



# AC SERVO DRIVES JUNMA SERIES

PULSE REFERENCE TYPE – MECHATROLINK-II NETWORK TYPE



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# New Servo Concept JUNMA



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JUNMA similarly uses the world's top-level servo technology to provide a quick and efficient setup. JUNMA is a modern concept of digital servo drive technology that requires no parameter settings and gain adjustments to achieve high-precision positioning.

JUNMA's simple Plug'n Play design, easy set-up procedures and high precision characteristics offer optimum drive performance and efficiency for any kind of application and industry.

The JUNMA Mechatrolink-II network type servo drive can maintain steady operation

at high speed by automatically adjusting the speed to compensate load change in real time. JUNMA ML-II easily connects every servo drive with the other (up to 16 axis) and enables start-up and control using one cable.

JUNMA occupies 30% less space than comparable drives in the market and remarkably reduces start-up and installation time.

JUNMA's ready-to-use features for high-speed, high-torque, and high-precision operation are ready to work for you.

## YASKAWA JUNMA Features

### Features of JUNMA Pulse Reference Type Drives

- ▶ Attain optimum servo performance without setting parameters or adjusting gains
- ▶ Resolution: 10,000 pulses/rev
- ▶ High torque output at high speeds of 4,500 min<sup>-1</sup>, easily suppress mechanical vibrations with the turn of the rotary switch
- ▶ Conforms to international standards

### Features of Mechatrolink-II Communications Type

- ▶ Automatic speed adjustment when load changes
  - constant automatic adjustment function quickly reacts to load changes,
  - steady operation for applications with high frequency speed and torque changes

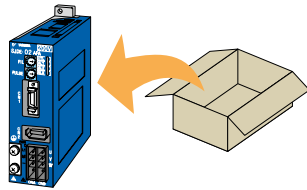
- ▶ Quick and efficient setup
  - connect and go! Same concept as other JUNMA products, hence no troublesome parameter settings and gain adjustments needed
- ▶ Enhanced control functions
  - high-precision and high-performance positioning. The position reference, speed reference, and acceleration/deceleration time can be changed in real time during positioning.
  - external positioning function using position latch signal: Detects the accurate position when a latch signal is received and adjusts the amount of movement. This is useful for transfer, wrapping, and printing equipment
  - zero point return: A zero point can be individually set for each of customer's machines
  - other functions: Interpolation, JOG operation, alarm reset, and other helpful functions
- ▶ Conforms to international standards

## JUNMA SERVOPACK – FAST & EASY SETUP

- ▶ Settings are easy to make, so setup time is reduced.

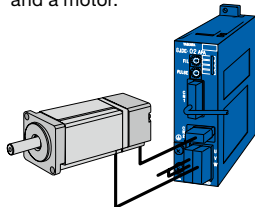
### 1 Unpacking

Remove the SERVOPACK from the box.



### 2 Installation and wiring

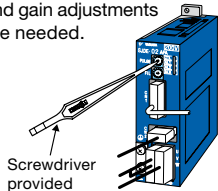
Connect the cables for the power supply, signal lines, and a motor.



PULSE CONTROL TYPE

### 3 Reference pulse setting

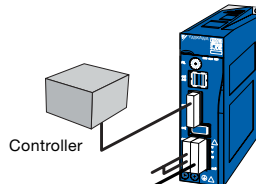
Select the reference pulse switch for your controller. No parameter settings and gain adjustments are needed.



MECHATROLINK-II NETWORK TYPE

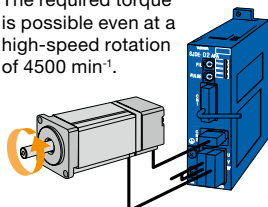
### 3 Communication settings

Only required for communication settings. No gain adjustments are needed.



### 4 Setup completion

The motor is ready to run with the reference from the controller. The required torque is possible even at a high-speed rotation of 4500 min<sup>-1</sup>.



## Ratings and Specifications

Voltage		200VAC			
Servomotor Model	SJME-□□A	01	02	04	08
Applicable SERVOPACK	SJDE-□□A	01	02	04	08
Rated output *1	W	100	200	400	800
Rated Torque *1, *2	Nm	0.318	0.637	1.27	2.39
Instantaneous peak torque *1	Nm	0.955	1.91	3.82	7.16
Rated current *1	A <sub>rms</sub>	0.84	1.1	2.0	3.7
Instantaneous max. current *1	A <sub>rms</sub>	2.5	3.3	6.0	11.1
Rated speed *1	min <sup>-1</sup>	3000			
Max. speed *1	min <sup>-1</sup>	4500			
Torque constant	Nm/A <sub>rms</sub>	0.413	0.645	0.682	0.699
Rotor moment of inertia	kg × m <sup>2</sup> × 10 <sup>-4</sup>	0.0634	0.330	0.603	1.50
Rated power rate *1	kW/s	16.0	12.3	26.7	38.1
Rated angular acceleration *1	rad/s <sup>2</sup>	50200	19300	21100	15900
Time rating	Continuous				
Thermal class	B				
Vibration class	15 μm or below				
Withstand voltage	1500 VAC for one minute				
Insulation resistance	500 VDC, 10 MΩ min.				
Enclosure	Totally enclosed, self-cooled, IP55 (excluding shaft opening and connectors)				
Impact resistance	Impact acceleration: 490 m/s <sup>2</sup> in three directions – vertical, side to side, and front to back. Impact occurrences: 2				
Vibration resistance	Vibration acceleration: 49 m/s <sup>2</sup> in three directions – vertical, side to side, and front to back.				

