ESTUN

EDB / EDC

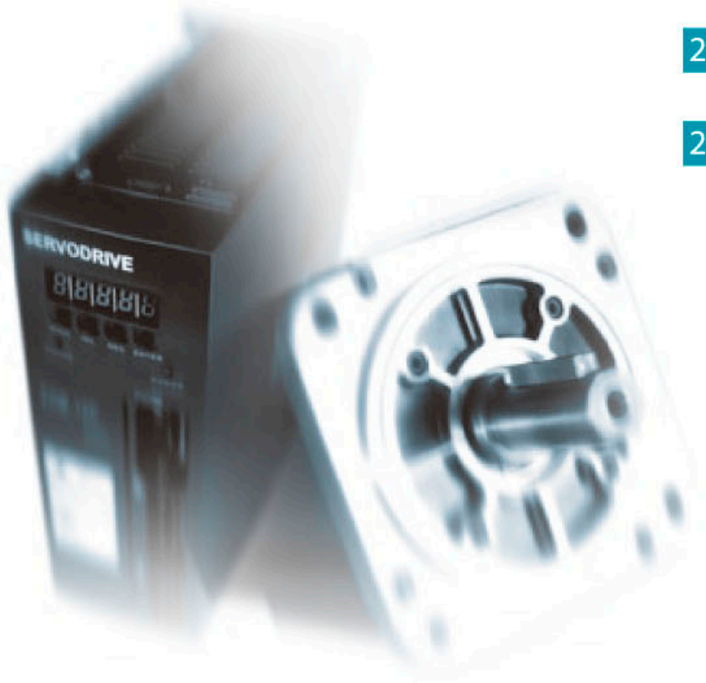
系列全数字式交流伺服

All Digital AC Servo

埃斯顿自动化专注于运动控制领域高端产品的开发、生产和销售，现为国家重点支持的交流伺服系统研发和生产基地。本公司精心研制的全数字式交流伺服系统拥有完全自主知识产权，广泛应用于数控机床、纺织机械、包装机械、印刷机械、木工机械、自动化生产线等众多工业控制领域，现已与国内外众多机械制造商建立了长期的战略合作关系，成为其运动控制产品的首选合作伙伴。

As a national support prior AC servo system research, development and production base, Estun Automation is devoted to R&D, manufacturing and sales of high-end products in the realm of motion control. We are holding completely with self-owned IPR technology of our AC servo systems which can be applied in CNC machine, textile machine, packing machine, printing machine, wood-working machine and robotization production line, etc., Now, Estun has established long-term strategy cooperation with many prestigious machine manufacturers and become their first cooperation option for motion control products home and abroad.

南京埃斯顿自动控制技术有限公司
ESTUN AUTOMATION TECHNOLOGY CO.,LTD

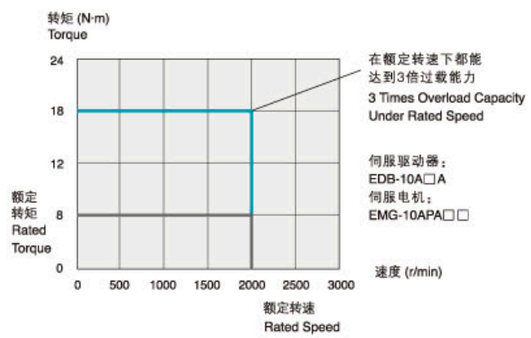


EDB/EDC 系列全数字式交流伺服
All Digital AC Servo

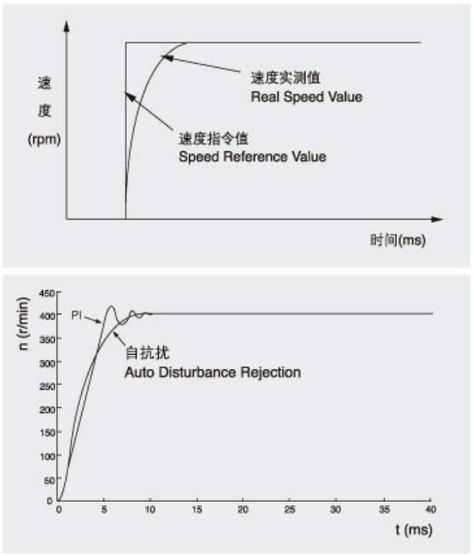
过载能力强 / High Overload Capacity

EDB/EDC伺服驱动器所选择的工业级智能功率模块IPM的容量比通常标定相同功率的同类伺服产品要大一个等级，因而具有过载能力强、抗负载扰动能力强、起动力矩大等特点。伺服驱动器能够保证1.5KW以下普遍达到3倍的过载能力，2KW以上可能达到2.5倍的过载能力。

The industrial grade intelligent power modules (IPM) utilized in EDB/EDC servo drives are one step higher in capacity than the like servo products generally specified as the same power, therefore, they have stronger overload capacity, higher disturbance rejection capacity, and larger startup torques. The servo drives assure 3 times overload capacity for types below 1.5KW, and generally 2.5 times above 2KW.



高标准 / High level



应用最新高速数字信号处理器DSP，满足高速高精度伺服的控制要求。自抗扰控制和速度观测控制算法，配合补偿伺服延时的前馈控制，指令平滑技术，比传统PI控制具有更好的动态跟踪和稳态性能，真正实现伺服的高响应、高精度、高速度、高可靠。配备惯量自动识别，调整更方便。

The most updated high speed DSP is used to meet the control requirements of high speed, high precision servo. With its auto disturbance rejection control and speed observation control algorithm, combined with compensation servo delay's forward feed control, reference smoothing technique, the servo drives have much better dynamic features and stabilities than those with conventional PI control. Servo's real fast response, high precision, high speed and high stability are realized. In addition, being equipped with automatic inertia identification, it makes adjustment operations easier.

通讯接口 / Communication Interface

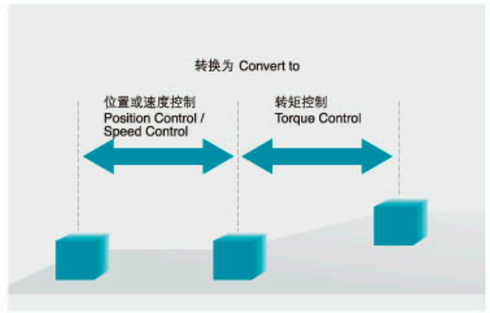
EDC伺服拥有标准CAN总线接口，很容易集成到分布式控制系统中。同时，基于RS485或RS232接口的Modbus协议，上位机可以最多连接32个伺服，进行网络控制，传输距离最长1200米（RS485），同时也可以与PLC、DCS、智能仪表、触摸屏等设备之间进行通讯，实现集中监控。

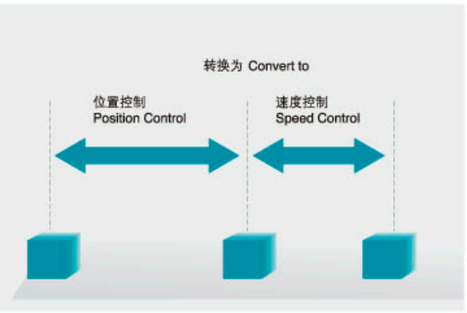
Standard CAN bus interfaces are available in EDC servos, which makes it easy to get integrated into a distributed control system. Based on Modbus protocols of RS485 or RS232 interfaces, the host can be connected up to 32 servos for network control & the transmission distance can reach 1200 meter in maximum (if RS485 interface be used). Besides, the host can also communicate with PLC, DCS, intelligent instruments, touch screens, etc., and the centralized monitoring is implemented.

