Brushless DC Motors with Integral Speed Drive
KinetiMax 68 EB Series

68 mm diameter, up to 170 mNm cont. torque, up to 50 W output power

The KinetiMax 68 EB series of brushless DC motors with integrated drive electronics are compact yet powerful outer-rotor motors. The external rotor and iron core stator minimize cogging and maximize output torque. The KinetiMax 68 motors are designed with a bearing system capable of handling high side loads.

High quality components ensure the KinetiMax 68 motor life exceeds 20,000 hours. The output torque range of this family has a maximum of 170 mNm, and the speed range extends to 6000 RPM.

Typical applications for the KinetiMax 68 include many types of gear pumps and peristaltic pumps, high-end fans and blowers, and laboratory equipment.

Features & Benefits
- Outer-rotor precision 68 mm dia. brushless DC motor with integrated drive electronics
- Models rated at 35 and 50 W output power, rated torque up to 170 mNm, no-load speed up to 6000 RPM
- Adjustable speed and direction selection
- Thermal overload protection with automatic recovery
- Low EMI – complies with EN 55014-1/2, EN 61000-6-1/3
- Standard IP43 protection level
- Model 01658033 includes integral electrical brake

Options & Accessories
- Special shaft diameter and machining
- Customized mounting flange
- Custom leads and connector configurations
- Special winding configurations
- Provisions for gearbox mounting
- IP 55 rating
- PWM or frequency speed set in place of analog input

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 68 EB – Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>KMX-01658041</th>
<th>KMX-01658033</th>
<th>KMX-01658013</th>
<th>KMX-01658023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>49.1 (1.93)</td>
<td>62.1 (2.44)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage VDC</td>
<td>Nominal 24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range¹</td>
<td>14 – 30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated Output Power</td>
<td>W 35</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torque mNm (oz.in.)</td>
<td>Rated 70 (9.9)</td>
<td>110 (15.6)</td>
<td>170 (24.0)</td>
<td>170 (24.0)</td>
</tr>
<tr>
<td>Max 90 (12.7)</td>
<td>150 (21.2)</td>
<td>120 (17.0)</td>
<td>180 (25.5)</td>
<td>180 (25.5)</td>
</tr>
<tr>
<td>Speed RPM</td>
<td>Rated 3650</td>
<td>2500</td>
<td>3750</td>
<td>2400</td>
</tr>
<tr>
<td>No-load</td>
<td>6000</td>
<td>4330</td>
<td>6000</td>
<td>3650</td>
</tr>
<tr>
<td>Current A</td>
<td>Rated – A 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max – A</td>
<td>2.3</td>
<td>3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No-load – mA</td>
<td>215</td>
<td>180</td>
<td>260</td>
<td>265</td>
</tr>
<tr>
<td>Rotor Inertia kgm² (oz.in.s²)</td>
<td>0.75 E-4 (0.0106)</td>
<td>1.2 E-4 (0.017)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Time Constant ms</td>
<td>30</td>
<td>40</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Thermal Resistance Housing-Ambient °C/W</td>
<td>4.2</td>
<td>3.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight g (oz)</td>
<td>450 (15.9)</td>
<td>550 (19.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection Level</td>
<td>IP43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gearbox (option)</td>
<td>On request</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed-Voltage Input Ratio RPM/V</td>
<td>1000</td>
<td>1100</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>Set Point</td>
<td>0 - 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed Input V</td>
<td>Threshold 0.25</td>
<td>N/A</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Brake Active</td>
<td>N/A</td>
<td>0 to 0.4</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Motor Disable</td>
<td>N/A</td>
<td>0.4 to 0.7</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Direction Input V</td>
<td>CCW &lt; 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CW &gt; 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Speed Output Signal PPR</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Time μsec</td>
<td>168</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range °C (°F)</td>
<td>0 – 70 (32 – 158)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Limit Protection °C</td>
<td>90 (194) flange temp. / 80 (176) restart</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Values valid for nominal voltage and Tamb = 22 °C

¹ Power supply provided with appropriate 1000 μF buffer capacitor between supply voltage and common to comply with EN 55014-1/2. (See additional EMC information on page 4.)

² Motor temperature measured at aluminum bearing support.
KinetiMax 68 EB – Performance

KMX016S8041

- Assigned Power Rating
- Open Loop Speed*
- Open Loop Current*
- VIN = 4.0V
- VIN = 3.0V
- VIN = 2.0V
- VIN = 1.0V
- Continuous Operation**
- Short Term or Extra Cooling

* @ Rated Voltage
** Tamb = 22°C

KMX016S8033

KMX016S8013

KMX016S8023

8.6 kHz (36%)
5.7 kHz (24%)
5.7 kHz (24%)
KinetiMax 68 EB – I/O Schematics

**Speed Input**

- (+V)
- 10K
- 22K
- 47K
- 56K
- 100n

**Direction Input**

- CW/CCW
- 470p
- 1K

**Speed Output**

- (+V)
- 3K9
- HEF...

**Speed Output Signal**

- tL = 168µs

**EMC**

To meet EMC directive EN 55014, the power supply must be provided with a capacitor 1000µf, 35V at the output:

**KinetiMax 68 EB – Electrical Connections**

<table>
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<tr>
<th>Version</th>
<th>Description</th>
<th>Wire Color (AWG 24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 S-Wire</td>
<td>Supply voltage (+24V)</td>
<td>Red</td>
</tr>
<tr>
<td>2</td>
<td>Ground</td>
<td>Black</td>
</tr>
<tr>
<td>3</td>
<td>Speed control (V_{in}) 0 – 5V (1V/1000 RPM)</td>
<td>White</td>
</tr>
<tr>
<td>4</td>
<td>Speed output (FG) 36 pulses/rev tacho</td>
<td>Green</td>
</tr>
<tr>
<td>5</td>
<td>Direction input (Fw/Rv) CCW/CW</td>
<td>Brown</td>
</tr>
<tr>
<td>6</td>
<td>Shield/ground to motor housing</td>
<td>—</td>
</tr>
</tbody>
</table>
KinetiMax 68 EB Dimensions — mm (in)

Leadwires (twisted, not tinned)

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