\*1 These items and speed/torque characteristics quoted in combination with an SJDE SERVOPACK are at an armature winding temperature of 100 °C. Other values are at 20 °C.

\*2 The rated torques listed here are the values for the continuous allowable torque at 40 °C with an aluminium heatsink (250 mm × 250 mm × 6 mm) attached.

## Holding Brake Specifications

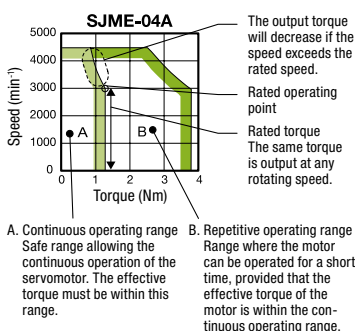
Servomotor Model	SJME-□□A	01	02	04	08
Rated voltage		24VDC ± 10%			
Holding brake moment of inertia *	kg × m <sup>2</sup> × 10 <sup>-4</sup>	0.0075		0.064	0.171
Capacity	W	6		6.9	7.7
Minimum holding torque (Static friction torque)	Nm	0.318		1.27	2.39
Coil resistance	Ω (at 20 °C)	96		83	75
Rated current	A (at 20 °C)	0.25		0.29	0.32
Brake release time	ms	80 max.			
Rise time for holding torque	ms	100 max.			

\* To obtain the motor moment of inertia with a brake, add the holding brake moment of inertia to the rotor moment of inertia. The rated power rate and angular acceleration of the motor will change according to the motor moment of inertia.

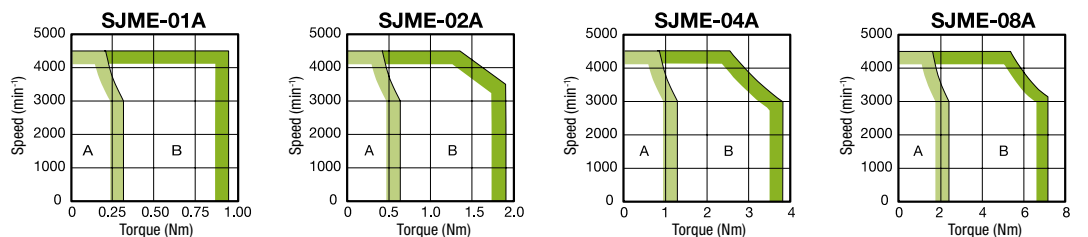
### Notes:

- The holding brake is only used to hold the load and cannot be used to stop the servomotor.
- Do not use the holding brake when the servo is on. Failure to observe this caution may result in an overload of the SERVOPACK or a decrease of brake life.

How to read a graph of speed and torque characteristics



## Speed/Torque Characteristics



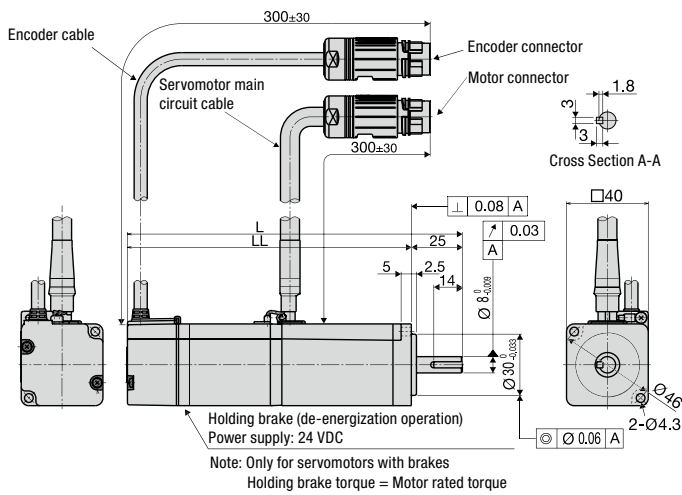
Note: Solid lines show the torque/speed characteristics of the servomotor at 200 VAC, and the broken lines show them at 230 VAC.