灵活柔性 / Flexibility

EDB伺服驱动器将位置控制、速度控制、转矩控制这三种控制方式合为一体，并且可以进行各控制模式的动态切换。使用更加灵活柔性。

Position control, speed control and torque control are combined all in one in EDB servo drives. It's available to switch dynamically among different control modes and operation is more convenient and flexible.





ESView 通讯软件 / ESView Communication Software

通过专用的计算机软件可以实现：

- 参数管理—能对所有的参数进行编辑、传送、比较、以及初始化，方便快捷。
- 监控—能实时监控所有的输入/输出信号、当前报警及历史记录、以及系统状态等。
- 实时采样—能实采集速度和转矩的波形，便于调试和分析。
- 调试—能快速调整伺服驱动器的增益，在没有位置或速度指令输入时可进行简单的测试。

With special PC softwares available, following functions are achieved:

- Parameter management

  Fast and convenient operations to all parameters are available, such as editing, transmission, comparison, and initialization.

- Monitoring

  Real time monitoring of all I/O signals, alarms of the present and history record, and system status, etc.

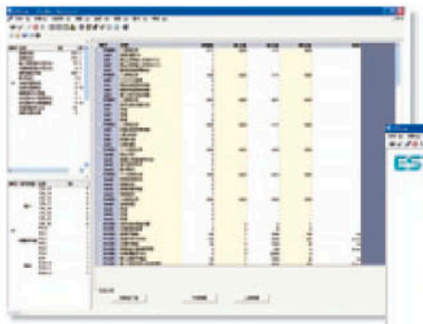
- Real time sampling

  Real time sampling the curves of speed and torque facilitates the adjustment and analysis.

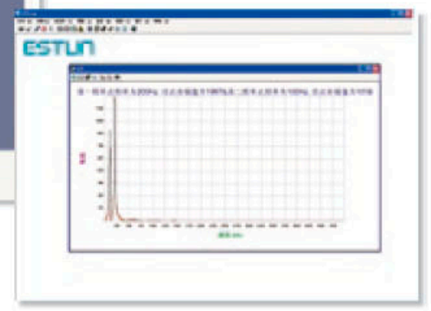
- Adjusting

  Fast adjustment of gains is available.

  Simple test is available when there's no position or speed reference input.



参数管理界面
Parameter Management Interface



实时采样图
Sampling Diagram

单轴定位功能 / Single Axis Positioning Function

EDB伺服驱动器内置了16节点的单轴定位功能，用户可以通过伺服驱动器的RS-232通讯接口直接与触摸屏连接，从而省却了中间的PLC单元。用户可以在触摸屏上编辑每一个节点的位置、速度、加减速度时间、等待时间、起始点、停止点，并通过RS-232通讯接口下传到伺服驱动器。另外，用户可以选择绝对值或增量值编程，可以选择是否循环运行，可以使用寻找参考点功能并且设定寻找参考点的往反速度，还可以使用外部信号进行换步。针对不同的应用场合，用户可以自行开发应用程序，以满足各自的需求。

The 16-node single axis positioning function is built inside the servo drives, and a touch screen can be connected directly to the RS-232 interface on the servo drives, thus the costs go down since an intermediate PLC unit is eliminated. With the touch screen, user may program easily every node's position, speed, acceleration and deceleration time, latency time, start point and stop point, moreover, the above info can be transmitted to the servo drive via RS-232 interface. User may select to program absolute values or incremental values and select cycle run or not. User may also use reference point search function and program the go and back speed for reference point search and in addition, it's also available to use external signals for step changes. Actually users may develop own application programs to meet different demands on different occasions.

EDB/EDC 系列伺服驱动器
Series Servo Drive

产品特性 / Features

- 采用了电流前馈控制、速度观测器和惯量观测器等功能，借助于这些新的功能，使得响应性能大大提高。
- 增加了控制模式切换功能，通过设定合理的切换调节，可以有效的减少超调量和调整时间。
- Responding performance greatly improved with new functions like current feedforward control, acceleration feedforward control, speed observer and observer, etc.
- Updated with control mode switch function, effectively reduce overshoot and adjustment time by setting appropriate switch functioion.

型号说明 / Specification Description

EDC – 08 A P E

EDC	–	08	A	P	E
EDC型伺服驱动器 EDC Model Servo Drive		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

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

EDB	–	10	A	M	A
EDB型伺服驱动器 EDB Model Servo Drive		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

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

型号对照表 / Model Comparison Table

伺服电机 Servo Motor					伺服驱动器 Servo Drive		应用 Application
系列 Series			功率 Power	型号 Model	单相(200V) Single Phase	三相(200V) Three Phase	
中惯量 Medium Inertia	小功率 Small	EMJ 3000min⁻¹	200W	EMJ-02APA□□	EDC-02APE		贴片机 SMM(Surface Mounting Machine) 印刷电路板打孔机 PCB Puncher Machine 机械手 Robot Arm 搬运机械 Handling Machinery 食品加工机械 Foodstuff Processing Machinery 纺织机械 Textile Machinery
			400W	EMJ-04APA□□	EDC-04APE		
			750W	EMJ-08APA□□	EDC-08APE	EDB-08A□A	
			1000W	EMJ-10APA□□	EDC-10APE	EDB-10A□A	
	中功率 Medium	EMG 2000min⁻¹	1.0kW	EMG-10APA□□	EDC-10APE	EDB-10A□A	机床 Machine Tools 搬运机械 Handling Machinery 食品加工机械 Foodstuff Processing Machinery 纺织机械 Textile Machinery
			1.5kW	EMG-15APA□□		EDB-15A□A	
			2.0kW	EMG-20APA□□		EDB-20A□A	
			3.0kW	EMG-30APA□□		EDB-30A□A	
			5.0kW	EMG-50APA□□		EDB-50A□A	
		EML 1000min⁻¹	1.0kW	EML-10APA□□		EDB-10A□A	机床 Machine Tools 搬运机械 Handling Machinery 食品加工机械 Foodstuff Processing Machinery 纺织机械 Textile Machinery
			2.0kW	EML-20APA□□		EDB-20A□A	
			3.0kW	EML-30APA□□		EDB-30A□A	
			4.0kW	EML-40APA□□		EDB-50A□A	

