AC Servo System Catalog

Committed to Premium Quality
Company Profile

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DB100 Series AC Servo System

Application fields

- Electronic Production Machinery: Winding machine, wire-stripping machine, Lithium battery manufacturing equipment, LED manufacturing equipment, dispenser, component inserter, etc.
- CNC Equipment: electro machining, wire-electrode cutting, NC lathe, carves-milling machine, deep hole drilling, pipe bender, coiling machine, etc.
- Packaging machinery: bag machine, sealing and cutting machine, blister packaging machine, horizontal packaging machine, labeler, etc.
- Printing machinery: screen printer, sticker trademark printing press, paper cutter, die-cutting machine, gilding press, folder, etc.
- Textile machinery: computerized flat knitting machine, embroidery machine, air-jet loom, water-jet loom, warp knitting machine, etc.
- Plastic machinery: Loading manipulator, automatic bottle blowing machine
- Others: glass equipment, TJK, test equipment, etc.

<table>
<thead>
<tr>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>voltage grade</td>
</tr>
<tr>
<td>220V</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
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<tr>
<td></td>
</tr>
<tr>
<td>380V</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>
High overload capacity: Instantaneous torque can reach 3 times overload, which effectively overcomes the inertia moment of inertia load at starting.

Built-in mechanical resonance suppression function, which can effectively inhibit the resonance phenomenon of mechanical structure.

Excellent high-speed reflection performance: Speed response bandwidth is up to 650Hz or more, and speed ranges from -3000r/min to 3000r/min with an acceleration time of only 6ms.

Full ranges of models have built-in braking unit and braking resistor.

Above 1KW servo drivers can be directly powered by 380v, which saves incoming transformer and effectively reduces plan costs.

Automatic gain adjustment function, which allows for identification of load inertia and more convenient debugging.

<table>
<thead>
<tr>
<th>Model Description</th>
<th>Servo Driver Performance Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SV-DB100-0R4-2-1 R</strong></td>
<td></td>
</tr>
<tr>
<td>Identification</td>
<td>Product category</td>
</tr>
<tr>
<td>1</td>
<td>SV</td>
</tr>
<tr>
<td>2</td>
<td>Servo system</td>
</tr>
<tr>
<td>Identification</td>
<td>Product series</td>
</tr>
<tr>
<td>3</td>
<td>DB100</td>
</tr>
<tr>
<td>4</td>
<td>DB100 Series</td>
</tr>
<tr>
<td>Identification</td>
<td>Rated power</td>
</tr>
<tr>
<td>5</td>
<td>OR2</td>
</tr>
<tr>
<td>6</td>
<td>200W</td>
</tr>
<tr>
<td>Identification</td>
<td>Encoder type</td>
</tr>
<tr>
<td>1</td>
<td>2500-wire standard incremental</td>
</tr>
<tr>
<td>2</td>
<td>2500-wire wire-saving incremental</td>
</tr>
</tbody>
</table>

**Special functions**

- High overload capacity: Instantaneous torque can reach 3 times overload, which effectively overcomes the inertia moment of inertia load at starting.
- Built-in mechanical resonance suppression function, which can effectively inhibit the resonance phenomenon of mechanical structure.
- Excellent high-speed reflection performance: Speed response bandwidth is up to 650Hz or more, and speed ranges from -3000r/min to 3000r/min with an acceleration time of only 6ms.
- Full ranges of models have built-in braking unit and braking resistor.
- Above 1KW servo drivers can be directly powered by 380v, which saves incoming transformer and effectively reduces plan costs.
- Automatic gain adjustment function, which allows for identification of load inertia and more convenient debugging.