# Dimensions

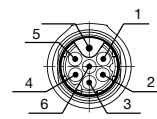
Units: mm

## 100W



Type SJME-	L	LL	Approx. mass (kg)
01AMA41	119	94	0.5
01AMA4C	164	139	0.8

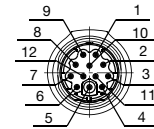
## Motor Connector Specifications



Pin	No brake		With brake	
	Description	Colour	Description	Colour
1	Phase U	Red	Phase U	Red
2	Phase V	White	Phase V	White
3	Phase W	Blue	Phase W	Blue
4	FG	Green/Yellow	FG	Green/Yellow
5	-	-	Brake	Red
6	-	-	Brake	Black

Extension: BKUA854NN0085155A000  
 Male contact (Crimp): 61.006.11 (INTERCONTEC)  
 Plug: BSTA852NN0085201A000  
 Female Contact: (Crimp): 60.001.11  
 (Solder): 60.004.11

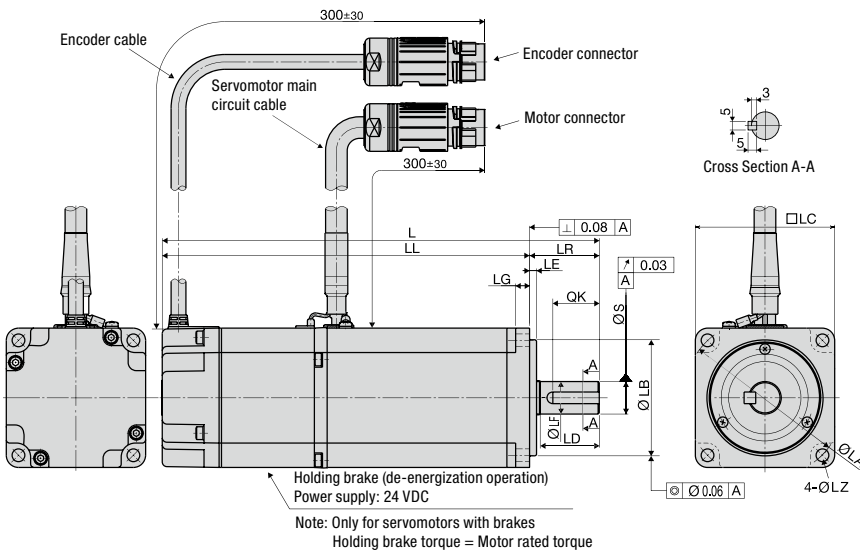
## Encoder Connector Specifications



Pin	Description	Colour
1	PG5 V	Red
2	PG0 V (GND)	Black
3	Phase A+	Blue
4	Phase A-	Blue/White
5	-	-
6	Phase B+	Yellow
7	Phase B-	Yellow/White
8	Phase /Z	Purple
9	Phase U	Gray
10	Phase V	Green
11	Phase W	Orange
12	-	-
Case	Frame ground	Shield wire

Extension: AKUA047NN0084151A000  
 Male contact (Crimp): 61.004.11 (INTERCONTEC)  
 Plug: ASTA046NN0084200A000  
 Female Contact: (Crimp): 60.001.11  
 (Solder): 60.004.11

## 200W to 750W



Type SJME-	L	LL	LR	LG	LE	S	LB	LC	LD	LF	LA	LZ	QK	Approx. mass (kg)
02AMA41	125.5	95.5	30	6	3	14 <sup>0</sup> <sub>-0.011</sub>	50 <sup>0</sup> <sub>-0.039</sub>	60	-	-	70	5.5	20	0.9
02AMA4C	165.5	135.5							1.5					
04AMA41	148.5	118.5							1.3					
04AMA4C	188.5	158.5							1.9					
08AMA41	173	133							2.6					
08AMA4C	216	176	40	8	3	16 <sup>0</sup> <sub>-0.011</sub>	70 <sup>0</sup> <sub>-0.046</sub>	80	35	20	90	7	30	3.5

