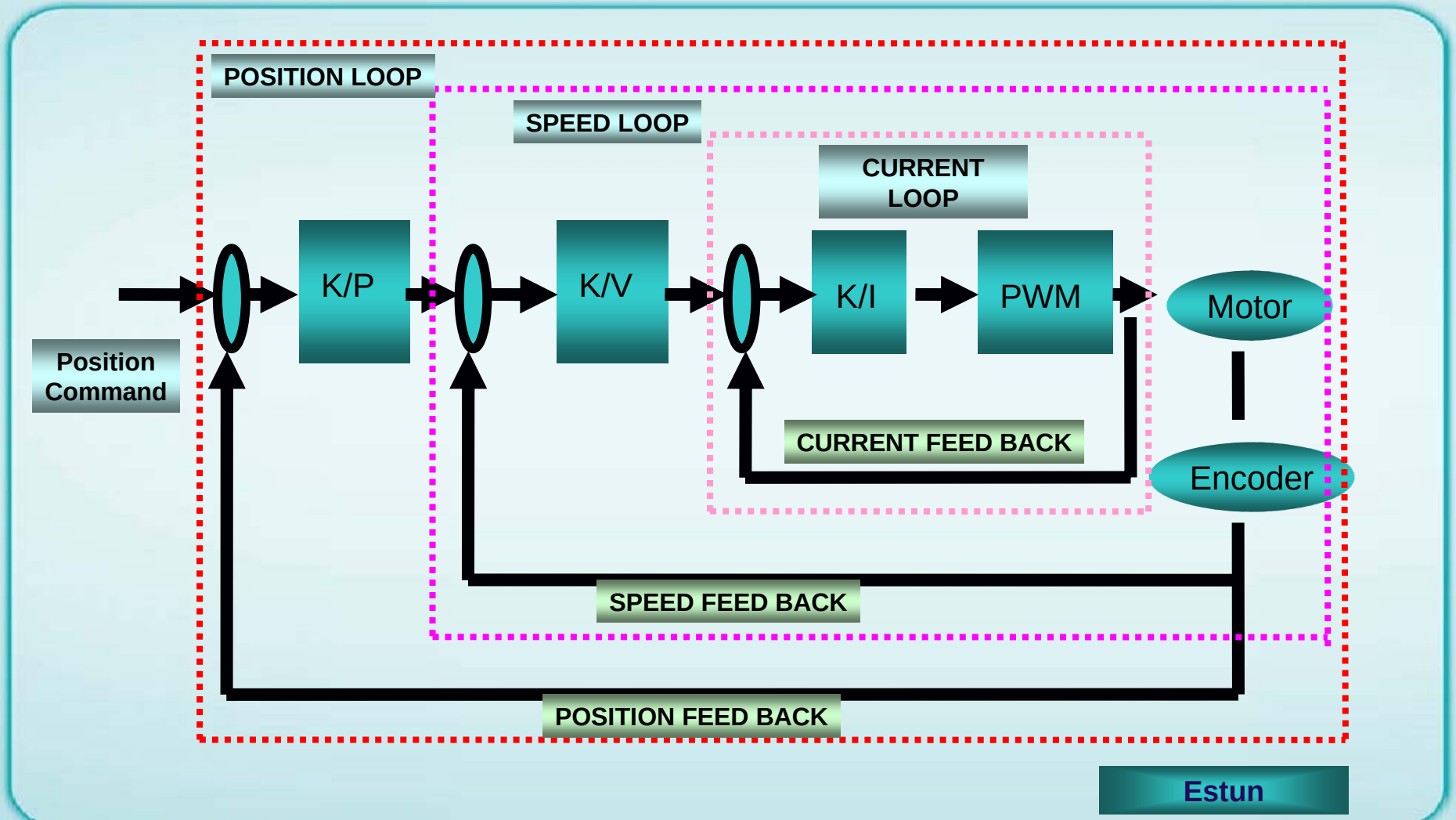


Servo system can be briefly classified into following parts:

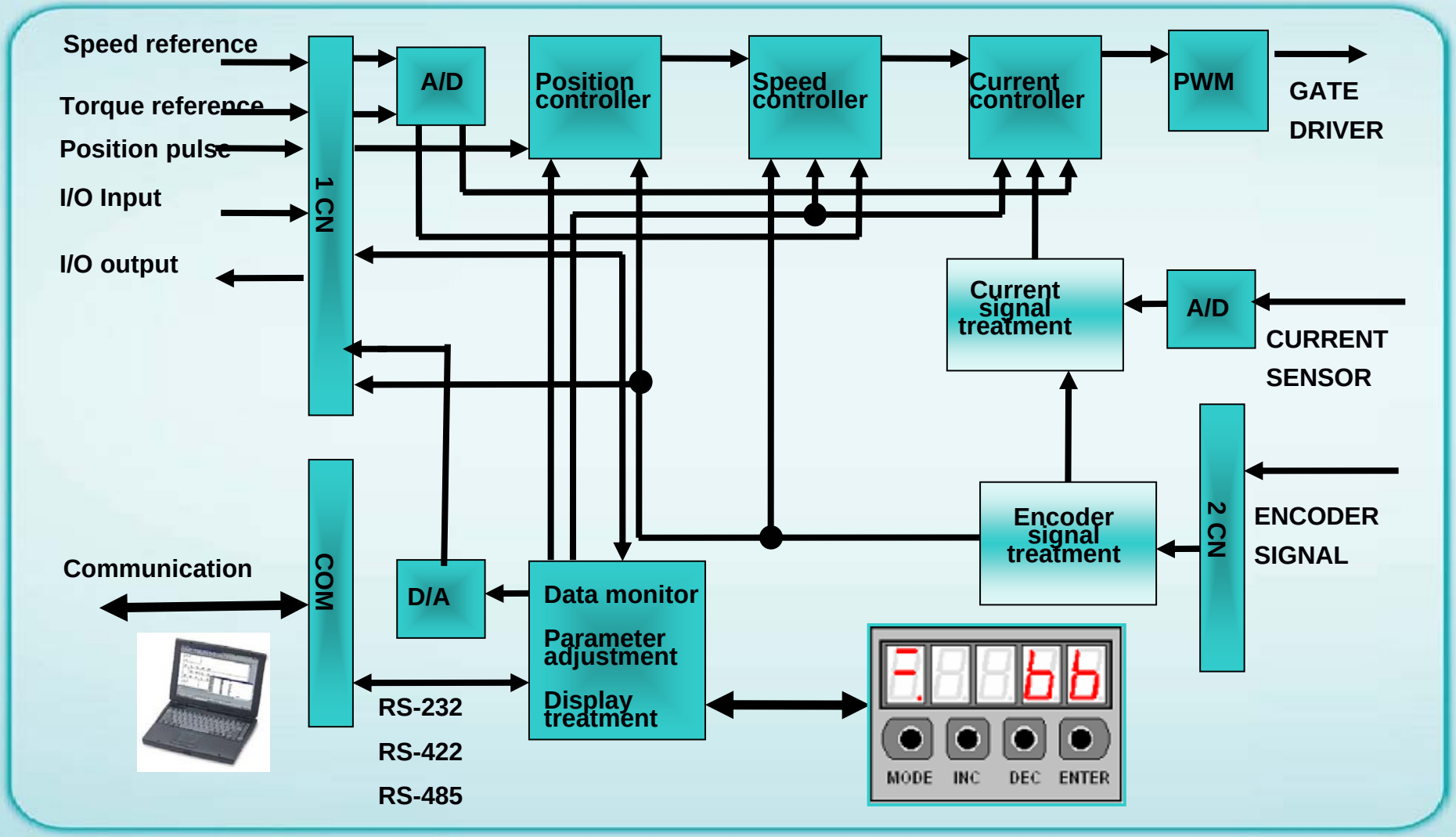
1.Order part: Movement instruction signal output device.
2.Drive part: A device that receives the output signal from the Order part and drives the execution machinery. (e.g. servo motor)

3.Feedback part: A device that inspects execution machinery or load status.
4.Execution machinery: A device that receives the output signal from Drive part and generates rotation torque, position status etc.,

AC servo system control structure



Servo driver Internal structure

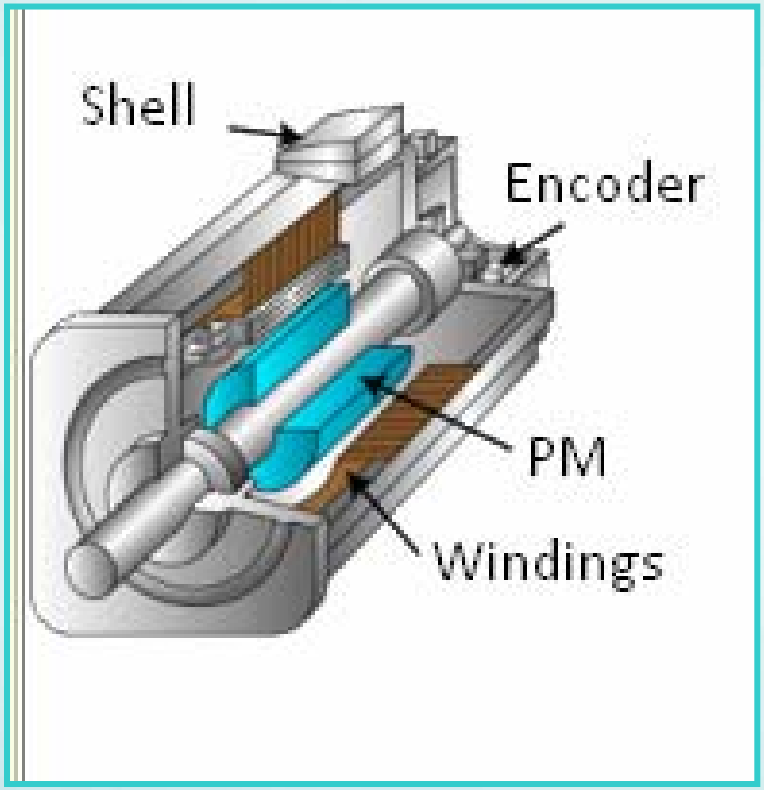


Servo motor classification

Servo motor could be classified as follows:

- Synchronized type: Applied with PM servo motor. Because of power generation effect when stops, it is easier to brake. (Rotator: PM Stator: Windings)
- Inductive type: The structure is like synchronized type servo motor. It has good torque performance at high speed. However, it is easier to generate heat. (Rotator & stator: windings)
- DC type: DC servo motor. As carbon brush will generate powder while rotation, it is not suitable for locations with dust-free requirement. It is mainly used for small capacity. (Rotator: windings; Stator: PM)

Synchronized AC servo motor



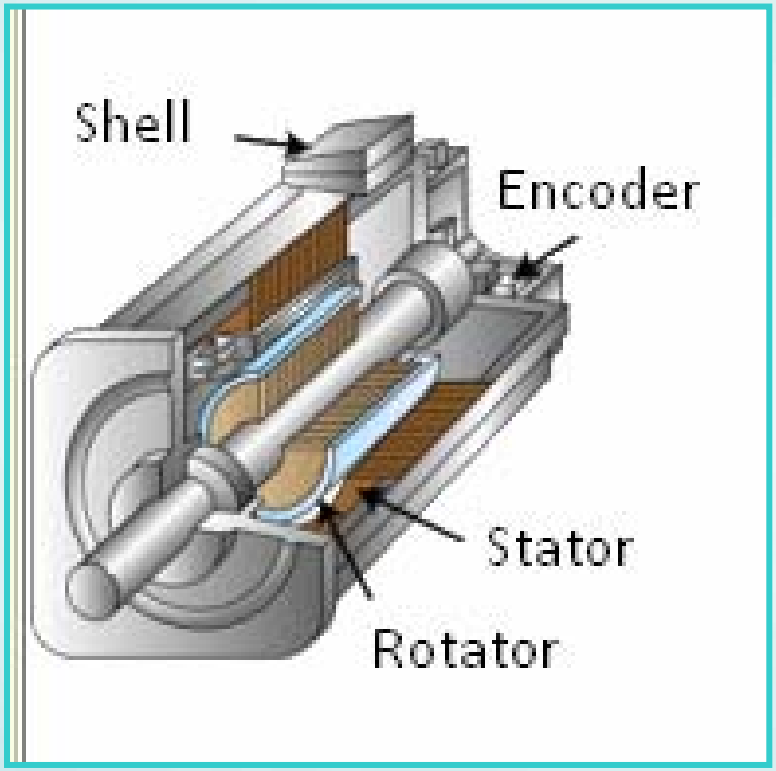
➢**Characteristics:**

1.Maintenance free
2.Good environment adaptability
3.Good torque performance
4.Easier to brake
5.Smaller dimension, lighter weight
6.High efficiency

➢**Shortcomings:**

1.AMP is more complicated than DC's
2.Motor could only be driven with relevant power AMP.
3. PM is possible to demagnetize

Inductive servo motor



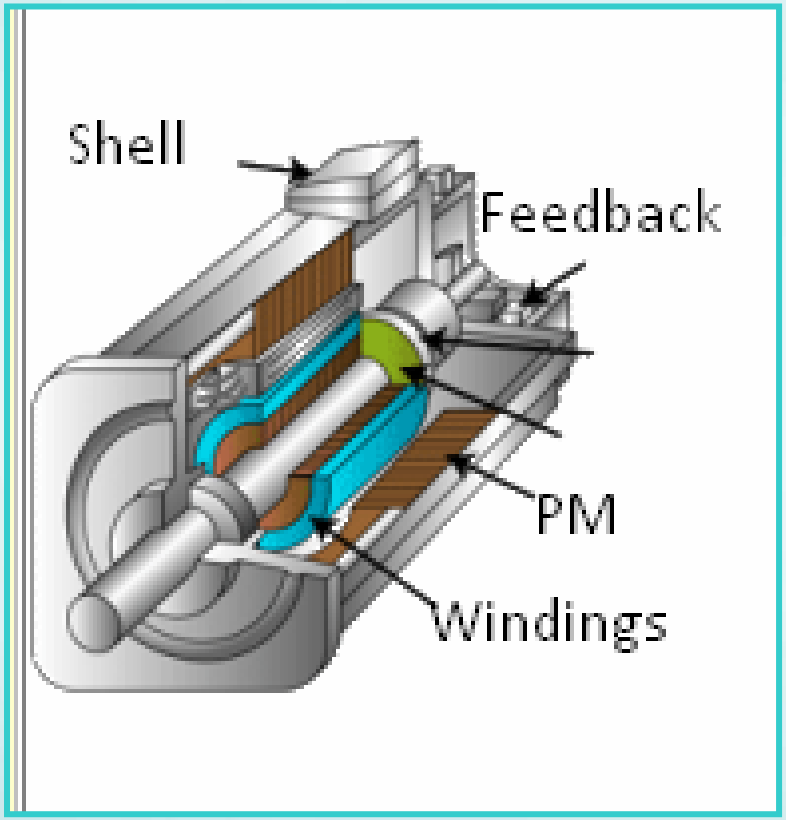
➢**Characteristics:**

1.Maintenance free
2.Good environment adaptability
3.Good torque performance

➢**Shortcomings:**

1.Low efficiency
2.AMP is more complicated than DC's
3.No DB brake
4.Performance will be effected by temperature
5.Motor could only be driven with relevant power AMP.