**Servo Driver Performance Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>SV-DB100-0R4-2-1 R</th>
<th>SV-DB100-0R4-2-1R</th>
<th>SV-DB100-0R4-2-1U</th>
<th>SV-DB100-0R4-2-1V</th>
<th>SV-DB100-0R4-2-1W</th>
<th>SV-DB100-0R4-2-1X</th>
<th>SV-DB100-0R4-2-1Y</th>
<th>SV-DB100-0R4-2-1Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>200W</td>
<td>400W</td>
<td>750W</td>
<td>1.5kW</td>
<td>1.5kW</td>
<td>2.0kW</td>
<td>3.0kW</td>
<td>4.4kW</td>
</tr>
<tr>
<td>Rated current</td>
<td>1.5A</td>
<td>2.8A</td>
<td>4.5A</td>
<td>5.7A</td>
<td>8A</td>
<td>10A</td>
<td>11A</td>
<td>14A</td>
</tr>
<tr>
<td>Main circuit power supply</td>
<td>single phase</td>
<td>230V ±15%/50Hz</td>
<td>3-phase</td>
<td>400V ±15%/50Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control circuit power supply</td>
<td>3-phase</td>
<td>230V ±15%/50Hz</td>
<td>3-phase</td>
<td>400V ±15%/50Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interface power supply</td>
<td>DC 12V~24V, ±10%, greater than 500mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control mode</td>
<td>Vector control, SPWM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic control mode</td>
<td>Position control mode, Speed control mode, Torque control mode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic breaking function</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regeneration braking unit</td>
<td>Built-in braking resistor, and it also can connect an external one</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog input and output</td>
<td>13 optical isolation, inputs, 7 open collector output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback pulse for positioning</td>
<td>2 inputs -10V<del>10V, 2 outputs -10V</del>10V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnitude range of pulse</td>
<td>A/B orthogonal pulse, resolution ratio: 10000 pulses/revolution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positioning precision</td>
<td>±0.01%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Speed stability</td>
<td>±0.03%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torque control range</td>
<td>Controlled via parameters setting or external analog input setting DC 0~±10V, maximum torque: 300% rated torque</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed frequency response</td>
<td>500Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed control range</td>
<td>The lowest speed is 0.1r/PM, and the highest speed is 5000r/PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog input for speed</td>
<td>DC 0~±10V, maximum speed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog input for torque</td>
<td>DC 0~±10V, maximum torque</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linearity of torque</td>
<td>less than ±10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended inertia ratio</td>
<td>less than 15 times</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>CAN, Modbus (RS232 and RS485)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection grade</td>
<td>IP20, natural cooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient</td>
<td>IP20, forced air cooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working temperature</td>
<td>0~45°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-20~80°C (no freeze)</td>
<td>Humidity: &lt;90% (no condensation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Servo Driver Product Description

Mounting dimensions of servo driver

- **SV-D8100-3R25R4** (unit: mm)
- **SV-D8100-3R71R0/1R5/2R0** (unit: mm)
- **SV-D8100-3R04R4/5R5** (unit: mm)

Note: Bore diameter of mounting 5mm

---

Servo Motor Product Description

Product Description

**SV-ML06-0R4G-2-1 A0**

1. **Identification** Product category
   - SV: Servo system

2. **Identification** Rated speed
   - A: 1000rpm
   - B: 1500rpm
   - E: 2000rpm
   - F: 2500rpm
   - G: 3000rpm

3. **Identification** Shaft terminal connection
   - A: Solid with key (standard configuration)
   - B: Optical axis

4. **Identification** Inertia level
   - General-purpose small inertia servo motor
   - General-purpose medium inertia servo motor

5. **Identification** Machine base #
   - 06: 60mm
   - 08: 80mm
   - 11: 110mm
   - 13: 130mm
   - 18: 180mm

6. **Identification** Encoder type
   - 1: 2500-wire standard incremental
   - 2: 2500-wire wire-saving incremental
   - 3: 17-bit single-ring absolute
   - 4: 17-bit multi-ring absolute

7. **Identification** Voltage class
   - 2: AC230V
   - 4: AC400V

8. **Identification** Optional accessories
   - 0: With oil seal
   - 1: No optional accessories
   - 2: With oil seal & band-type brake
   - 3: With band-type brake
### Table of Motor Electrical Parameters