# SERVOPACKs – Pulse Reference Type

## Ratings and Specifications

SERVOPACK Model SJDE-□		01APA	02APA	03APA	04APA	
Max. applicable servomotor capacity		kW	0.1	0.2	0.4	0.75
Continuous output current		A <sub>rms</sub>	0.84	1.1	2.0	3.7
Instantaneous max. output current		A <sub>rms</sub>	2.5	3.3	6.0	11.1
Input power supply (for main circuit and control circuit)	Voltage	Single-phase 200 to 230 VAC, +10 to -15%				
	Frequency	50/60 Hz ± 5%				
	Voltage frequency capacity at rated output	kVA	0.40	0.75	1.2	2.2
Power loss at rated output		W	14	16	24	35
Input control method		Capacitor-input type, single-phase full-wave rectification with resistance to prevent inrush currents				
Output control method		PWM control, sine wave power driven system				
Feedback		Analog output encoder				
Allowable load inertia*1		kgm <sup>2</sup>	0.6 × 10 <sup>-4</sup>	3 × 10 <sup>-4</sup>	5 × 10 <sup>-4</sup>	10 × 10 <sup>-4</sup>
I/O signals	Input signal for reference (designated pulse type and pulse resolution with PULSE switch)	Pulse type	Select one of the following signals: 1. CCW + CW 2. Sign + pulse train 3. CCW + CW (logic reversal) 4. Sign + pulse train (logic reversal)			
		Pulse resolution	Select one of the following signals: 1. 1000 pulses/rev (open collector/line driver) 75 kpps max. 2. 2500 pulses/rev (open collector/line driver) 187.5 kpps max. 3. 5000 pulses/rev (line driver) 375 kpps max. 4. 10000 pulses/rev (line driver) 750 kpps max.			
	Clear input signal	Clears the positioning error when turned ON				
	Servo ON input signal	Turns the servomotor on or off				
	Alarm output signal	OFF if an alarm occurs				
	Brake output signal	External signal to control brakes. Turn ON to release the brake.				
	Position completed output signal	ON if the current position is equal to the reference position ± 10 pulses				
	Origin output signal	ON if the motor is at the origin (width: 1/500 rev)				
Built-in functions	Dynamic brake (DB)	Operated at main power OFF, servo alarm, servo OFF (OFF after motor stops; ON if the motor power is off)				
	Regenerative processing	Optional (if the regenerative energy is too large, install a regenerative unit)				
	Protection*2	Speed errors, overload, encoder errors, voltage errors, overcurrents, disablement of the built-in cooling fan, system errors				
	Display	Five LED indicators (PWR, REF, AL1, AL2, AL3)				
	Reference filter	Select one of eight levels with FIL switch				
Cooling method		Forced cooling (built-in fan)				
Operating temperature		0 °C to +55 °C				
Operating humidity		90% RH or less (no condensation)				
Storage temperature		-20 °C to +70 °C				
Storage humidity		90% RH or less (no condensation)				
Installation site		Free of corrosive gases Free of dust and iron powder Clean and dry				
Altitude		1000m or below				
Vibration resistance		4.9 m/s <sup>2</sup>				
Shock resistance		19.6 m/s <sup>2</sup>				
Operating conditions		Installation category (overvoltage category): II Pollution degree: 2 Protection class: IP1X (EN50178)				

\*1 Be sure to use the motor within the allowable load moment of inertia. The motor will become unstable if the load moment of inertia exceeds the allowable value.

\*2 The ground protection circuit is designed for ground fault inside the motor windings while the motor is running. Therefore, it may not protect the system under the following cases:

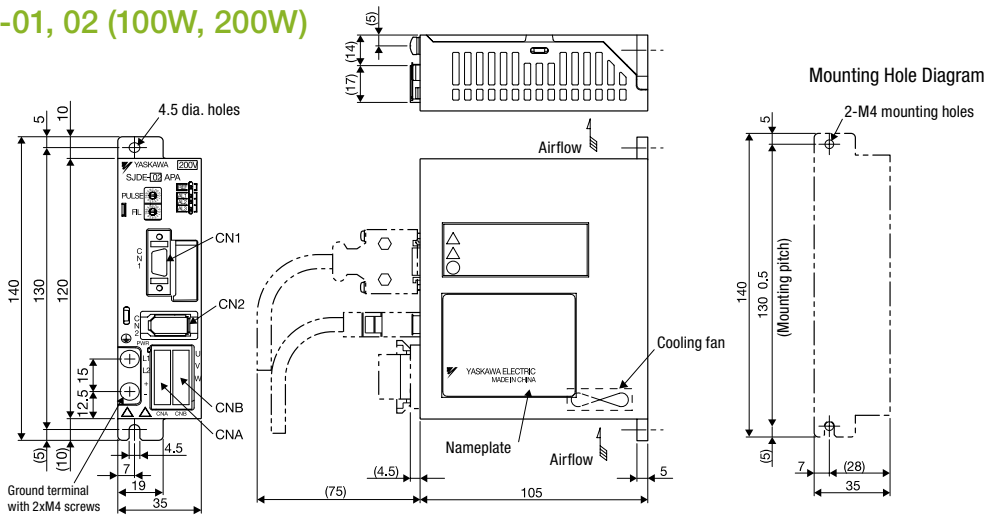
- A low-resistance ground fault occurs in the main circuit cable or in the connector of the cable for the servomotor.
- The power supply is turned on during a ground fault.