DC servo motor



➢**Characteristics:**

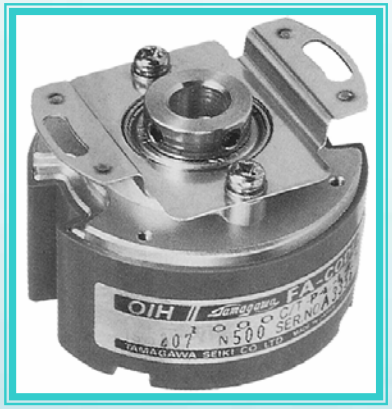
1.Driver structure is simple.
2.DB brake
3.Smaller in volume, low price.
4.High efficiency

➢**Shortcomings:**

1.Carbon brush will generate powder. Therefore, it cannot be used in locations with dust-free requirement.
2.Poor torque performance at high speed.
3. PM is possible to demagnetize

Estun motor feedback parts

- **incremental encoder**
- **absolute encoder**
- **resolver**



Tamagawa

The difference between step motor and servo motor

Step motor is also popular in positioning control. However, it doesn't have feedback parts to form a semi-close/close loop control. Therefore, it belongs to open loop control and is used in simple point to point positioning control.

Characteristics:

- *low price*
- *simple to use*

Shortcomings:

- *Non-stable, easily disturbed*
- *Low torque at high speed*
- *Low capacity (below 200W)*

Contents

Estun AC Servo driver parameters introduction

Monitor parameters

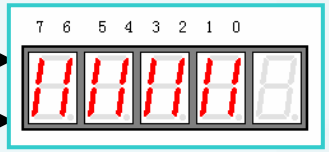
Assistant parameters

Fundamental/Assistant parameters

Monitor parameters (EDB series)

number	Content
Un000	Actual motor speed Units: r/min
Un001	Input speed reference Units: r/min
Un002	Input torque reference Units:% (with respect to rated torque)
Un003	Internal torque reference Units:% (with respect to rated torque)
Un004	Number of pulses of Encoder angles
Un005	Input signal monitor
Un006	Encoder signal monitor
Un007	input signal monitor
Un008	Speed given by pulse (when gear ratio is 1:1)
Un009	Current position (*1 reference pulse)
Un010	Current position (*10000 reference pulse)
Un011	Error pulse counter lower 16 digit
Un012	Error pulse counter higher 16 digit
Un013	Received pulse counter lower digit
Un014	Received pulse counter high digit (x10^4)

internal status bit display



Assistant parameters for EDB series

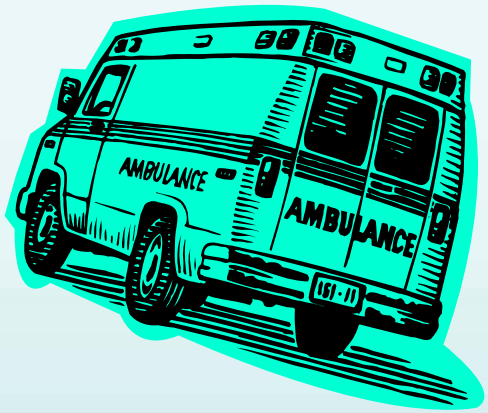
No.	Content
Fn000	Display historical alarm data
Fn001	Turn to default value
Fn002	JOG mode
Fn003	Set speed reference offset automatically
Fn004	Set speed reference manually
Fn005	automatically adjustment of offset detected by motor current
Fn006	Manually adjustment of offset detected by motor current
Fn007	Servo software version display

Control model

Torque control

Speed control

Position control

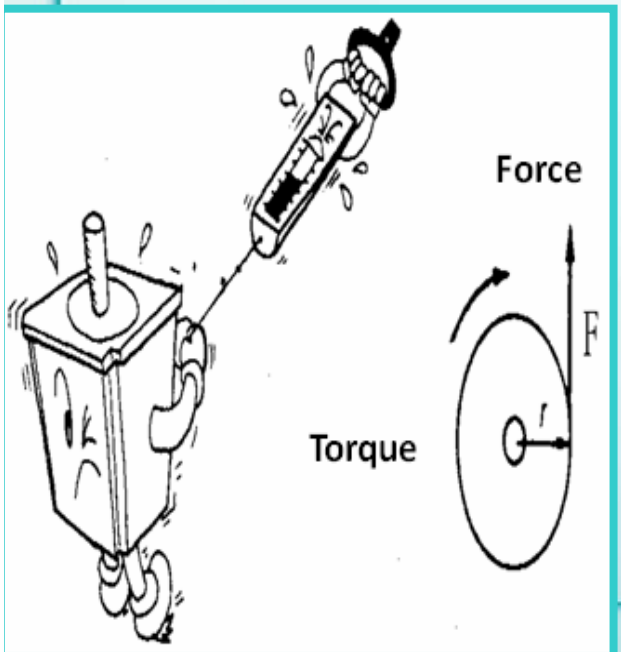


Control mode comparison

Mode	Position control	Speed control	Torque control
Reference	Pulse	Analog voltage (0 ～± 10V)	Analog voltage (0 ～± 10V)
Applications	1.Roller material feeder 2. Bag making machine 3. X-Y Table Etc.,	1.Transportation belt 2.Fixed speed machine Etc.,	1.Rolling machine 2.Punch machine Etc.,

Torque control (EDB series)

- **Typical torque control is to control the output torque.**
- **Often applied in tension control, stress control occasions.**
- **Pn031（Torque reference gain ）is used to define the relationship between input analog and output torque. The unit is 0.1V/100%. It means that how many quantity of 0.1V equals to 100% rated torque.**



- **For example: Set Pn031=30**,
-
- **+3 V input** →Rated torque in forward direction
- **+9 V input**→300% of rated torque in forward direction
- **−0.3 V input**→10% of rated torque in reverse direction

Notice for torque control

- It is necessary to limit the motor rotation speed. It can be achieved through the limit of input analog value or parameter setting.
- For the same analog input, the smaller value of torque reference gain parameter(Pn031), the bigger output torque.
- The motor output torque is the smaller one between load torque and given analog output torque.

Parameters in torque control

1、Pn007 -Use or not use analog speed limit function

2、Pn012-Speed reference gain

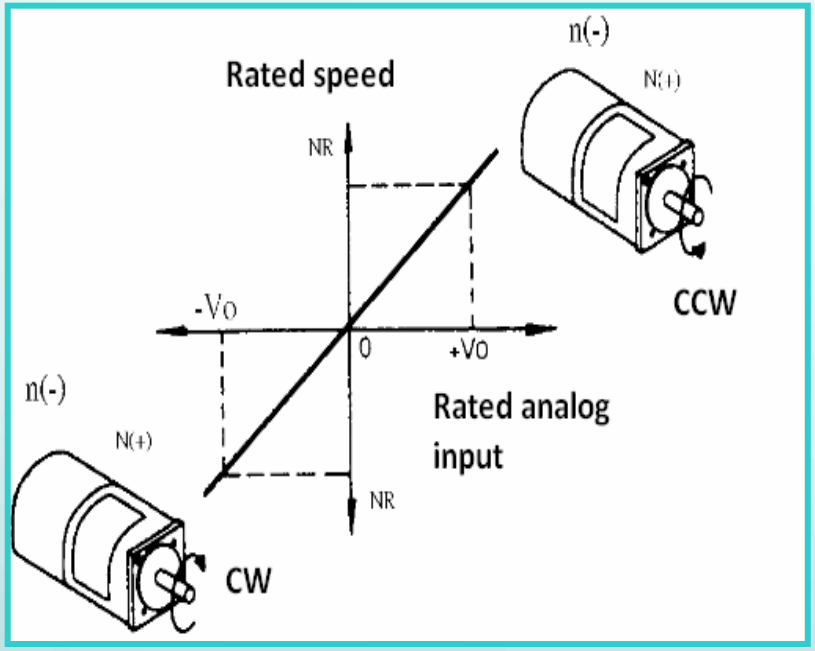
3、Pn031-Torque reference gain

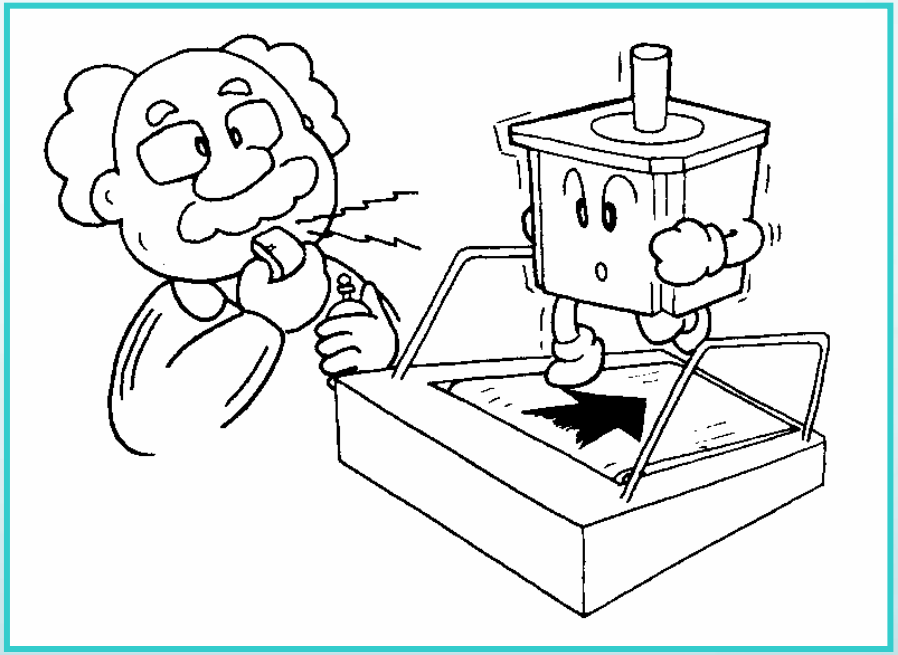
4、Pn018-Torque reference filter time constant

5、Pn042-Speed limit in torque control mode

Speed control (EDB series)

- Continuous speed adjustment according to given speed reference voltage.





Speed control

- Speed control means that motor is running according to given speed analog reference.
- Speed control is widely used. Such as: quick responsive continuous speed adjustment system, close loop positioning system through host controller and multiple quick speed switch system.
- Pn012(Speed reference gain) is used to define the relationship between input analog and output speed. The unit is (r/min)/V. It means that how many r/min equals to 100% rated speed.

- For example: Set Pn012=150
- +10V, Forward rotation, rated speed 1500r/min
- +1V, forward rotation, (1/10rated speed)150r/min
- -3V, reverse rotation,(3/10 rated speed) 450r/min

Notice for Speed control

- Pn013(speed loop gain) is normally set high for better robustness. However, it is likely to vibrate if the parameter is set too high. Generally speaking, the parameter should be set high for large load inertia occasions.
- Pn014(Speed loop integration time constant) is to offset static error. The higher the value, the slower of responsiveness & the longer time for positioning. Generally speaking, The larger the load inertia, the bigger of Pn014 value.
- When the host controller is working under close loop, it is not recommended to use parameters Pn019、Pn020. (Soft start accelerating/decelerating time)

Parameters in speed control

1、Pn012-Speed reference gain

2、Pn013-Speed loop gain

3、Pn014-Speed loop integration time constant

4、Pn019- Soft start accelerating time

5、Pn020-Soft start decelerating time

6、Pn021-PG dividing ratio

7、Pn100-Speed loop setting curve form

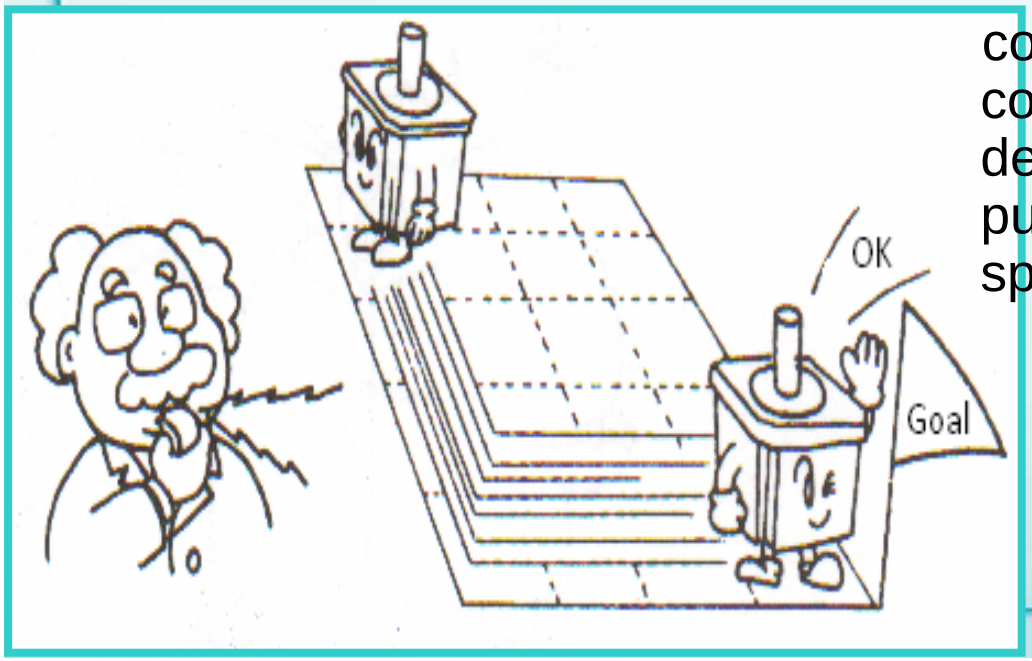
8、Pn101-S curve raising time

9、Pn102- Primary and secondary filter time

10、Pn103-S form selection

Position control (EDB&EDC)

- Position control is widely applied in a variety of occasions. It could be used to replace step motion system directly.
- Pulses will be given through host controller to achieve position control. The number of pulses decides position. Meanwhile, pulse frequency decides motor speed.