<table>
<thead>
<tr>
<th>Motor type</th>
<th>SV-ML08-10D2-2-1A0</th>
<th>SV-ML08-14D2-2-1A0</th>
<th>SV-ML08-18D2-2-1A0</th>
<th>SV-ML08-18BF2-2-1A0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power</td>
<td>200W</td>
<td>400W</td>
<td>750W</td>
<td>1,000W</td>
</tr>
<tr>
<td>Rated current (A)</td>
<td>1.4</td>
<td>2.4</td>
<td>3.1</td>
<td>4.4</td>
</tr>
<tr>
<td>Rated torque (Nm)</td>
<td>0.64</td>
<td>1.7</td>
<td>2.4</td>
<td>4</td>
</tr>
<tr>
<td>Peak torque (Nm)</td>
<td>1.91</td>
<td>3.8</td>
<td>7.1</td>
<td>12</td>
</tr>
<tr>
<td>Rated speed (rpm)</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>2500</td>
</tr>
<tr>
<td>Rotor inertia (kg·cm²)</td>
<td>0.17</td>
<td>0.3</td>
<td>1.82</td>
<td>2.97</td>
</tr>
<tr>
<td>Counter potential (V/krpm)</td>
<td>32</td>
<td>31</td>
<td>48</td>
<td>56</td>
</tr>
<tr>
<td>Torque coefficient (N·m/kvA)</td>
<td>0.46</td>
<td>0.5</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Motor insulation class</td>
<td>Class B (130°C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection level</td>
<td>IP65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating environment</td>
<td>Temperature: –20°C to 50°C (Unfrozen); Humidity: Below 90% RH (No condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table of Motor Mechanical Dimensions

<table>
<thead>
<tr>
<th>Motor type</th>
<th>SV-MM13-10RF2-2-1A0</th>
<th>SV-MM13-10RF2-2-1A0</th>
<th>SV-MM13-20RF2-2-1A0</th>
<th>SV-MM13-20RF2-2-1A0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power</td>
<td>1.0 kW</td>
<td>1.5 kW</td>
<td>2.0 kW</td>
<td>2.3 kW</td>
</tr>
<tr>
<td>Rated current (A)</td>
<td>5</td>
<td>7.5</td>
<td>10</td>
<td>9.5</td>
</tr>
<tr>
<td>Rated torque (Nm)</td>
<td>5</td>
<td>7.7</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Peak torque (Nm)</td>
<td>15</td>
<td>22</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Rated speed (rpm)</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>1600</td>
</tr>
<tr>
<td>Rotor inertia (kg·cm²)</td>
<td>16.6</td>
<td>15.3</td>
<td>19.4</td>
<td>27.7</td>
</tr>
<tr>
<td>Counter potential (V/krpm)</td>
<td>6.0</td>
<td>6.8</td>
<td>7.0</td>
<td>7.6</td>
</tr>
<tr>
<td>Torque coefficient (N·m/kvA)</td>
<td>1</td>
<td>1.03</td>
<td>1</td>
<td>1.58</td>
</tr>
<tr>
<td>Motor insulation class</td>
<td>Class B (130°C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection level</td>
<td>IP65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating environment</td>
<td>Temperature: –20°C to 50°C (Unfrozen); Humidity: Below 90% RH (No condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Figure of Motor Mounting Dimensions
Servo driver & External device cable

**External device & specification**

- **Power supply**: Single phase, three-phase AC220V±15%
- **Electromagnetic contactor (MC)**
  - It is installed to prevent drive damaging caused by instant over current when power is switched on/off or due to short circuit
- **Braking resistors**: Optional
- **Breaker without fuse (NFB)**
  - Single phase, three-phase
  - AC220V+15%
- **Motion controller**
  - I/O link, connected to motion controller
  - It is installed to prevent drive damaging caused by instant over current when power is switched on/off or due to short circuit
- **Utilize MODBUS communication control, support RS-485/RS-232 interface**
- **Connection the encoder signal of servo motor end to servo driver**
- **In abnormal cases, it can be used with servo drivers to output alerting signal to break the electromagnetic contactor**

**Installation Precautions**

1. Check if power supply and wiring of R, S, T and r, t are correct
2. Confirm if the output U, V, W terminals wiring phase sequence of servo motor are correct
3. Use external braking resistors connected to both ends B1 & B2 of servo driver, while B2, B3 are open circuited.
   - If internal braking resistors are used, please make sure both ends of B2, B3 are short circuited, while both ends of B1, B2 are open circuited.

