## KinetiMax 54 EB Brushless DC Motors with Integral Speed Drive

*54 mm diameter, 30/40 mNm cont. torque, up to 16 W output power*

The **KinetiMax 54 EB** brushless DC motor with integrated speed control drive is an outer rotor motor with a robust bearing system designed to handle high side loads. Two stack height models are available, 30 and 37 mm, with 30 and 40 mNm continuous torque rating, respectively.

High quality components ensure a minimum operating life of 20,000 hours. The outer rotor concept combined with the integrated drive makes this motor ideal for small membrane or peristaltic pumps, high performance fans and blowers, and various medical devices.

### Features & Benefits

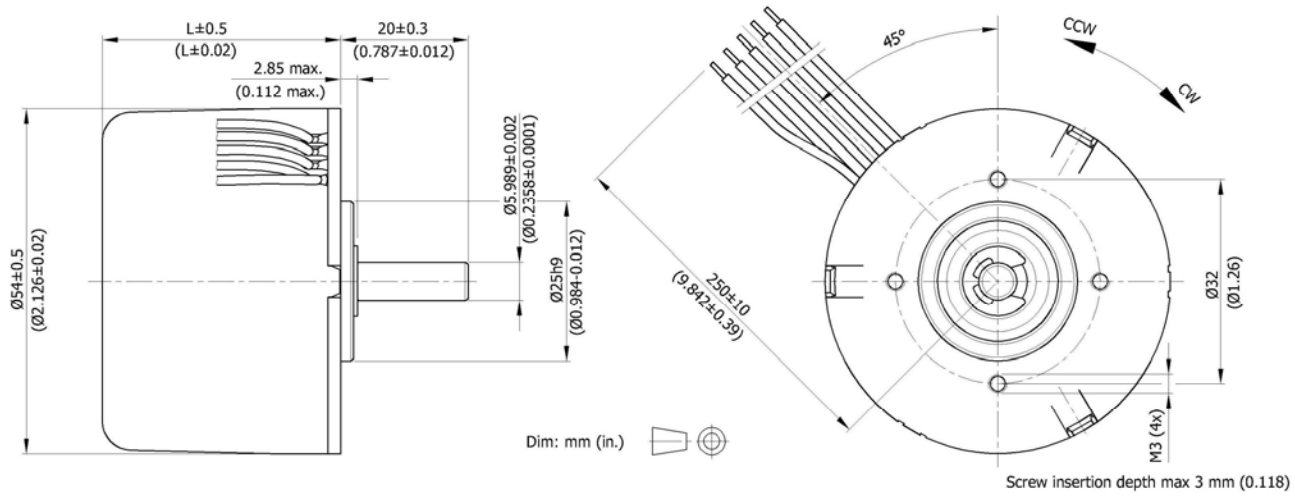
- Integrated speed control loop with a speed set input to adjust motor speed from 300 to 4000 RPM
- Thermal overload protection with automatic recovery
- Rotation direction input (CW/CCW)
- Speed output for speed sensing (36 pulses per rev)
- Reverse supply voltage protection
- Low EMI – complies with EN 55014-1/2, 61000-6-1/3

### Options

- Custom shaft design
- Custom mounting interface
- Custom leads and/or connector
- IP 54 protection rating
- 500 V isolation capability
- Planetary or spur gearbox on request
- PWM input combined with integrated speed loop, resulting in a speed range from 100 to 4000 RPM.

- 54 mm dia., outer rotor, brushless DC motor with integrated drive and robust bearing system
- Up to 40 mNm rated torque and 16 W rated output power
- 12 or 24 VDC winding selection

### DIMENSIONS




Shaft max. radial load 10 mm from front mount: 40 N

| Wire Connection | Color | Size |
|---|---|---|
| Supply Voltage | Red | AWG24 |
| Common (ground) | Blue | AWG24 |
| Speed Input (Vin) | White | AWG24 |
| Speed Output (FG) | Green | AWG24 |
| Direction input (CW/CCW) | Brown | AWG24 |


© Allied Motion Technologies Inc.

