## **DA180 Series**

Basic AC Servo Drive





#### Introduction

DA180 series basic AC servo drive is the new generation of INVT simplified single-axis servo product. Utility oriented, DA180 focuses on the essential of

manufacturing, achieving quick need response and making expansion easy.

It provides efficient and competitive solutions for the intelligentization, simplification, networking, and high-performance requirements of general-purpose equipment.



#### Features



High speed response(up to 2.0kHz)

Com redu

Light and handy Compared with DA200, DA180 can maximum reduce the size by 45%



Accurate positioning 17-bit absolute encoder



Enriched communication interfaces Support CANopen and Modbus fieldbus



Environmental adaptability Models(<=400W) adapts natural cooling



#### Low frequency vibration control

Effectively suppresses low frequency mechanical resonanceand long swing-arm end oscillation, boosts the rotation efficiency and speeding up operation

#### Applications





# $\frac{DA180}{1} - \frac{S}{2} \frac{2R2}{3} \frac{S}{4} \frac{G}{5} \frac{0}{6}$

Symbol	No.	Item	Description
DA180	1	Product category	DA180: Servo drive series
S	2	Voltage class	S: 220V
2R8	3	Rated output current	1R3: 1.3A 1R8: 1.8A 2R8: 2.8A 4R5: 4.5A 5R0: 5.0A
S	4	Communication type	S: Supporting RS485 and optional CAN
G	(5)	Function type	G: Basic type
0	6	Encoder type	0: Absolute

#### **Power Ratings**

Drive model	I	nput	Output	Frame size	
	Voltage (V)	Rated current (A)	Power (kW)	Rated power (A)	Frame size
DA180-S1R3SG0	1PH 220V	0.9	0.1	1.3	А
DA180-S1R8SG0	1PH 220V	1.8	0.2	1.8	А
DA180-S2R8SG0	1PH 220V	3.6	0.4	2.8	А
DA180-S4R5SG0	1PH 220V	6.8	0.75	4.5	В
DA180-S5R0SG0	1PH 220V	9.1	1.0	5	В

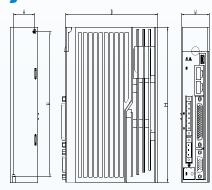
#### **Brake Resistor**

Drive model	Built-in brake resistor specifications	Min. allowed resistance of external brake resistor
DA180-S1R3SG0	/	60Ω
DA180-S1R8SG0	/	60Ω
DA180-S2R8SG0	/	60Ω
DA180-S4R5SG0	45Ω/60W	45Ω
DA180-S5R0SG0	45Ω/60W	45Ω

#### **EMI** Filter

Drive model	EMI filter model
DA180-S1R3SG0	
DA180-S1R8SG0	FLT-P04006L-B
DA180-S2R8SG0	
DA180-S4R5SG0	FLT-P04016L-B
DA180-S5R0SG0	FLI-F04010L-B

#### Servo Drive Sizes



Frame	Drive model	Outline dimensions			Instal dimer	lation Isions	Installation hole	
		Н	W	D	Α	В		
	DA180-S1R3SG0		42	141	32	150		
А	DA180-S1R8SG0	160					M4(Φ5)	
	DA180-S2R8SG0							
В	DA180-S4R5SG0	160	50	141	40	150	M4(Φ5)	
В	DA180-S5R0SG0	100						