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□□				

伺服驱动器的规格和电气参数 / Technical Specification and Model of Servo Drives

伺服驱动器 Servo Drive Model			EDB系列 EDB Series	EDC系列 EDC Series
基本规格 Basic Data	输入电源 Power Supply		三相AC200V+10-15%，50/60Hz Three Phase AC200V+10-15%, 50/60Hz	单相AC200V+10-15%，50/60Hz Single Phase AC200V+10-15%, 50/60Hz
	控制方式 Control Mode		SVPWM	SVPWM
	反馈 Feedback		8线(省线型)增量编码器(2500P/R) 8 Cores (Wire-saving) Incremental Type Encoder (2500P/R)	8线(省线型)增量编码器(2500P/R) 8 Cores (Wire-saving) Incremental Type Encoder (2500P/R)
	使用条件 Working Condition	使用 / 保存温度 Operating/Storage Temperature	0~55℃ / -20~85℃	0~55℃ / -20~85℃
		使用 / 保存湿度 Operating/Storage Humidity	90%RH以下(不结露) Below 90%RH (Non-condensing)	90%RH以下(不结露) Below 90%RH (Non-condensing)
		耐振动 / 耐冲击 Shock/Vibration Resistance	4.9m/s² / 19.6m/s²	4.9m/s² / 19.6m/s²
	构造 Structure		基座安装 Base Mounted	基座安装 Base Mounted
	调速比 Speed Control Range		1:5000	1:5000
速度控制方式 Speed Control Mode	速度变化率 Speed Regulation	负荷变化率 Load Regulation	0~100%：0.01%以下(在额定转速时) 0~100%: Below 0.01%(At Rated Speed)	0~100%：0.01%以下(在额定转速时) 0~100%: Below 0.01%(At Rated Speed)
		电压变化率 Voltage Regulation	额定电压±10%：0%(在额定转速时) Rated speed ±10%: 0% (At Rated Speed)	额定电压±10%：0%(在额定转速时) Rated Speed ±10%: 0% (At Rated Speed)
		温度变化率 Temperature Regulation	25±25℃：0.1%以下(在额定转速时) 25±25℃: Below 0.1% (At Rated Speed)	0~40℃：0.1%以下(在额定转速时) 0~40℃: Below 0.1% (At Rated Speed)
	频率特性 Frequency Characteristics		250Hz（$J_L \leq J_M$）	250Hz（$J_L \leq J_M$）
	软件启动时间设定 Software Startup Time Setting		0~10S(加速、减速分别设定) 0~10s (Set Acceleration and Deceleration Individually)	——
	速度指令输入 Speed Ref. Input	指令电压 Reference Voltage	±10V DC	——
		输入阻抗 Input Resistance	40KΩ	——
		回路时间常数 Loop Time Constant	47μS	——
	转矩指令输入	指令电压 Reference Voltage	±10V DC	——
		输入阻抗 Input Resistance	40KΩ	——
		回路时间常数 Loop Time Constant	47μS	——
	接点速度指令 Node Speed Reference	回转方向选择 Reverse Rotation Direction Selection	使用P-CON信号 Use P-CON Signal	——
		速度选择 Speed Selection	使用正传/反转电流限制信号(第1~3速度选择)，两者都未OFF时，选择停止或别的控制方式 Use FWD/REV current limit signal (select speed 1~3), when both not OFF, select Stop or other control mode	——
位置控制方式 Position Control Mode	指令脉冲 Reference Pulse	输入脉冲种类 Type	符号+脉冲列，A、B正交脉冲，CCW+CW脉冲列 SIGN+PULSE Train, Sin. Pulse Phase A and Phase B, CCW+CW Pulse Train	符号+脉冲列，A、B正交脉冲，CCW+CW脉冲列 SIGN+PULSE Train, Sin. Pulse Phase A and Phase B, CCW+CW Pulse Train
		输入脉冲形态 Pulse Buffer	线驱动(+5V电平)，集电极开路 Line Driving (+5V Level) . Open Collector	线驱动(+5V电平)，集电极开路 Line Driving (+5V Level) . Open Collector
		输入脉冲频率 Pulse Frequency	最大500Kpps(差分)/200 Kpps(集电极) Maxi.500Kpps (Difference) /200Kpps (Collector)	最大500Kpps(差分)/200 Kpps(集电极) Maxi.500Kpps (Difference) /200Kpps (Collector)

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伺服驱动器 Servo Drive Model			EDB系列 EDB Series	EDC系列 EDC Series
位置控制方式 Position Control Mode	控制信号 Control Signal		清零信号 Clr Clear	清零信号 Clr Clear
	偏置设定 Offset Setting		0~300r/min (设定分辨率1r/min) 0~300r/min (Set Resolution as 1r/min)	——
	前馈补偿 Feed Forward Compensation		0~100% (设定分辨率1%) 0~100% (Set Resolution as 1%)	——
	到位误差设定 In position Error Setting		0~500个指令单位(设定分辨率为1指令单位) 0~500 Reference Unit (Set resolution as 1 reference unit)	——
输入输出信号 I/O Signals	位置输出 Position Output	输出信号 Output Signal	A相、B相、C相：线驱动输出 Phase A, Phase B and Phase C: Line Driving Output	A相、B相、C相：线驱动输出 Phase A, Phase B and Phase C: Pine Driving Output
		分同比 Dividing Ratio	（1~2500）/ 2500	（1~2500）/ 2500
	顺序控制输入信号 Sequence Control Input		伺服使能、比例控制或控制方式切换、禁止正转、禁止反转、报警清除、正转转矩外部限制、反转转矩外部限制、清零信号 Servo On, Proportional Control or Control Mode Switch, Forward Run Prohibited, Reverse Run Prohibited, Alarm Reset, FWD Torque External Limit, REV Torque External Limit, Zero Clamp Signal	伺服使能、报警清除、清零信号、零位信号 Servo ON, Alarm Reset, Error Counter Clear Signal, Zero Clamp Signal.
	顺序控制输出信号 Sequence Control Output		伺服报警、伺服准备就绪、定位完成、速度一致、制动器释放、转矩限制、电机旋转检测 Servo Alarm, Servo Ready, Positioning Complete (Speed Coincidence), Brake Release, Limiting Torque, Motor Run Detection	伺服报警、定位完成、制动器释放、转矩限制、伺服准备就绪 Servo Alarm, Positioning Complete (Speed Coincidence), Brake Release, Limiting Torque
内置功能 Built-in Function	通讯功能 COM Function		Windows界面下参数设定、运行操作、状态监视、具有基于RS485的Modbus通讯协议、CANOpen通讯 With RS232 interface for communication with host controller's special software, parameter setting, run operation and status display can be done in Windows mode. Compatible with Modbus com protocol and CANopen protocol.	Windows界面下参数设定、运行操作、状态监视、具有基于RS232的Modbus通讯协议，CANOpen通讯 With RS232 interface for communication with host controller's special software, parameter setting, run operation and status display can be done in Windows mode. Compatible with Modbus com protocol and CANopen protocol.
	显示功能 LED Display		Charge, Power指示灯，5个7段数码管及4个按键(数字操作器) Charge, Power, Five 7-segment LEDs and 4 Pushbuttons (Digital Operation Panel)	Charge, Power&ALM指示灯，5个7段数码管(手持操作器) Charge Indicator, Power&ALM Indicator, Five 7 Segment Tube (On Handheld Operator)
	制动功能 Braking		动态制动(DB)功能、防止超程(OT)功能 Dynamic Brake, Overtravel Protection	动态制动(DB)功能 Dynamic Brake
	保护功能 Protection		过流、过载、超速、欠压、过压、编码器断线、参数异常等 Overcurrent, Overload, Overspeed, Under Voltage, Overvoltage, Encoder Error, Parameter Error	IPM模块异常、过载、电压异常、位置偏差计数器溢出、编码器断线、参数破坏等 IPM Power Module Error, Overload, Overspeed, Voltage Error, Position Error Counter Overflow, Encoder Disconnected, Parameter Damaged, etc.
	再生处理功能 Regenerative Treatment Function		内置再生电阻 Built in Regenerative Resistance	——
	其他 Other		零钳位，内部16个位置节点 Zero Clamp (With 16 Internal Position Nodes)	——