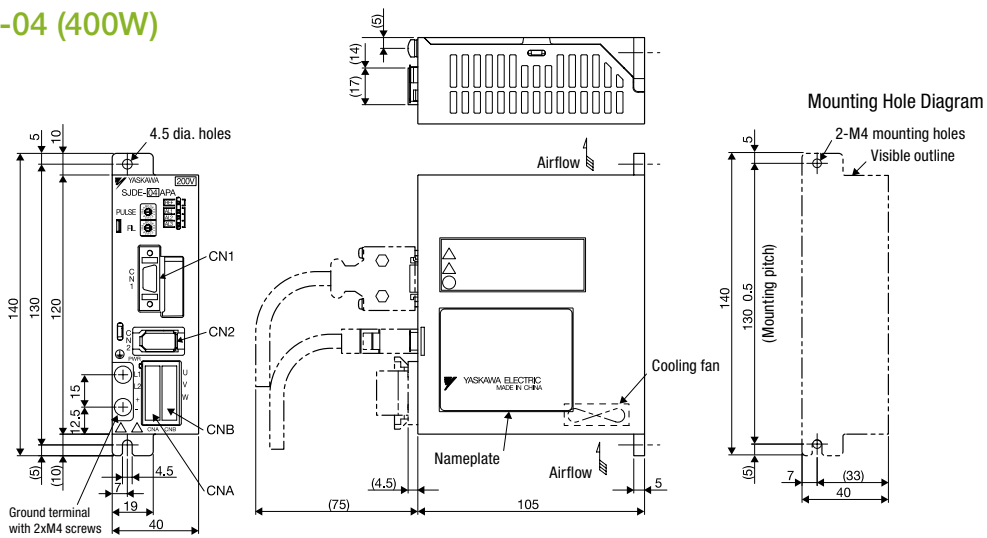
# Dimensions

Units: mm

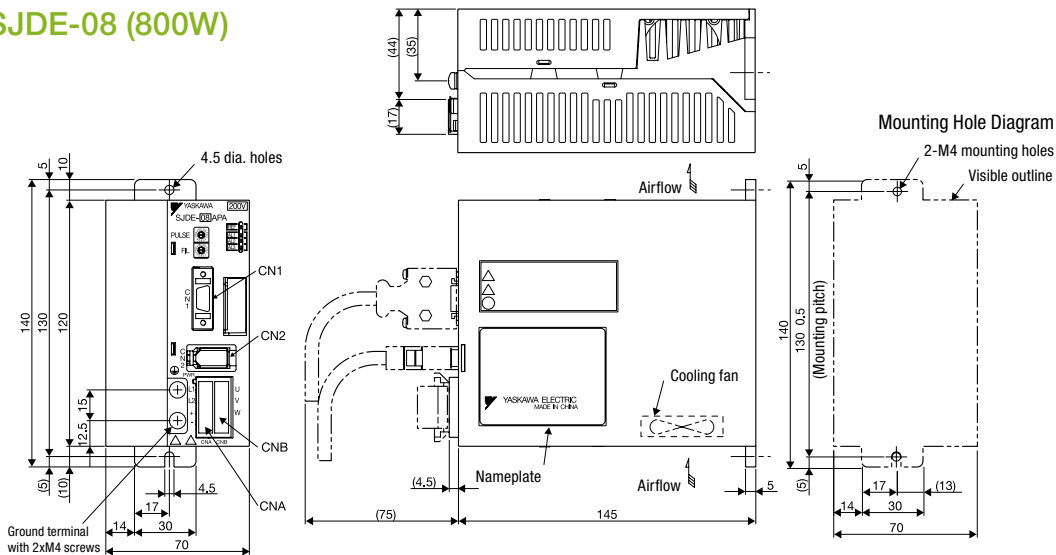
## SJDE-01, 02 (100W, 200W)