unit:mm



## Servo Drive Technical Parameters

Function         Pulse input         input frequency         input 200kpps           Position control         Pulse input mode         1. Pulse+direction; 2. CW+CCW; 3. Quadrature encoding           Electronic gear         1/10000 - 1000           Filter         1. Command smoothing filter; 2. FIR filter           Analog input         Torque limit input         Able to perform clockwise/anticlockwise torque limit separatel           Vibration control         Able to control 5-200Hz front-end vibration and overall vibration           Pulse output         1. Able to perform any frequency division setting below the encoder resolution           2. Capable of the B-phase reversing function         1.           1. Internal command speed selection 1;         1. Internal command speed selection 2;           3. Internal command speed clamping         Speed command input           Analog input         Speed command input           4. Zero speed clamping         Able to enable speed command input after related settings are made based on analog voltage DC±10V           Torque limit input         Able to enable speed command input after related settings are made based on analog voltage DC±10V           Torque climit input         Able to enable speed command input after related settings are made based on analog voltage DC±10V           Torque climit input         Able to enable speed control           Speed command ACC/Dec climisepade commands	DA180 series servo drive									
Function         Input         Ten channels of input (the functions can be set through related parameters)           Port         Analog         Input         Ten channels of output time functions can be set through related parameters)           Port         Pulse signal         Input         One group of input (in differential mode, Ar, Ar, Br, Br, 2A, 2)           Communication         RS465         11 communication oper PC software           Control mode         RS465         11 communication oper PC software           Control mode         Control mode         2. Speed control: 3. Torque control: 4. Position control: 5. Speed control: 5. Speed control: 5. Speed control: 7. CANopen mode switching: 7. CANopen switching: 7. CANopen mode switching: 7. CANopen sw		Specification	S	 Description						
Control signal         Output         Four channels of output (the functions can be set through related parameters)           Port         Analog         Input         Two channels of 12-bit analog input           Pulse signal         Output         One group of input (in differential mode, As, A; B+, B+, 2F, 2F)           Communication         Information upper PC software         Information           Communication         R5485         1n communication onfiguration)           Control mode         Informatication (indifferential mode, As, A; B+, B+, 2F, 2F)           Control mode         In communication upper PC software           Control mode         In communication configuration)           Control mode         In communication configuration)           Control mode         In communication configuration)           Control mode         In Position control; Incommode witching; Control output         Insection control witching; Incommode witching; Control output           Position control         Insection control witching         Incommode witching; Control output         Insection control witching; Control output           Pulse input         Pulse input         Such as positioning completion output         Max, pulse input frequency         Photoelectrol; 2, CW+CCW; S, Quadrature encoding Electron; gear           Function         Pulse input         Nalog input         Torque control         Able	Power	220V syste	em input voltage	1PH, AC 220V(±15%), 47–63Hz						
Function         Control imput         Four channels of output (the functions can be set through related parameters)           Port         Palse signal         Input         One group of output (in differential are open collector mode)           Communication         0.193         1:1 communication upper PC software           Communication         R3485         1:n communication upper PC software           Control mode         .1 communication (potional configuration)           Control mode         .2 Speed control           .5 Speed/orcup endos writching;         .2 Speed control           .5 Speed/orcup endos writching;         .2 Command pulse input disabiling;           .5 Speed/orcup endos writching;         .2 Command pulse input disabiling;           .5 Speed/orcup endos writching;         .2 Command pulse input disabiling;           .5 Speed/orcup endos writching;         .2 Command pulse input disabiling;           .5 Speed/orcup endos writching;         .2 Command pulse input disabiling;           .6 Control input         1. Residual pulse clearing;         .2 Command pulse input disabiling;           .6 Control output         Such as position output         Pulse input frequency         Photoelectric coupling; differential input 4Mpps, open collector input 200kpps           Pulse input         Pulse input         Pulse input mode         1. Pulse-input         Pulse input mode <td></td> <td></td> <td>Input</td> <td colspan="6"></td>			Input							
