

DA213 series servo drives (400 W–1.5 kW)				
Specification		Description		
Power supply	System input voltage of 220 V	1P/3P AC 220 V (-15%)–240V (+10%) 47 Hz–63 Hz		
	System input voltage of 400 V	3P AC 380 V (-15%)–440 V (+10%) 47 Hz–63 Hz		
Control signal	Input	3×8 inputs (The functions can be set through related parameters.)		
	Output	3×6 differential outputs (The functions can be set through related parameters.)		
Analog	Input	Standard 3×2 inputs (3×1 16-bit analog input, 3×1 12-bit analog input) Non-standard 3×2 inputs (3×2 12-bit analog inputs)		
	Output	3×2 outputs (analog outputs)		
Pulse signal	Input	3×1 group (The input mode is differential input or open collector input.)		
	Output	3×1 group (The output mode is differential output: A+/A-, B+/B-, Z+/Z-.)		
Port	First encoder	Input	Cable-saving incremental encoder interface 2-wire and 4-wire absolute encoder interface (Tamagawa, Nikon, BISS, EnDat2.2, and DSL)	
	Second encoder	Input	Incremental encoder interface (second encoder or grating scale) 2 ppr absolute encoder interface (Tamagawa and Nikon)	
Communication function	EtherNet	1:1 communication upper computer software (standard configuration)		
	RS485	1:N communication (optional configuration)		
	CANopen	1:N communication (optional configuration)		
	EtherCAT	1:N communication (optional configuration)		
Safety terminal	STO	Safe torque off (meeting the latest European safety standard SIL3) (optional configuration)		
Control mode		1. Position control; 2. Speed control; 3. Torque control; 4. Position/speed control mode switching; 5. Speed/torque control mode switching; 6. Position/torque control mode switching; 8. CANopen control mode; 9. EtherCAT control mode		
Function	Speed control	Control input	1. Delete the stranded pulses; 2. Disable command pulse input; 3. Electronic gear ratio switching; 4. Vibration control switching; etc.	
		Control output	Output after positioning is complete, etc.	
		Pulse input	Max. pulse input frequency	Photocoupling: Differential input of 4 Mpps, and open collector input of 200 kpps
			Pulse input mode	1. Pulse + direction; 2: CW + CCW; 3. Orthogonal encoding
			Electronic gear ratio	1/10000–1000 times
			Filter	1. Command smoothing filter; 2. FIR filter
		Analog input	Torque limiting command input	You can limit the torque in the clockwise and counterclockwise directions separately.
		Vibration control	Able to suppress front-end vibration and machine vibration of 5 to 200 Hz	
		Pulse output	1. You can set it to any frequency-divided output that is lower than the encode resolution. 2. It provides the phase B negation function.	
		Control input	1. Internal command speed selection 1; 2. Internal command speed selection 2; 3. Internal command speed selection 3; 4. Zero-speed clamp; etc.	
Control output	Speed reached, etc.			
Analog input	Speed command input	You can set related information based on the analog voltage (DC±10V) to function as the speed command input.		
	Torque limit input	You can limit the torque in the clockwise and counterclockwise directions separately.		

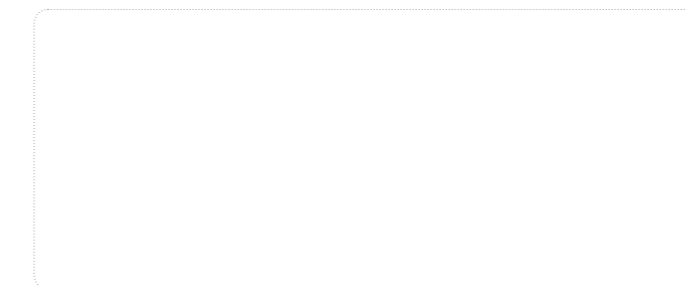
Specification		Description		
Function	Speed control	Internal speed command	The internal 8 steps of speed can be switched based on the external control input.	
		Speed command ACC and DEC adjustment	You can set the ACC or DEC time separately, or you can set the S-curve ACC or DEC.	
		Zero-speed clamp	The zero-speed clamp function is performed in the speed mode, and you can set it to be performed in the speed or position mode.	
		Speed command filter	One-time delay filter for the speed commands sent through analog input.	
		Speed command zero drift suppression	Zero drift suppression can be performed on external interference, achieving a precision of 0.3 mV.	
	Torque control	Control input	Zero-speed clamp input, etc.	
		Control output	Speed reached, etc.	
		Analog input	Torque command input	Sending torque commands through analog input. You can set the gain and polarity based on the analog voltage, achieving a precision of 4.88 mV.
			Speed limit input	You can limit the speed through analog input.
		Speed limit	You can set the speed limit through parameters.	
Torque command filter	One-time delay filter for torque commands send through analog input.			
Speed command zero drift suppression	Zero drift suppression can be performed on external interference, achieving a precision of 4.88 mV.			
Internal position planning	Number of planned points	You can set 128 internal position points and control the positioning in communication mode.		
	Path setting	1. Position; 2. Speed; 3. ACC time; 4. DEC time; 5. Stopping the timer; 6. Output of various states; 7. Running mode		
	Returning to the origin	1. LS signal; 2. Phase Z signal; 3. LS signal + phase Z signal; 4. Torque limiting signal.		
Protection	Hardware protection	Overvoltage, undervoltage, overcurrent, overspeed, overload, overload of the brake resistor, overheat of the drive, encoder fault, power supply phase loss, regenerative braking exception, fan fault, etc.		
	Software protection	Storage device fault, initialization fault, I/O distribution exception, large position deviation, etc.		
	Protection and fault record	1. A maximum of 10 faults can be recorded. 2. The values of key parameters at the current fault can be recorded.		
Environment	Working temperature	0–45°C 0–45°C		
	Storage temperature	-20–80°C (no freezing)		
	Working/storage humidity	≤90%RH (no condensation)		
	IP rating	IP20		
	Altitude	Lower than 1000 m		
Vibration	≤5.88m/s ² , 10–60 Hz (working at the resonance point is not allowed.)			