EMJ 型伺服电机
Model Servomotor

产品特性 / Features

- 中惯量 — Mediun inertia
- 峰值转矩达到额定转矩的300% — Peak torque up to 300% of rated torque
- 种类多样(200W~1000W、带制动器等) — Various models (200w~1000w, with brake , etc.)
- 最高转速4500r/min可进行高速运行 — Run at speed of up to 4500r/min
- 配备省线式编码器(2500P/R) — Equipped with wire-saving encoder(2500P/R)

用途事例 / Application

- 贴片机 — SMM(surface mounting machine)
- 印刷电路板打孔机 — Pcb puncher machine
- 机械手 — Robot arm
- 搬运机械 — Handing machinery
- 食品加工机械 — Foodstuff processing machinery
- 纺织机械 — Textile machinery

型号说明 / Specification 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 Option 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

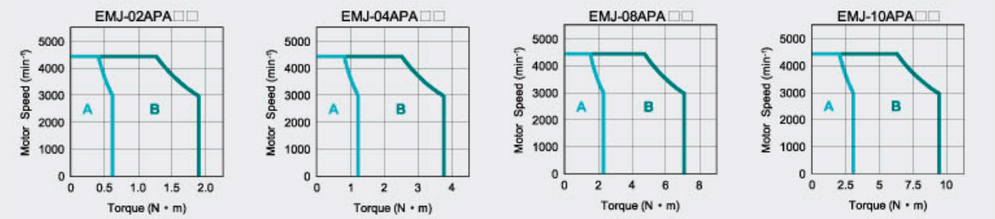
记号 Sign	规格 Spec.
1	不带选购件 None
2	带油封 With Oil Seal
3	带制动器(DC24V) With Brake (DC24V)
4	带油封,带制动器(DC24V) With Oil Seal, With Brake (DC24V)

额定值和规格 / Rated Value and Specification

电压 Voltage			200VAC			
伺服电机型号	Servomotor Model	EMJ-	02APA□□	04APA□□	08APA□□	10APA□□
额定输出功率	Rated Output Power	W	200	400	750	1000
额定转矩	Rated Torque	N.m	0.64	1.27	2.39	3.18
瞬间最大转矩	Instantaneous Peak Torque	N.m	1.91	3.82	7.16	9.55
额定电流	Rated Current	Arms	1.3	2.7	4.0	5.3
瞬间最大电流	Instantaneous Max Current	Arms	3.9	8.1	12.0	15.9
额定转速	Rated Speed	r/min	3000			
最高转速	Max. Speed	r/min	4500			
转子转动惯量	Rotor Moment Of Inertia	$X10^{-4}kg{\cdot}m^2$	0.19 (0.23)	0.31 (0.35)	1.35 (1.47)	1.74 (1.87)
制动器额定电压	Brake Rated Voltage		DC24V±10%			
制动器额定功率	Brake Rated Power	W	7.2		11.5	
制动器保持转矩	Brake Holding Torque	N.m	1.3		3.2	
编码器	Encoder	标准Standard	增量式编码器：2500P/R Incremental Encoder: 2500P/R			
耐热等级	Insulation Class		F			
环境温度	Ambient Temperature		0 ~ +40℃（不结冻） 0 to + 40℃ (no freezing)			
环境湿度	Ambient Humidity		20%~80% RH（不结露）20 to 80% RH (non-condensing)			
抗振性能	Vibration		$49m/s^2$			
保护方式	Enclosure		全封闭，自冷，IP65（除输出轴承和连接器） Totally Enclosed, Self-cooled, IP65 (Except for shaft opening and connectors)			

(注) 括号内的数值表示的是带制动器电机的值。
(Notes) The values in parentheses are for servomotors with holding brakes.

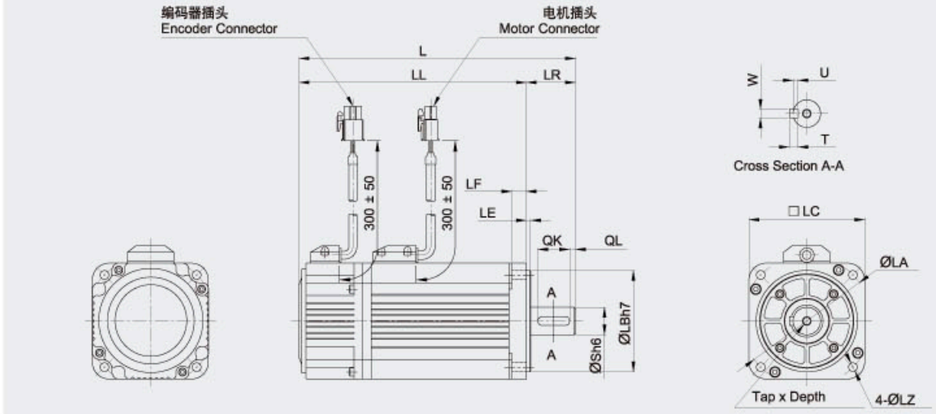
转矩-转速特性
Torque-Speed Feature



A: 连续工作区域 B: 反复工作区域
A: Continuous Working Area B: Repeatedly Working Area

外形尺寸 / Dimension

单位: 毫米 Unit: mm



型号 Model EMJ-	L	LL	法兰面 Flange Side							S	螺纹孔×深度 Tap×Depth	键 Key				
			LR	LE	LF	LC	LA	LB	LZ			QK	QL	W	T	U
02APA□□	153(193)	123(163)	30	3	6	60	70	50	5.5	14	M5×10L	16	4	5	5	3
04APA□□	183(223)	153(193)	30	3	6	60	70	50	5.5	14	M5×10L	16	4	5	5	3
08APA□□	191(234)	156(199)	35	3	9	80	90	70	6	19	M6×15L	22	4	6	6	3.5
10APA□□	211(254)	176(219)	35	3	9	80	90	70	6	19	M6×15L	22	4	6	6	3.5

(注) 括号内的数值表示的是带制动器电机的尺寸。
(Notes) The dimension in parentheses are for servomotors with holding brakes.