Port         Pulse signal         Input         One group of output (in differential or open collector mode)           Communication         Ore group of output (in differential mode, Ar, Ar, Br, Br, 2r, 2r)         USB           Communication         R5485         tin communication oper PC software           Control mode         In communication (ptional configuration)           Image: Software         Speed control;         2. Speed control;           Software control;         3. Torque control;         4. Position-Repeated mode switching;           Software control;         3. Speed/orange mode switching;         4. Position-Repeated mode switching;           Software mode;         1. Residual pulse clearing:         2. Command pulse input disabling;           Torque control;         3. Speed/orange mode switching;         4. Position-Repeated mode switching;           Software mode;         1. Residual pulse clearing:         2. Command pulse input disabling;           Torque control         1. Residual pulse clearing:         2. Command pulse input disabling;           Control input         Such as positioning completion output         Max: pulse           Pulse input         Pulse input         Max: pulse         Photoelectric coupling; differential input 4Mpps, open collector input 200kpps           Pulse input         Pulse input mode         1. Pulse: not mode         1. Pulse: not m		Control signal	Output	Four channels of output (the functions can be set through related parameters)						
Function         Pulse signal         Output         One group of output (in differential mode, A+, A+, B+, B+, 2+, 2)           Communication         R5485         1:1 communication upper PC software           Control mode         R5485         1:n communication (pptional configuration)           Control mode         1: Position control; 3: Torque control; 4: Position/Speed mode switching; 5: Position/Speed mode switching; 6: Position/Speed mode switching; 7: Control mode         1: Position control; 7: Speed/orque mode switching; 7: Control input           Position control         1: Residual pulse clearing; 7: Control input         2: Speed control; 8: Electronic gear ratio switching; 7: Control input         2: Command pulse input disabiling; 7: Control input           Position control         1: Residual pulse clearing; 7: Control input         2: Command pulse input disabiling; 7: Control input         2: Command pulse input disabiling; 7: Control input           Position control         1: Residual pulse clearing; 7: Control input         2: Command pulse input disabiling; 7: Control input         2: Command pulse input disabiling; 7: Control input           Pulse input         Pulse input mode         1: Pulse-direction; 2: CW+CCW; 3: Quadrature encoding input 2: Colospia         2: Command smoothing filter; 2: FIR filter           Analog input         Torque limit input         Able to enable speed command input siter related setting same able as do a nanlog voltage DC-100           Pulse uinput control         1: Internal speed command s		Analog	Input	Two channels of 12-bit ar	Two channels of 12-bit analog input					
Function         Output         One group of output (in differential mode, A+, A+; B+, B+; 2+, 2)           III communication upper PC software         III communication upper PC software           Communication         R5455         1:n communication upper PC software           Control mode         III communication upper PC software         A Position control;         2. Speed control;           Control mode         III communication (potional configuration)         A Position control;         2. Speed control;           Speed/orgue mode switching;         Speed/orgue mode switching;         A Position control;         2. Speed/orgue mode switching;           Speed/argue mode switching;         Speed/orgue mode switching;         A Position control is switching;         A Position control is switching;           Position control         III estidual pulse clearing:         2. Command pulse input disabiling;           Position control         Such as positioning completion output         Must requerely           Pulse input mode         Pulse input mode         Pulse input 200kpps           Pulse input mode         Pulse input mode         Pulse input 200kpps           Pulse output         A Position control         Able to control 5-200Hz tront- end vibration and overains and woration           Pulse output         Input control         Able to control 5-200Hz tront- end vibration and overains andowareal vibration     <	Port	Pulse signal	Input	One group of input (in dif	ferential or open collector mode)					
Communication         RS485         1:n communication (optional configuration)           Control mode         CANopen         1:n communication (optional configuration)           Control mode         Control input         1. Position control: Speed/orgue mode switching: 5. Speed/orgue mode switching: 7. CANopen mode;         2. Speed control: 9. Position/orgue mode switching: 7. CANopen mode;           Function         Control input         1. Residual pulse clearing; 8. Speed/orgue mode switching; 7. CANopen mode;         2. Command pulse input disabling; 8. Speed/orgue mode switching; 7. CANopen mode;           Prostion control         Control output         Such as positioning completion output input 200kpps         Proteion/orgue and input 400kpps         9. Optional coupling; differential input 4Mpps, open collecto input 200kpps           Prostion control         Pulse input         Pulse input mode         1. Pulse-director; 1. Output control         2. OW+COV; 3. Quadrature encoding Electronic gear         2. OW+COV; 1. Ower and a special coupling; differential input 4Mpps, open collecto input 200kpps           Function         Protein input         Able to perform clockwise/anticlockwise torque limit separatel vibration control         Able to control - 200Hz front-end vibration and overall vibration           Function         Speed control         Apple of perform serversing function         Input control         Speed control           Function         Speed control         Apple of perform and speed selectin 1; 1. Internal com		i disc signal	Output	One group of output (in d	ifferential mode, A+, A-; B+, B-; Z+, Z-)					