DA212&DA213

Multi-axes servo driver



Your trusted industry automation solution provider



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DA212 Series 2-axis Servo System

Product Introduction

DA212 series two-axis servo drives are designed mainly for the textile, packaging, and printing industries. Compared with the existing single-axis servo drivers, their overall volume is smaller and their efficiency is higher. DA212 supports multi-axis coordinated control, and provides built-in electronic cams and some textile processing functions.



Features

- Full closed-loop control, internal position control
- Response frequency reaching 2.0 kHz; equipped with the 23-bit high-resolution encoder to implement high-precision positioning
- Supporting bus communication protocols such as Modbus and CANopen
- Supporting 23-bit, 20-bit, and 17-bit encoders of 2500 ppr
- Providing abundant functions such as gantry synchronization, disturbance suppression, low-frequency vibration suppression, torque compensation for friction, etc
- Offline/online auto inertia identification, auto/manual notch filter, vibration suppression adaption, disturbance observer, speed observer, medium-frequency vibration suppression, adjustment free, gain adjustment, and gain switching

Application scenarios

DA212 series servo driver are mainly applied for textile, packaging, printing and other industries.



Technical parameters

DA212 series servo drives (750W*2)				
Specification		Description		
Power supply	System input voltage of 220 V 1PH/3PH AC 220 V(-15%)~240 V(+10%) 47 Hz~63 Hz			
Port	Control signal	Input	6 inputs (The functions can be set through related parameters, and the signals of each input are transmitted to both the internal X and Y axes.)	
		Output	6 outputs (The functions can be set through related parameters. Four are differential outputs, and two are single-terminal outputs sharing a common ground. Each output can be controlled by either the X or Y axis.)	
	Analog	Input	2 inputs (There are two 12-bit analog inputs, and the signals of each input are transmitted to both the internal X and Y axes.)	
	Pulse signal	Input	One group of inputs for each of the X and Y axes (The input mode is differential or open collector input, and the signal names are as follows: X axis: X_PULS+, X_PULS-, X_SIGN+, X_SIGN-; Y axis: Y_PULS+, Y_PULS-, Y_SIGN+, Y_SIGN-)	
		Output	One group of outputs for each of the X and Y axes (The output mode is differential output, and the signal names are as follows: X axis: X_OA+, X_OA-, X_OB+, X_OB-, X_OZ+, X_OZ-; Y axis: Y_OA+, Y_OA-, Y_OB+, Y_OB-, Y_OZ+, Y_OZ-)	
	Second encoder	Input	Incremental encoder interface (second encoder or grating scale)	
	Communication function	USB	1:1 communication upper computer software (standard configuration)	
		RS485	1:N communication (standard configuration)	
		CANopen	1:N communication (optional configuration)	
	Control mode		1. Position control; 2. Speed control; 3. Torque control; 4. Position/speed control mode switching; 5. Speed/torque control mode switching; 6. Position/torque control mode switching; 7. Full closed-loop; 8. CANopen control mode	
Function	Position control	Control input	1. Delete the stranded pulses; 2. Disable command pulse input; 3. Electronic gear ratio switching; 4. Vibration control switching; etc.	
		Control output	Output after positioning is complete, etc.	
	Pulse input	Max. pulse input frequency	200 kpps Photocoupling: Differential input of 4 Mpps, and open collector input of 200 kpps	
		Pulse input mode	1. Pulse + direction; 2. CW + CCW; 3. Orthogonal encoding	
		Electronic gear ratio	1/10000~1000 times	
	Filter	1. Command smoothing filter; 2. FIR filter		
		Analog input	Torque limiting command input You can limit the torque in the clockwise and counterclockwise directions separately.	
	Vibration control	Able to suppress front-end vibration and machine vibration of 5 to 200 Hz		
	Pulse output	1. You can set it to any frequency-divided output that is lower than the encode resolution. 2. It provides the phase B negation function.		

