

Stepping Motors

Controllers

Controllers

Introduction	0.36°/Geared AC Input Motor & Driver AR	0.72°/Geared RK	0.36°/Geared DC Input Motor & Driver CRK	0.36°/0.72°/ Geared CRK	1.8°/Geared Motor Only RBK	0.9°/1.8°/Geared CMK	0.72° PK	1.8°/Geared High-Torque Motor Only PKP	0.9°/1.8°/Geared PK	Controllers SG8030JY	Accessories
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Controller with Jerk Limiting Control Function Step-Select Positioning Type/Sequential-Step Positioning Type SG8030JY

Controller for Stepping Motor

● Connection Information ●
Technical reference → Page G-1

RoHS

The **SG8030JY** incorporates a jerk limiting control function that minimizes vibrations during motor operation. Operation pulse is 200 kHz maximum. All operations including data setting can easily be performed using the four touch pads on the top panel. In addition, the number of signal lines is reduced to a minimum for easy connection.

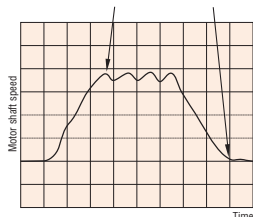
Features

● Jerk Limiting Control Function Suppresses Motor Drive Vibrations

The "Jerk limiting control function" effectively minimizes vibrations during motor drive and stop. This is especially useful in applications such as driving a belt pulley, to ensure smooth motion of transported works.

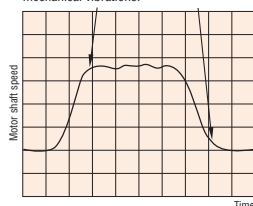
● Measurement conditions
Application: Belt drive
Operation mode: Positioning operation
Load: 10 kg

Motor vibrations when switching between acceleration/deceleration and constant speed cause mechanical vibrations.



Linear controlled acceleration/deceleration pattern

Motor vibrations when switching between acceleration/deceleration and constant speed are minimized, resulting in less mechanical vibrations.



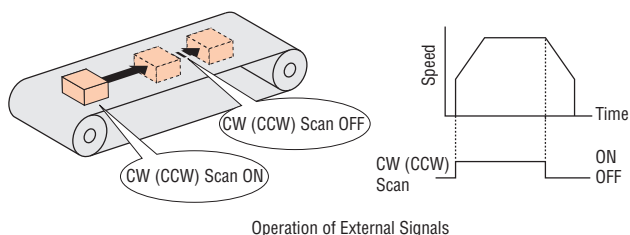
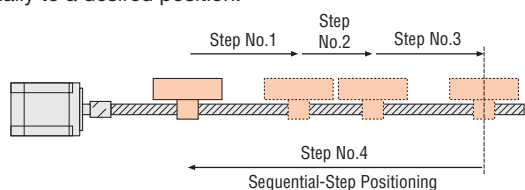
Jerk controlled acceleration/deceleration pattern

● These diagrams are simulated. Actual effect will differ depending on mechanical construction.

To achieve the same positioning time with jerk controlled acceleration/deceleration, set the acceleration/deceleration rate to 1/2 that of linear controlled acceleration/deceleration.

● Sequential-Step Positioning Operation/External Signal Operation Possible

In "Sequential-step positioning operation," the start signal always causes execution from step No. 1 in a preselected sequence. In "External signal operation," when the CW scan (or CCW scan) signal input goes ON, operation starts. When the signal goes OFF, slowdown stop occurs. This is useful for moving the work manually to a desired position.



Operation of External Signals

● Maximum Oscillation Frequency 200 kHz

The "Maximum oscillation frequency of 200 kHz" allows motor control in micro steps.



DIN Rail Mounting Model

Recessed Mounting Model

● 1-Pulse Output/2-Pulse Output Mode Select Possible

The controller provides both the 1-pulse output mode and 2-pulse output mode, which makes it compatible with a wide range of motor drivers.

● Top Panel Single Interface for All Settings and Operation Checks

All operations including setting of various data can be performed using the four touch pads on the top panel. You can also check the status of each operation simply by checking the display on the top panel.

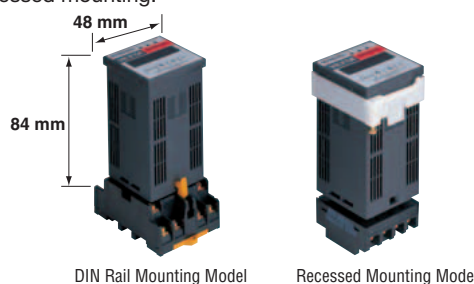


Touch Pads

● 48 mm × 48 mm DIN Size and Two Mounting Configurations are Provided.