**Standard Wiring Diagram**

**Position mode standard wiring diagram**

- **Servo driver**
- **Emergency Stop**
- **Zero-speed clamp**
- **Electronic gear selection 1**
- **Electronic gear selection 2**
- **Forward travel limit**
- **Reverse travel limit**
- **Drop pulses clear**
- **Pulse input disable**
- **Gain switching**
- **Torque limit selection**
- **Control mode switching**
- **Alarm clear**
- **Brake released**
- **Fault alarm**
- **Servo ready**
- **Zero speed**
- **Position reached**
- **Torque limited medium**
- **Internal DC24V power supply**
  - Note: Capacity 100mA
- **Collector output Z phase**
  - (Please use high speed optocoupler to receive)
- **Frequency divider**
- **Controller**
  - Note: Output voltage range is DC 0-10V, maximum output power supply is 3mA.
- **Analog torque limit**
  - Note: This is shielded twisted pair cable.
  - This is power supply, to be prepared by the user.
- **Differential command pulse input (Maximum 500kpps)**
- **Mode of open collector**
- **Analog output 1**
- **Analog output 2**

**Note:**
- The output voltage range is DC 0-10V, maximum output power supply is 3mA.
- The internal braking resistors are used, please make sure both ends of B2, B3 are short circuited, while both ends of B1, B2 are open circuited.
Speed mode standard wiring diagram

- **Servo driver**
- **Controller**
- **Frequency divider**
- **Collector output Z phase**
- **(Please use high speed optocoupler to receive)**
- **Analog output 1**
- **Analog output 2**

**Note:**
- Capacity 100MA
- AM26LS32 or equivalent chip

**Controller**

- **Output voltage range is DC 0-10V, maximum output power supply is 3mA.**
- **Maximum load carrying capacity of each output terminal DC30V, 50mA.**

**Servo driver**

- **Emergency Stop**
- **Servo EN**
- **Zero-speed clamp**
- **Gain switching**
- **Torque limit selection**
- **Control mode switching**
- **Alarm clear**

**CN1**

- **Analog speed command (0~+10V)**
- **Analog torque limit (0~+10V)**

**CN2**

- **Gain switching**
- **Control mode switching**
- **Alarm clear**

**CN3**

- **Analog speed command (0~+10V)**
- **Analog torque limit (0~+10V)**

**Note:**
- This is shielded twisted pair cable.
- This is power supply, to be prepared by the user.

Torque mode standard wiring diagram

- **Servo driver**
- **Controller**
- **Frequency divider**
- **Collector output Z phase**
- **(Please use high speed optocoupler to receive)**
- **Analog output 1**
- **Analog output 2**

**Note:**
- Capacity 100MA
- AM26LS32 or equivalent chip

**Controller**

- **Output voltage range is DC 0-10V, maximum output power supply is 3mA.**

**Servo driver**

- **Emergency Stop**
- **Servo EN**
- **Zero-speed clamp**
- **Gain switching**
- **Torque limit selection**
- **Control mode switching**
- **Alarm clear**

**CN1**

- **Servo EN**
- **Zero-speed clamp**
- **Gain switching**
- **Alarm clear**

**CN2**

- **Servo EN**
- **Zero-speed clamp**
- **Gain switching**
- **Alarm clear**

**CN3**

- **Gain switching**
- **Control mode switching**
- **Alarm clear**

**Note:**
- This is shielded twisted pair cable.
- This is power supply, to be prepared by the user.