Function         Communication         Control mode         Control mode         I. normmunication (optional configuration)           Function         Control mode         1. Position control; 3. Torque control; 9. Speed/orgue mode switching; 6. Position/torque mode switching; 7. CANopen mode; 7. Cantrol autput frequency 7. CANopen mode; 7. Cantrol autput frequency 7. CANopen mode; 7. Cantrol autput mode 7. Capable of the B-phase reversing function 7. C			USB	1:1 communication upper	r PC software					
Function <ul> <li>Position control:</li> <li>A Position control:</li> <li>A Position/seque mode switching:</li> <li>Beged/orgue mode switching:</li> <li>Position/torque mode switching:</li> <li>Position control</li> <li>Speed/orgue mode switching:</li> <li>Command pulse input disabiling:</li> <li>Speed/orgue mode switching:</li> <li>Control switching:</li> <li>Control switching:</li> <li>Position control</li> <li>Bectronic gear raits switching:</li> <li>CW+CCW:</li> <li>Quadrature encoding input frequency</li> <li>Pulse-direction:</li> <li>Pulse input mode</li> <li>Pulse-direction:</li> <li>Pulse-direction:</li> <li>Pulse input mode</li> <li>Pulse-direction:</li> <li>Pulse-direction:</li> <li>Pulse-direction:</li> <li>Pulse input mode</li> <li>Pulse-direction:</li> <li>Pulse input mode</li> <li>Pulse-directin:</li> <li>Pulse input mode<td></td><td>Communication</td><td>RS485</td><td colspan="6">1:n communication</td></li></ul>		Communication	RS485	1:n communication						
Function     Speed control:     4. Position/speed mode switching:       Speed/rouge mode switching:     5. Speed/rouge mode switching:       Image: Speed/rouge mode switching:     1. Residual pulse clearing:     2. Command pulse input disabiling:       Image: Speed/rouge mode switching:     1. Residual pulse clearing:     2. Command pulse input disabiling:       Image: Speed/rouge mode switching:     1. Residual pulse clearing:     2. Command pulse input disabiling:       Image: Speed/rouge mode switching:     3. Status     2. Command pulse input disabiling:       Image: Speed/rouge mode switching:     4. Position/speed mode switching:     4. Position/speed mode switching:       Image: Speed/rouge mode switching:     5. Speed/rouge mode switching:     5. Command pulse input disabiling:       Image: Speed/rouge mode switching:     5. Vertex     Speed/rouge input disabiling:     4. Position/speed mode switching:       Position control     Such as positioning completion output     Max. pulse     Photoelectric coupling: differential input 4Mpps, open collector input 200Kpps       Pulse input     Pulse input mode     1. Pulse-direction:     2. CW+CCW; 3. Quadrature encoding       Imput control     Pulse input     Torque limit input     Able to perform clockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/anticlockwise/a			CANopen	1:n communication (optional configuration)						
Function         Speed control         3. Electronic gear ratio switching:         4. Vibration control switching           Control output         Such as positioning completion output         Photoelectric coupling: differential input 4Mpps, open collecto input 200kpps           Position control         Pulse input         Max. pulse input mode         1. Pulse-input of input 200kpps           Pulse input         Pulse input mode         1. Pulse-input of input 200kpps         2. CW+CCW; 3. Quadrature encoding           Function         Analog input         Torque limit input         Able to perform and smoothing filter; 2. FIR filter           Analog input         Torque limit input         Able to perform any frequency division setting below the encoder resolution           Vibration control         Able to control 5-200Hz front-end vibration and overall vibration           1. Able to perform any frequency division setting below the encoder resolution         2. Capable of the 8-phase reversing function           1. Input control         1. Internal command speed selection 1;         2. Internal command speed selection 2;           3. Internal command speed selection 2;         3. Internal command speed selection 2;         3. Internal command speed selection 2;           3. Internal command speed selection 3;         4. Zero speed clamping         Able to enable speed command input after related settings are made based on analog voltage DC+10V           Analog input         Speed com		Control mode		<ol> <li>Torque control;</li> <li>Speed/torque mode sv</li> <li>Position/torque mode sv</li> </ol>	4. Position/speed mode switching; vitching;					
Function         Puise input         Max. pulse input frequency         Photoelectric coupling: differential input 4Mpps, open collector input 200kpps           Function         Pulse input         Pulse input mode         1. Pulse+direction;         2. CW+CCW;         3. Quadrature encoding Electronic gear           Function         Analog input         Torque limit input         Able to perform clockwise torque limit separatel Vibration control           Function         Pulse output         1. Able to perform any frequency division setting below the encoder resolution           Pulse output         1. Internal command speed selection 1; 2. Internal command speed selection 2; 3. Internal command speed selection 3; 4. Zero speed clamping         1. Internal command speed selection 1; 2. Internal command speed selection 3; 4. Zero speed clamping           Output control         Such as speed reaching Torque limit input         Able to enable speed command input after related settings are made based on analog voltage DC-110V Torque limit input           Analog input         Speed command ACC/Dec adjustment         Able to switch between internal 8-step speeds based on external input control           Speed command ACC/Dec adjustment         Able to perform zero drift control on external interference           Input control         Such as zero speed clamping input           Output control         Such as zero speed clamping input			Control input							
