

## ***MJK, Inc.***

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### **Kinetimax BL32 EB 2 Wire**

| Part Numbers   | Voltage | Direction | Speed | Watt | kmx32 data_mjk 250816.pdf |
|----------------|---------|-----------|-------|------|---------------------------|
| 4322 016 30421 | 12      | CW        | 4600  | 12   |                           |
| 4322 016 30422 | 12      | CCW       | 4600  | 12   |                           |
| 4322 016 30423 | 24      | CW        | 6000  | 16   |                           |
| 4322 016 30424 | 24      | CCW       | 6000  | 16   |                           |

### **Kinetimax BL32 EB 4 Wire**

| Part Numbers   | Voltage | Direction | Speed | Watt | kmx32 data_mjk 250816.pdf |
|----------------|---------|-----------|-------|------|---------------------------|
| 4322 016 30425 | 12      | CW        | 4600  | 12   |                           |
| 4322 016 30426 | 12      | CCW       | 4600  | 12   |                           |
| 4322 016 30427 | 24      | CW        | 6000  | 16   |                           |
| 4322 016 30428 | 24      | CCW       | 6000  | 16   |                           |

### **Kinetimax BL32 EB 5 Wire**

| Part Numbers   | Voltage | Direction | Speed | Watt | kmx32 data_mjk 250816.pdf |
|----------------|---------|-----------|-------|------|---------------------------|
| 4322 016 30429 | 12      | REV       | 4600  | 12   |                           |
| 4322 016 30430 | 24      | REV       | 6000  | 16   |                           |

### **Kinetimax BL32 EB 2 Wire Double Shaft**

| Part Numbers   | Voltage | Direction | Speed | Watt | kmx32 data_mjk 250816.pdf |
|----------------|---------|-----------|-------|------|---------------------------|
| 4322 016 30431 | 12      | CW        | 4600  | 12   |                           |
| 4322 016 30432 | 12      | CCW       | 4600  | 12   |                           |
| 4322 016 30433 | 24      | CW        | 6000  | 16   |                           |
| 4322 016 30434 | 24      | CCW       | 6000  | 16   |                           |

### **Kinetimax BL32 EB 2 Wire Double Shaft**

| Part Numbers   | Voltage | Direction | Speed | Watt | kmx32 data_mjk 250816.pdf |
|----------------|---------|-----------|-------|------|---------------------------|
| 4322 016 30435 | 12      | CW        | 4600  | 12   |                           |
| 4322 016 30436 | 12      | CCW       | 4600  | 12   |                           |
| 4322 016 30437 | 24      | CW        | 6000  | 16   |                           |
| 4322 016 30438 | 24      | CCW       | 6000  | 16   |                           |

Specification file; kmx32 data\_mjk250816.pdf

# Brushless DC Motors with Integral Drive

## KinetiMax 32 EB Series

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*32 mm diameter, 32 mNm max. torque, up to 16 W output power  
single or dual shaft configurations*

The KinetiMax 32 EB is an extremely compact brushless DC motor with integrated drive electronics. The outer-rotor design features a robust bearing system capable of handling high side loads. Models are available with 12 or 24 VDC windings, with either single or dual output shafts, for either clockwise or counterclockwise rotation. The series is offered in 2-wire and multi-wire versions for speed monitoring and direction control.

High quality components ensure a minimum operating life of 20,000 hours. The continuous output torque of 32 mNm at a constant speed of 4750 RPM makes this motor ideal for small membrane and peristaltic pumps, laser scanners, blower-fan and medical applications.

### Options & Accessories

- Customized shaft
- Customized mounting flange
- Custom leads and connector configurations
- Special winding configurations
- Encoder and/or gearbox



### Features & Benefits

- Small precision 32 mm dia., outer rotor, brushless DC motor with integrated drive
- Rated 32 mNm (4.5 oz-in) and 16 W output at 4750 RPM
- 12 or 24 VDC winding choice
- Integrated speed control loop with a speed set input to adjust motor speed from 200 to 6000 RPM (32 EB) or 250 to 6000 (32 EB DS)
- Two-wire version is as simple to control as a DC motor, needing only a DC voltage to operate
- Four-wire version with tachometer output (18 pulses per rev) for speed monitoring
- Five-wire version with tachometer output (18 pulses per rev) for speed monitoring and direction input
- IP54 level protection sealing
- Thermal overload protection with automatic recovery
- Reverse supply voltage protection
- Low EMI – complies with EN 55014-1/2, 61000-6-1/3