电机插头接线规格
Motor Connector Specification

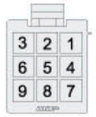
- 插头Plug: 172167-1(AMP)
- 针 Pin: 170360-1(AMP)

针号 Pin No.	信号 Signal	颜色 Color
1	U	红 Red
2	V	蓝 Blue
3	W	白 White
4	FG	绿/黄 Green/Yellow

制动器插头接线规格
Brake Connector Specifications

- 插头Plug: 172165-1(AMP)
- 针 Pin: 170360-1(AMP)

针号 Pin No.	信号 Signal	颜色 Color
1	B1	蓝 Blue
2	B2	白 White



编码器插头接线规格
Encoder Connector Specification

- 插头 Plug: 172169-1(AMP)
- 针 Pin: 170359-3(AMP)

增量式编码器
Incremental Encoder

针号 Pin No.	信号 Signal	颜色 Color
1	A+	蓝 Blue
2	B+	绿 Green
3	C+	黄 Yellow
4	A-	蓝/黑 Blue/Black
5	B-	绿/黑 Green/Black
6	C-	黄/黑 Yellow/Black
7	PG5V	红 Red
8	PG0V	黑 Black
9	FG	屏蔽 Shield

EMG 型伺服电机
Model Servomotor

产品特性 / Features

- 用于高速驱动各种机械的进给轴。
- 种类多样(1.0kW~5.0kW、带制动器等)
- 配备省线式编码器(2500P/R)
- 标准配置为IP65
- Be used to drive the feed shaft of various machinery.
- Various products (1.0kW~5.0kW, with brake, etc.)
- Equipped with wire-saving encoder (2500P/R)
- Standard configuration is IP65.

用途事例 / Application

- 机床 Machine tools
- 搬运机械 Handling machinery
- 食品加工机械 Foodstuff processing machinery
- 纺织机械 Textile machinery

型号说明 / Specification Description

EMG -10 A P A 1 1

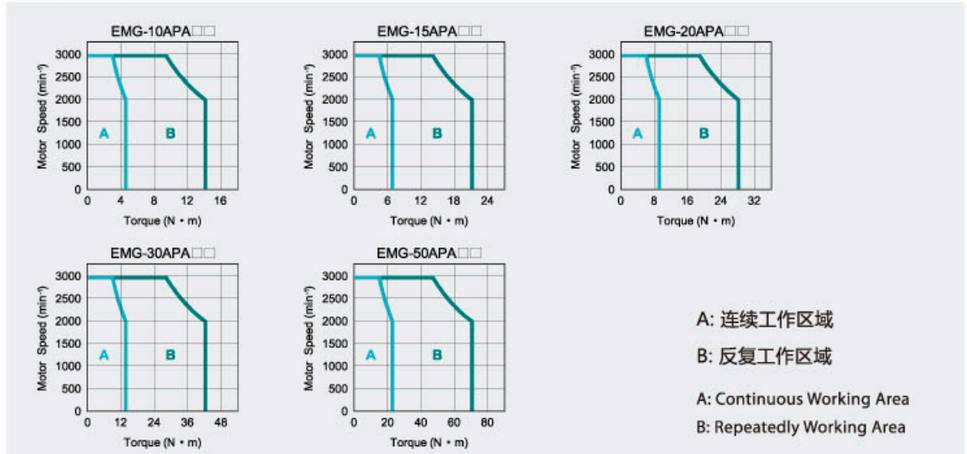
EMG型伺服电机 EMG Model Servo Drive	额定输出功率 Rated Output Power	电源电压 Power Voltage	编码器 Encoder	设计顺序 Designing Sequence	轴端 Shaft End	选购件 Option Parts
	记号 Sign / 规格 Spec.	记号 Sign / 规格 Spec.	记号 Sign / 规格 Spec.	记号 Sign / 规格 Spec.	记号 Sign / 规格 Spec.	记号 Sign / 规格 Spec.
	10 1.0kW	A 200VAC	P (增量省线型) 2500P/R Incremental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

额定值和规格 / Rated Value and Specification

电压 Voltage			200VAC				
伺服电机型号	Servomotor Model	EMG-	10APA□□	15APA□□	20APA□□	30APA□□	50APA□□
额定输出功率	Rated Output Power	kW	1.0	1.5	2.0	3.0	5.0
额定转矩	Rated Torque	N.m	4.78	7.16	9.55	14.3	23.9
瞬间最大转矩	Instantaneous Peak Torque	N.m	14.3	21.5	28.7	43.0	71.6
额定电流	Rated Current	Arms	6.0	9.0	12.0	18.0	28.0
瞬间最大电流	Instantaneous Max. Current	Arms	18.0	27.0	36.0	54.0	84.0
额定转速	Rated Speed	r/min	2000				
最高转速	Max. Speed	r/min	3000				
转子转动惯量	Rotor Moment of Inertia	$X10^{-4}kg{\cdot}m^2$	10.0 (10.6)	14.5 (15.1)	19.0 (19.6)	41.3 (44.5)	65.7 (68.9)
制动器额定电压	Brake Rated Voltage		DC24V±10%				
制动器额定功率	Brake Rated Power	W	19			35	
制动器保持转矩	Brake Holding Torque	N.m	10			40	
编码器	Encoder	标准Standard	增量式编码器：2500P/R Incremental Encoder: 2500P/R				
耐热等级	Insulation Class		F				
环境温度	Ambient Temperature		0～+40℃（不结冻） 0 to + 40℃ (No freezing)				
环境湿度	Ambient Humidity		20%~80% RH（不结露）20 to 80% RH (Non-condensing)				
抗振性能	Vibration		24.5m/s²				
保护方式	Enclosure		全封闭，自冷，IP65（除输出轴承和连接器） Totally Enclosed, Self-cooled, IP65 (Except for shaft opening and connectors)				

(注) 括号内的数值表示的是带制动器电机的值。
(Notes) The values in parentheses are for servomotors with holding brakes.

转矩-转速特性
Torque-Speed Feature

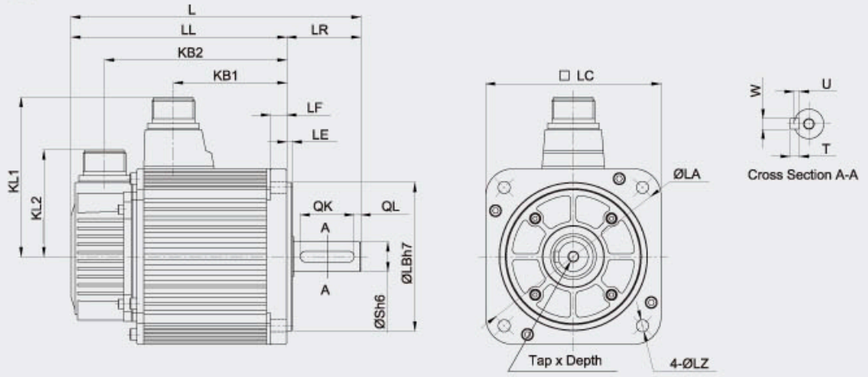


A: 连续工作区域
B: 反复工作区域

A: Continuous Working Area
B: Repeatedly Working Area

外形尺寸 / Dimension

单位: 毫米 Unit: mm



型号 Model EMG-	L	LL	KB1	KB2	KL1	KL2	法兰面 Flange Side							S	螺纹孔×深度 Tap×Depth	键 Key				
							LR	LE	LF	LC	LA	LB	LZ			QK	QL	W	T	U
10APA□□	215(269.5)	160(214.5)	84	135(189.5)	118	79	55	4	12	130	145	110	9	22	M6×20L	40	5	8	7	4
15APA□□	240(294.5)	185(239.5)	109	160(214.5)	118	79	55	4	12	130	145	110	9	22	M6×20L	40	5	8	7	4
20APA□□	265(319.5)	210(264.5)	134	185(239.5)	118	79	55	4	12	130	145	110	9	22	M6×20L	40	5	8	7	4
30APA□□	307(378)	228(299)	143	203(274)	140	79	79	3.2	18	180	200	114.3	13.5	35	M8×16L	55	6	10	8	5
50APA□□	347(418)	268(339)	183	243(314)	140	79	79	3.2	18	180	200	114.3	13.5	35	M8×16L	55	6	10	8	5

(注) 括号内的数值表示的是带制动器电机的尺寸。
(Notes) The dimension in parentheses are for servomotors with holding brakes.

