MJK, Inc.

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Email mjk2inc@snet.net

Kinetimax / BL54 EB Series

BL48 / Kinetimax BL54 EB Series

Part Numbers	Voltage	Direction	Speed	Watt	Specification
4822 016 48003	12	CCW	4550	8	BL48ebseries8-12w.pdf
4322 016 48007	12	CW	4550	8	BL48ebseries8-12w.pdf
4322 016 48013	24	CCW	4550	8	BL48ebseries8-12w.pdf
4322 016 48015	24	CW	4500	8	BL48ebseries8-12w.pdf
4322 016 48017	24	CW	4550	8	BL48ebseries8-12w.pdf
4322 016 48021	12	CCW	4600	12	BL48EB-12W-mjk-21-25-31-35.pdf
4322 016 48023	12	CW	4600	12	BL48ebseries8-12w.pdf
4322 016 48025	12	CW	4600	12	BL48EB-12W-mjk-21-25-31-35.pdf
4322 016 48027	12	CW	4600	12	BL48ebseries8-12w.pdf
4322 016 48031	24	CCW	4600	12	BL48EB-12W-mjk-21-25-31-35.pdf
4322 023 48033	24	CCW	4600	12	BL48ebseries8-12w.pdf
4322 016 48035	24	CW	4600	12	BL48EB-12W-mjk-21-25-31-35.pdf
4322 016 48037	24	CW	CW	12	BL48ebseries8-12w.pdf
4322 016 48621	12	REV	5400	10	kmx54 data_mjk 250816-5.pdf
4322 016 48622	24	REV	6200	12	kmx54 data_mjk 250816-5.pdf
4322 016 48623	12	REV	4450	12	kmx54 data_mjk 250816-5.pdf
4322 016 48624	24	REV	6100	16	kmx54 data_mjk 250816-5.pdf

pdf files associater with Part numbers:
BL48ebseries8-12w.pdf
BL48EB-12W-mjk-21-25-31-35.pdf
kmx54 data_mjk 250816-5.pdf