Specification		Description		
Speed control	Control input	1. Internal command speed selection 1; 2. Internal command speed selection 2; 3. Internal command speed selection 3; 4. Zero-speed clamp; etc.		
	Control output	Speed reached, etc.		
	Analog input	Speed command input	You can set related information based on the analog voltage (DC±10V) to function as the speed command input.	
		Torque limit input	You can limit the torque in the clockwise and counterclockwise directions separately.	
	Internal speed command	The internal 8 steps of speed can be switched based on the external control input.		
	Speed command ACC and DEC adjustment	You can set the ACC or DEC time separately, or you can set the S-curve ACC or DEC.		
	Zero-speed clamp	The zero-speed clamp function is performed in the speed mode, and you can set it to be performed in the speed or position mode.		
	Speed command filter	One-time delay filter for the speed commands sent through analog input.		
	Speed command zero drift suppression	Zero drift suppression can be performed on external interference, achieving a precision of 0.3 mV.		
	Torque control	Control input	Zero-speed clamp input, etc.	
Control output		Speed reached, etc.		
Analog input		Torque command input	Sending torque commands through analog input. You can set the gain and polarity based on the analog voltage, achieving a precision of 4.88 mV.	
		Speed limit input	You can limit the speed through analog input.	
Speed limit		You can set the speed limit through parameters.		
Torque command filter		One-time delay filter for torque commands send through analog input.		
Speed command zero drift suppression		Zero drift suppression can be performed on external interference, achieving a precision of 4.88 mV.		
Internal position planning		Number of planned points	You can set 128 internal position points and control the positioning in communication mode.	
		Path setting	1. Position; 2. Speed; 3. ACC time; 4. DEC time; 5. Stopping the timer; 6. Output of various states; 7. Running mode	
		Returning to the origin	1. LS signal; 2. Phase Z signal; 3. LS signal + phase Z signal; 4. Torque limiting signal	
Protection	Hardware protection	Overvoltage, undervoltage, overcurrent, overspeed, overload, overload of the brake resistor, overheat of the drive, encoder fault, etc.		
	Software protection	Storage device fault, initialization fault, I/O distribution exception, large position deviation, etc.		
	Protection and fault record	1. A maximum of 10 faults can be recorded. 2. The values of key parameters at the current fault can be recorded.		
Environment	Temperature	Working temperature	0~45°C	
		Storage temperature	-20~80°C (no freezing)	
	Working/storage humidity	≤90%RH (no condensation)		
	IP rating	IP20		
	Altitude	Lower than 1000 m		
	Vibration	≤5.88m/s ² , 10~60 Hz (Working at the resonance point is not allowed.)		

DA213 Series 3-axis Servo System

Product Introduction

DA213 series three-axis servo drives are designed mainly for the SCARA robot, DELTA robot, computer numerical control (CNC) machine tool, semiconductor, textile, packaging, and printing industries. Compared with the existing single-axis servo drivers, their overall volume is smaller and their performance is more powerful. DA213 supports multiple industrial high-speed fieldbuses and multi-axis coordinated control, and provides built-in electronic cams and some motion control functions.

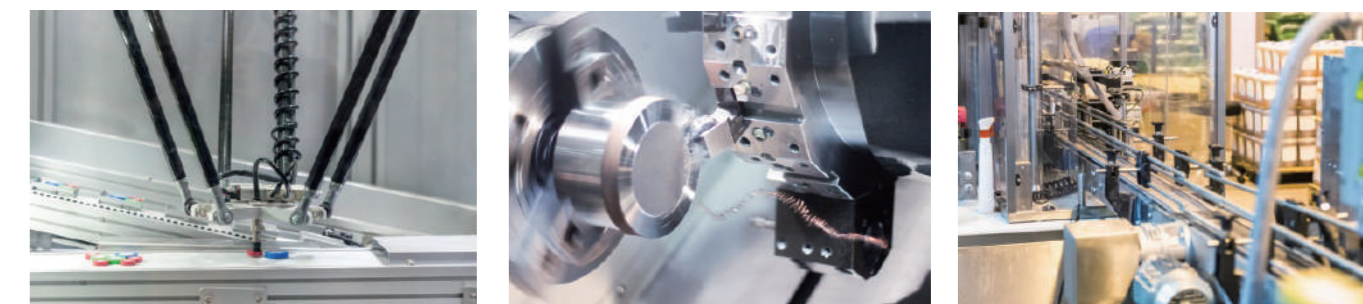


Features

- Designed in the compact and integrated structure, of which the volume is reduced by 30%(compared to single-axis servos)
- Using Mitsubishi's third-generation IPM module, of which the reliability is high
- Supporting multiple encoders; supporting high resolution or grating scale (10 Mbps); providing DSL no-power supply encoder interface; and supporting cable-saving encoder disconnection detection
- Supporting incremental and absolute encoder to function as the second encoder
- Adding direct connection of absolute encoders in frequency-divided output
- Supporting the connection of the upper computer in Ethernet mode
- Supporting the detection of ambient temperature
- Supporting hardware clock synchronization between drives
- Supporting the standard STO function

Application scenarios

DA213 series servo driver can be perfectly applied for SCARA robot, DELTA robot, numerical control machine, semiconductor, textile, packaging, printing and other industries.



Technical parameters