电机连接器接线规格
Motor Connector Specification

- 插座 Receptacle:
  MS3102A20-4P (LC=130)
  MS3102A22-22P (LC=180)
- 插头 Plug:
  MS3108B20-4S (LC=130)
  MS3108B22-22S (LC=180)
- 电缆夹 Cable clamp:
  MS3057-12A

针号 Pin No.	信号 Signal
A	U
B	V
C	W
D	FG

制动器连接器接线规格
Brake Connector Specification

- 插座 Receptacle:
  MS3102A10SL-3P
- 插头 Plug:
  MS3106A10SL-3S
- 电缆夹 Cable clamp:
  MS3057-4A

针号 Pin No.	信号 Signal
A	B1
B	B2
C	–

编码器连接器接线规格
Encoder Connector Specification

- 插座 Receptacle: MS3102A20-29P
- 插头 Plug: MS3108B20-29S
- 电缆夹 Cable clamp: MS3057-12A

增量式编码器
Incremental Encoder

针号 Pin No.	信号 Signal	颜色 Color
A	A+	蓝 Blue
B	A–	蓝/黑 Blue/Black
C	B+	绿/黑 Green/Black
D	B–	绿 Green
E	C+	黄 Yellow
F	C–	黄/黑 Yellow/Black
G	PG0V	黑 Black
H	PG5V	红 Red
J	FG	屏蔽 Shield

EML 型伺服电机
Model Servomotor

产品特性 / Features

- 用于驱动各种机械的进给轴
- 种类多样（1.0kW~4.0kW、带制动器等）
- 配备省线式编码器（2500P/R）
- 标准配置为IP65
- Be used to drive the feed shaft of various machinery
- Various products (1.0kW~4.0kW, with brake, etc.)
- Equipped with wire-saving encoder (2500P/R)
- Standard configuration is IP65.

用途事例 / Application

- 机床 Machine tools
- 搬运机械 Handling machinery
- 食品加工机械 Foodstuff processing machinery
- 纺织机械 Textile machinery

型号说明 / Specification Description

EML- 10 A P A 1 1

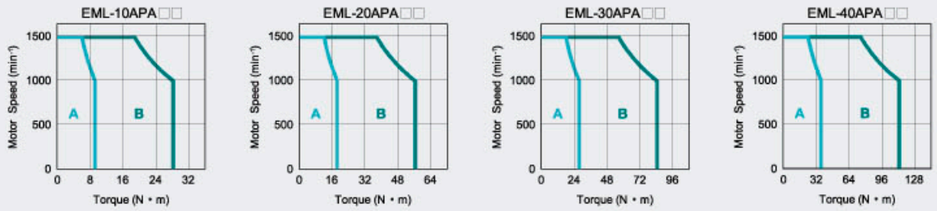
EML型伺服电机 EML Model Servo Drive	额定输出功率 Rated Output Power	电源电压 Power Voltage	编码器 Encoder	设计顺序 Designing Sequence	轴端 Shaft End	选购件 Option Parts
	10 1.0kW 20 2.0kW 30 3.0kW 40 4.0kW	A 200VAC	P (增量省线型) 2500P/R Incremental Wire-saving Type: 2500P/R	A 设计顺序 Designing Sequence	1 平直,不带键(标准) Flat, Without Keys (Standard) 2 平直,带键,带螺纹 Flat, With Keys With Screw Thread	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)

额定值和规格 / Rated Value and Specification

电压 Voltage			200VAC			
伺服电机型号	Servomotor Model	EML-	10APA□□	20APA□□	30APA□□	40APA□□
额定输出功率	Rated Output Power	kW	1.0	2.0	3.0	4.0
额定转矩	Rated Torque	N.m	9.55	19.1	28.7	38.2
瞬间最大转矩	Instantaneous Peak Torque	N.m	28.7	57.3	86.0	114.6
额定电流	Rated Current	Arms	6.0	12.0	18.0	24.0
瞬间最大电流	Instantaneous Max. Current	Arms	18.0	36.0	54.0	72.0
额定转速	Rated Speed	r/min	1000			
最高转速	Max. Speed	r/min	1500			
转子转动惯量	Rotor Moment of Inertia	$X10^{-4}kg{\cdot}m^2$	19.0 (19.6)	53.5 (56.7)	77.8 (81.0)	102.2 (105.4)
制动器额定电压	Brake Rated Voltage		DC24V±10%			
制动器额定功率	Brake Rated Power	W	19	35		
制动器保持转矩	Brake Holding Torque	N.m	10	40		
编码器	Encoder	标准Standard	增量式编码器：2500P/R Incremental Encoder: 2500P/R			
耐热等级	Insulation Class		F			
环境温度	Ambient Temperature		0 ~ +40℃（不结冻） 0 to + 40℃ (no freezing)			
环境湿度	Ambient Humidity		20%~80% RH（不结露）20 to 80% RH (non-condensing)			
抗振性能	Vibration		$24.5m/s^2$			
保护方式	Enclosure		全封闭，自冷，IP65（除输出轴承和连接器） Totally Enclosed, Self-cooled, IP65 (Except for shaft opening and connectors)			

(注) 括号内的数值表示的是带制动器电机的值。
(Notes) The values in parentheses are for servomotors with holding brakes.