## SJDE-04 (400W)



## SJDE-08 (800W)



# SERVOPACKs – Mechatrolink-II Network Type

## Ratings and Specifications

SERVOPACK Model SJDE-□		01ANA	02ANA	03ANA	04ANA	
Basic specifications	Applicable servomotor capacity	kW	0.1	0.2	0.4	0.75
	Continuous output current	A <sub>rms</sub>	0.84	1.1	2	3.7
	Instantaneous max. output current	A <sub>rms</sub>	2.5	3.3	6	11.1
	Input power supply (for main circuit and control circuit)	Voltage	Single-phase 200 to 230 VAC, +10 to -15%			
		Frequency	50/60 Hz ± 5%			
		Voltage frequency capacity at rated output	kVA	0.40	0.75	1.2
	Power loss at rated output	W	14	16	24	35
	Input control method	Capacitor-input type, single-phase full-wave rectification with resistance to prevent inrush currents				
	Output control method	PWM control, sine wave power driven system				
	Allowable load moment of inertia*1	kgm <sup>2</sup>	0.5 × 10 <sup>-4</sup>	3 × 10 <sup>-4</sup>	5 × 10 <sup>-4</sup>	10 × 10 <sup>-4</sup>
Leakage current	3.5 mA max.					
Built-in functions	Dynamic brake (DB)	Activated when the power is OFF, a servo is OFF, or an alarm occurs (Released after the motor stops, applied if the power supply is turned off)				
	Communications for maintenance	JunmaWin (Modification/initialization of parameters, JOG operation, etc)				
	Regenerative processing	If the regenerative energy is too large, mount a regenerative unit				
	Emergency stop	Emergency Stop (E-STP)				
	Overtravel (OT) prevention	Forward run prohibited (P-OT), reverse run prohibited (N-OT)				
	Display	Four LED indicators (PWR, RDY, COM, ALM)				
	Monitor	Power supply status monitor, servo ON/OFF monitor, MECHATROLINK monitor				
	Feedback	Incremental encoder (8192 pulses/rev)				
	Reference resolution setting (electronic gear)	0.01 ≤ B/A ≤ 100				
	Protection	Speed error, overload, encoder error, voltage error, overcurrent, built-in cooling fan stop, system error, ground fault*2				
MECHATROLINK communications	Communications protocol	MECHATROLINK-II				
	Station address	41H to 5FH				
	Transmission speed	10 Mbps				
	Transmission cycle	1 ms, 1.5 ms, 2 ms, 3 ms, 4 ms				
	Data length	17 bytes or 32 bytes				
Command method	Performance	MECHATROLINK-II communications MECHATROLINK-II commands (for motion, data setting/reference, monitor, adjustment, and other commands)				
Sequence input signals	Fixed inputs	5 points (external latch signal, homing deceleration signal, forward run prohibited signal, reverse run prohibited signal, and emergency stop signal)				
Sequence output signals	Fixed outputs	2 points (servo alarm and holding brake)				
Operating temperature / operating humidity		0°C to +55°C/90% RH or less (no condensation)				
Storage temperature / storage humidity		-20°C to +70°C/90% RH or less (no condensation)				
Ambient conditions		Free from corrosive gases, free from dust and iron particles, free from water droplets or machine oil				
Altitude		1000 m or below				
Vibration resistance / shock resistance		4.9 m/s <sup>2</sup> / 19.6 m/s <sup>2</sup>				
Operating conditions		Installation category (overvoltage category): II, pollution degree: 2, protection class: IP1X (EN50178)				

\*1 Be sure to use the motor within the allowable load moment of inertia. The motor will become unstable if the load moment of inertia exceeds the allowable value.

\*2 The ground protection circuit is designed for ground fault inside the motor windings while the motor is running. Therefore, it may not protect the system under the following cases:

- A low-resistance ground fault occurs in the main circuit cable or in the connector of the cable for the servomotor.
- The power supply is turned on during a ground fault.

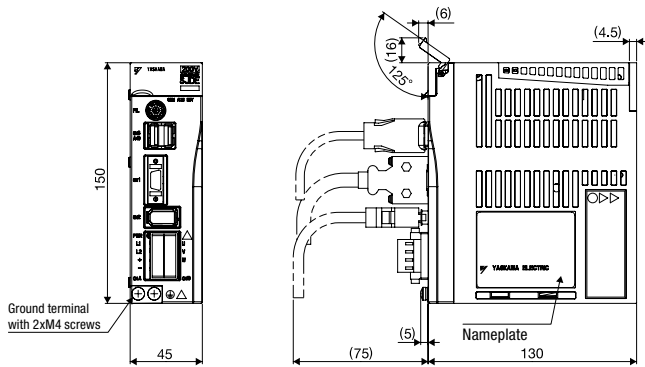




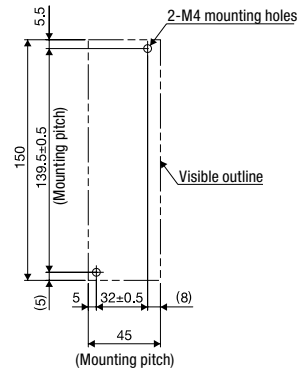
# Dimensions

Units: mm

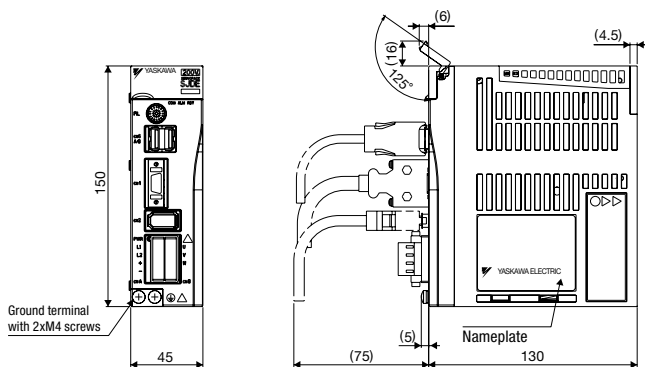
## SJDE-01, 02 (100W, 200W)



