

# Outer-Rotor Brushless DC Motors

## 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

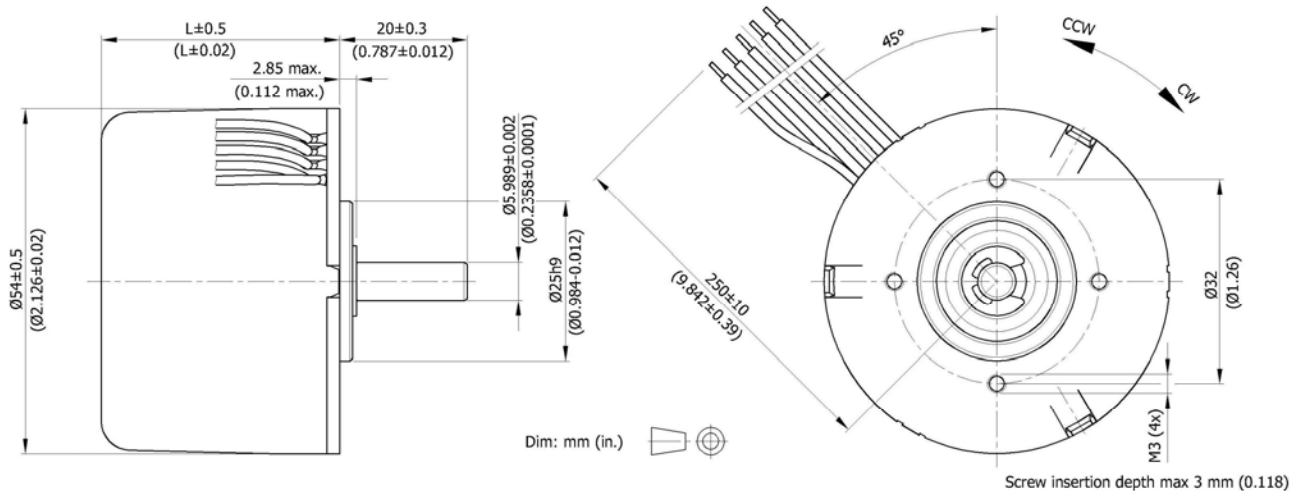
### Options

- 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

# Outer-rotor Brushless DC Motors

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### 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 <sup>1</sup>	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 <sup>2</sup> (oz-in-s <sup>2</sup> )	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 <sup>2</sup>	°C (F)	90 (194) flange temp. / 80 (176) restart			

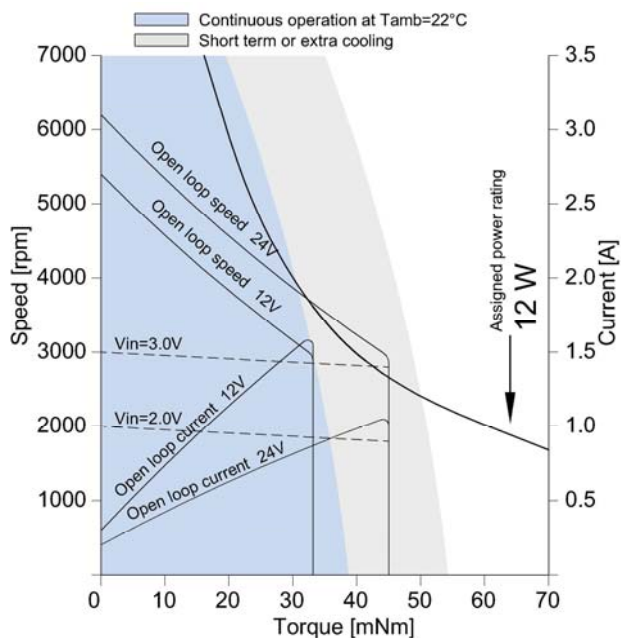
Notes: Values valid for nominal voltage and  $T_{amb} = 22\text{ }^{\circ}\text{C}$

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

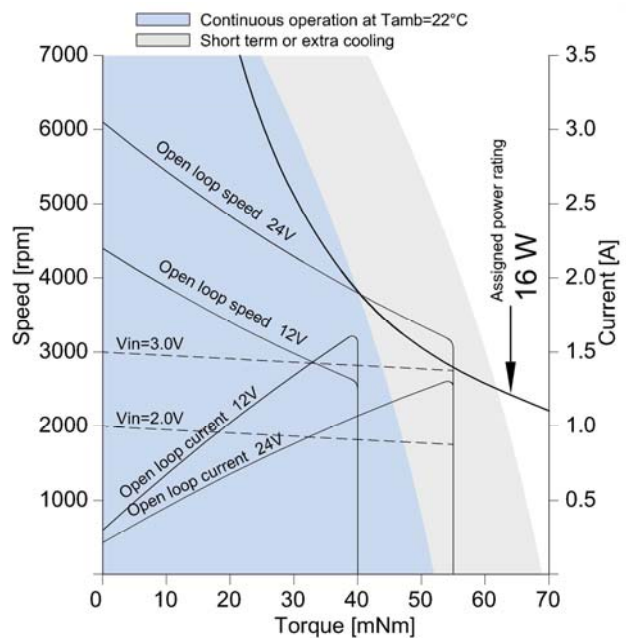
(2) Motor temperature measured at aluminum bearing support

### PERFORMANCE

KMX-01648621 / KMX-01648622



KMX-01648623 / KMX-01648624

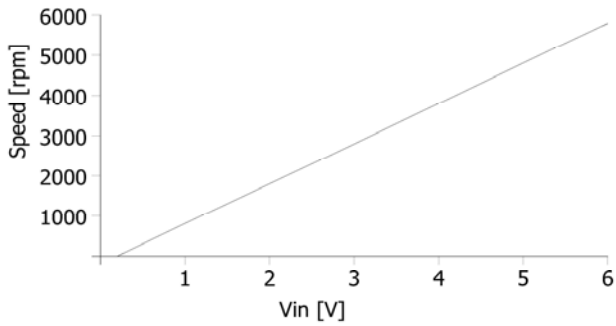


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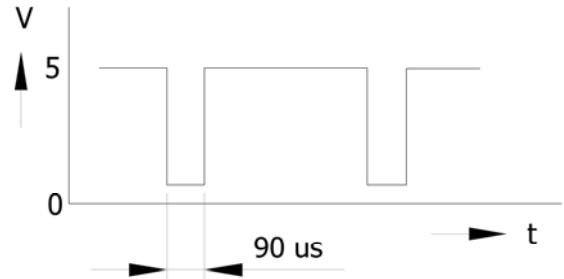
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### CONNECTION INFORMATION

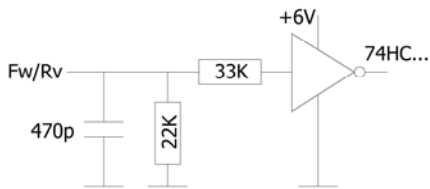
Vin Versus Speed



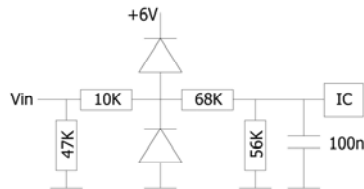
Speed Output Signal



Direction input circuit



Speed input circuit



Speed output circuit