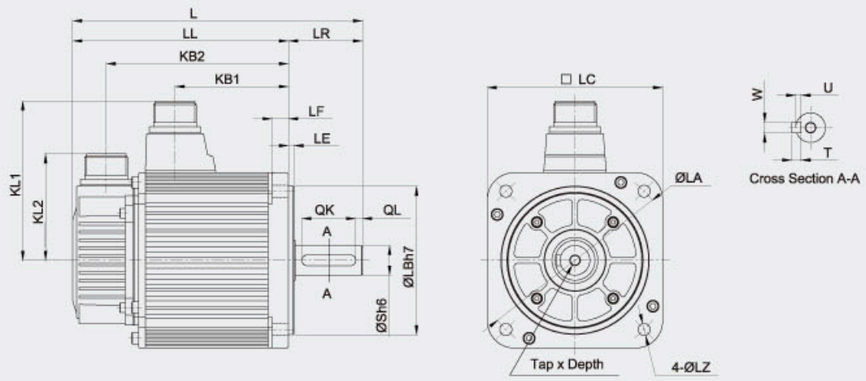
转矩-转速特性
Torque-Speed Feature



A: 连续工作区域 B: 反复工作区域
A: Continuous Working Area B: Repeatedly Working Area

外形尺寸 / Dimension

单位: 毫米 Unit: mm



型号 Model EML-	L	LL	KB1	KB2	KL1	KL2	法兰面 Flange Side							S	螺纹孔×深度 Tap×Depth	键 Key				
							LR	LE	LF	LC	LA	LB	LZ			QK	QL	W	T	U
10APA□□	265(319.5)	210(264.5)	134	185(187.5)	118	79	55	4	12	130	145	110	9	22	M6×20L	40	5	8	7	4
20APA□□	332(401)	253(322)	168	228(245)	140	79	79	3.2	18	180	200	114.3	13.5	35	M8×16L	55	6	10	8	5
30APA□□	372(443)	293(364)	208	268(287)	140	79	79	3.2	18	180	200	114.3	13.5	35	M8×16L	55	6	10	8	5
40APA□□	412(478)	333(399)	243	308(322)	140	79	79	3.2	18	180	200	114.3	13.5	35	M8×16L	55	6	10	8	5

(注) 括号内的数值表示的是带制动器电机的尺寸。
(Notes) The dimension in parentheses are for servomotors with holding brakes.

电机连接器接线规格
Motor Connector Specification

- 插座 Receptacle:
  MS3102A20-4P (LC=130)
  MS3102A22-22P (LC=180)
- 插头 Plug:
  MS3108B20-4S (LC=130)
  MS3108B22-22S (LC=180)
- 电缆夹 Cable clamp:
  MS3057-12A

针号 Pin No.	信号 Signal
A	U
B	V
C	W
D	FG

制动器连接器接线规格
Brake Connector Specification

- 插座 Receptacle:
  MS3102A10SL-3P
- 插头 Plug:
  MS3106A10SL-3S
- 电缆夹 Cable clamp:
  MS3057-4A

针号 Pin No.	信号 Signal
A	B1
B	B2
C	–

编码器连接器接线规格
Encoder Connector Specification

- 插座 Receptacle: MS3102A20-29P
- 插头 Plug: MS3108B20-29S
- 电缆夹 Cable clamp: MS3057-12A

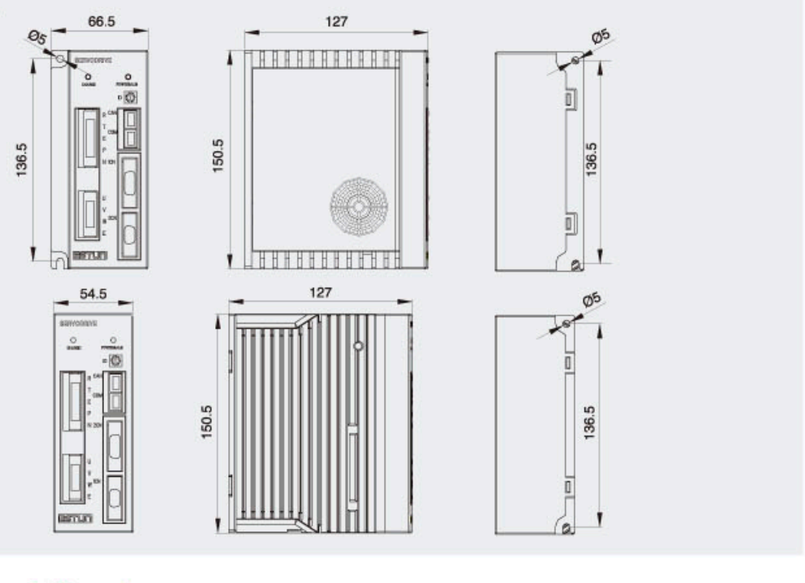
增量式编码器
Incremental Encoder

针号 Pin No.	信号 Signal	颜色 Color
A	A+	蓝 Blue
B	A–	蓝/黑 Blue/Black
C	B+	绿/黑 Green/Black
D	B–	绿 Green
E	C+	黄 Yellow
F	C–	黄/黑 Yellow/Black
G	PG0V	黑 Black
H	PG5V	红 Red
J	FG	屏蔽 Shield

EDB/EDC 驱动的安装尺寸
Mounting Dimension of Drives

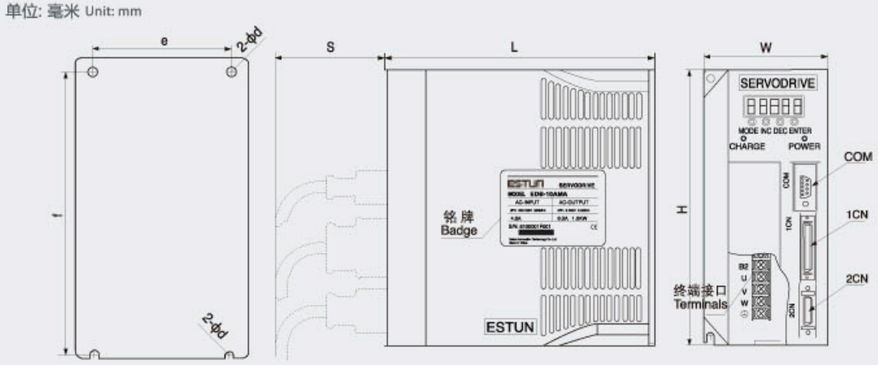
EDC伺服驱动器安装尺寸
Mounting Dimension of EDC Servo Drives

