

Brushless DC Motors with Integral Drive

KinetiMax 32 EB Series

*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 250 to 6000 RPM
- 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 ¹	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 ²	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	Rated		1420	920	1420	920	1420	920
		Max	Sgl Shaft	1600	1300	1600	1300	1600
		Dbl Shaft	1600	1300	1600	1300	—	—
	No-load	Sgl Shaft	160	130	160	130	160	130
		Dbl Shaft	170	140	170	140	—	—
	Rotor Inertia	kgm ² (oz.in.s ²)	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						
Direction Input V	CW	Low < 1						
	CCW	High >4						
Speed Command	Ratio ³	RPM/V	N/A		1000		1000	
	Range ^{3,4}	V	N/A		0 - 7		0 - 7	
	Threshold ³	V	N/A		0.2		0.2	
Speed Output Signal ³	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

¹ 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

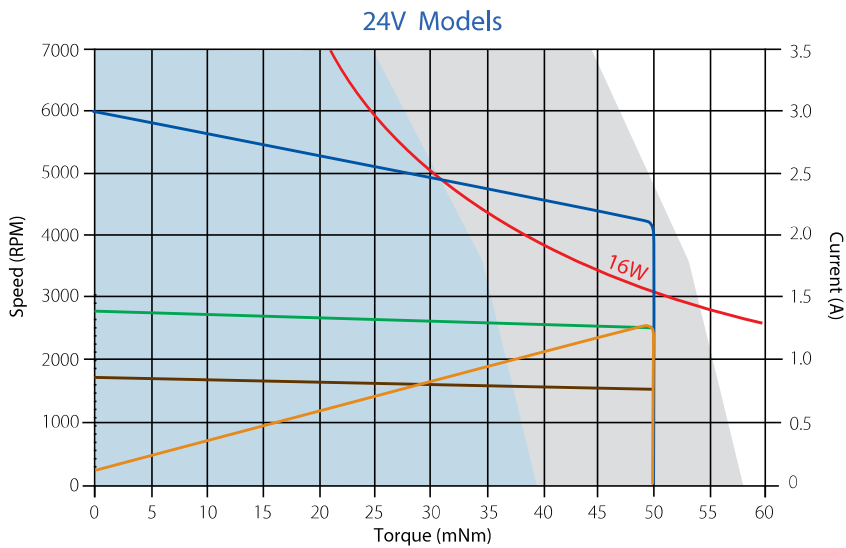
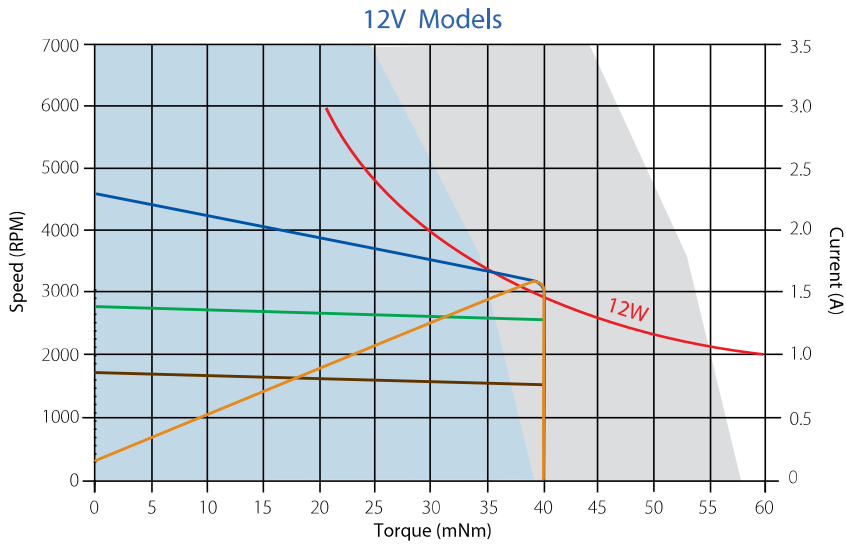
² Applicable for 2 wire version only