## KinetiMax 32 EB – Specifications

|                                     |                                          |           | 2-Wire                                    |                | 4-Wire                  |              | 5-Wire         |                |
|-------------------------------------|------------------------------------------|-----------|-------------------------------------------|----------------|-------------------------|--------------|----------------|----------------|
| Single Shaft Models                 | CW Rotation                              |           | 4322 016 30421                            | 4322 016 30423 | KMX-01630425            | KMX-01630427 | 4322 016 30429 | 4322 016 30430 |
|                                     | CCW Rotation                             |           | 4322 016 30422                            | 4322 016 30424 | KMX-01630426            | KMX-01630428 |                |                |
| Double Shaft Models                 | CW Rotation                              |           | 4322 016 30431                            | 4322 016 30433 | KMX-01630435            | KMX-01630437 | —              | —              |
|                                     | CCW Rotation                             |           | 4322 016 30432                            | 4322 016 30434 | KMX-01630436            | KMX-01630438 | —              | —              |
| Voltage VDC                         | Nominal                                  |           | 12                                        | 24             | 12                      | 24           | 12             | 24             |
|                                     | Range <sup>1</sup>                       |           | 10 - 18                                   | 10 - 28        | 10 - 18                 | 10 – 28      | 10 - 18        | 10 – 28        |
| Rated Output Power                  | W                                        |           | 12                                        | 16             | 12                      | 16           | 12             | 16             |
| Torque mNm (oz.in.)                 | Rated                                    |           | 32 (4.67)                                 |                |                         |              |                |                |
|                                     | Max                                      |           | 40 (5.66)                                 | 50 (7.08)      | 40 (5.66)               | 50 (7.08)    | 40 (5.66)      | 50 (7.08)      |
| Torque Constant <sup>2</sup>        | mNm/A (oz.in./A)                         |           | 26 (3.68)                                 | 41 (5.81)      | N/A                     | N/A          | N/A            | N/A            |
| Speed RPM                           | Rated                                    |           | 3450                                      | 4750           | 3450                    | 4750         | 3450           | 4750           |
|                                     | No-load                                  |           | 4600                                      | 6000           | 4600                    | 6000         | 4600           | 6000           |
| Current mA                          | Max                                      | Rated     | 1420                                      | 920            | 1420                    | 920          | 1420           | 920            |
|                                     |                                          | Sgl Shaft | 1600                                      | 1300           | 1600                    | 1300         | 1600           | 1300           |
|                                     |                                          | Dbl Shaft | 1660                                      | 1300           | 1660                    | 1300         | —              | —              |
|                                     | No-load                                  | Sgl Shaft | 160                                       | 130            | 160                     | 130          | 160            | 130            |
|                                     |                                          | Dbl Shaft | 170                                       | 140            | 170                     | 140          | —              | —              |
|                                     |                                          |           |                                           |                |                         |              |                |                |
| Rotor Inertia                       | kgm <sup>2</sup> (oz.in.s <sup>2</sup> ) |           | 4.7 E-6 (7 E-4)                           |                |                         |              |                |                |
| Mechanical Time Constant            | ms                                       |           | 12                                        | 9              | 12                      | 9            | 12             | 9              |
| Thermal Resistance °C/W             | Housing-Ambient                          |           | 13                                        |                |                         |              |                |                |
| Weight g (oz)                       |                                          |           | Single Shaft: 113 (4.0)                   |                | Double Shaft: 125 (4.4) |              | 113 (4.0)      |                |
| Protection Level                    |                                          |           | IP54                                      |                |                         |              |                |                |
| Speed Command                       | Ratio <sup>3</sup>                       | RPM/V     | N/A                                       |                | 1000                    |              | 1000           |                |
|                                     | Range <sup>3,4</sup>                     | V         | N/A                                       |                | 0 - 7                   |              | 0 - 7          |                |
|                                     | Threshold <sup>3</sup>                   | V         | N/A                                       |                | 0.2                     |              | 0.2            |                |
| Speed Output Signal <sup>3</sup>    | PPR                                      |           | N/A                                       |                | 18                      |              | 18             |                |
|                                     | Low Time                                 | µsec      | N/A                                       |                | 18                      |              | 18             |                |
| Operating Temperature Range °C (°F) |                                          |           | 0 – 90 (32 – 194)                         |                |                         |              |                |                |
| Thermal Limit Protection °C (°F)    |                                          |           | 90 (194 ) flange temp. / 80 (176) restart |                |                         |              |                |                |