# Outer-rotor Brushless DC Motors

## KinetiMax 54 EB Brushless DC Motors with Integral Speed Drive

### SPECIFICATIONS

| Model | KMX- | 01648621 | 01648622 | 01648623 | 01648624 |
|---|---|---|---|---|---|
| Motor length, L | mm (in) | 30.4 (1.20) | | 37.25 (1.47) | |
| Nominal Voltage | V | 12 | 24 | 12 | 24 |
| Voltage Range[1] | V | 10 - 18 | 10 - 28 | 10 - 18 | 10 - 28 |
| Rated Output Power | W | 10 | 12 | 12 | 16 |
| Rated Torque | mNm (oz-in) | 30 (4.25) | | 40 (5.66) | |
| Max. Torque | mNm (oz-in) | 33 (4.67) | 45 (6.37) | 40 (5.66) | 55 (7.79) |
| Rated Speed | RPM | 3200 | 3800 | 2700 | 3900 |
| No-Load Speed | RPM | 5400 | 6200 | 4450 | 6100 |
| Nominal Supply Current | mA | 1450 | 800 | 1600 | 1050 |
| Max. Supply Current | mA | 1600 | 1100 | 1600 | 1300 |
| No-Load Supply Current | mA | 310 | 200 | 300 | 240 |
| Rotor Inertia | kgm$^2$ (oz-in-s$^2$) | 22 E-6 (3.1 E-3) | | 31 E-6 (4.4 E-3) | |
| Mechanical Time Constant | ms | 45 | | | |
| Thermal Resistance Housing-Ambient | °C/W | 8.5 | | 7.5 | |
| Weight | g (oz) | 200 (7.04) | | 250 (8.80) | |
| Protection | - | IP30 | | | |
| Gearbox (option) | - | On request | | | |
| Speed-Voltage Input Ratio | RPM/V | 1000 | | | |
| Speed Input (set point) | V | 0 - 7 | | | |
| Speed Input (threshold) | V | 0.11 | | | |
| Direction Input CCW | V | < 1 | | | |
| Direction Input CW | V | > 4 | | | |
| Speed Output Signal | PPR | 36 | | | |
| Speed Output Signal Low Time | µsec | 90 | | | |
| Operating temperature range | °C (F) | 0 - 90 (32 - 194) | | | |
| Thermal limit Protection[2] | °C (F) | 90 (194) flange temp. / 80 (176) restart | | | |

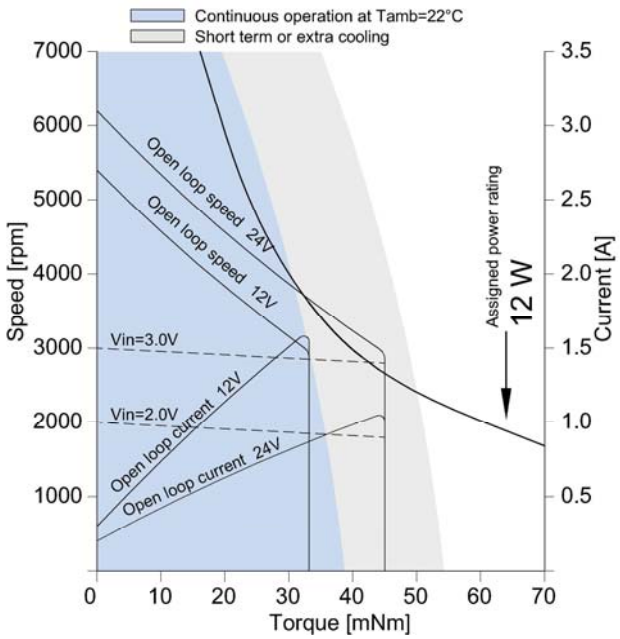
Notes: Values valid for nominal voltage and $T_{amb}$ = 22 ºC

