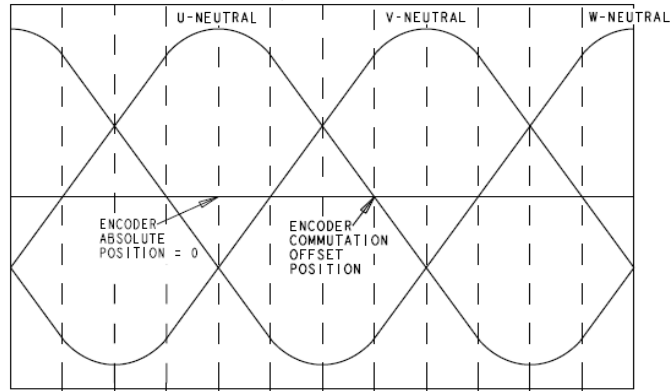
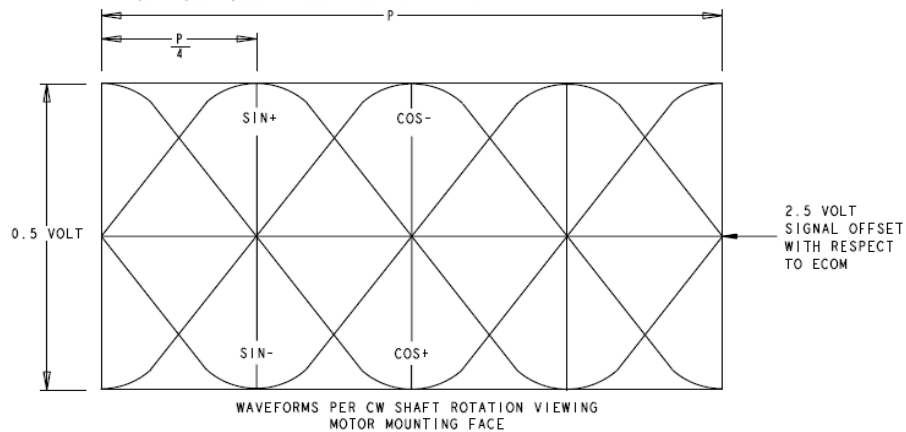


PHASE - NEUTRAL BACK EMF, ENCODER ABSOLUTE POSITION



-30° 0° 30° 60° 90° 120° 150° 180° 210° 240° 270° 300° 330° ELECTRICAL DEGREES

SIN+, SIN-, COS+, COS- ENCODER OUTPUT WAVEFORMS



NOTES:

#N/A

**Rockwell
Automation**

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Engineering Specification Electrical

RDB-B2151C-7B72AA

Dr. S. Johnson Date 10-13-09

Sheet **1** of **#N/A**

Size

A

1000065580

Ver


01

General Specifications:

1. Motor type: 3 phase, wye winding, permanent magnet rotor, totally enclosed, non-ventilated.	
2. Motor poles:	10
3. Operating Speed, max:	2125 RPM
4. Base speed (max speed at peak torque), Ref, at 440 VAC RMS operating voltage:	1631 RPM
5. Continuous stall torque, max, at max winding temperature in a 40C ambient:	32.7 Nm (289 lb-in)
6. Winding temperature, max, in a 40C ambient:	140 degrees C
7. Continuous stall current, max:	17.3 Amps 0 to peak
8. Heatsink size, aluminum, attached to front mounting flange for continuous torque specifications:	457 x 457 x 12.7mm (18 x 18 x 0.50 inch)
9. Peak stall torque, max:	86.5 Nm (766 lb-in)
10. Peak stall current, max:	46.4 Amps 0 to peak
11. Rated Speed (UL file and motor nameplate Rated RPM):	2000 RPM
12. Continuous power rating, max:	5.23 kW (7.01 hp)
13. Speed at continuous power rating:	2125 RPM
14. Continuous torque, max, at continuous power rating:	23.5 Nm (208 lb-in)
15. Continuous current, Ref, at continuous power rating:	13.9 Amps 0 to peak
16. Operating voltage, Ref (Not for direct connection to AC line):	480 VAC RMS
17. Insulation class:	155C (Class F)
18. Housing temperature, max:	125C (257F)
19. Ke, +/-10%, phase to phase at 25C +/- 5C:	252 V/kRPM 0 to peak
20. Kt (sine), Ref, at 25C +/- 5C:	2.08 Nm/Amp (18.41 lb-in/Amp) 0 to peak
21. Winding resistance, +/- 10%, phase to phase at 25C +/- 5C:	0.90 ohms
22. Winding inductance, Ref, phase to phase:	10.7 mH
23. Dielectric rating of motor power connections (U,V,W), to ground for 1 second:	2352 VAC RMS 50/60 Hz
24. Audible noise, Ref, at 1 meter distance:	78 dbA
25. Rotor inertia, +/- 10%:	0.0094 kg-m ² (0.083 lb-in-sec ²)
26. Friction torque, Ref:	0.266 Nm (2.35 lb-in)
27. Cogging torque, Ref:	0.30 Nm (2.66 lb-in) peak to peak
28. Thermal resistance, Ref, winding to ambient:	0.332 degrees C/watt
29. Thermal time constant, Ref, winding to ambient:	35 minutes
30. Product weight, Ref:	19.1 kg (42 lb)
31. Shipping weight, Ref:	20.9 kg (46 lb)
32. Operating ambient temperature:	0C to 40C (32F to 104F)
33. Storage ambient temperature:	-30C to 70C (-22F to 158F)