Values valid for nominal voltage and Tamb = 22°C

<sup>1</sup> Power supply provided with appropriate 1000 µF buffer capacitor between supply voltage and common to comply with EN 55014-1/2; protection against wrong connection up to ±28 volt

<sup>2</sup> Applicable for 2 wire version only

<sup>3</sup> Applicable for 4 wire version only

<sup>4</sup> Also PWM input signal possible (applicable for 5 wire versions only), advised PWM carrier frequency range 6 to 20 kHz.

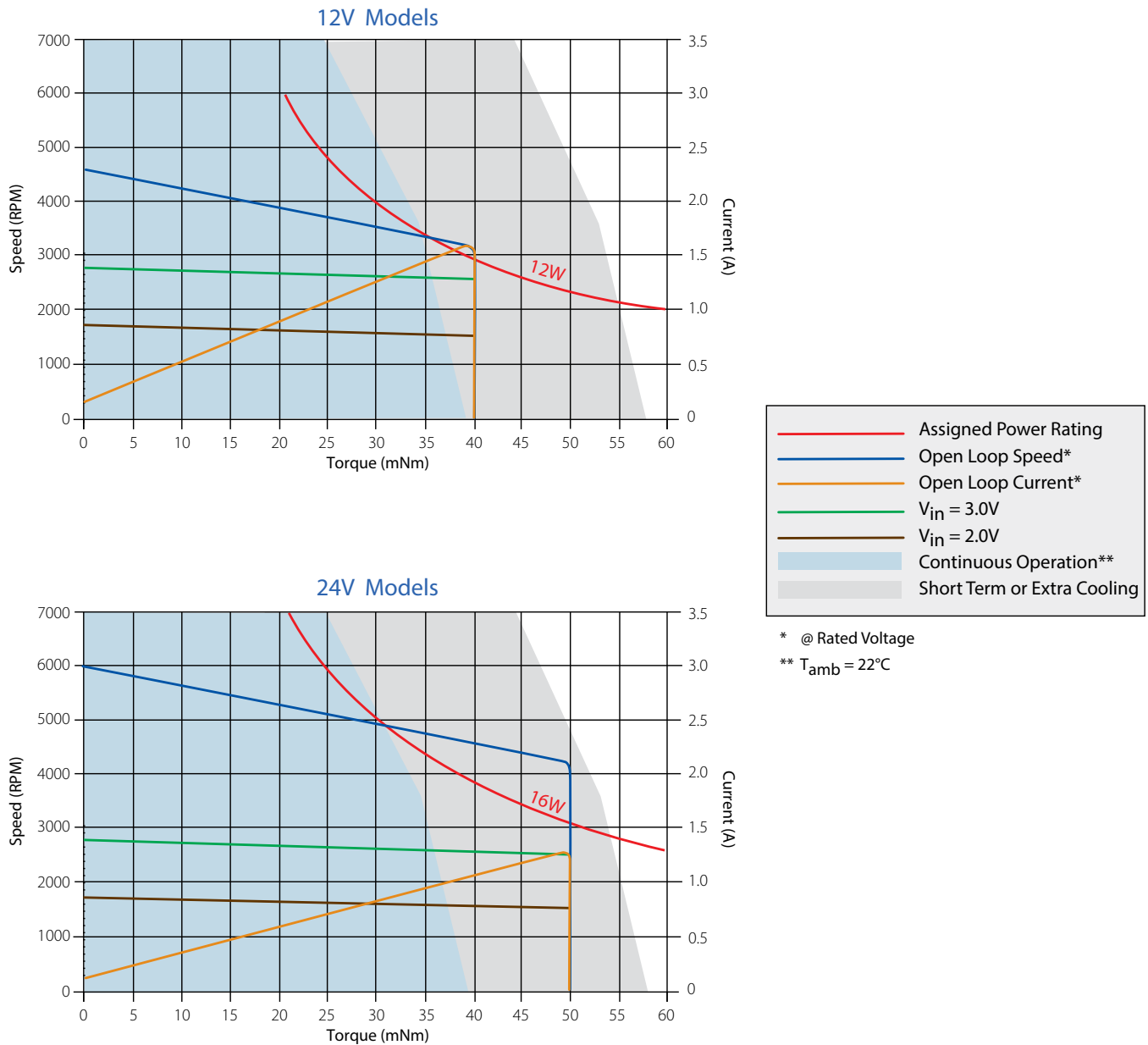
$V_{in} = \text{PWM amplitude} \times \text{PWM duty cycle}$