(1) Power supply provided with appropriate 470 µF buffer capacitor between supply voltage and common to comply with EN 55014-1/2

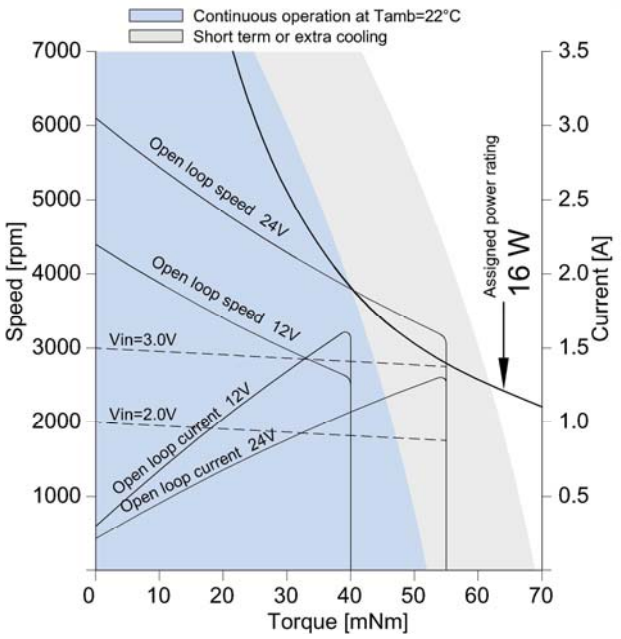
(2) Motor temperature measured at aluminum bearing support

### PERFORMANCE

KMX-01648621 / KMX-01648622




KMX-01648623 / KMX-01648624



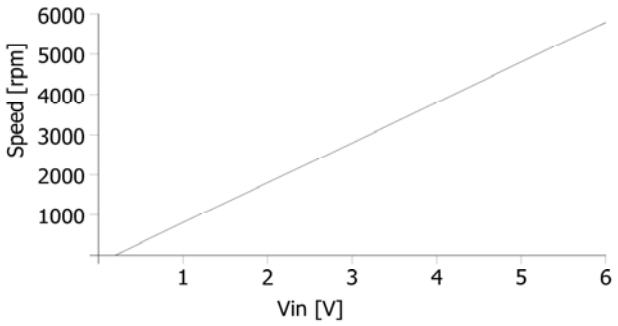



© Allied Motion Technologies Inc.

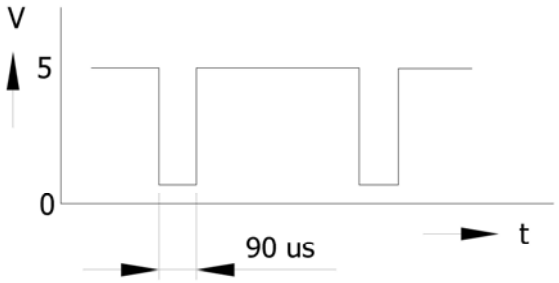
## KinetiMax 54 EB Brushless DC Motors with Integral Speed Drive

### CONNECTION INFORMATION

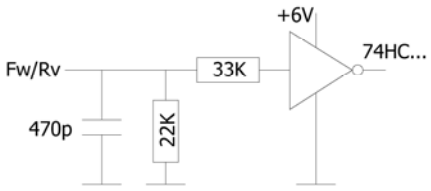
Vin Versus Speed



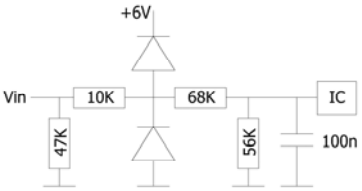

Speed Output Signal



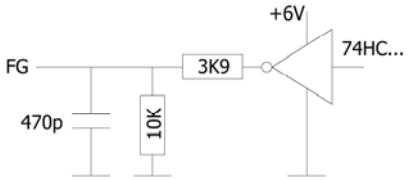

Direction input circuit




Speed input circuit




Speed output circuit





© Allied Motion Technologies Inc.