The unit is very compact, measuring only 48 mm (W) × 48 mm (D) × 84 mm (H).

Two mounting configurations are available, for DIN rail mounting and recessed mounting.

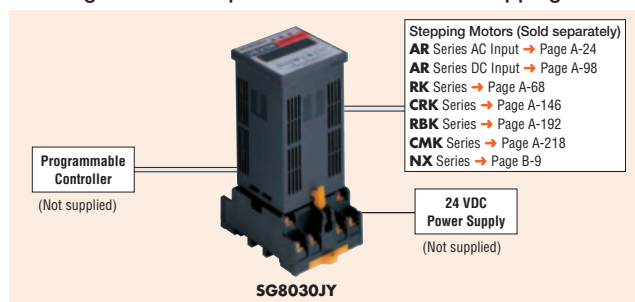


DIN Rail Mounting Model

Recessed Mounting Model

System Configuration

● Configuration Example of Combination with Stepping Motors



Product Line

Type	Model
DIN Rail Mounting Model	SG8030JY-D
Recessed Mounting Model	SG8030JY-U

The following items are included in each product—
 Controller, Flush Mounting Socket, Recessed Mounting Adapter*, Operating Manual
 *Only for **SG8030JY-U**

Specifications RoHS

Model	SG8030JY-D SG8030JY-U	
Number of Control Axes	1 axis	
Number of Settings	4 steps	
Positioning Data	Setting Mode	Set with touch pads on top panel (stored in EEPROM)
	Setting Method	Incremental mode (point to point)
Positioning Control	Mode	Sequential-step positioning Step-select positioning
	Move Distance Setting Range	Incremental 1~99 999 pulses
	Starting Pulse Speed Setting Range (VS)	100 Hz~10 kHz (100 Hz units)
	Operating Pulse Speed Setting Range (VR)	100 Hz~200 kHz (100 Hz units)
Acceleration/Deceleration Rate Setting Range (TR)	1~100 ms/kHz (28 rates*)	
Pulse Output Mode	1-pulse output/2-pulse output mode select possible	
Control Modes	Positioning operation (INDEX operation) Return to mechanical home operation (HOME operation) Continuous operation (SCAN operation) 1-pulse operation (JOG operation: Test mode only)	
Operation Modes	External input mode (EXT) Program mode (PROG) Test mode (TEST)	
Number of Maximum Return Pulses	—	
Return to Mechanical Home Function	Sensor detection of home through designation of mechanical home detection direction of rotation	
Input Signal	24 VDC photocoupler input, input resistance 4.7 kΩ Current sinking input	
Output Signal	PNP transistor output linked to photocoupler 24 VDC, 25 mA max., Current sourcing output	
Power Source	24 VDC±5% current consumption 0.1 A	
Ambient Temperature	0~+40°C (non-freezing)	
Ambient Humidity	20~85% (non-condensing)	

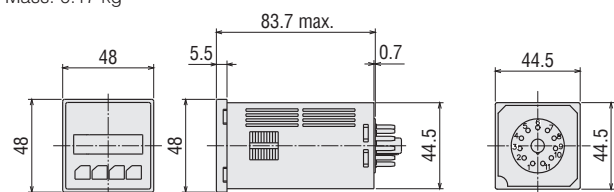
* The following 28 acceleration/deceleration rates can be selected. [unit: ms/kHz]
 1, 2, 4, 5, 6, 8, 10, 12, 14, 15, 16, 18, 20, 22, 24, 25, 26, 28, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100

Dimensions (Unit = mm)

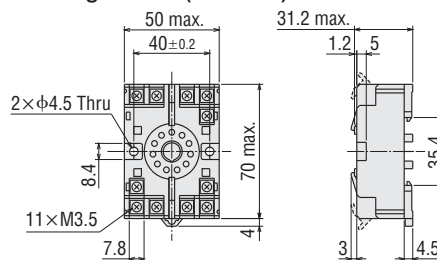
DIN Rail Mounting Model

◇ SG8030JY-D

Mass: 0.17 kg



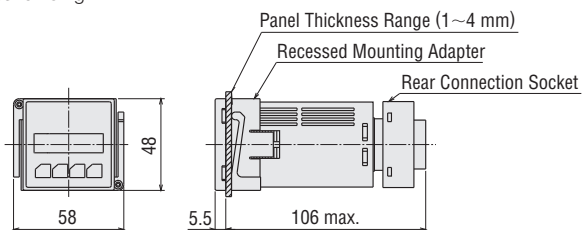
◇ Flush Mounting Socket (Included)