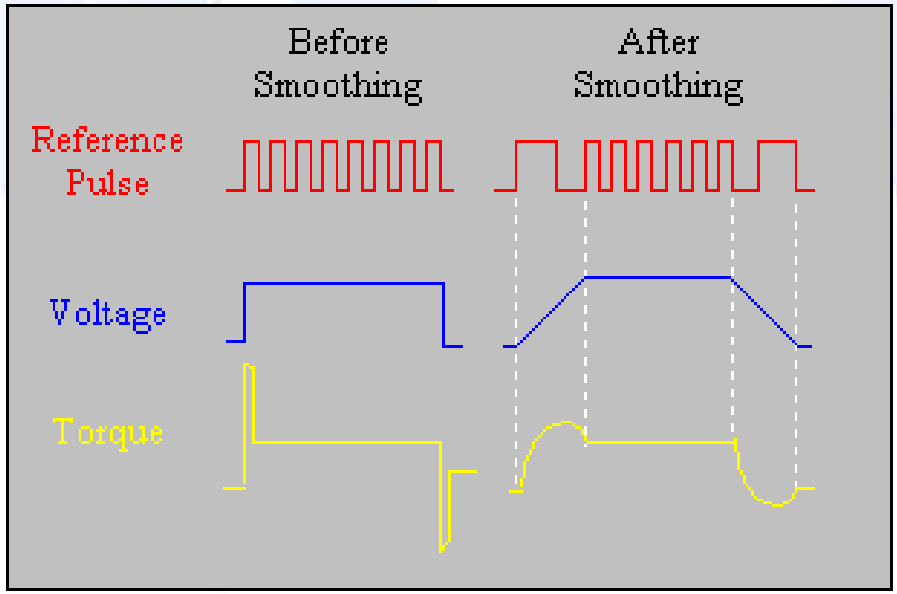
Second electronic gear

Second electronic gear

Smooth running under position control

- When host controller doesn't have Acc/Dec functions,
- When the number of electronic gear is relatively large,
- When the pulse reference is running at low frequency,
- When the pulse reference frequency is not stable,

It is good to set parameter of Pn024 and Pn017 when in need. Increasing the value of Pn024 will improve the effect when setting Pn017 at a larger number.



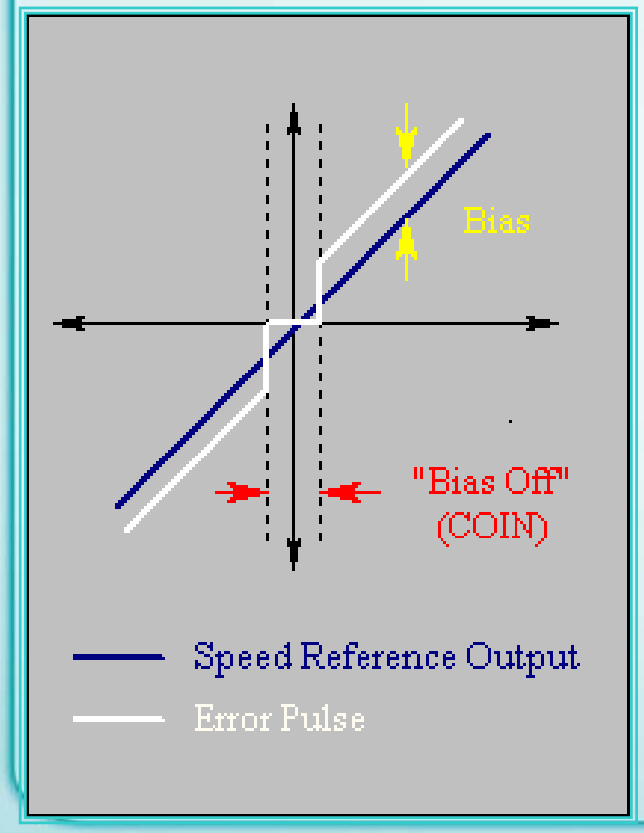
The smoothing function does not change the travel distance (number of pulses).

Quicker positioning

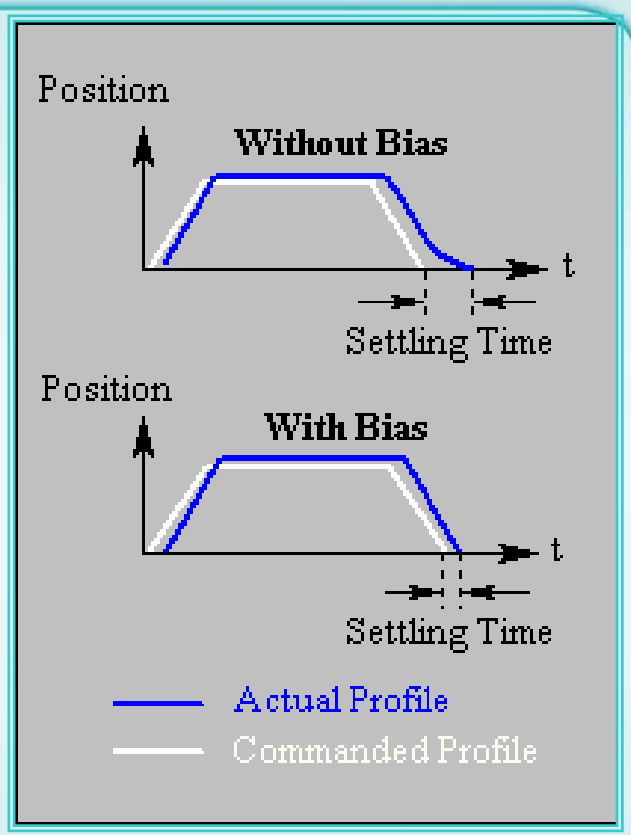
- Higher gain will help to quicker positioning and lower follow error. Please note the relationship between position loop gain and speed loop gain.
- In theory, forward-feedback technology is an ideal method to achieve quicker positioning, for it can eliminate follow error completely.
- Speed bias compensation(Pn016)

Note: incorrect use of above three main methods will cause the system to vibrate. Generally, gain & forward-feedback parameters of relevant interpolation axis should be set closely or the same.

Speed Bias—Pn016



This function will help actual profile to close to commanded profile.



Notice for position control

- If Pn015 is set too small（<16）, position error is possible to occur.
- The higher position loop gain(Pn015), the faster positioning and less tracing error. However, please abide by the rule that speed loop must have a higher responsiveness than position loop.
- When pulse frequency from the host controller is not stable or very low, Pn024 should be applied.
- Monitor position（Un009～Un014）is the result after electronic gear calculation.
- Technically, forward-feedback technology can erase tracing error completely and achieve quick positioning. However, if Pn017 is set too large, it is possible to cause mechanical shock when motor starts or stops and overtravel when motor stops.

Parameters in position control

1、Pn013-Speed loop gain
2、Pn014--Speed loop integration time constant
3、Pn015-Position loop gain
4、Pn017-Position feed forward
5、Pn022-Electronic gear A
6、Pn023-Electronic gear B
7、Pn056-The second electronic gear numerator B2（EDB available）
8、Pn057-Dynamic electronic gear on（EDB available）
9、Pn058-Dynamic electronic gear switching（EDB available）
10、Pn102-Primary and secondary filter time（EDB available）

Single Axis Positioning Function

- There are 16 build-in programmable position registers in EDB series. (8 registers in EDC series)
- A touch screen can be connected directly to the RS232 interface on the servo driver. This way, a PLC unit is eliminated.
- With the touch screen, user may program easily every register's position, speed, acceleration/deceleration time, latency time, start/stop point.
- User may select to program it with absolute values or incremental values.
- User may select cycle run or single run.

Single axis positioning function

- Start/stop function: The program could be started/stopped by external input signal, or through communication.
- It is optional for users to choose start/stop function. In case it is applied, users may use one between P-CL，N-CL. The other one could still be used to search reference point.
- S-OFF will enable user’s program to return to initial step.

Parameters in single axis control

No.	Description	Observation
Pn050	**Choose between cycle run and single run.** **0: cycle run, /PCL as start signal, /NCL reverse to look for reference point.** **1: single run, /PCL as start signal, /NCL reverse to look for reference point.** **2. cycle run, /NCL as start signal, /PCL reverse to look for reference point.** **3. single run, /NCL as start signal, /PCL reverse to look for reference point.**	**Changing steps will be performed till the end point completed and the next change will start from the start point during multi-points cycle run,** **Point control program will not change steps after the end point completed during multi- points single run.**

Parameters in single axis control

No.	Description	Observation
Pn051	**0: delay changing steps, no need of start signal.** **1: change steps by /P-CON, no need of start signal** **2. delay changing steps, need start signal. (/PCL or /NCL)** **3. change steps by /P-CON, need start signal.(/PCL or /NCL)**	**Change steps by external /P-CON signals. The signal will be valid when drive output reach to desired position. And when signals of changing the signals valid, then steps will be changed by consequence from start point to end point.**

/BK signal related parameters explanation

/BK signal is used to control or hold the brake. Related parameters are mainly used to control the power On/Off sequence of this signal.

1.Pn043, Time delay from servo ON signal till Servo actually ON： It is used to wait before releasing the brake avoiding the motor running when brake still closes. This way, it could be used to protect the brake.

2.Pn044, Time delay from the time a brake signal is output until servo OFF status occurs (servo OFF delay time）： This parameter is used to prevent the mechanical parts to slide when the motor is power off. Therefore, It closes the brake first and re-servo on after a period of time.（When alarm occurs, mechanical parts is likely to move [This parameter is generally effected when speed is relative low or zero.]

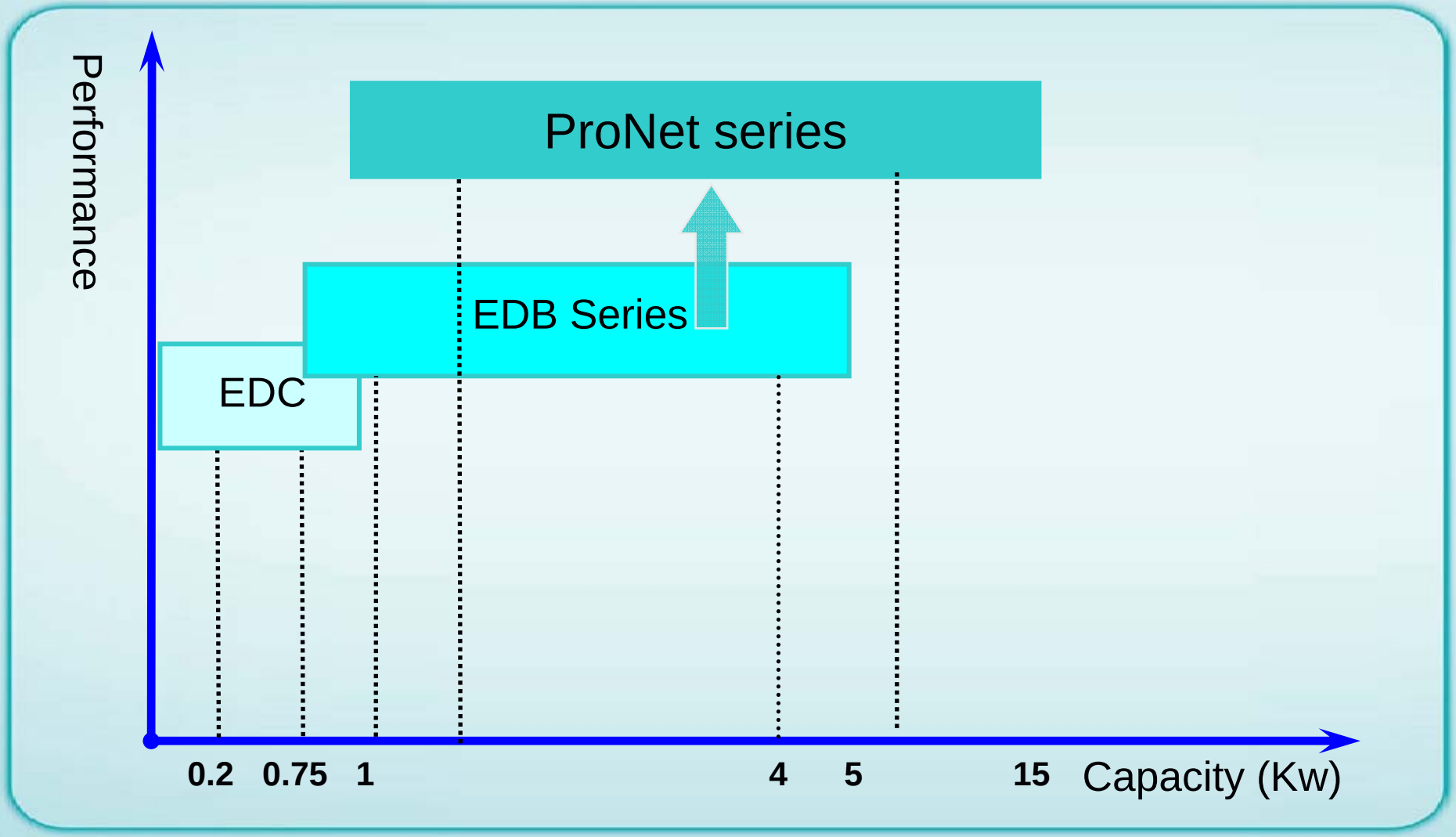
3.Pn045 Speed level for brake signal output during operation:

It means that after S-OFF, the brake will close when motor speed reduces to setting values.

4. Pn046 Time delay from brake signal when servo OFF:

Contents

Estun servo drive



Estun servo motor

Capacity

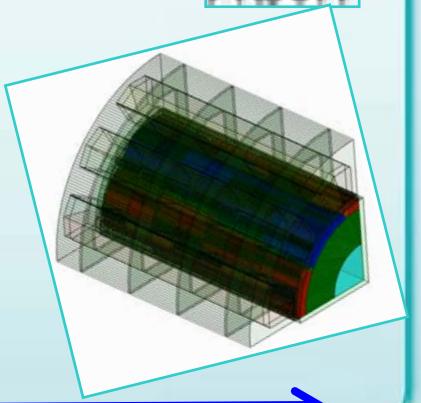
Small capacity
200W-1000W
EMJ series 3000rpm

Middle capacity
1Kw-5KW
EMG series 2000rpm

Middle capacity
1Kw-4KW
EML series 1000rpm

Large capacity
7.5Kw-15KW
EMB series1500rpm

ANSOFT



Driver Model description

EDC – 08 A P E

	额定输出功率 Rated Output Power	电源电压 Power Voltage	控制形态 Control Style	设计顺序 Designing Sequence
EDC型伺服驱动器 EDC Model Servo Drive				

记号 Sign	规格 Specification
02	200W
04	400W
08	750W
10	1000W

记号 Sign	规格 Specification
A	200VAC

记号 Sign	规格 Specification
P	用于控制位置 Position Control

记号 Sign	规格 Specification
E	设计顺序 Designing Sequence

EDB – 10 A M A

	额定输出功率 Rated Output Power	电源电压 Power Voltage	控制形态 Control Style	设计顺序 Designing Sequence
EDB型伺服驱动器 EDB Model Servo Drive				

记号 Sign	规格 Specification
08	0.75kW
10	1.0kW
15	1.5kW
20	2.0kW
30	3.0kW
50	5.0kW

记号 Sign	规格 Specification
A	200VAC

记号 Sign	规格 Specification
P	用于控制位置 Position Control
M	用于控制速度、转矩、位置 Speed Control, Torque Control, Position Control

记号 Sign	规格 Specification
A	设计顺序 Designing Sequence

Driver Model description

ProNet – 10 A M A

ProNet	10	A	M	A
ProNet型伺服驱动器 ProNet Servo Drive	额定输出功率 Rated Output Power	电源电压 Power Voltage	控制形态 Control Style	编码器接口 Encoder Interface