Function         Pulse input         input frequency         input 200kpps           Position control         Pulse input mode         1. Pulse+direction; 2. CW+CCW; 3. Quadrature encoding           Electronic gear         1/10000 - 1000           Filter         1. Command smoothing filter; 2. FIR filter           Analog input         Torque limit input         Able to perform clockwise/anticlockwise torque limit separatel           Vibration control         Able to control 5-200Hz front-end vibration and overall vibration           Pulse output         1. Able to perform any frequency division setting below the encoder resolution           2. Capable of the B-phase reversing function         2. Capable of the B-phase reversing function           3. Internal command speed selection 1;         1. Internal command speed selection 2;           3. Internal command speed selection 2;         3. Internal command speed selection 2;           3. Internal command speed selection 2;         3. Internal command speed selection 2;           3. Internal command speed selection 2;         3. Internal command speed selection 2;           3. Internal command speed selection 2;         3. Internal command speed selection 2;           3. Internal command speed selection 2;         3. Internal command speed selection 2;           3. Internal command speed selection 2;         3. Internal command speed selection 2;           4. Zero speed clamping		Position control	Control output	Such as positioning completion output						
Position control         Electronic gear         1/10000 - 1000           Filter         1. Command smoothing filter; 2. FIR filter           Analog input         Torque limit input         Able to perform clockwise/anticlockwise torque limit separatel           Vibration control         Able to control 5-200Hz front-end vibration and overall vibration           Pulse output         1. Able to perform any frequency division setting below the encoder resolution 2. Capable of the B-phase reversing function           Function         Input control         1. Internal command speed selection 1; 2. Internal command speed selection 2; 3. Internal command speed selection 3; 4. Zero speed clamping           Output control         Such as speed reaching           Output control         Such as speed reaching           Analog input         Able to switch between internal 8-step speeds based on analog voltage DC±10V           Torque command         Speed command ACC/Dec adjustment           Able to set ACC/Dec time separately or make S-curve ACC/Dec settings           Zero speed clamping         Delay filter for analog input speed commands           Speed command filter         Able to perform zero dirit control on external interference           Input control         Such as zero speed clamping input           Output control         Such as zero speed clamping input			Pulse input	1	Photoelectric coupling: differential input 4Mpps, open collector input 200kpps					
Function         Position control         Filter         1. Command smoothing filter; 2. FIR filter           Analog input         Torque limit input         Able to perform clockwise/anticlockwise torque limit separatel           Vibration control         Able to control 5-200Hz front-end vibration and overall vibration           Pulse output         1. Able to perform any frequency division setting below the encoder resolution           2. Capable of the B-phase reversing function         1. Internal command speed selection 1;           2. Internal command speed selection 2;         3. Internal command speed selection 3;           4. Zero speed clamping         Output control           Speed control         Analog input           Analog input         Speed command input after related settings are made based on analog voltage DC±10V           Internal speed         Able to enable speed clockwise/anticlockwise torque limit           Internal speed         Able to enable speed command input after related settings are made based on analog voltage DC±10V           Analog input         Able to set ACC/Dec time separately or make S-curve ACC/Dec settings           Zero speed clamping         Delay filter for analog input speed commands           Speed command ACC/Dec adjustment         Able to set ACC/Dec time separately or make S-curve ACC/Dec settings           Zero speed clamping         Delay filter for analog input speed commands           Speed c				Pulse input mode	1. Pulse+direction; 2. CW+CCW; 3. Quadrature encoding					