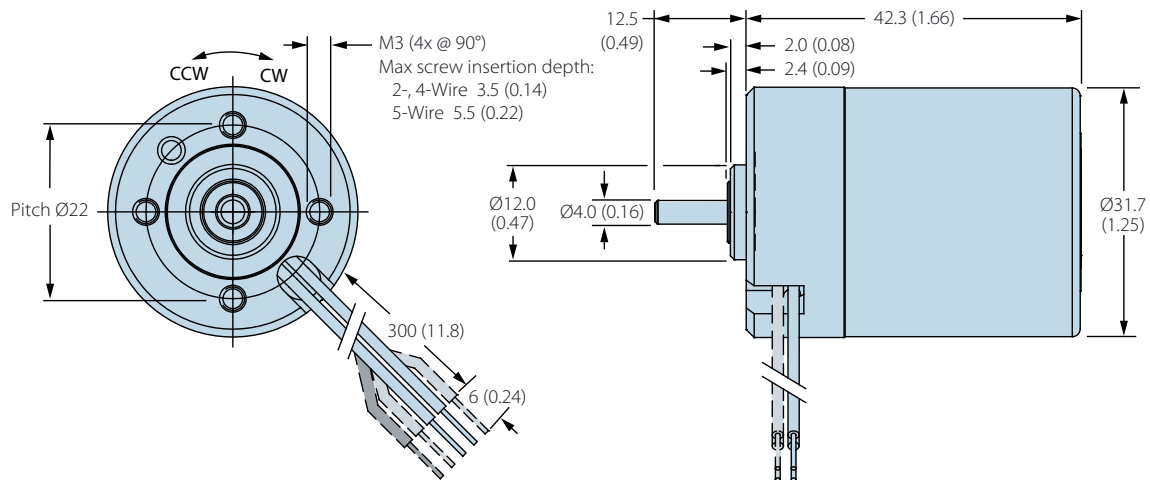
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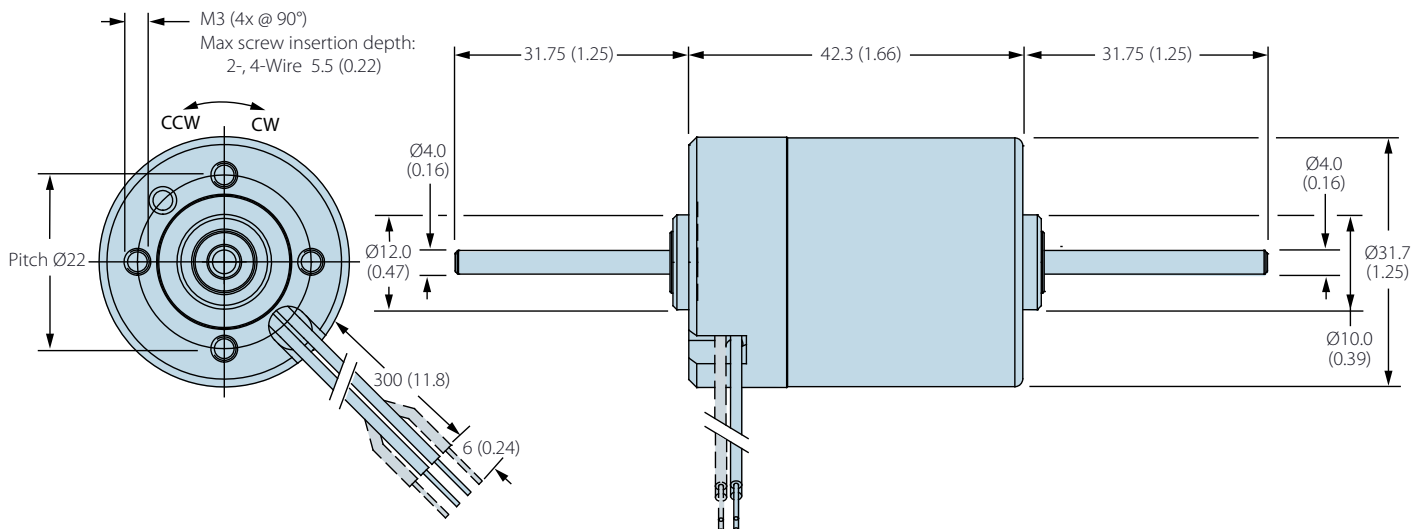
Email [mjk2inc@snet.net](mailto:mjk2inc@snet.net)