记号 Sign	规格 Specification
10	1.0kW
15	1.5kW
20	2.0kW
30	3.0kW
50	5.0kW
75	7.5kW
1A	11kW
1E	15kW

记号 Sign	规格 Specification
A	200VAC
D	400VAC

记号 Sign	规格 Specification
M	用于控制速度、转距、位置 Speed Control, Torque Control, Position Control
E	用于控制速度、转距、位置 (支持扩展模块) Speed Control, Torque Control, Position Control (Support Extended Module)

记号 Sign	规格 Specification
A	17位串行编码器 17 bits Serial Encoder
B	旋转变压器 Resolver

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Motor mode description

EMJ - 08 A P A 1 1

EMJ	08	A	P	A	1	1
EMJ型伺服电机 EMJ Model Servo Drive	额定输出功率 Rated Output Power	电源电压 Power Voltage	编码器 Encoder	设计顺序 Designing Sequence	轴端 Shaft End	选购件 Opition Parts

记号 Sign	规格 Spec.
02	200W
04	400W
08	750W
10	1000W

记号 Sign	规格 Spec.
A	200VAC

记号 Sign	规格 Spec.
P	(增量省线型) 2500P/R Incremental Wire-saving Type: 2500P/R

记号 Sign	规格 Spec.
A	设计顺序 Designing Sequence

记号 Sign	规格 Spec.
1	平直,不带键(标准) Flat, Without Keys (Standard)
2	平直,带键,带螺纹 Flat, With Keys, With Screw Thread

记号 Sign	规格 Spec.
1	不带选购件 None
2	带油封 With Oil Seal
3	带制动器(DC24V) With Brake (DC24V)
4	带油封,带制动器(DC24V) With Oil Seal, With Brake (DC24V)

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Motor mode description

EMG - 10 A P A 1 1

EMG型伺服电机 EMG Model Servo Drive	额定输出功率 Rated Output Power	电源电压 Power Voltage	编码器 Encoder	设计顺序 Designing Sequence	轴端 Shaft End	选购件 Opition Parts
	记号 Sign / 规格 Spec. 10 1.0kW 15 1.5kW 20 2.0kW 30 3.0kW 50 5.0kW	记号 Sign / 规格 Spec. A 200VAC	记号 Sign / 规格 Spec. P (增量省线型) 2500P/R Incremental Wire-saving Type: 2500P/R	记号 Sign / 规格 Spec. A 设计顺序 Designing Sequence	记号 Sign / 规格 Spec. 1 平直,不带键(标准) Flat, Without Keys (Standard) 2 平直,带键,带螺纹 Flat, With Keys With Screw Thread	记号 Sign / 规格 Spec. 1 不带选购件 None 2 带油封 With Oil Seal 3 带制动器(DC24V) With Brake (DC24V) 4 带油封,带制动器(DC24V) With Oil Seal, With Brake (DC24V)

D 增量式编码器: 131072P/R Incremental Encoder: 131072P/R

S 绝对值编码器: 131072P/R Absolute Encoder: 131072P/R

R 旋转变压器 Resolver

More options for Pronet series only

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Motor mode description

EML-10 A P A 1 1

EML	10	A	P	A	1	1
EML型伺服电机 EML Model Servo Drive	额定输出功率 Rated Output Power	电源电压 Power Voltage	编码器 Encoder	设计顺序 Designing Sequence	轴端 Shaft End	选购件 Opition Parts

记号 Sign	规格 Spec.
10	1.0kW
20	2.0kW
30	3.0kW
40	4.0kW

记号 Sign	规格 Spec.
A	200VAC

记号 Sign	规格 Spec.
P	(增量省线型) 2500P/R Incremental Wire-saving Type: 2500P/R

记号 Sign	规格 Spec.
A	设计顺序 Designing Sequence

记号 Sign	规格 Spec.
1	平直,不带键(标准) Flat, Without Keys (Standard)
2	平直,带键,带螺纹 Flat, With Keys With Screw Thread

记号 Sign	规格 Spec.
1	不带选购件 None
2	带油封 With Oil Seal
3	带制动器(DC24V) With Brake (DC24V)
4	带油封,带制动器(DC24V) With Oil Seal, With Brake (DC24V)

记号 Sign	规格 Spec.
D	增量式编码器: 131072P/R Incremental Encoder: 131072P/R
S	绝对值编码器: 131072P/R Absolute Encoder: 131072P/R
R	旋转变压器 Resolver

More options for Pronet series only

Motor mode description

EMB - 1E D S A 1 1

EMB	1E	D	S	A	1	1
EMB型伺服电机 EMB Model Servo Motor	额定输出功率 Rated Output Power	电源电压 Power Voltage	编码器 Encoder	设计顺序 Designing Sequence	轴端 Shaft End	选购件 Opition Parts

记号 Sign	规格 Spec.
75	7.5kW
1A	11.0kW
1E	15.0kW

记号 Sign	规格 Spec.
D	400VAC

记号 Sign	规格 Spec.
S	绝对值编码器: 131072P/R Absolute Encoder: 131072P/R
R	旋转变压器 Resolver

记号 Sign	规格 Spec.
A	标准 Standard

记号 Sign	规格 Spec.
1	平直,不带键(标准) Flat, Without Keys (Standard)
2	平直,带键,带螺纹 Flat, With Keys With Screw Thread

记号 Sign	规格 Spec.
1	不带选购件 None
2	带油封 With Oil Seal
3	带制动器(DC24V) With Brake (DC24V)
4	带油封,带制动器(DC24V) With Oil Seal, With Brake (DC24V)

For ProNet series only

Estun servo selection guidance

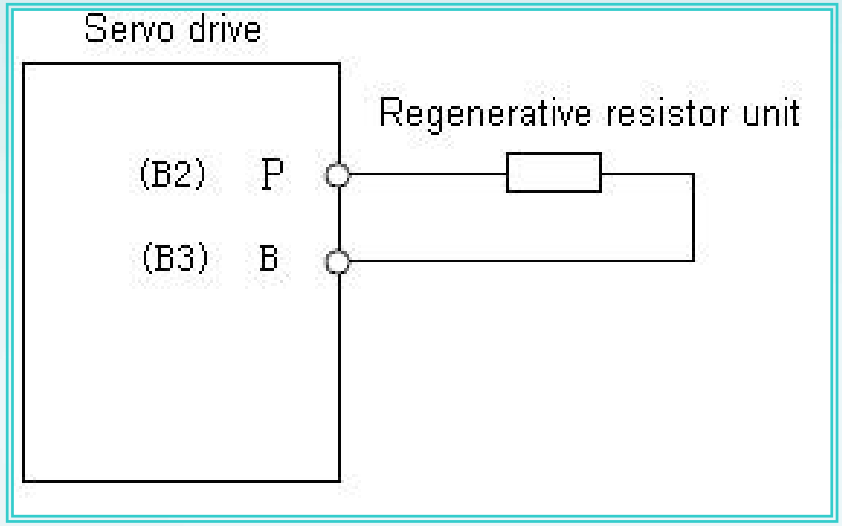
Estun servo selection guidance

EDB&EDC series cable selection

伺服电缆型号表 / Table of Cable Models

伺服驱动器 Servo Drive	伺服电机 Servo Motor	动力电缆型号 Power Cable Model	编码器电缆型号 Encoder Cable Model	通讯电缆型号 Communication Cable Model	手持器型号 Handheld Operator Model
EDC-02APE	EMJ-02APA□□	CDM-JB18	CMP-JB26	CSC-CC24A	OP-01A
EDC-04APE	EMJ-04APA□□				
EDC-08APE	EMJ-08APA□□				
EDC-10APE	EMJ-10APA□□				
EDC-10APE	EMG-10APA□□	CDM-GA16	CMP-GA26		
EDB-08A□A	EMJ-08APA□□	BDM-JB18	BMP-JB24	BSC-CC24A	——
EDB-10A□A	EMJ-10APA□□				
EDB-10A□A	EMG-10APA□□	BDM-GA16	BMP-GA24		
EDB-15A□A	EMG-15APA□□				
EDB-20A□A	EMG-20APA□□	BDM-GA14			
EDB-30A□A	EMG-30APA□□	BDM-GD12			
EDB-50A□A	EMG-50APA□□				
EDB-10A□A	EML-10APA□□	BDM-GA16			
EDB-20A□A	EML-20APA□□	BDM-GD14			
EDB-30A□A	EML-30APA□□	BDM-GD12			
EDB-50A□A	EML-40APA□□				

Regenerative resistor



When servo motor is driven by dynamotor, the electric power goes back to servo amplifier, this is called regenerative power. Regenerative power is absorbed by smoothing capacitor. If the power exceeds capacity of the capacitor, then the regenerative resistor is applied to consume the rest electric power.

Regenerative resistor

Regenerative resistor	Internal resistor	External resistor
EDB-05，10，15	50 Ω,60W	More than 40 Ω
EDB-20	30 Ω,150W	More than 20 Ω
EDB-30	10 Ω,300W	More than 10 Ω
EDB-50	10 Ω,300W	More than 10 Ω
Pronet-10,15		
Pronet-20		
Pronet-30		
Pronet-50		
Pronet-75D,1AD,1ED		

ProNet series options

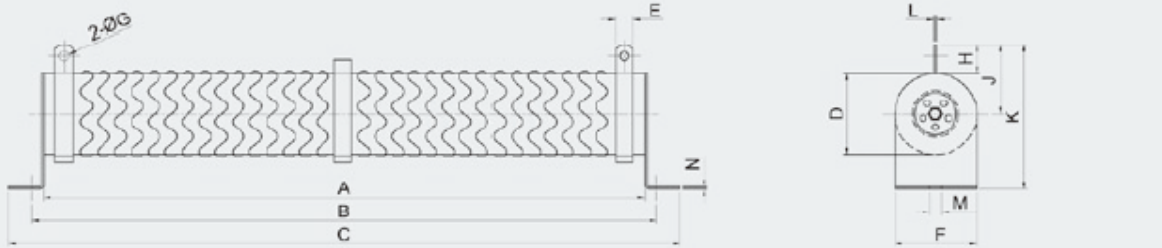
ProNet 选配件 Options

再生电阻器 / Regenerative Resistor

在7.5kW~15kW的伺服驱动器外连接处理再生能量的再生电阻器。

Externally mount the regenerative resistor for 7.5kW to 15kW Servo Drives.

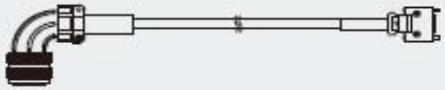
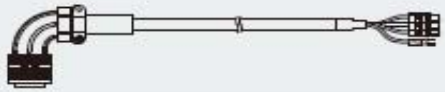
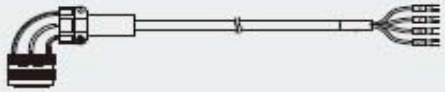
单位: 毫米Unit: mm



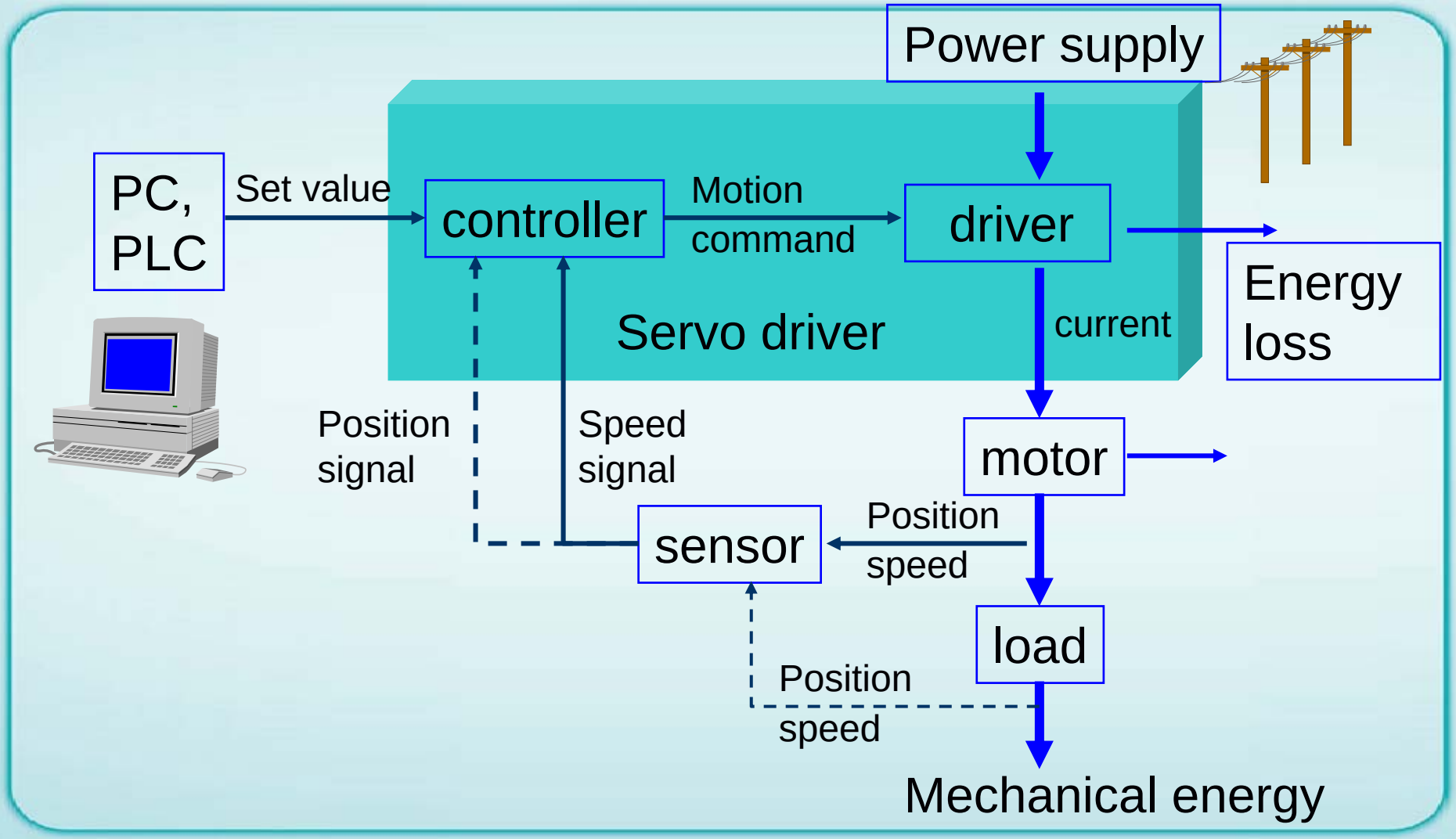
型号 Model	额定功率 Rated Capacity	阻值 Resistor Value	尺寸 Dimensions(mm)													适用伺服驱动器 Applicable Servo Drives
			A	B	C	D	E	F	G	H	J	K	L	M	N	
DQN1500W11ΩK	1500W	11Ω	510	530	570	70	15	70	8	25	60	125	1.6	10	2	ProNet-75D□□ ProNet-1AD□□ ProNet-1ED□□