Function         Analog input         Torque limit input         Able to perform clockwise/anticlockwise torque limit separately           Function         Pulse output         Able to control 5-200Hz front-end vibration and overall vibration           Pulse output         1. Able to perform any frequency division setting below the encoder resolution           2. Capable of the B-phase reversing function           1. Internal command speed selection 1;           2. Internal command speed selection 3;           3. Internal command speed selection 3;           4. Zero speed clamping           Output control         Such as speed reaching           Analog input         Speed command input           Analog input         Able to switch between internal 8-step speeds based on external input control           Speed command         Able to set ACC/Dec time separately or make S-curve ACC/Dec settings           Zero speed clamping         Delay filter for analog input speed commands           Able to perform zero drift control on external interference         Able to perform zero drift control on external interference           Internal Speed command filter         Able to perform zero drift control on external interference           Internal speed				Electronic gear	1/10000 ~ 1000					
Function         Vibration control         Able to control 5-200Hz font-end vibration and overall vibration           Function         Pulse output         1. Able to perform any frequency division setting below the encoder resolution           Function         Input control         1. Internal command speed selection 1;           2. Capable of the B-phase reversing function         1.           Pulse output         1. Internal command speed selection 2;           3. Internal command speed selection 3;         4. Zero speed clamping           Output control         Such as speed reaching           Analog input         Speed command input           Analog input         Able to switch between internal 8-step speeds based on external input control           Speed command filter         Able to perform zero drift control on external interference           Speed command filter         Able to set ACC/Dec time separately or make S-curve ACC/Dec settings           Speed command filter         Able to perform zero drift control on external interference           Input control         Such as zero speed clamping input           Torque control         Such as speed reaching           Delay filter for analog input         Speed commands           Speed command filter         Able to perform zero drift control on external interference           Input control         Such as zero speed clamping input				Filter	1. Command smoothing filter; 2. FIR filter					
Function       Pulse output       1. Able to perform any frequency division setting below the encoder resolution         Function       Input control       2. Capable of the B-phase reversing function         Speed control       Input control       1. Internal command speed selection 1; 2. Internal command speed selection 2; 3. Internal command speed selection 3; 4. Zero speed clamping         Output control       Such as speed reaching         Analog input       Able to enable speed command input after related settings are made based on analog voltage DC±10V         Internal speed command       Able to switch between internal 8-step speeds based on external input control         Speed command ACC/Dec adjustment ACC/Dec adjustment ACC/Dec adjustment Able to set ACC/Dec time separately or make S-curve ACC/Dec settings         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as speed reaching         Output control       Such as speed reaching         Internal speed command       Able to switch between internal 8-step speeds based on external input control         Speed command ACC/Dec adjustment ACC/Dec adjustment ADE to set ACC/Dec time separately or make S-curve ACC/Dec settings         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as zero speed clamping input         Torque control       Analog input       Torque command input <td></td> <td>Analog input</td> <td>Torque limit input</td> <td>Able to perform clockwise/anticlockwise torque limit separately</td>			Analog input	Torque limit input	Able to perform clockwise/anticlockwise torque limit separately					
Function       Input control       2. Capable of the B-phase reversing function         Function       Input control       1. Internal command speed selection 1; 2. Internal command speed selection 2; 3. Internal command speed selection 3; 4. Zero speed clamping         Speed control       Output control       Such as speed reaching are made based on analog voltage DC±10V         Analog input       Speed command input Torque limit input       Able to enable speed selection 2; 3. Internal command speed selection 3; 4. Zero speed clamping         Speed control       Speed command input Analog input       Speed command input are made based on analog voltage DC±10V         Internal speed command       Able to switch between internal 8-step speeds based on external input control         Speed command ACC/Dec adjustment       Able to set ACC/Dec time separately or make S-curve ACC/Dec settings         Zero speed clamping       Delay filter for analog input speed commands         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as zero speed clamping input         Torque control       Such as speed reaching         Output control       Such as speed reaching         Torque control       Such as sp			Vibration control	Able to control 5~200Hz	front-end vibration and overall vibration					