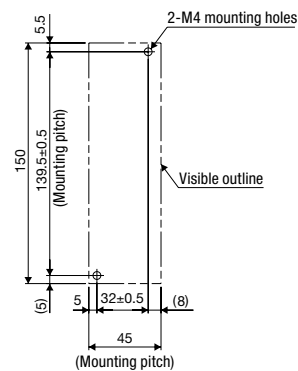
Mounting Hole Diagram



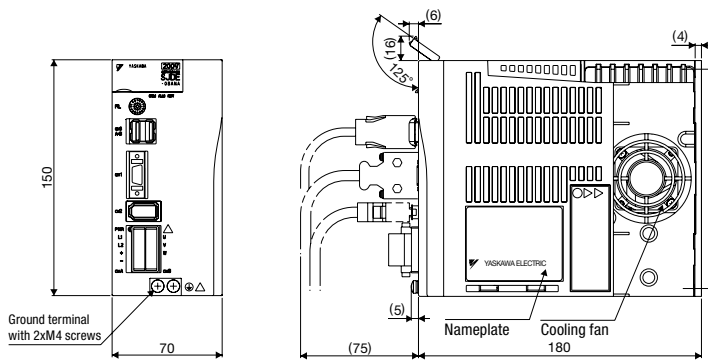
## SJDE-04 (400W)