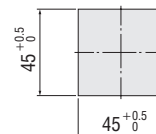
Recessed Mounting Model

◇ SG8030JY-U

Mass: 0.15 kg

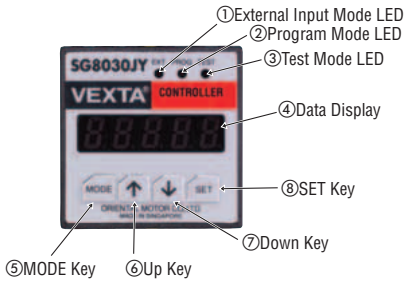


◇ Panel Mounting Cut-Out Dimensions



Connection and Operation

Names and Functions of Controller Parts



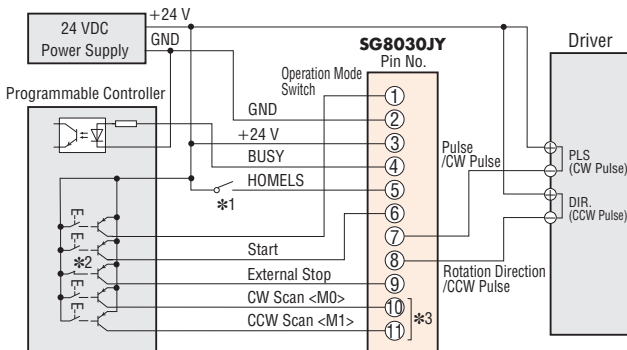
①	EXT (LED): Lights up when external input mode is selected.
②	PROG (LED): Lights up when program mode is selected.
③	TEST (LED): Lights up when test mode is selected.
④	Data display: Shows operation and setting status.
⑤	MODE key: Switches control mode
⑥	↑ key: Changes data
⑦	↓ key: Changes data
⑧	SET key: Stores set data

Connection Socket Signal Table

Pin No.	Signal Name	I/O	Function
1*	Operation Mode Input	Input	S: Switching positioning/home detection operation D: Switching positioning/home detection operation and continuous operation
2	GND	Input	GND connecting terminal
3	+24V	Input	24 VDC power supply input terminal
4	BUSY	Output	Output during pulse oscillation
5	HOMELS	Input	Mechanical home detection sensor
6	Start	Input	Start signal
7	Pulse/CW Pulse	Output	1 pulse output mode: Pulse 2 pulse output mode: CW Pulse
8	Rotation Direction/CCW Pulse	Output	1 pulse output mode: Direction of rotation 2 pulse output mode: CCW Pulse
9	External Stop	Input	Stop all operations (including busy output)
10*	S: CW Scan D: M0 [CW Scan]	Input	S: CW continuous operation D: M0 data select signal [CW continuous operation]
11*	S: CCW Scan D: M1 [CCW Scan]	Input	S: CCW continuous operation D: M1 data select signal [CCW continuous operation]

- Indications in brackets [] apply to state when mode switching signal was input.
- * Only pins 1, 10 and 11 differ for sequential-step positioning and step-select positioning.
- "S" in the table indicates sequential-step positioning and "D" indicates step-select positioning.

Wiring Diagram



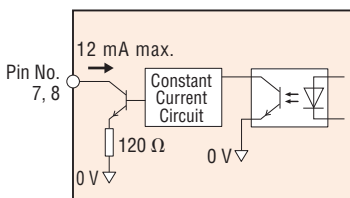
- *1 Use normal open (NO) limit control of the mechanical home sensor.
- *2 Power for the external stop input signal must always be ON during normal operation. When not using the external stop input signal, always connect to the +24 V terminal.
- *3 Names in < > brackets are for step-select positioning mode.

Note

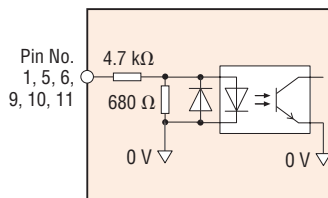
- External resistor does not need to be installed on the pulse outputs, because they contain constant current circuits.
- Note that the length of the pulse signal line increases, the maximum transmission frequency decreases.

Description of Input/Output Signal

Output Signals to Driver



Input Signals from Programmable Controller and Limit Sensor



Output Signals to Programmable Controller