Function       Input control       2. Internal command speed selection 2; 3. Internal command speed selection 3; 4. Zero speed clamping         Speed control       Output control       Such as speed reaching         Analog input       Apple to enable speed command input after related settings are made based on analog voltage DC±10V         Internal speed command       Speed command input       Able to enable speed command input after related settings are made based on analog voltage DC±10V         Internal speed command       Able to switch between internal 8-step speeds based on external input control         Speed command ACC/Dec adjustment       Able to set ACC/Dec time separately or make S-curve ACC/Dec settings         Zero speed clamping       Delay filter for analog input speed commands         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as speed reaching         Output control       Such as speed reaching         Input control       Such as speed reaching         Output control       Such as speed reaching         Speed command filter       Able to perform zero drift control on external interference         Torque control       Such as speed reaching			Pulse output							
Speed control       Analog input       Speed command input       Able to enable speed command input after related settings are made based on analog voltage DC±10V         Torque limit input       Able to enable separate clockwise/anticlockwise torque limit         Internal speed command       Able to switch between internal 8-step speeds based on external input control         Speed command       Able to set ACC/Dec time separately or make S-curve ACC/Dec settings         Zero speed clamping       Delay filter for analog input speed commands         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as zero speed clamping input         Output control       Such as speed reaching         Torque control       Analog input	Function		Input control	<ol> <li>Internal command spectrum</li> <li>Internal command spectrum</li> </ol>	ed selection 2;					
Speed control       Analog input       Speed command input       are made based on analog voltage DC±10V         Torque limit input       Able to enable separate clockwise/anticlockwise torque limit         Internal speed       Able to switch between internal 8-step speeds based on external input control         Speed command       Able to set ACC/Dec time separately or make S-curve ACC/Dec settings         Zero speed clamping       Delay filter for analog input speed commands         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as zero speed clamping input         Output control       Such as speed reaching         Torque control       Analog input			Output control	Such as speed reaching						
Speed control       Internal speed command       Able to switch between internal 8-step speeds based on external input control         Internal speed command       Able to switch between internal 8-step speeds based on external input control         Speed command ACC/Dec adjustment       Able to set ACC/Dec time separately or make S-curve ACC/Dec settings         Zero speed clamping       Delay filter for analog input speed commands         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as zero speed clamping input         Output control       Such as speed reaching         Torque control       Analog input         Analog input       Support for gain and polarity settings based on analog voltage			Analog ipput	Speed command input						
Able to switch between internal of speeds based on external input control         Speed command ACC/Dec adjustment       Able to set ACC/Dec time separately or make S-curve ACC/Dec settings         Zero speed clamping       Delay filter for analog input speed commands         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as zero speed clamping input         Output control       Such as speed reaching         Torque control       Analog input         Support for gain and polarity settings based on analog voltage		Speed control	Analog input	Torque limit input	Able to enable separate clockwise/anticlockwise torque limit					
ACC/Dec adjustment       ACC/Dec adjustment       ACC/Dec time separately of make S-curve ACC/Dec settings         Zero speed clamping       Delay filter for analog input speed commands         Speed command filter       Able to perform zero drift control on external interference         Input control       Such as zero speed clamping input         Output control       Such as speed reaching         Torque control       Analog input         Analog input       Support for gain and polarity settings based on analog voltage				Able to switch between internal 8-step speeds based on external input control						
Speed command filter         Able to perform zero drift control on external interference           Input control         Such as zero speed clamping input           Output control         Such as speed reaching           Torque control         Analog input           Analog input         Torque command input				Able to set ACC/Dec time separately or make S-curve ACC/Dec settings						
Input control     Such as zero speed clamping input       Output control     Such as speed reaching       Torque control     Analog input       Analog input     Support for gain and polarity settings based on analog voltage				Delay filter for analog input speed commands						
Output control     Such as speed reaching       Torque control     Analog input   Torque command input Support for gain and polarity settings based on analog voltage			Speed command filter	Able to perform zero drift control on external interference						
Torque control Analog input Torque command input Support for gain and polarity settings based on analog voltage					ping input					
Analog input			Output control	Such as speed reaching						
		Torque control	Analog input		Support for gain and polarity settings based on analog voltage Support for analog speed limit					
Speed limit Able to set speed limit through parameters			Speed limit							

