The SG8030J incorporates a jerk limiting control function that minimizes vibrations during motor operation. All operations including data setting can easily be performed using the four touchpads on the front 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 lets you suppress vibration that otherwise occurs when the motor is being driven or stopped. For example, this function is particularly useful when a belt pulley is used to drive the motor and you want the load to be moved with low vibration.

  ![Linear Acceleration/Deceleration Pattern](image1)
  ![Jerk Acceleration/Deceleration Pattern](image2)

  *These graphs are provided only as a reference. The actual effect of this function will vary depending on the mechanism of your equipment.*

  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 Positioning Operation/External Signal Operation Possible**
  In sequential 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 load manually to a desired position.

- **Maximum Oscillation Frequency 200 kHz**
  The maximum oscillation frequency of 200 kHz allows motor control in micro steps.

- **1-Pulse Output/2-Pulse Output Mode Select Possible**
  In addition to the 2-pulse output mode, the controller can also provide 1-pulse output mode, which makes it compatible with a wide range of motor drivers.

- **Front Panel Single Interface for All Settings and Operation Checks**
  All operations including setting of various data can be performed using the four touchpads on the front panel. You can also check the status of each operation simply by checking the display on the front panel.

- **48×48 mm (1.89×1.89 in.) DIN Size and Two Mounting Configurations are Provided**
  The unit is very compact, measuring only W 48 mm (1.89 in.) × D 48 mm (1.89 in.) × H 83.7 mm (3.3 in.). Two mounting configurations are available for DIN rail mounting and recessed mounting.
# System Configuration

**Stepping Motors**

**SG8030J**

- Programmable Controller
- Stepping Motors
- Servo Motors
- Linear and Rotary Actuators
- 24 VDC Power Supply

(Not supplied)

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# Product Line

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN Rail Mounting Model</td>
<td>SG8030J-D</td>
</tr>
<tr>
<td>Recessed Mounting Model</td>
<td>SG8030J-U</td>
</tr>
</tbody>
</table>

The following items are included in each product, Controller, Flush Mounting Socket, Recessed Mounting Adapter*, Operating Manual

*Only for SG8030J-U

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# Specifications (RoHS)

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>SG8030J-D</th>
<th>SG8030J-U</th>
</tr>
</thead>
</table>

- **Number of Control Axes**: 1 axis
- **Number of Settings**: 4 steps
- **Setting Method**: Set with touchpads on front panel (stored in EEPROM)
- **Setting Mode**: Incremental mode (point to point)
- **Mode**: Sequential positioning
- **Data-select positioning**
- **Positioning Data**: Travel Amount Setting Range
  - Incremental: 1–99999 pulses
- **Starting Pulse Speed Setting Range (VS)**: 100 Hz–10 kHz (100 Hz increments)
- **Operating Pulse Speed Setting Range (VR)**: 100 Hz–200 kHz (100 Hz increments)
- **Acceleration/Deceleration Rate Setting Range (TR)**: 1–100 msec/kHz (28 rates*)

- **Pulse Output Mode**: 1-pulse output/2-pulse output mode select possible
- **Operation Modes**: Positioning operation (INDEX operation)
  - Return to mechanical home operation (HOME operation)
  - Continuous operation (SCAN operation)
  - 1-pulse operation (JOG operation: Test mode only)
- **Control 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 Signals**: 24 VDC photocoupler input, Input resistance: 4.7 kΩ
- **Output Signals**: Transistor output linked to photocoupler
  - 24 VDC maximum 25 mA maximum
- **Power Source**: 24 VDC±5%, Current consumption 0.1 A
- **Ambient Temperature**: 0–+40°C (+32–+104°F) (non-freezing)
- **Ambient Humidity**: 20–85% (non-condensing)

*The following 28 acceleration/deceleration rates can be selected. [unit: msec/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 (in.)

#### DIN Rail Mounting Model

**SG8030J-D**
- Mass: 0.17 kg (0.37 lb.)
- **B094**

#### Recessed Mounting Model

**SG8030J-U**
- Mass: 0.15 kg (0.33 lb.)
- **B095**

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#### Flush Mounting Socket (Included)

- Panel Mounting Cut-Out Dimension
Connection and Operation

Names and Functions of Controller Parts

- External input mode LED
- Program mode LED
- Data display
- SET key
- Up key
- Down key
- MODE key

Connection Socket Signal Table

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal Name</th>
<th>Input/Output</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>Operation mode switch</td>
<td>Input</td>
<td>S: Positioning/home detection operation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>D: Positioning/home detection operation and continuous operation</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>Input</td>
<td>GND connecting terminal</td>
</tr>
<tr>
<td>3</td>
<td>+24V</td>
<td>Input</td>
<td>24 VDC power supply input terminal</td>
</tr>
<tr>
<td>4</td>
<td>BUSY</td>
<td>Output</td>
<td>Output during pulse oscillation</td>
</tr>
<tr>
<td>5</td>
<td>HOMELES</td>
<td>Input</td>
<td>Mechanical home detection sensor</td>
</tr>
<tr>
<td>6</td>
<td>Start</td>
<td>Input</td>
<td>Start signal</td>
</tr>
<tr>
<td>7</td>
<td>Pulse/CW pulse</td>
<td>Output</td>
<td>1-pulse output mode: Pulse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2-pulse output mode: CW pulse</td>
</tr>
<tr>
<td>8</td>
<td>Rotation direction/CCW pulse</td>
<td>Output</td>
<td>1-pulse output mode: Rotation direction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2-pulse output mode: CCW pulse</td>
</tr>
<tr>
<td>9</td>
<td>External stop</td>
<td>Input</td>
<td>Stop all operations (including busy output)</td>
</tr>
<tr>
<td>10*</td>
<td>S: CW scan</td>
<td>Input</td>
<td>S: CW continuous operation</td>
</tr>
<tr>
<td></td>
<td>D: M0 [CW scan]</td>
<td></td>
<td>D: M0 data select signal [CW continuous operation]</td>
</tr>
<tr>
<td>11*</td>
<td>S: CCW scan</td>
<td>Input</td>
<td>S: CCW continuous operation</td>
</tr>
<tr>
<td></td>
<td>D: M1 [CCW scan]</td>
<td></td>
<td>D: M1 data select signal [CCW continuous operation]</td>
</tr>
</tbody>
</table>

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

Connection Diagrams

Description of Input/Output Signal

- Output Signals to Driver
- Input Signals from Programmable Controller and Limit Sensor
- Output Signals to Programmable Controller

Note:
- As the length of the pulse signal line increases, the maximum transmission frequency decreases.