ProNet series cable selection

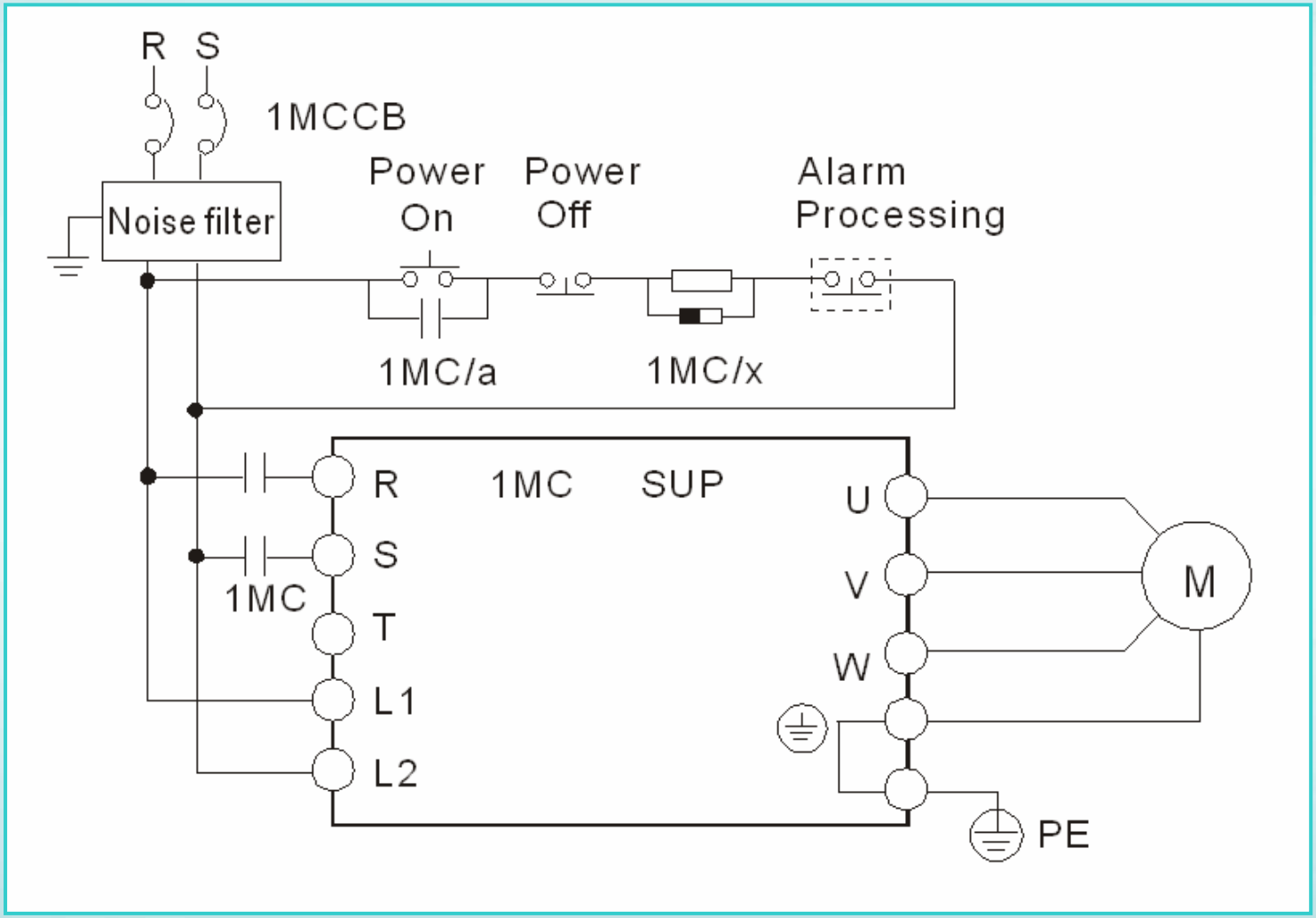
型号说明 / Specification Description

名称 Name		型号 Model	规格 Specifications
连接器套件 Connector Kit	CN1	EC-CN1-50	
	CN2	EC-CN2-20	
通讯电缆 Communication Cables	CN3	PSC-CC24-XX	
串行编码器电缆 Serial Encoder Cables	EMG EML EMB	PSP-GA24-XX	
旋转变压器电缆 Resolver Cables	EMG EML EMB	PRP-GA24-XX	
动力电缆 Power Cables	EMG-10A EMG-15A EML-10A	PDM-GA16-XX	
	EMG-20A	PDM-GA14-XX	
	EML-20A	PDM-GD14-XX	
	EMG-30A / 50A EML-30A / 40A	PDM-GD12-XX	

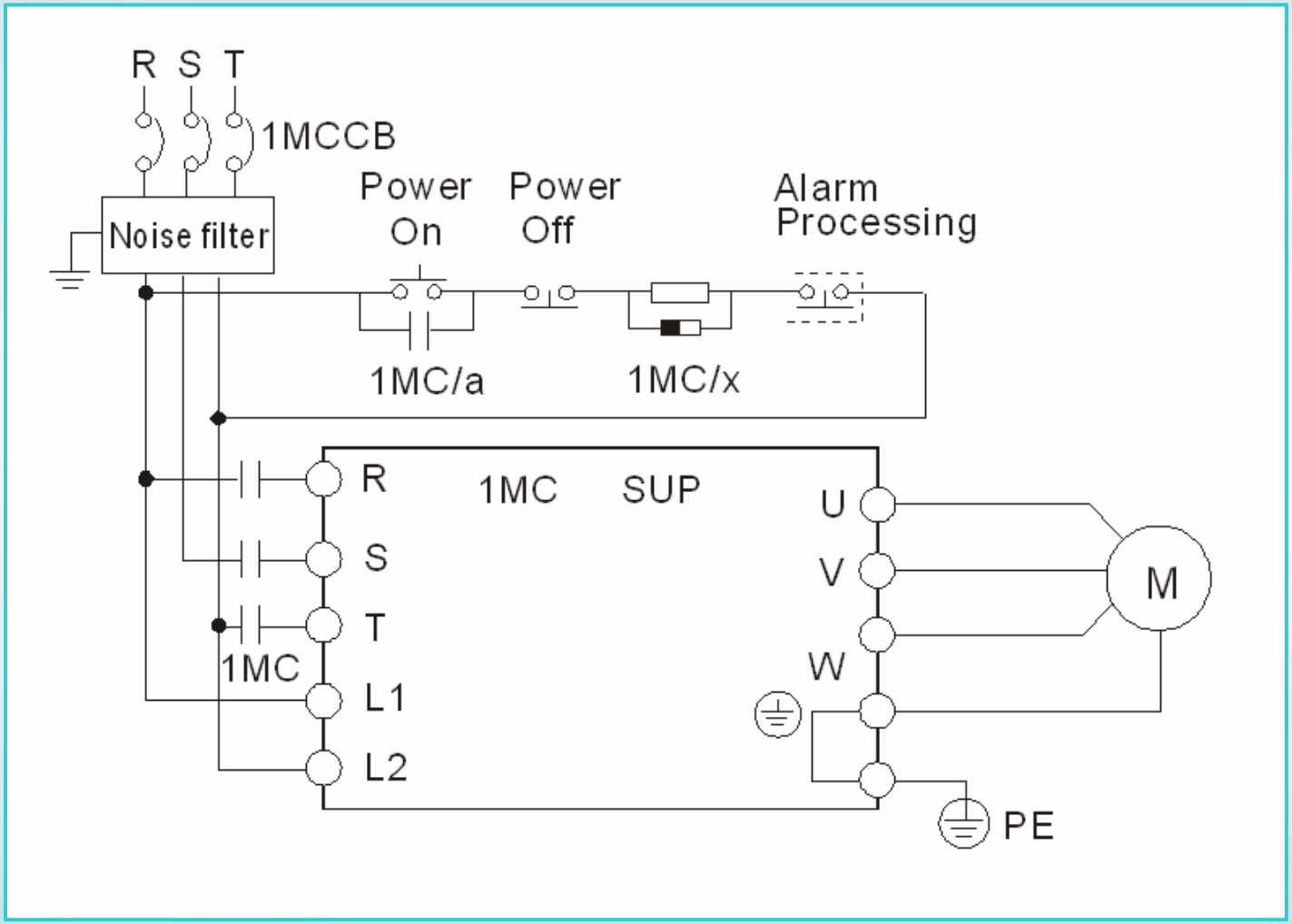
servo system



Single phase power supply (below 1.5Kw)



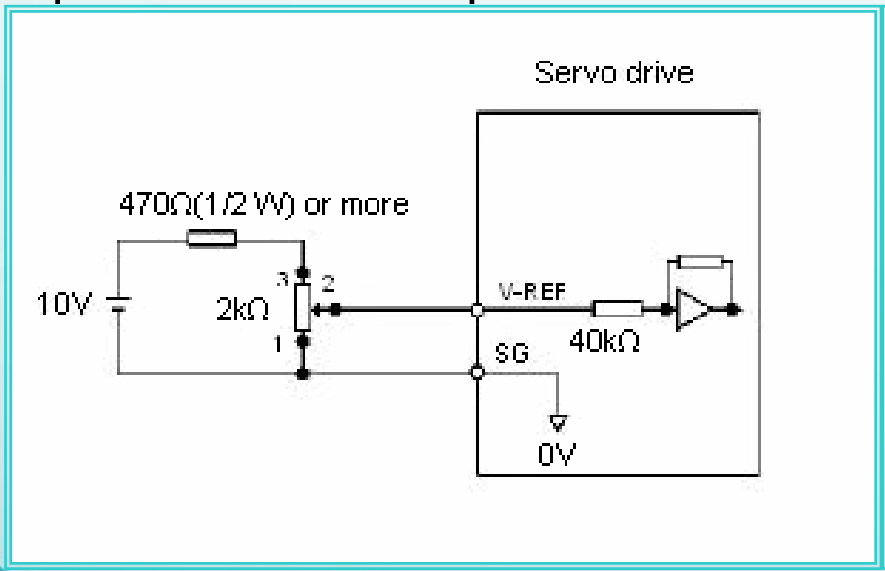
Three phase power supply (Above 2Kw)



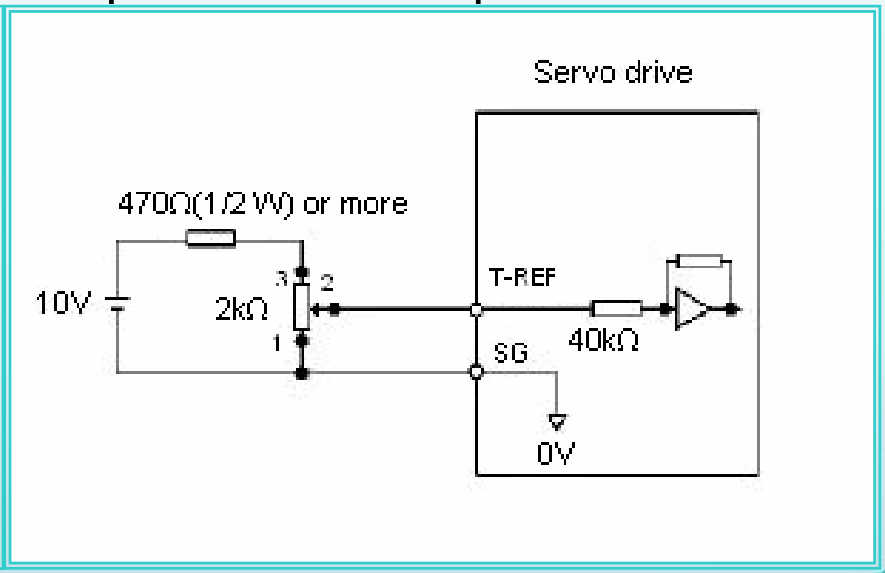
I/O interface circuit (1)

➢Analog reference input circuit（**EDB series**）
Input impedance is about 40kΩ; Input voltage is ± 10V

Speed reference input circuit:



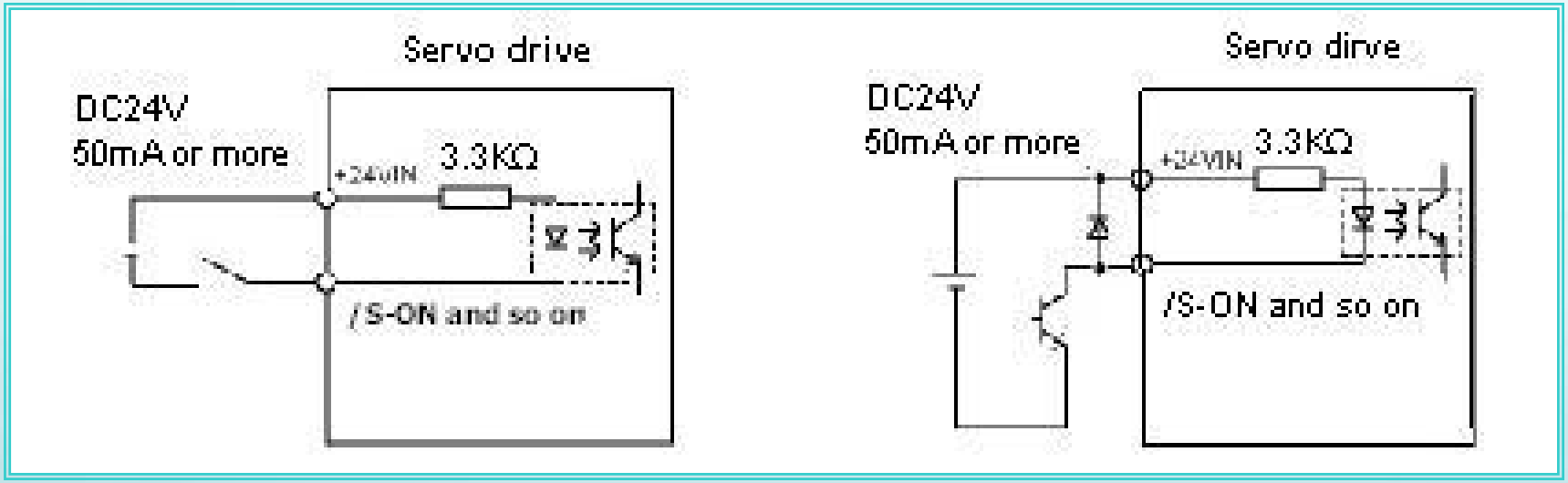
Torque reference input circuit :



I/O interface circuit (2)

➢Sequence input interface circuit（**EDB,EDC series**）

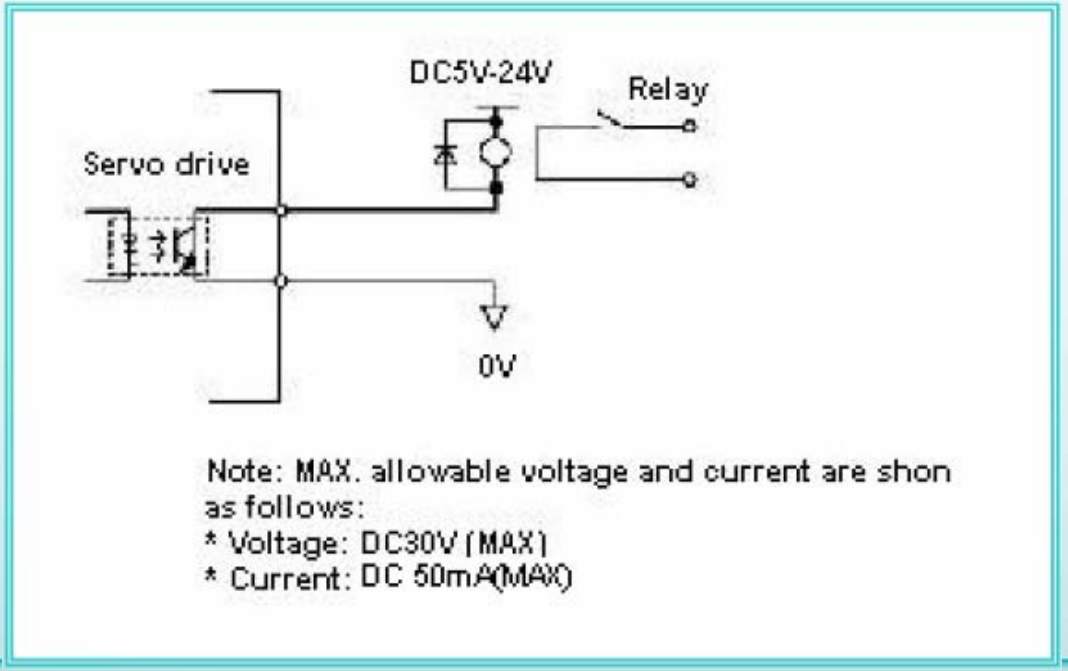
The sequence input circuit interface connects through a relay or open-collector transistor circuit. Select a low current relay otherwise a faulty contact will result.



