Brushless DC Motors with Integral Drive
KinetiMax 24 EB Series

24 mm diameter, 6 mNm max. torque, up to 2.7 W output power

The KinetiMax 24 EB is an extremely compact brushless DC motor with integrated drive electronics. This motor is an outer-rotor motor with a robust bearing system capable of handling high side loads.

The KinetiMax 24 EB employs an external rotor and iron core stator to maximize torque production.

High quality components ensure a minimum operating life of 20,000 hours. The KinetiMax 24 EB is a good choice for many types of small pumps, laser scanners, small high performance fans, blowers and medical equipment.

Options & Accessories

• Customized shaft
• Customized mounting flange
• Custom leads and connector configurations
• Special winding configurations
• Gearbox

Features & Benefits

• Outer-rotor, precision 24 mm diameter brushless DC motors with integrated drive electronics
• Rated up to 2.7W power output at 4300 RPM nominal speed
• 6, 12 or 24 VDC winding choice
• 2-wire version is as simple to control as a DC motor, needing only a DC voltage to operate
• Protection against voltage reversal
• Low EMI – complies with EN 55014-1/2, 61000-6-1/3
• IP30 level protection sealing
• 5-wire speed control version
• Integrated electronics with control input
• Tachometer output (18 pulses per rev) for speed monitoring
• Input to enable direction reversal

QuickShip Products

Some of the part number configurations for this product are in stock and available for immediate delivery!

Look for the QuickShip symbol next to available part numbers. Then, click on the part number to go directly to our online store.
## KinetiMax 24 EB – Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Model</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-wire CW Rotation</td>
<td>KMX-01621492</td>
<td>KMX-01621512</td>
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<tr>
<td>2-Wire CCW Rotation</td>
<td>KMX-01621502</td>
<td>KMX-01621522</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Voltage VDC</th>
<th>Nominal</th>
<th>Range$^1$</th>
<th>Rated</th>
<th>Max</th>
<th>Rated</th>
<th>Max</th>
<th>Rated</th>
<th>Max</th>
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<tbody>
<tr>
<td></td>
<td>6</td>
<td>5.5 – 9</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Rated Output Power</td>
<td>W</td>
<td>2.2</td>
<td>2.7</td>
<td>2.7</td>
<td>2.7</td>
<td>2.7</td>
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<tr>
<td>Torque mNm (oz.in.)</td>
<td>Rated</td>
<td>5 (0.70)</td>
<td>6 (0.85)</td>
<td>6 (0.85)</td>
<td>7 (0.99)</td>
<td>9 (1.27)</td>
<td>9 (1.27)</td>
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<tr>
<td></td>
<td>Max</td>
<td>7.6 (1.07)</td>
<td>15.7 (2.16)</td>
<td>31.4 (4.45)</td>
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<tr>
<td>Torque Constant mNm/A (oz.in./A)</td>
<td>7.6 (1.07)</td>
<td>15.7 (2.16)</td>
<td>31.4 (4.45)</td>
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<tr>
<td>Speed RPM</td>
<td>Rated</td>
<td>4200</td>
<td>4250</td>
<td>4300</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>No-load</td>
<td>7150</td>
<td>7050</td>
<td>7070</td>
<td></td>
<td></td>
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<tr>
<td>Current mA</td>
<td>Rated</td>
<td>750</td>
<td>445</td>
<td>230</td>
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<td></td>
<td>Max</td>
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<td>630</td>
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<td>No-load</td>
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<td>40</td>
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<tr>
<td>Rotor Inertia kgm$^2$ (oz.in.s$^2$)</td>
<td>0.77 E-6 (1.09 E-4)</td>
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<td>Mechanical Time Constant ms</td>
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<td>35</td>
<td>35</td>
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<tr>
<td>Thermal Resistance $^°$C/W Housing-Ambient</td>
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<tr>
<td>Weight g (oz)</td>
<td>30 (1.06)</td>
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<td>Protection Level</td>
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<tr>
<td>Control Input$^2$ V</td>
<td>Range</td>
<td>0 - 5</td>
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<tr>
<td>Direction Input V</td>
<td>CW</td>
<td>High ≥3.5</td>
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<tr>
<td></td>
<td>CCW</td>
<td>Low ≤1.5</td>
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<td>Speed Output Signal PPR</td>
<td>18</td>
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<tr>
<td>Operating Temperature Range $^°$C ($^°$F)</td>
<td>0 – 90 (32 – 194)</td>
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<tr>
<td>Thermal Limit Protection $^°$C</td>
<td>N/A (Maintain maximum motor housing temperature ≤ 90 °C)</td>
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</tbody>
</table>

1. Power supply provided with appropriate 68 μF buffer capacitor between supply voltage and common to comply with EN 55014-1/2
2. Applicable for 5 wire versions only

Values valid for nominal voltage and Tamb = 22 $^°$C

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www.alliedmotion.com
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KinetiMax 24 EB – Performance

6V (7150 RPM)

12V (7050 RPM)

24V (7070 RPM)

Speed (RPM)

Current (mA)

Torque (mNm)

Open Loop

Current @ Rated Voltage

V_{Ctrl} = 2V

V_{Ctrl} = 3V

V_{Ctrl} = 4V

Continuous Operation

Short Term or Extra Cooling
**KinetiMax 24 EB – I/O Schematics**

**Direction Input**

\[\text{CW/CCW} \bullet 10K\]

\[\text{CW} \geq 3.5V \quad \text{CCW} \leq 1.5V\]

**Control Input**

\[\text{Vin} \bullet 2K2\]

\[10n\]

**Speed Output**

\[\text{IC} \quad 10K \bullet \text{FG}\]

\[470p\]

**Speed Output Signal**

\[\text{tL} = \text{tH}\]

**EMC**

To meet EMC directive EN 55014, the power supply must be provided with a capacitor 68 µf, 35V at the output:

\[\begin{align*}
12V \\
24V \\
68 \mu F \\
100 nF \\
50V \\
\text{(in motor)}
\end{align*}\]
KinetiMax 24 EB Dimensions — mm (in)

- CCW CW
- Brown Fw/Rv
- Green Tach
- Red +Vs
- Blue Gnd
- White VCtrl

M2 (3x@120°)
Screw insertion depth 3.5 (0.138) max

17 Pitch
Ø24.0 (0.95)
250 (9.8)
4.0 (0.16)
20 (0.79)
1.4 (0.06)
26.3 (1.04)
2.0 (0.08)
1.0 (0.04)
0.6 (0.02)
0.16 (0.06)
10.0 (0.39)
Ø10.0 (0.12)
Ø3.0 (0.12)
10.0 (0.39)
Custom & Specific-Purpose Products & Sub-Assemblies

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- Detailed product information and documentation
- Standard product selection
- Product customization and options guidance
- Specification development assistance for custom-design products
- Price quotations
- Ordering, order status and shipment information
- Logistics assistance

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