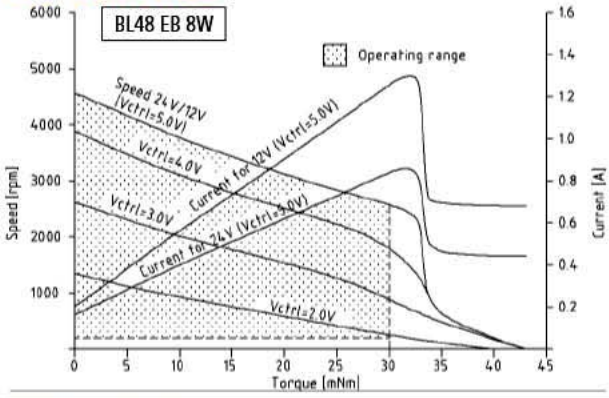
BL48 EB Series 8W and 12W BLDC Motors

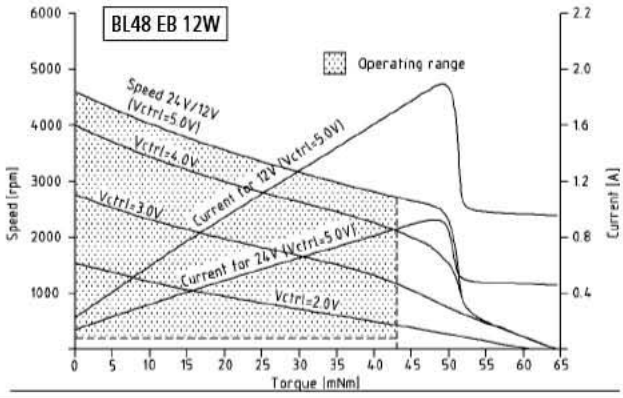
SPECIFICATIONS

Model CW / CCW		4322 016 + / 4322 016 +	48007 / 48003	48017 / 48013	48027 / 48023	48037 / 48033
Housing Length, L	mm		30		36.75	
Nominal Voltage	V		12	24	12	24
Voltage Range	V		10 - 15	14 - 28	10 - 15	14 - 28
Max. Output Power[1]	W		8		12	
Nominal Torque	mNm (oz-in)		22 (3.12)		30 (4.25)	
Max. Continuous Torque[1]	mNm (oz-in)		30 (4.25)		43 (6.09)	
Nominal Speed	RPM		3000		3200	
No-Load Speed	RPM		4550		4600	
Min. Adjustable Speed	RPM		200			
Nominal Current	A		0.98	0.5	1.28	0.66
Max. Continuous Current[1]	A		1.47	0.74	2.13	1.04
No-Load Current	mA		205	125	230	140
Rotor Inertia	kgm² (oz-in-s²)		22E-6 (3.1E-3)		31E-6 (4.4E-3)	
Mechanical Time Constant	ms		65	45	51	41
Thermal Resistance Winding-Housing	°C/W		2			
Thermal Resistance Housing-Ambient	°C/W		8			
Weight	g (oz)		195 (6.88)		250 (8.82)	
Protection	-		IP30			
Gearbox (option)	-		P42A, S64A, S69A			

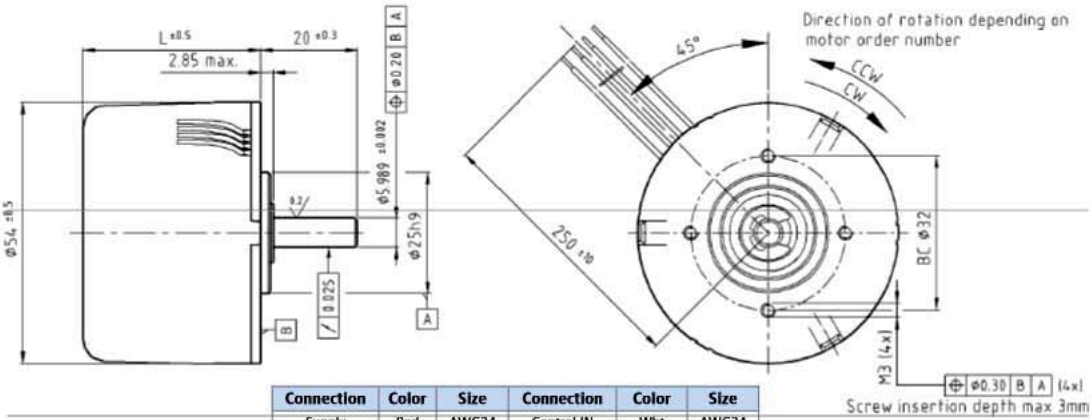
Notes: Values valid for nominal voltage and T_{amb} = 22 °C
1) Motor mounted to heatsink; max. flange temp = 85 °C

PERFORMANCE





DIMENSIONS



Connection	Color	Size	Connection	Color	Size
Supply	Red	AWG24	Control IN	Wht	AWG24
Common	Blu	AWG24	Frequency OUT	Grn	AWG24

Shaft max. radial load 15mm from front mount: 40 N

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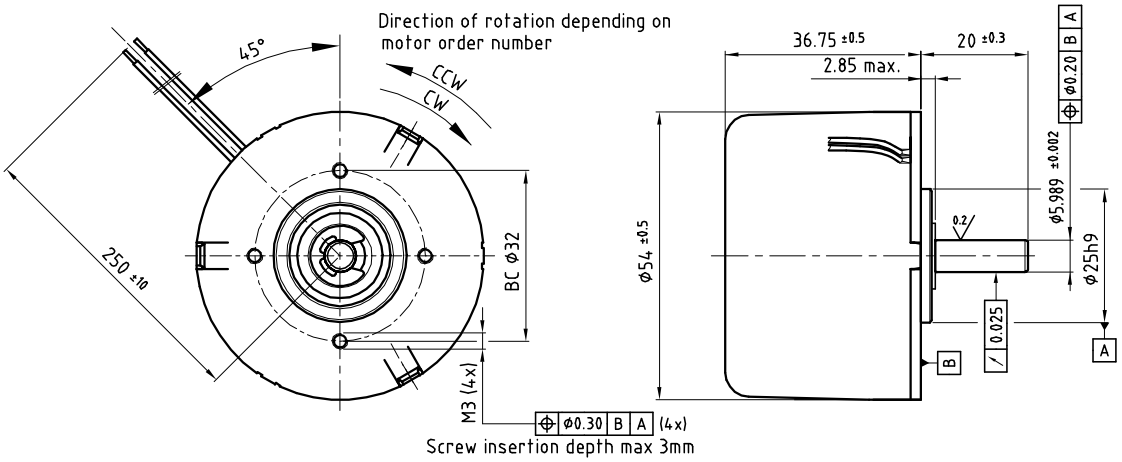
BL48 EB 2 wire Brushless DC motor 12 Watt