I/O interface circuit (3)

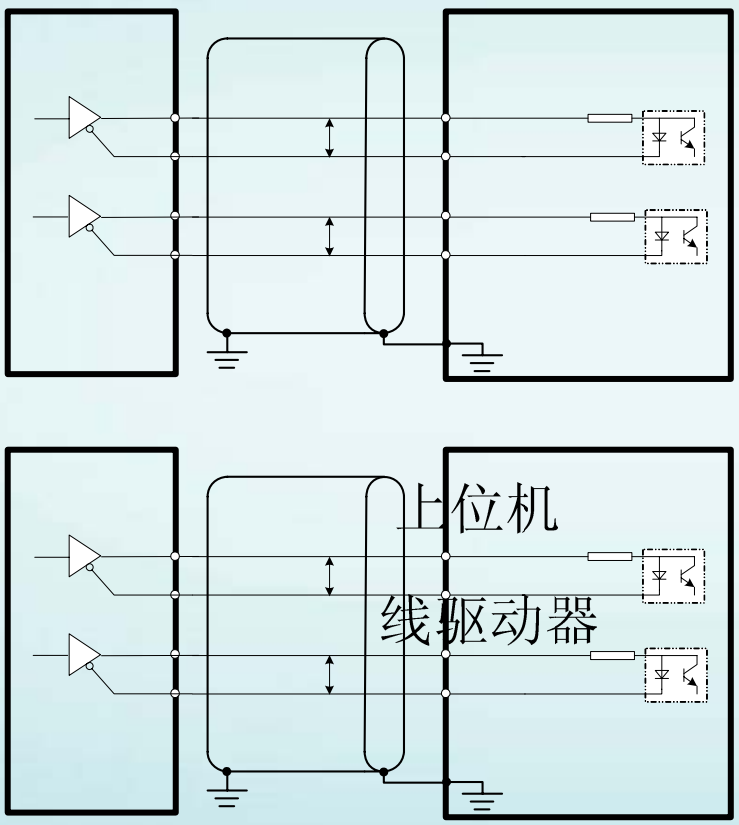
➢Sequence output circuit（EDB、EDC series）

Output signals like Servo alarm, Servo ready and other sequences signals are formed by photocoupler output circuit. please use relay circuit connection.

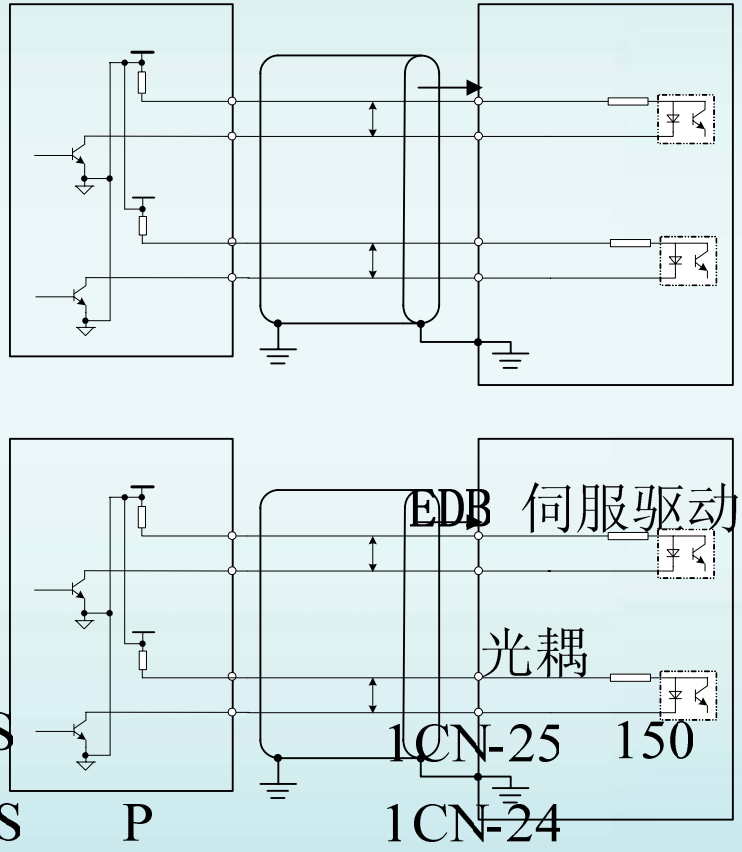


I/O interface circuit (4)