单位: 毫米 Unit: mm



EDB伺服驱动器安装尺寸
Mounting Dimension of EDB Servo Drives

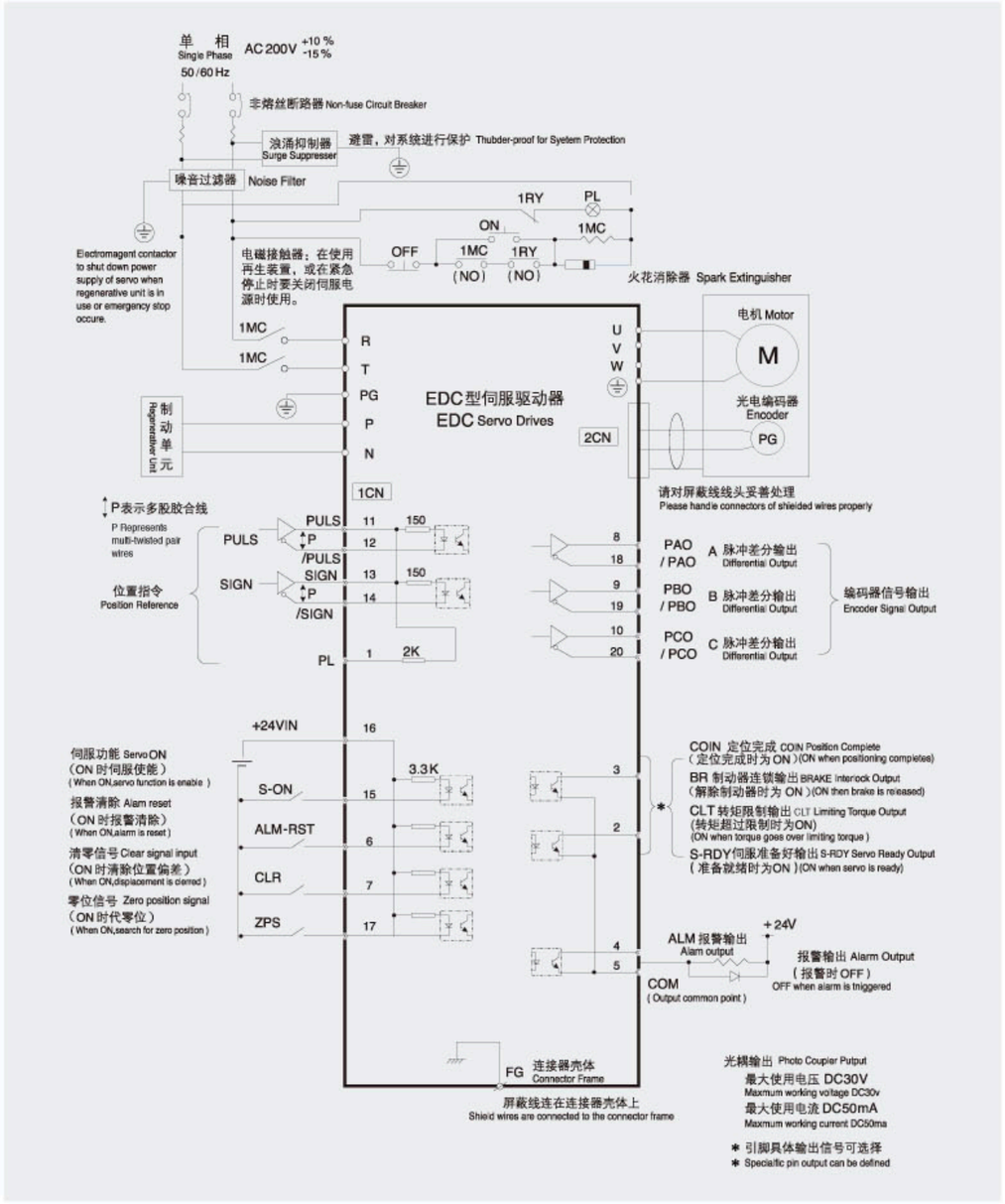
单位: 毫米 Unit: mm



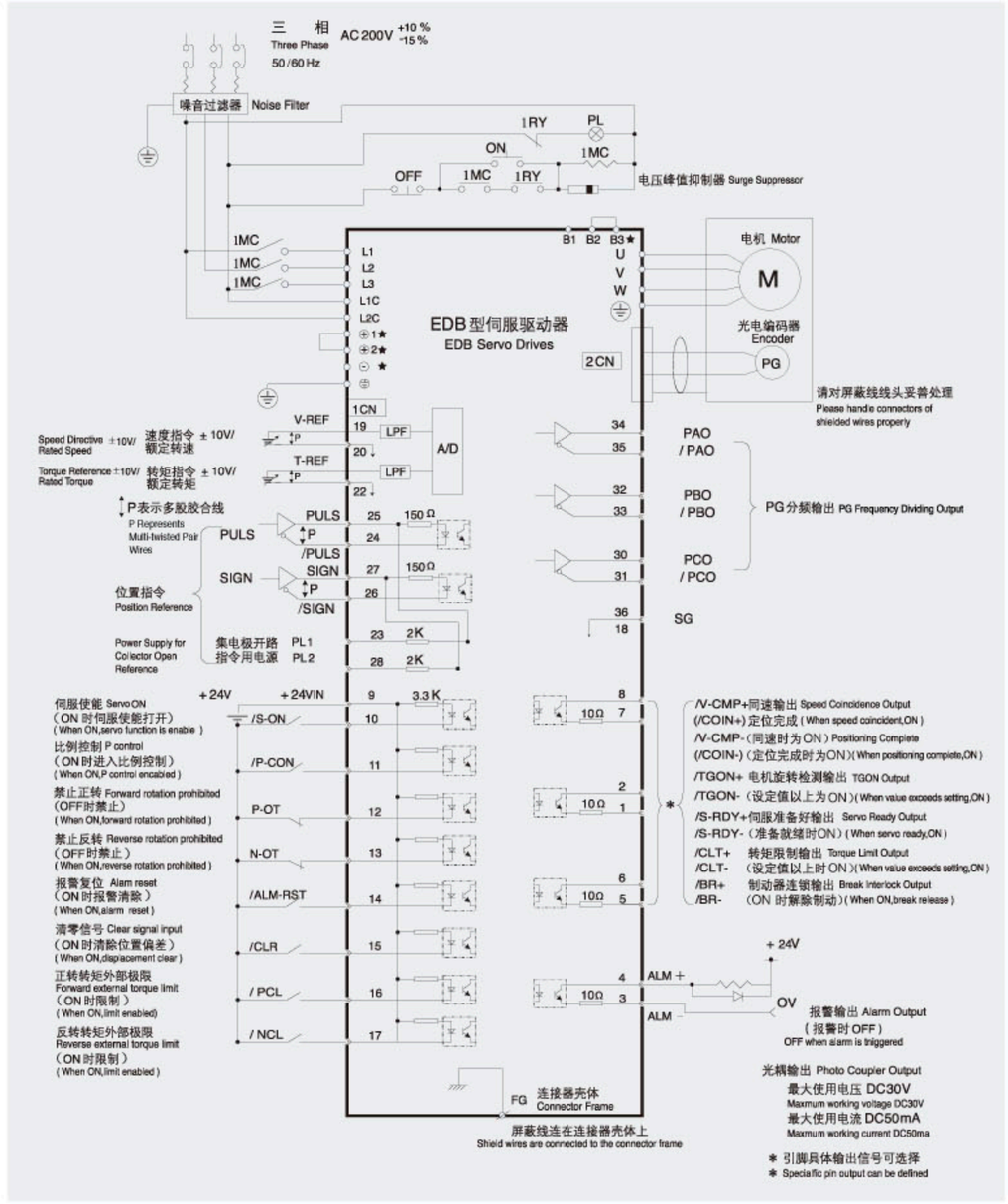
型号 Model	L	W	H	S	e	f	d
EDB-08、EDB-10、EDB-15	185	85	187.5	75	75	177.5	5
EDB-20、EDB-30、EDB-50	207	123	270.5	75	111	258.5	6
EDB*-08、EDB*-10、EDB*-15	180	100	186	75	89	175	5
EDB*-20、EDB*-30、EDB*-50	204.5	125	270.5	75	112	258.5	6

EDB/EDC 伺服标准接线图
Typical Connection Example

EDC伺服标准接线图 / Typical Connection Example of EDC Servo



EDB伺服标准接线图 / Typical Connection Example of EDB Servo



★注意：EDB-08/10/15无B3、⊕1、⊕2、⊖ 端子，无需任何连接。
Notes: EDB-08/10/15, there are no terminals: B3, ⊕1, ⊕2, ⊖, no need of any connection.

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Version: EDB/EDC-0901A