**KinetiMax 32 EB – Performance**

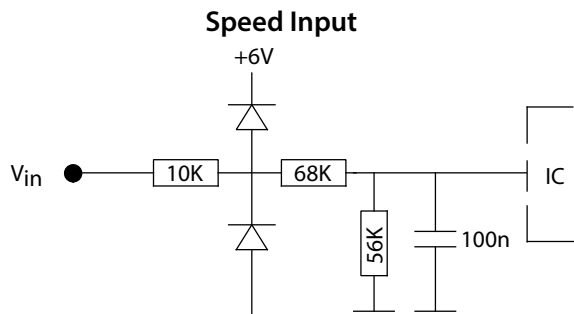


**KinetiMax 32 EB – Dimensions — mm (in)****Single shaft models (2-, 4-, 5-Wire)****Double shaft models (2-, 4-Wire)**

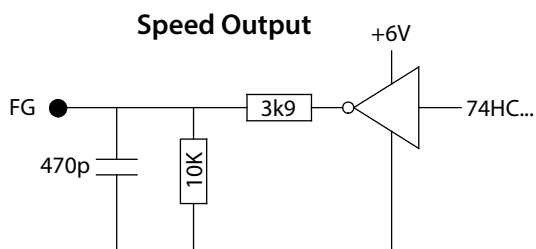
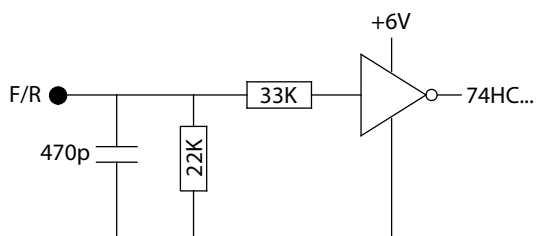
Mounting hole location and size  
identical both ends of motor



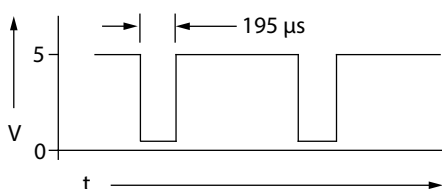
## KinetiMax 32 EB – I/O Schematics



### Direction Input (5-Wire Versions Only)

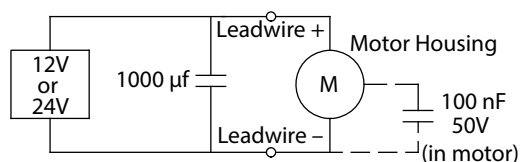


### Speed Output Signal



### EMC

To meet EMC directive EN 55014, the power supply must be provided with a capacitor 470μF, 35V at the output:



## MJK, Inc.

## KinetiMax 32 EB – Electrical Connections

| Version           | Description                      | Wire Color (AWG 24) |
|-------------------|----------------------------------|---------------------|
| 2-Wire (CW & CCW) | Supply Voltage                   | Red                 |
|                   | Ground                           | Black               |
| 4-Wire            | Supply Voltage                   | Red                 |
|                   | Ground                           | Black               |
|                   | Speed Control Input ( $V_{in}$ ) | White               |
|                   | Tachometer Output (FG)           | Green               |
| 5-Wire            | Supply Voltage                   | Red                 |
|                   | Ground                           | Black               |
|                   | Speed Control Input ( $V_{in}$ ) | White               |
|                   | Tachometer Output (FG)           | Green               |
|                   | Direction Input (F/R)            | Brown               |

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