# KA50 Series (0.9 degree/step)

## High-resolution Motors

### Standard Specifications

#### UNIPOLAR

<table>
<thead>
<tr>
<th>Model</th>
<th>Step angle</th>
<th>Voltage V/O</th>
<th>Current A/O</th>
<th>Resistance Ω/Ω</th>
<th>Inductance mH/Ω</th>
<th>Holding torque mN-m</th>
<th>Detent torque mN-m</th>
<th>Rotor inertia oz-in²</th>
</tr>
</thead>
<tbody>
<tr>
<td>KA50HM1-501</td>
<td>0.9</td>
<td>2.12</td>
<td>2.0</td>
<td>1.06</td>
<td>1.15</td>
<td>185</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>KA50HM1-502</td>
<td></td>
<td>4.20</td>
<td>1.0</td>
<td>4.20</td>
<td>4.40</td>
<td>185</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>KA50JM1-501</td>
<td></td>
<td>2.46</td>
<td>2.0</td>
<td>1.23</td>
<td>1.60</td>
<td>304</td>
<td>12</td>
<td>70</td>
</tr>
<tr>
<td>KA50JM1-502</td>
<td></td>
<td>5.00</td>
<td>1.0</td>
<td>5.00</td>
<td>6.90</td>
<td>304</td>
<td>12</td>
<td>70</td>
</tr>
<tr>
<td>KA50KM1-501</td>
<td></td>
<td>3.32</td>
<td>2.0</td>
<td>1.66</td>
<td>2.10</td>
<td>403</td>
<td>18</td>
<td>100</td>
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<tr>
<td>KA50KM1-502</td>
<td></td>
<td>6.70</td>
<td>1.0</td>
<td>6.70</td>
<td>8.60</td>
<td>403</td>
<td>18</td>
<td>100</td>
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</tr>
</thead>
<tbody>
<tr>
<td>KA50HM1-551</td>
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<td>1.66</td>
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<td>215</td>
<td>10</td>
<td>50</td>
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<tr>
<td>KA50HM1-552</td>
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<td>3.20</td>
<td>1.0</td>
<td>3.20</td>
<td>6.60</td>
<td>215</td>
<td>10</td>
<td>50</td>
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<td>2.0</td>
<td>3.80</td>
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<td>70</td>
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<tr>
<td>KA50KM1-551</td>
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<td>2.60</td>
<td>2.0</td>
<td>1.30</td>
<td>3.10</td>
<td>458</td>
<td>18</td>
<td>100</td>
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<tr>
<td>KA50KM1-552</td>
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<td>5.10</td>
<td>1.0</td>
<td>5.10</td>
<td>11.00</td>
<td>458</td>
<td>18</td>
<td>100</td>
</tr>
</tbody>
</table>

### Outline

Unit = mm (inch)

### Connection Diagrams

#### Rotational direction

**UNIPOLAR**

- **PHASE (A)**: 55381 PIN No. 4
- **PHASE (B)**: 55381 PIN No. 6

**CCW viewed from rotor shaft when using the following sequence diagram:**

**EXCITING SEQUENCE**

<table>
<thead>
<tr>
<th>PHASE (A)</th>
<th>PHASE (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>

#### BIPOLAR

- **PHASE (A)**: 55381 PIN No. 4
- **PHASE (B)**: 55381 PIN No. 6

**CCW viewed from rotor shaft when using the following sequence diagram:**

**EXCITING SEQUENCE**

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</tr>
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<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

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**Dynetics**

**Dynamic in Mechatronics**

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**Accessories: Lead assy**

**UNIPOLAR**

- Housing: 51004-1100(molex) Contact: 59333-4000(molex)
- Model: KA50HM1 Length 35 1.38 230 0.5
- Model: KA50JM1 Length 40 1.57 300 0.7
- Model: KA50KM1 Length 50 1.97 420 0.9

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**Lead: UL3266 AWG22**

**Contact: 59333-4000(molex)**

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**Contact: 59333-4000(molex)**

---

**Lead: UL3266 AWG22**
Pulse-Torque Curve

UNIPOLAR

KA50HM1-501

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 2.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50JM1-501

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 2.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50KM1-501

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 2.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50HM1-502

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 1.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50JM1-502

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 1.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50KM1-502

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 1.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

BIPOLAR

KA50HM1-551

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 2.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50JM1-551

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 2.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50KM1-551

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 2.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50HM1-552

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 1.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50JM1-552

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 1.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]

KA50KM1-552

DRIVER: Constant-current driver
Vdc: 24 [V]
CURRENT: 1.0 [A/Phase]
EXCITING MODE: 2Phase
INERTIAL: 40 [g cm²]