Dimensional drawing



Motor data

Motor order number			48025	48035
	CW	4322 016 +	48025	48035
	CCW	4322 016 +	48021	48031
Nominal voltage		[V]	12	24
Voltage range		[V]	10 .. 15	14 .. 28
Max. output power	1)	[W]	12	12
No load speed		[rpm]	4600	4600
No load current		[mA]	230	140
Min. starting torque		[mNm]	53	57
Nominal torque		[mNm]	30	30
Nominal speed		[rpm]	3200	3200
Nominal current		[A]	1.28	0.66
Max. current limit		[A]	2.13	1.04
Max. continuous torque	1)	[mNm]	43	43
Torque constant		[mNm/A]	27.6	56.2
Rotor inertia		[kgm ^{2}]	31x10 $^{-6}$	31x10 $^{-6}$
Mechanical time constant		[ms]	51	41
Max. flange temperature	1)	[°C]	85	85

All relevant values in above table are valid for nominal supply voltages and Tamb.=22°C

1) For thermal reasons it is advised to mount the motor on a heat conducting frame if high output power is desired.

Maximum radial load 15 mm from mounting front at 3000 rpm	[N]	40
Mass of motor	[g]	250

Electrical Connection

Lead colour	Function	Description
red	supply voltage	AWG 24
blue	ground	AWG 24

Product combinations

* Gearbox P42A
* Gearbox S64A
* Gearbox S69A

Options

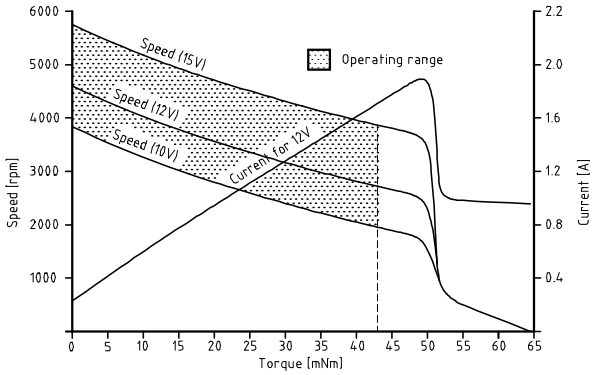
* Special shafts, diameter 3...6 mm
* 4-wire versions with an extra lead for Frequency Generator output and a lead for speed adjustment (PWM control of motor voltage)
* Direction of rotation pre-set (internal)
* Square foot mounting flange

Features

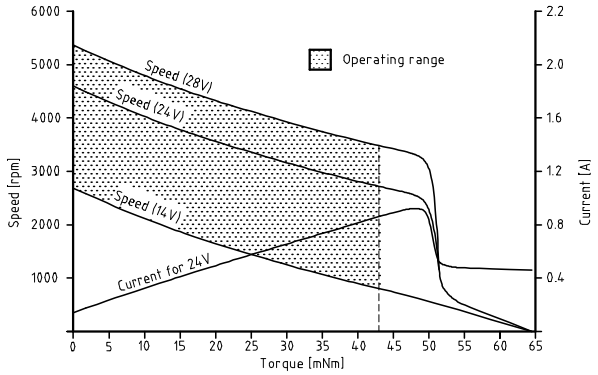
* 2 wire concept
* Long life (up to 20.000 hours)
* EMC compliance with standards EN 55011, EN 55022 and EN 50082-1 2)
* Resistant against short-term wrong connection
* Protection class IP30

2) Capacitor of 1000 µF (for 12 V motor) or 470 µF (for 24 V motor) needed at the outlet of the power supply.