Pulse reference input circuit（EDB、EDC series）

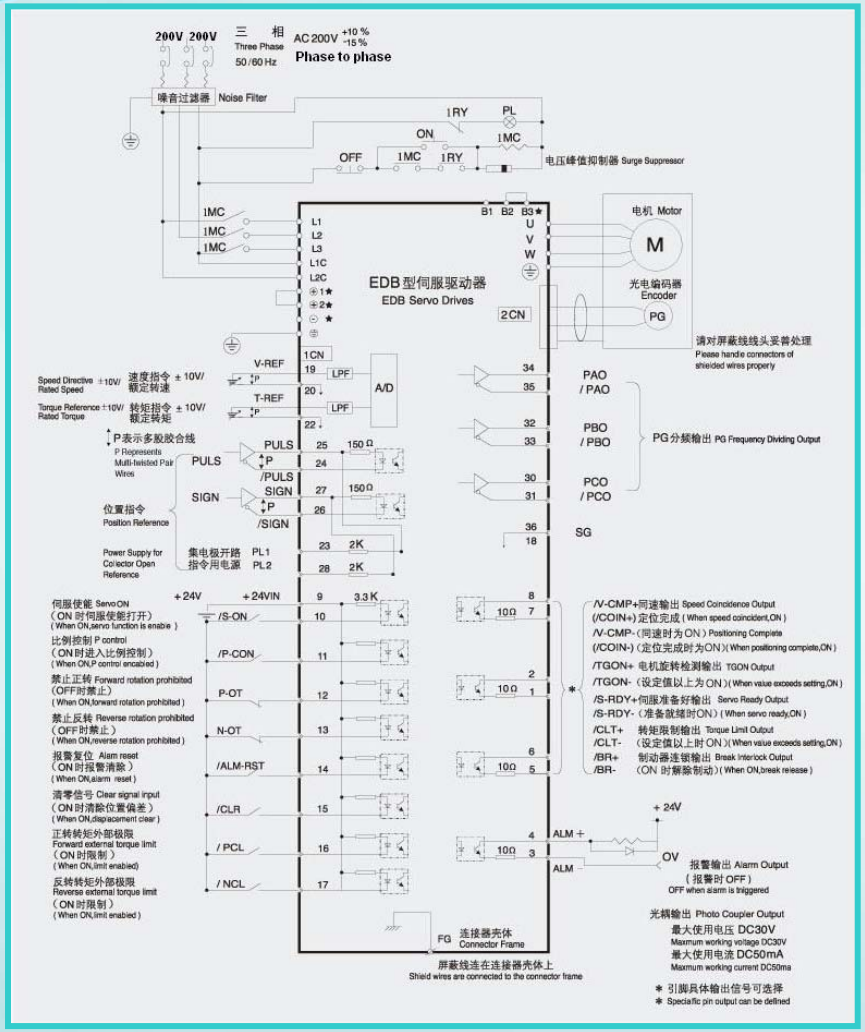


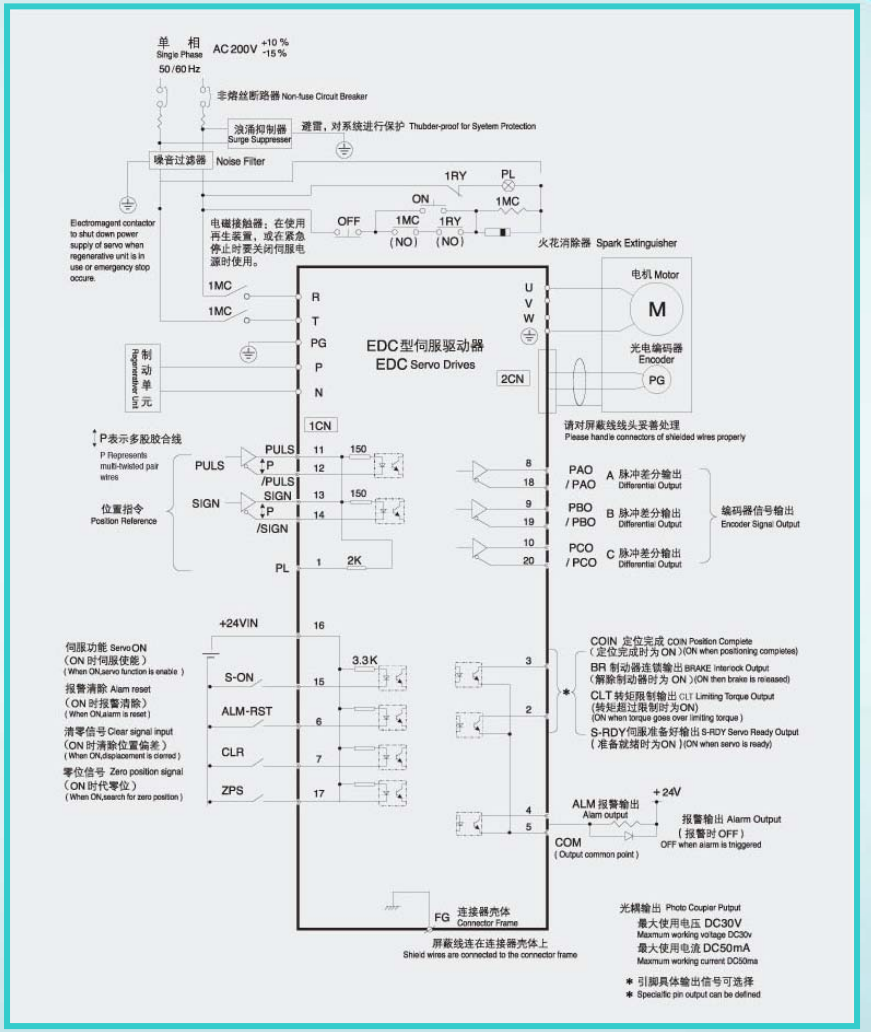
Host controller is line driver output



Host controller is Open-Collector Output

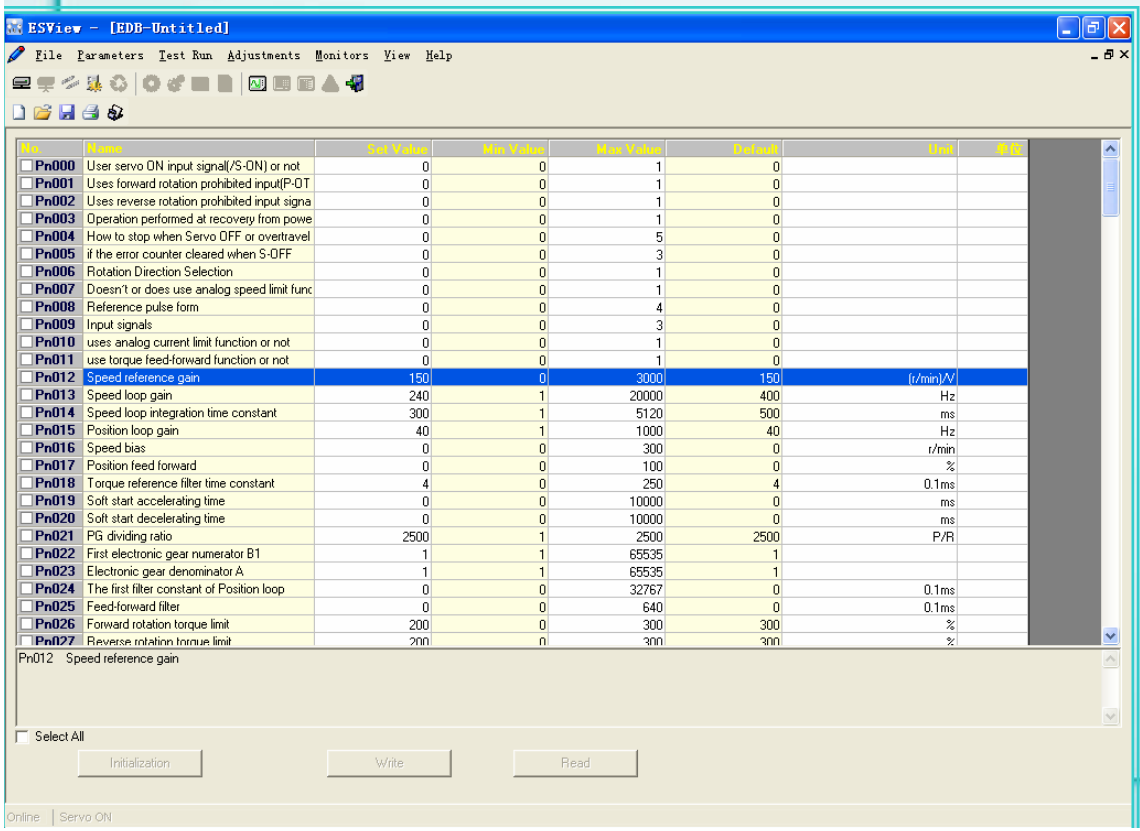
Typical connection of EDB&EDC series



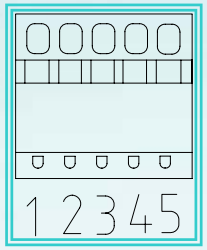


ESview communication software

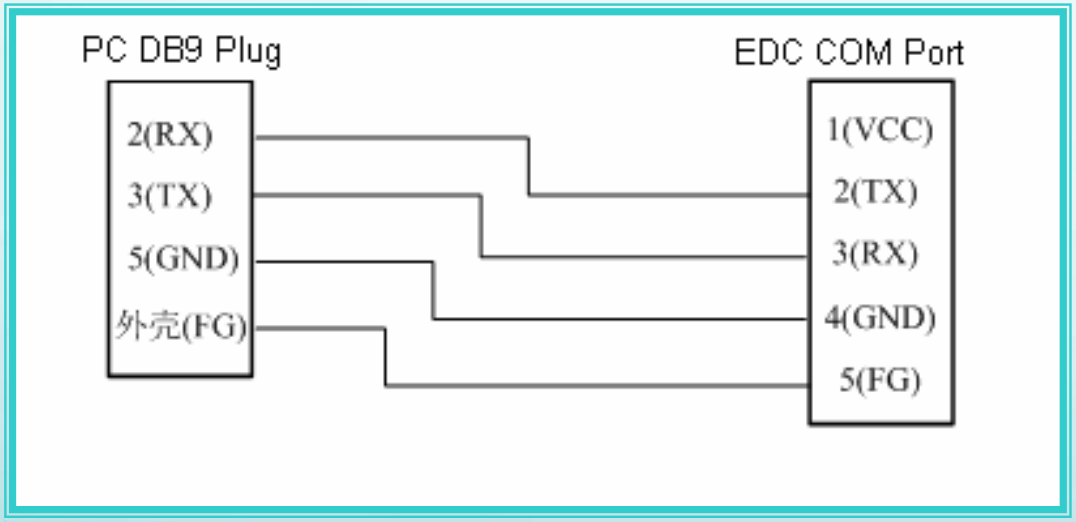
- Parameter management
- Monitoring
- Real time sampling
- Adjusting



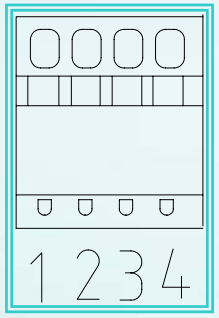
EDC series RS232 connections



Pin	Description
1	VCC，internal 5V power supply of servo drive
2	TX，RS232 COM transmission foot
3	RX，RS232 COM receiving foot
4	GND，grounding of internal power supply of servo drive
5	FG，connect the shield layer of COM to the earth.



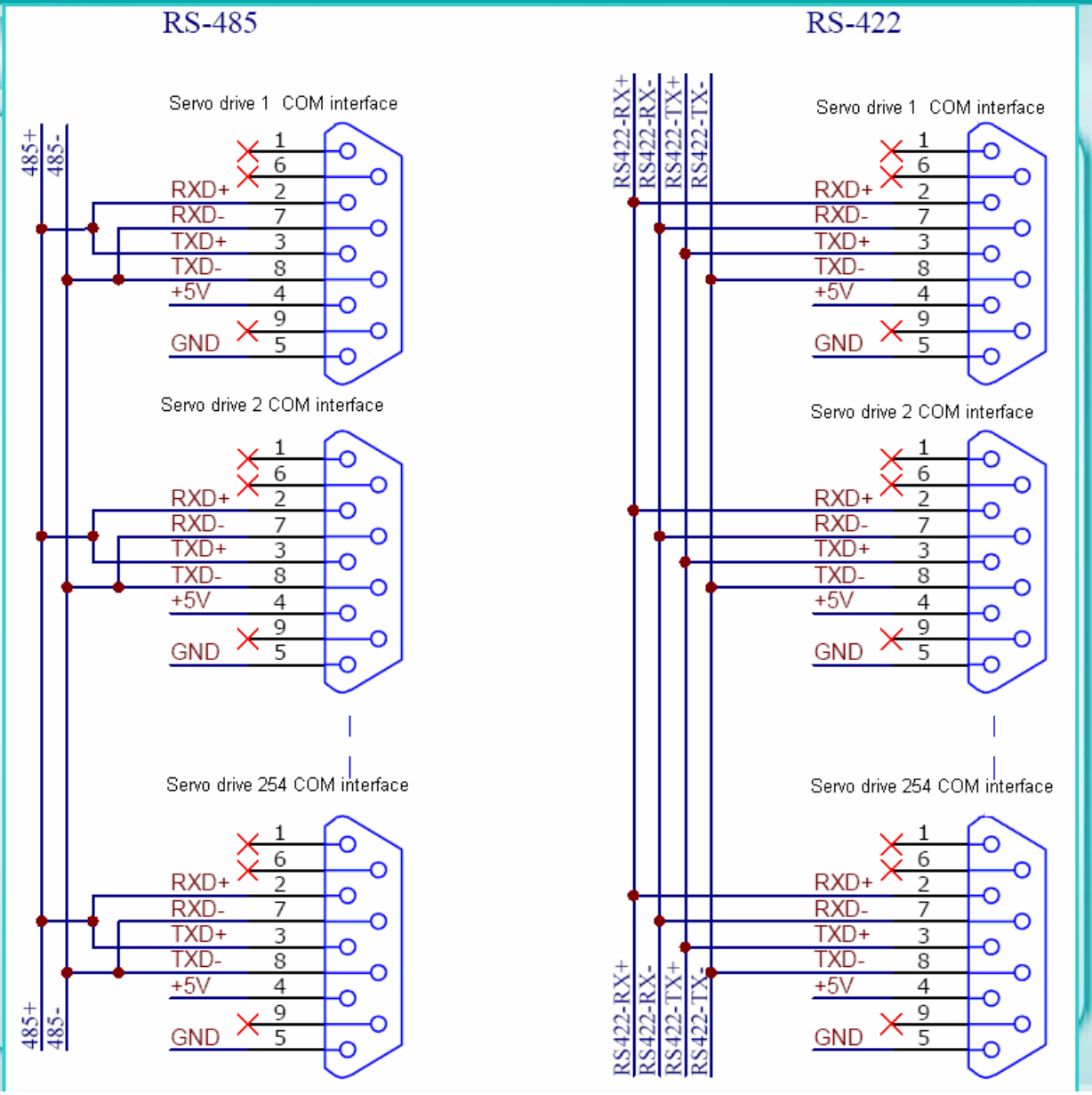
EDC series Canopen connections



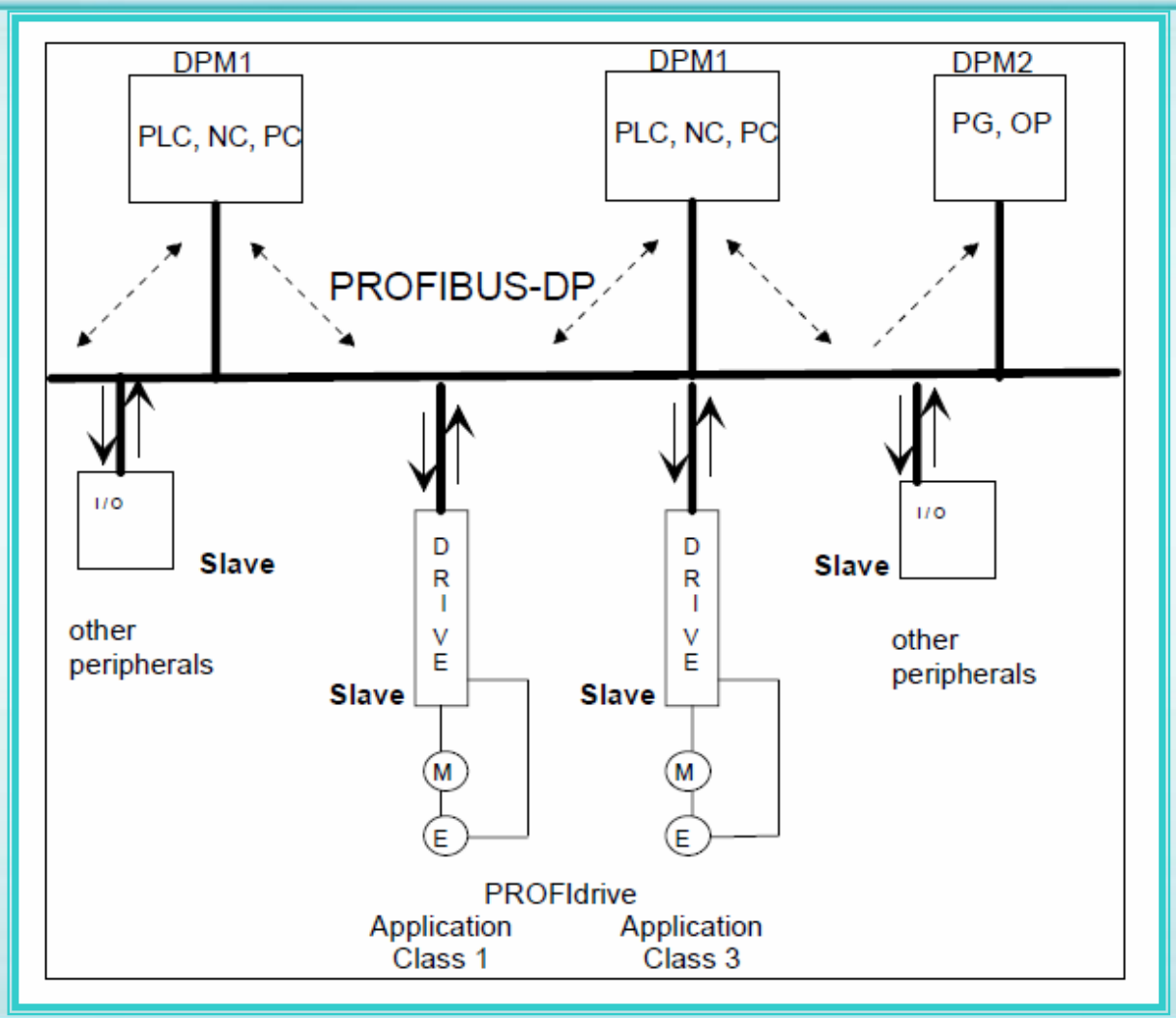
Pin	definition
1	GND，internal grounding within servo drive
2	CANH
3	CANL
4	FG，shield grounding

EDB series

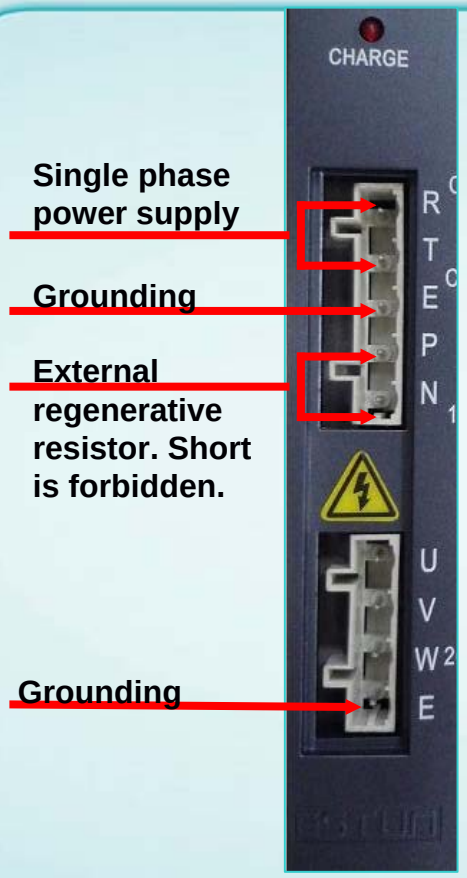
RS485/RS422 connection



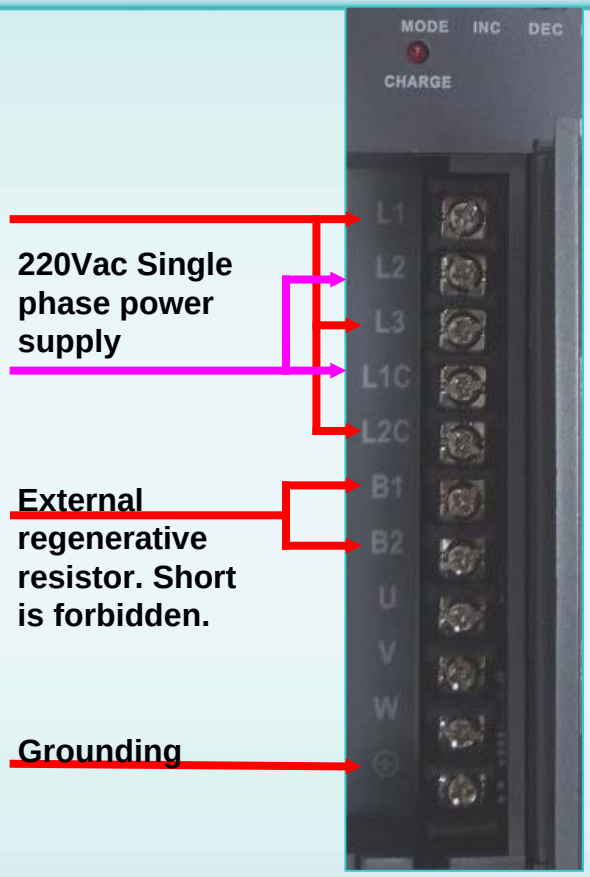
Profibus-DP for Pronet series



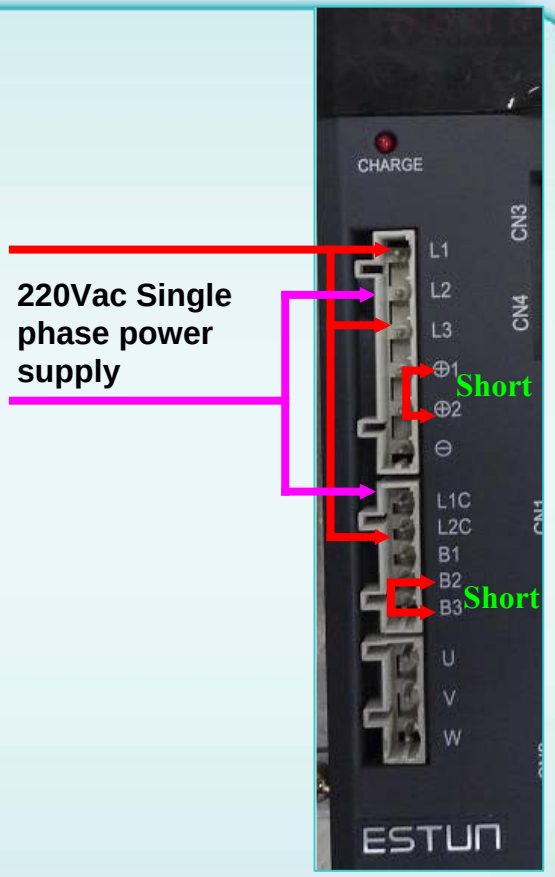
Wiring sample



EDC-02/04/08



EDB-08/10/15



Pronet-10/15

Attention before power on

After wiring and before power on, please double check the wiring correctness. Especially, please confirm that:

1.power supply is connected to the driver terminals L1,L2&L3.
2.motor's UVW phases are connected to driver UVW terminals respectively.