### Servo Drive Technical Parameters

	DA180 series servo drive								
	Specification	S	Description						
	Torque control	Torque command filter	Delay filter for analog input torque commands						
		Torque command zero drift control	Able to perform zero drift control on external interference						
		Point planning	Support for 128-segment internal position setting and communication-controlled positioning						
Function	Internal position planning	Route setting	1. Position;2. Speed;3. ACC time;4. Dec time;5. Stop timer;6. Various state output;7. Running mode						
		Homing	1. LS signal; 2. Z-phase signal; 3. LS signal + Z-phase signal; 4. Torque limit signal;						
	Hardware protection		Protection against faults such as overvoltage, undervoltage, overcurrent, overspeed, overload, brake resistor overload, and encoder fault						
Protection			Such as protection against ROM fault, initialization fault, I/O distribution exception, drive overheating, and excessive position deviation						
	Fault records		<ol> <li>A total of ten faults can be recorded.</li> <li>Key parameters can be recorded when a fault occurs.</li> </ol>						
		Working temperature	0–45°C						
	Temperature	Storage temperature	-20–80°C (no freezing)						
Environment	Working/storage RH		<90% RH (no condensation)						
	IP rating		IP20						
	Altitude		Below 1000 meters						
	Vibr	ation	$\leq$ 5.88m/s², 10–60Hz (Do not work at the resonance point)						

## Servo Motor Technical Parameters

Motor model (17-bit single-turn magnetic encoder)	Rated power (kW)	Rated current (A)	Max. momentary current (A)	Rated torque (Nm)	Max. momentary torque (Nm)	Rated speed (rpm)	Max. speed (rpm)	Rotation inertia without/with Electromagnetic brake(kg.cm <sup>2</sup> )	Voltage (V)	Weight without/with Electromagnetic brake (kg)
ML series with small inertia										
SV-ML06-0R2G-2-SA	0.2	1.5	4.5	0.64	1.92			0.198/0.21	220	1.4/1.6
SV-ML06-0R4G-2-SA	0.4	2.8	8.4	1.3	3.9	3000	5000	0.33/0.34		1.8/2.0
SV-ML08-0R7G-2-SA	0.75	4.5	13.5	2.4	7.2			1.28/1.41		3.0/3.5
				MM/S	M series with me	edium inert	ia			
SV-MM13-1R0E-2-SA	1	4.8	14.4	4.78	14.3	2000	2750	6.4/7.19	220	5.8/7.5
Insulation class	Class F (155°C)									
IP rating	IP65									
Ambient environment	Temperature: $-20^{\circ}$ C ~ $+40^{\circ}$ C (no freezing): BH: Below 90%BH (no condensation)									

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