Performance curves of 12 V versions



Performance curves of 24 V versions



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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

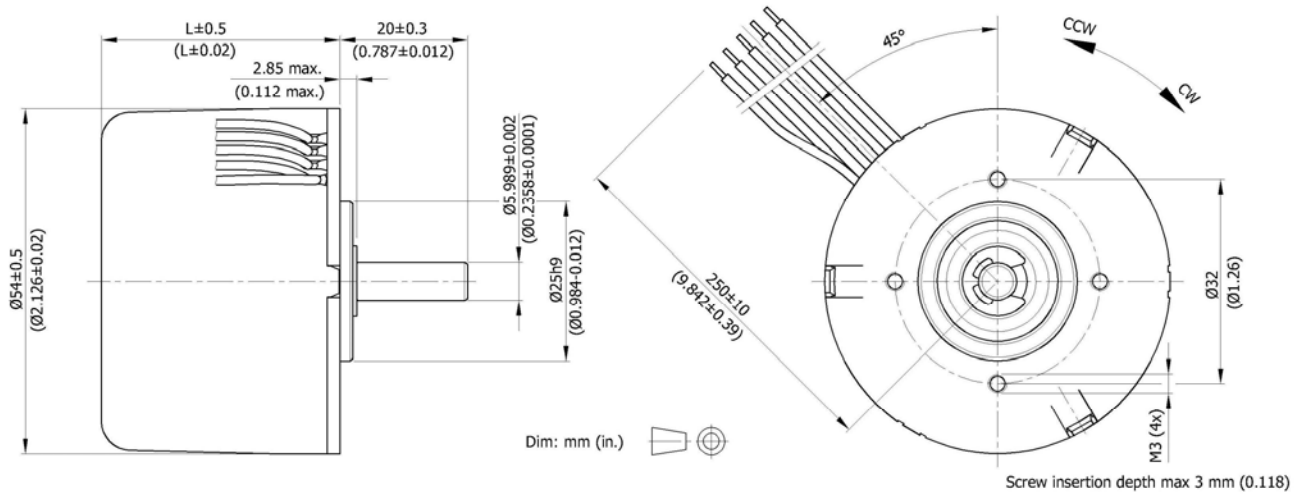
- Integrated speed control loop with a speed set input to adjust motor speed from 300 to 4000 RPM
- Thermal overload protection with automatic recovery
- Rotation direction input (CW/CCW)
- Speed output for speed sensing (36 pulses per rev)
- Reverse supply voltage protection
- Low EMI – complies with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

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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			

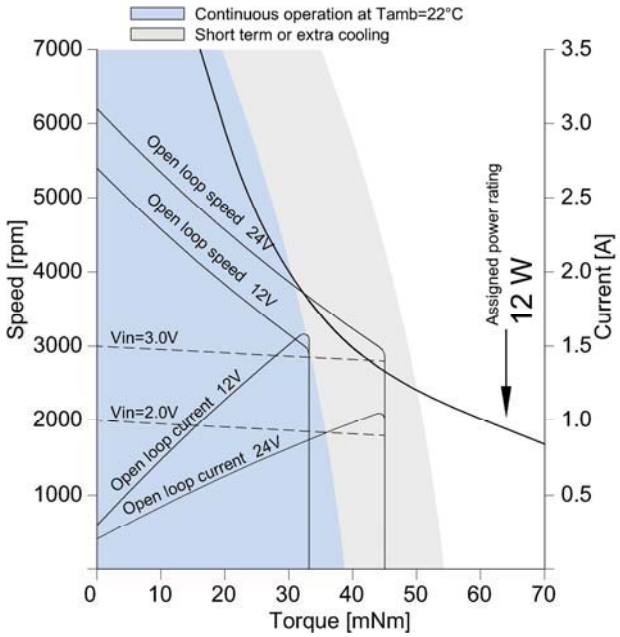
Notes: Values valid for nominal voltage and T_{amb} = 22 ºC