³ Applicable for 4 wire version only

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

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

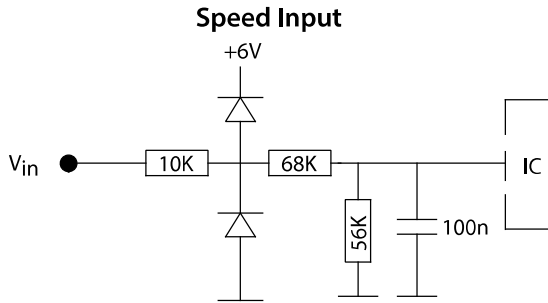
KinetiMax 32 EB – Performance



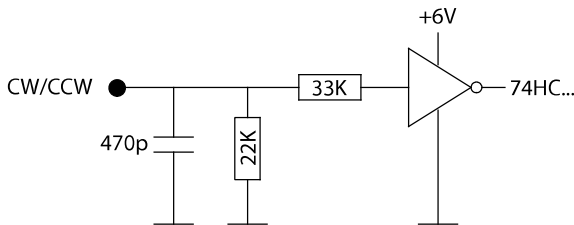
	Assigned Power Rating
	Open Loop Speed*
	Open Loop Current*
	$V_{in} = 3.0V$
	$V_{in} = 2.0V$
	Continuous Operation**
	Short Term or Extra Cooling

* @ Rated Voltage
 ** $T_{amb} = 22^{\circ}C$

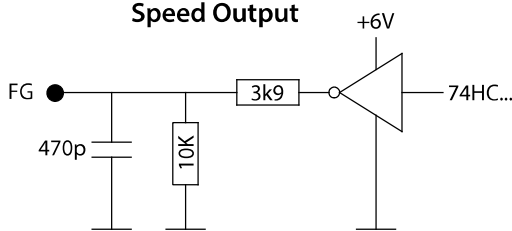
KinetiMax 32 EB – I/O Schematics



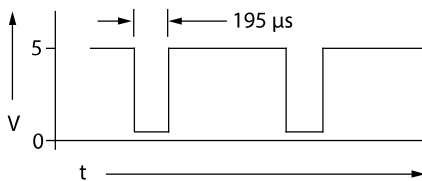
Direction Input (5-Wire Versions Only)



Speed Output

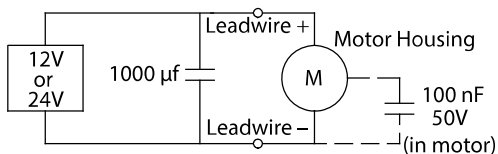


Speed Output Signal



EMC

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

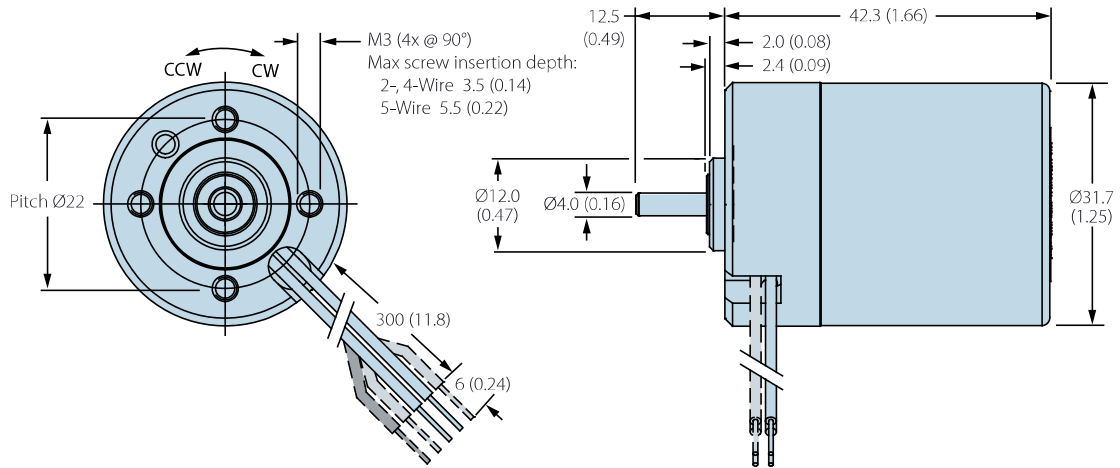


KinetiMax 32 EB – Electrical Connections

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
5-Wire	Tachometer Output (FG)	Green
	Supply Voltage	Red
	Ground	Black
	Speed Control Input (V_{in})	White
	Tachometer Output (FG)	Green
	Direction Input (CW/CCW)	Brown

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