Please be sure there is no misconnection, otherwise it will burn the driver and cause undesired hazard.

After power on 2-4 seconds, it should be a slight flick sound of inside relay. In case there is no flick sound, please check the power supply again. The digital panel will display in case control power supply is available. Power on LED will be lit in case main power supply is available.

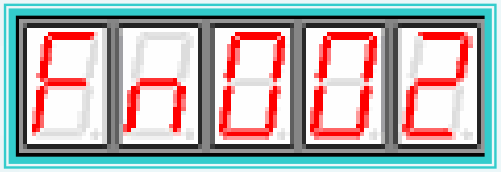
Wait at least five minutes before inspection after turning OFF power
Note that even when the power is turned off, there will still be residual voltage remained in the capacitor. In order to avoid electrical shock, please make sure the Charge lamp is OFF before inspection.

Please refer to Estun servo user's manual for more details if there is any other kind of display.

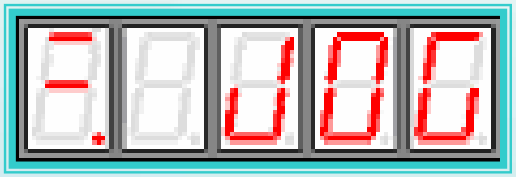
Trial-rotation without load

Enter into JOG mode

1. Press MODE to select assistant mode.
2. Press INC or DEC to select Function number of JOG mode.

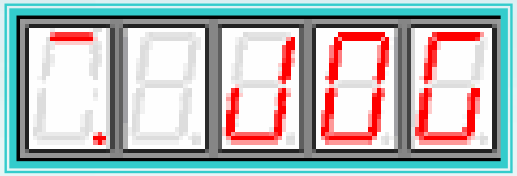


3. Press ENTER to enter JOG mode.



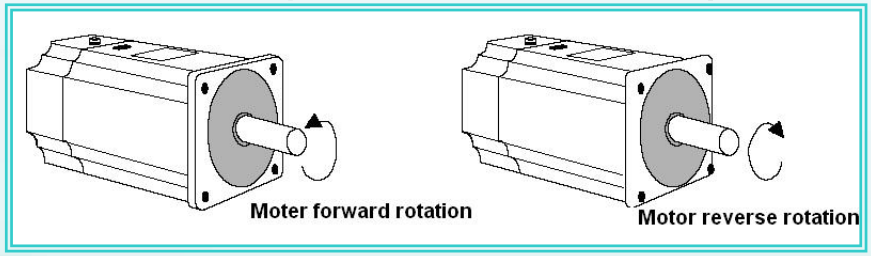
Trial-rotation without load

4. Press MODE to enter Servo ON (motor ON) status.

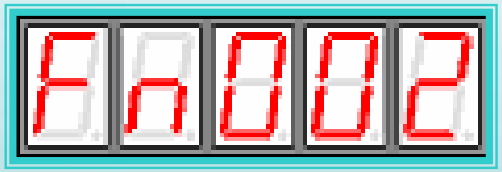


5.Press MODE to switch between servo ON and Servo OFF.
If motor running is required, servo must be ON.

6. Press INC or DEC (motor runs when press the keys.)



7. Press ENTER to return to function number display. (Servo is OFF)



- ***Notice for using JOG***
- ***JOG speed can be modified. (Pn037 of EDB, Pn032 of EDC)***
- ***Host controller not work.***
- ***Can be used with / without load***

Estun servo parameter adjustment guidance

- Estun servo parameter adjustment guidance

Using speed forward-feedback function

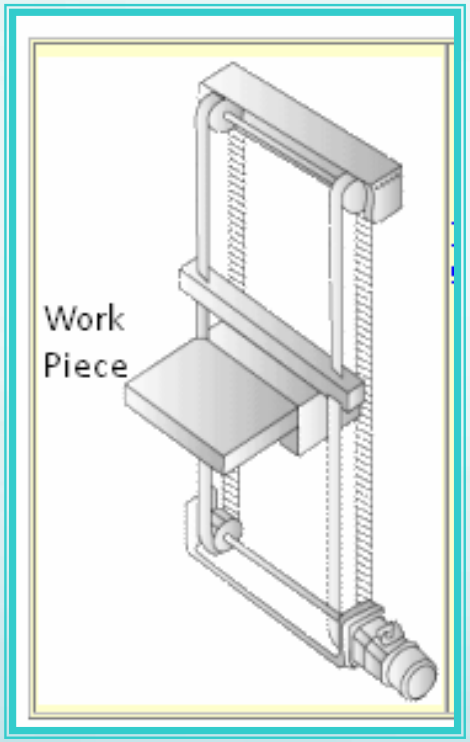
- Using speed forward-feedback function

Examples of Industry Experience

- Food packing machine
- Printing machine
- Food processing machine
- Label cutting machine
- Handling machine
- Machine tools
- Robot arm

Vertical transportation system

➢**To prevent the work piece to drop down, a motor with brake is used.**



➢Servo motor: EMJ,EMG series

➢Servo drive: EDC,EDB series

Printing machine

➢**High speed, high responsiveness, high frequency printing and label cutting positioning**

➢Servo motor： EMJ, EMG series

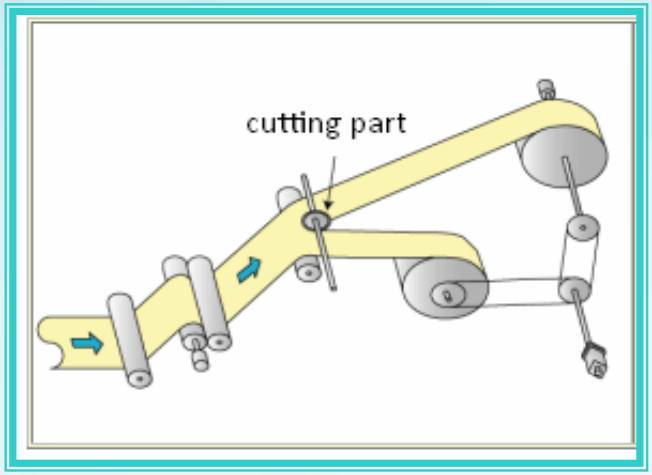
➢Servo driver： EDB, ProNet series

Textile machine

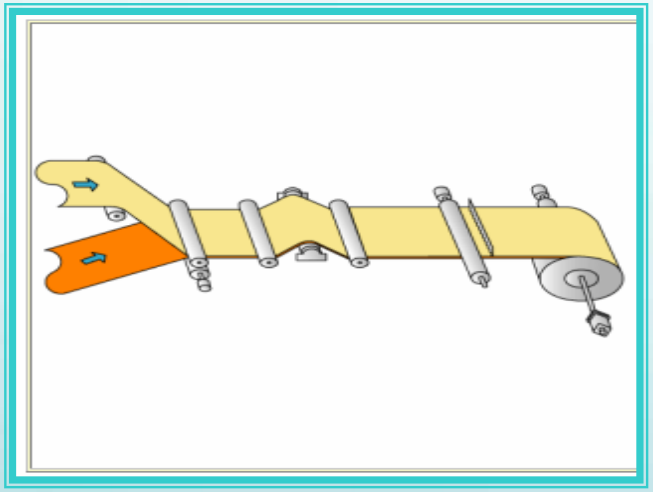
- **Pretty suitable for the positioning of knitting machine, embroidery machine, ironing machine etc.,**

- Servo motor: EMJ,EMG series
- Servo driver: EDC,EDB series

Torque control application

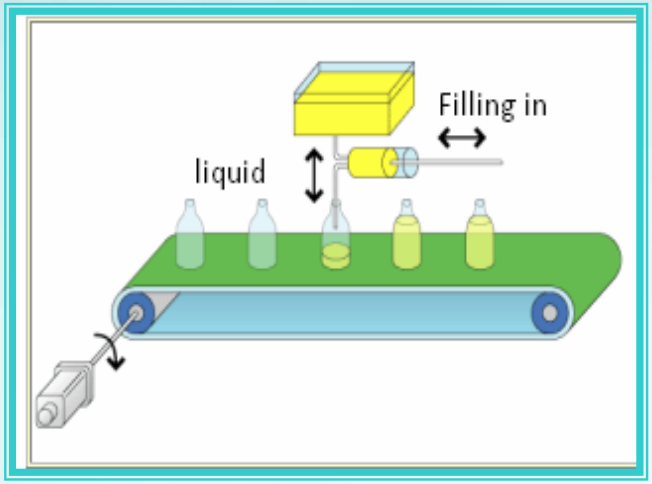


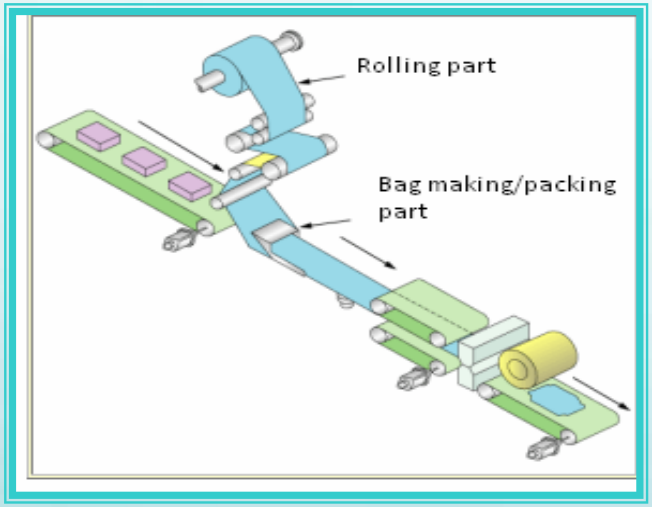
➢Vertical cutting machine



➢Superposition machine

Filling in equipments



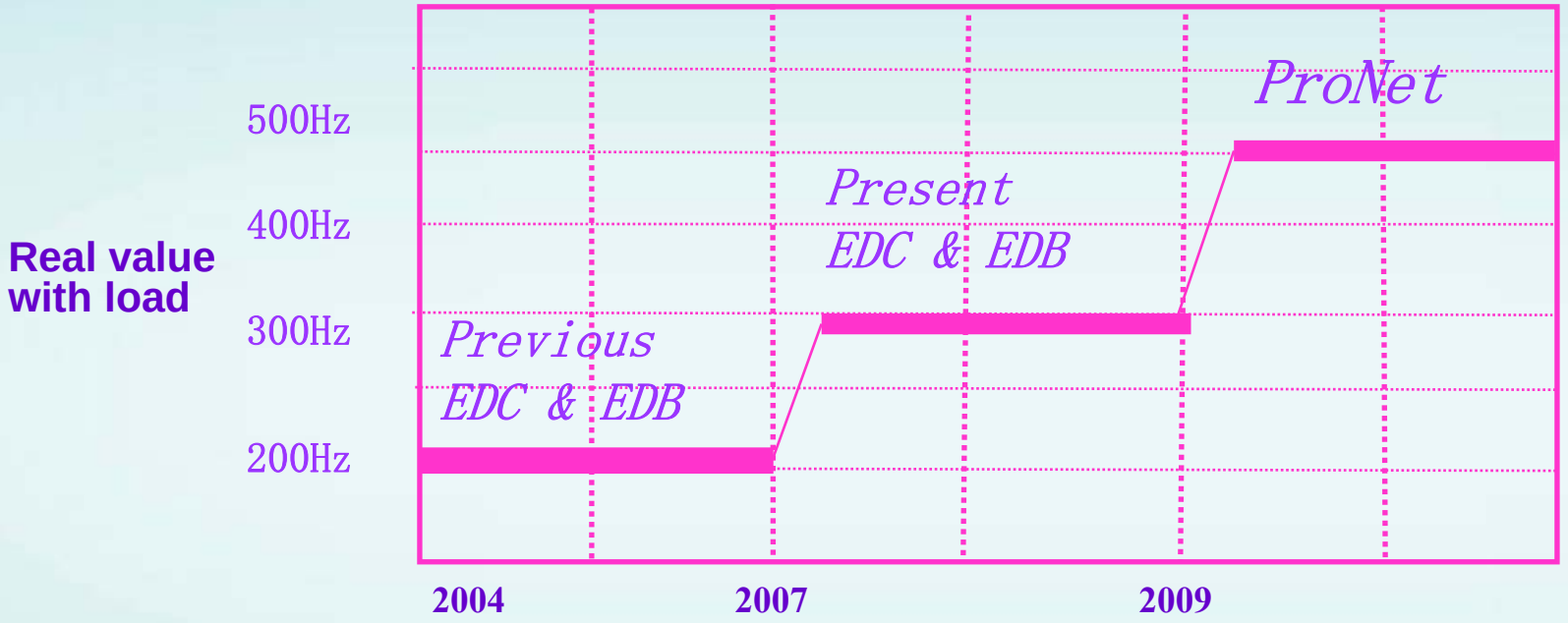


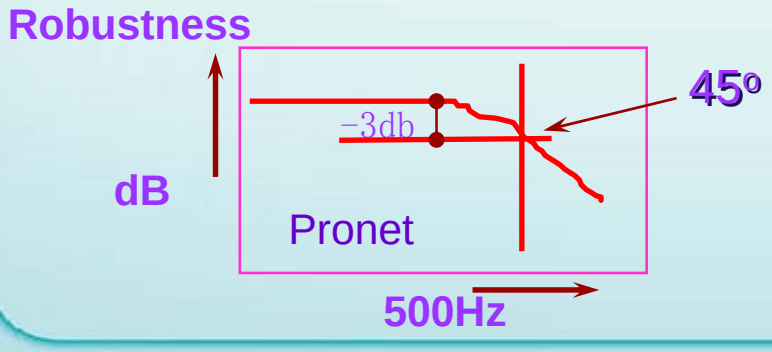
- Filling in equipments
- Bag making machine
- Packing machine

Alarm display and trouble shooting

- Alarm display for EDB series
- Alarm display for EDC series

What is a good servo?





➢High frequency responsiveness

What is a good servo?

- **No clear overtravel**

  No clear overtravel between real rotation angle degree and command angle degree under position control mode.

- **High consistency**

  When work piece moves as a circle. A good servo will remain high consistency for every movement.

- **High compatibility**

  It is compatible for different kind of applications.

ESTUN

埃斯顿与您共成长 www.estun.com
Growing Together

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