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

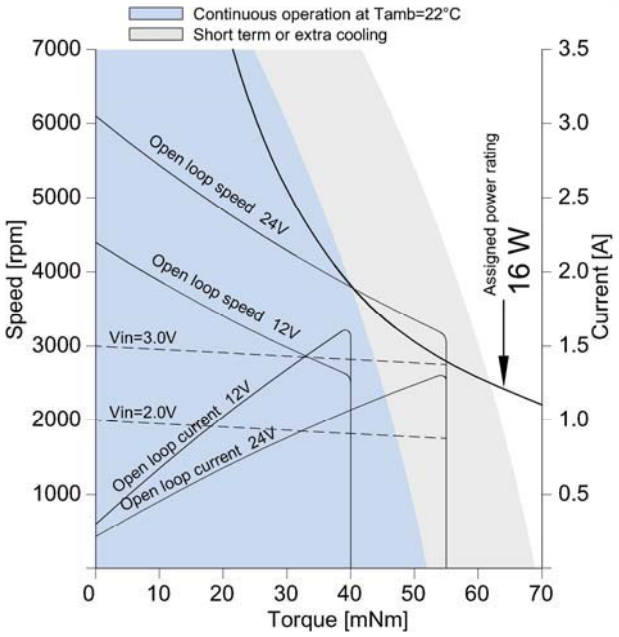
(2) Motor temperature measured at aluminum bearing support

PERFORMANCE

KMX-01648621 / KMX-01648622



KMX-01648623 / KMX-01648624



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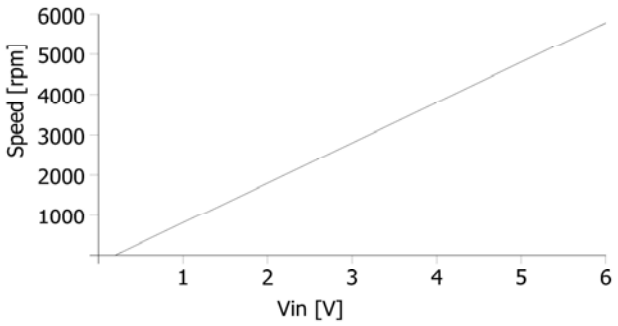
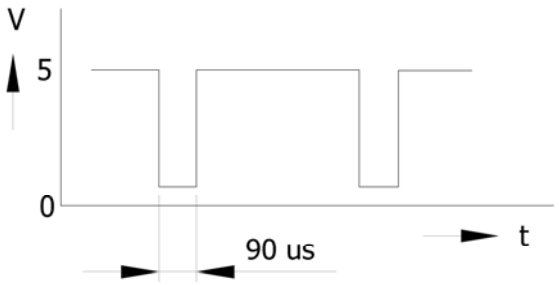
CONNECTION INFORMATION

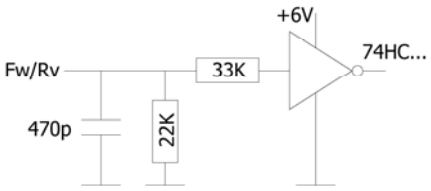
Vin Versus Speed



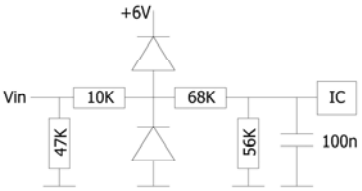
Speed Output Signal



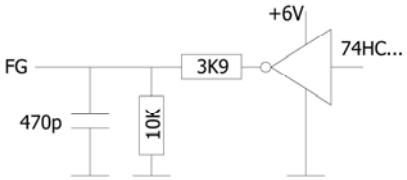
Direction input circuit



Speed input circuit



Speed output circuit



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