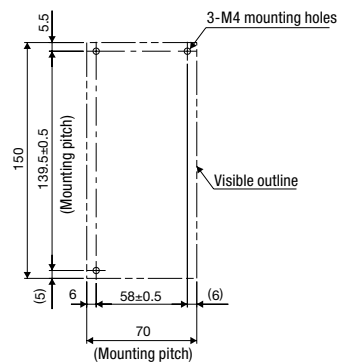
Mounting Hole Diagram



## SJDE-08 (800W)

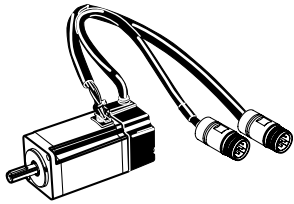


Mounting Hole Diagram

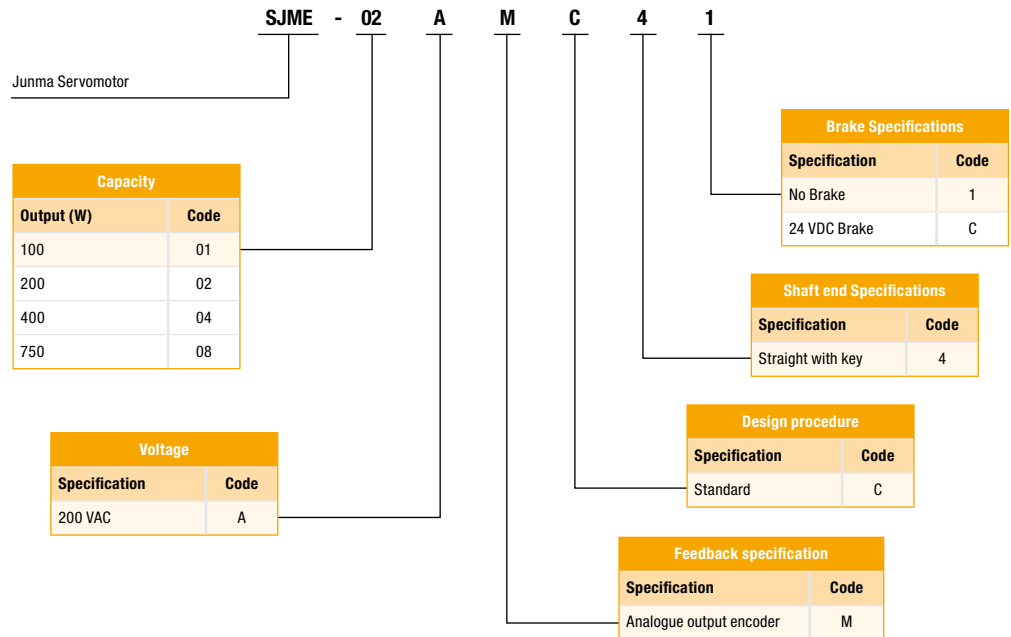


# Ordering Instructions

## Servo Motor Model Designation

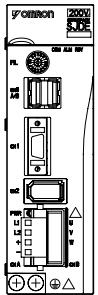


**Junma Servo Motor**  
3,000 rpm  
(100–750 W)

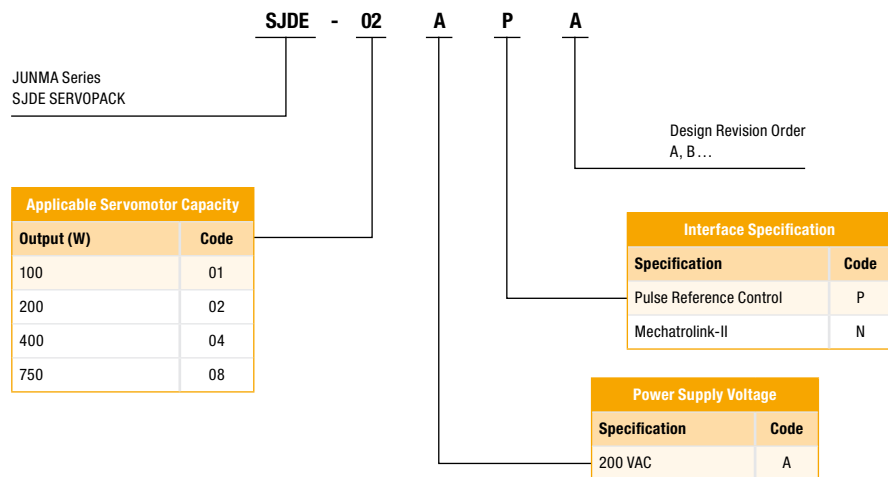
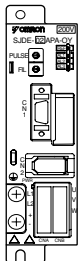


## SERVOPACK Model Designation

**Junma MECHATROLINK-II Servo Drive**



**Junma Pulse Servo Drive**





## Ordering Instructions

### Power Cables

Specifications		Model	Appearance
Power cable for Junma servomotors without brake	Flexible cables (Standard) Shielded Cable Bending radius (Dynamic) > 10 x Diameter Bending cycles > 5 Million	1.5 m	JZSP-CHM000-01-5-E-G2
		3 m	JZSP-CHM000-03-E-G2
		5 m	JZSP-CHM000-05-E-G2
		10 m	JZSP-CHM000-10-E-G2
		15 m	JZSP-CHM000-15-E-G2
		20 m	JZSP-CHM000-20-E-G2
Power cable for Junma servomotors without brake	Flexible cables (Standard) Shielded Cable Bending radius (Dynamic) > 10 x Diameter Bending cycles > 5 Million	1.5 m	JZSP-CHM030-01-5-E-G2
		3 m	JZSP-CHM030-03-E-G2
		5 m	JZSP-CHM030-05-E-G2
		10 m	JZSP-CHM030-10-E-G2
		15 m	JZSP-CHM030-15-E-G2
		20 m	JZSP-CHM030-20-E-G2

### Encoder Cables

Specifications		Model	Appearance
Encoder cable for Junma servomotors	Flexible cables (Standard) Shielded Cable Bending radius (Dynamic) > 10 x Diameter Bending cycles > 5 Million	1.5 m	JZSP-CHP800-01-5-E-G2
		3 m	JZSP-CHP800-03-E-G2
		5 m	JZSP-CHP800-05-E-G2
		10 m	JZSP-CHP800-10-E-G2
		15 m	JZSP-CHP800-15-E-G2
		20 m	JZSP-CHP800-20-E-G2

### Connectors for power and encoder cables

Specifications		Model (Yaskawa)	Model (Manufacturer)
Connectors for making power cables	Drive side (CNB)	Manufacturer: JST	JZSP-CHM9-2
	Motor side	Manufacturer: Intercontec	BSTA852NN0085201A000 *
Connectors for making encoder cables	Drive side (CN2)	Manufacturers: 3M and Molex	JZSP-CHP-2
	Motor side	Manufacturer: Intercontec	ASTA046NN0084200A000 *

\* Note: Female contacts for Intercontec plugs have to be ordered separately, Crimp Type: 60.001.11  
Solder Type: 60.004.11

### Signal and communication cables

Name	Type	Model	Length	Appearance
I/O Signal Cables		JZSP-CHI003-01	1 m	
		JZSP-CHI003-02	2 m	
		JZSP-CHI003-03	3 m	
I/O Signal Connector Kits	For SERVOPACK CN1	Soldered Type JZSP-CHI9-1	-	
MECHATROLINK-II Communication Cable	Cable with Connectors at Both Ends *1 (Without Ferrite Core)	JEPMC-W6002-□□*2	-	
		JEPMC-W6002-□□*2-E (Compliant with RoHS Directive)	-	
	Cable with Connectors at Both Ends *1 (With Ferrite Core)	JEPMC-W6003-□□*2	-	
		JEPMC-W6003-□□*2-E (Compliant with RoHS Directive)	-	
Terminators	JEPMC-W6022-□□*2	-		
JEPMC-W6022-□□*2-E (Compliant with RoHS Directive)	-			
Cable for Personal Computer	Cables	JZSP-CPS00-02	2 m	

\*1: The total cable length must be 50 m max. and the cable length between stations 0.5 m min.

\*2: Specify the cable length in □□ when ordering as shown in the table below.

□□	Cable length m	□□	Cable length m	□□	Cable length m	□□	Cable length m	□□	Cable length m
A5	0.5	03	3.0	07	7.0	20	20	40	40
01	1.0	05	5.0	10	10	30	30	50	50



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