Notes:

- "Ref" denotes untoleranced specifications, provided for reference only.
- Speed, torque and current specifications are for operation with Allen Bradley drives.

	CONFIDENTIAL AND PROPRIETARY INFORMATION	Engineering Specification Electrical		Sheet	2	of	#N/A
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		Dr.	S. Johnson	Date	10-13-09	A	10000065580

General Specifications, continued:


- 34. Relative humidity, non-condensing: 5% to 95%
- 35. Liquid / dust protection: IP65
- 36. Shock, max, 6 msec duration: 20 g peak
- 37. Vibration, max, 30 to 2000 Hz: 2.5 g peak
- 38. Bearing arrangement: None internal to motor. Shaft is supported by customer's shaft / bearing system.
- 39. Shaft material: Steel
- 40. Paint color, gloss level, except rear cover: Black, 20 to 35 gloss units
- 41. Rear cover color (Pantone color code), painted or exposed material color: Cool gray # 5, 35 to 70 gloss units
- 42. Shaft, key (if provided), front mounting surface, and connectors are not painted.

Feedback Specifications:

- 1. Feedback interface type (encoder supplier proprietary), order designation: Endat, 2.2/01
- 2. SIN, COS waveform output signals/rev: 2048 sinusoids/rev
- 3. SIN, COS waveform amplitude, measured differentially from SIN+ to SIN-, or COS+ to COS-: 0.75 to 1.2 VAC peak to peak
- 4. SIN, COS voltage offset with respect to ECOM, +/- 0.5 VDC: 2.5 VDC
- 5. DATA+, DATA-, CLK+, CLK- signals applicable standard, signals type: RS 485, Synchronous
- 6. CLK+, CLK- clock frequency, Ref, when operating with Kinetix Endat adapter kit: 468.75 kHz
- 7. Communication hierarchy: Encoder is slave, communication is externally initiated.
- 8. Single turn absolute position value range: 0 to 8191 (13 bit)
- 9. Multi-turn absolute shaft revolution value range: 0 to 4095 revolutions (12 bit)
- 10. Absolute position data: Binary, value increases with CW shaft rotation viewing motor mounting face.
- 11. Memory storage capacity available for Rockwell parameters, EEPROM, min: 64 words, 16 bits/word
- 12. EPWR 5V (encoder power) input voltage: 3.6 to 14 VDC
- 13. EPWR 5V continuous input current,max, at 5.0 VDC: TBD mADC
- 14. EPWR 5V inrush input current, max, when connected to Kinetix6000 drive: TBD ADC
- 15. TS+, TS- PTC Thermistor transition temperature, +/-5C: 155 degrees C
- 16. TS+, TS- PTC thermistor circuit resistance, Ref, at thermistor transition temperature: 1100 ohms
- 17. TS+, TS- PTC thermistor circuit resistance, Ref, at 25 C +/- 5C: 75 ohms
- 18. TS+, TS- PTC thermistor resistance vs temperature curves applicable standards: DIN 44081 / 44082
- 19. TS+, TS- PTC thermistor circuit configuration (number of thermistors): 1

Notes:

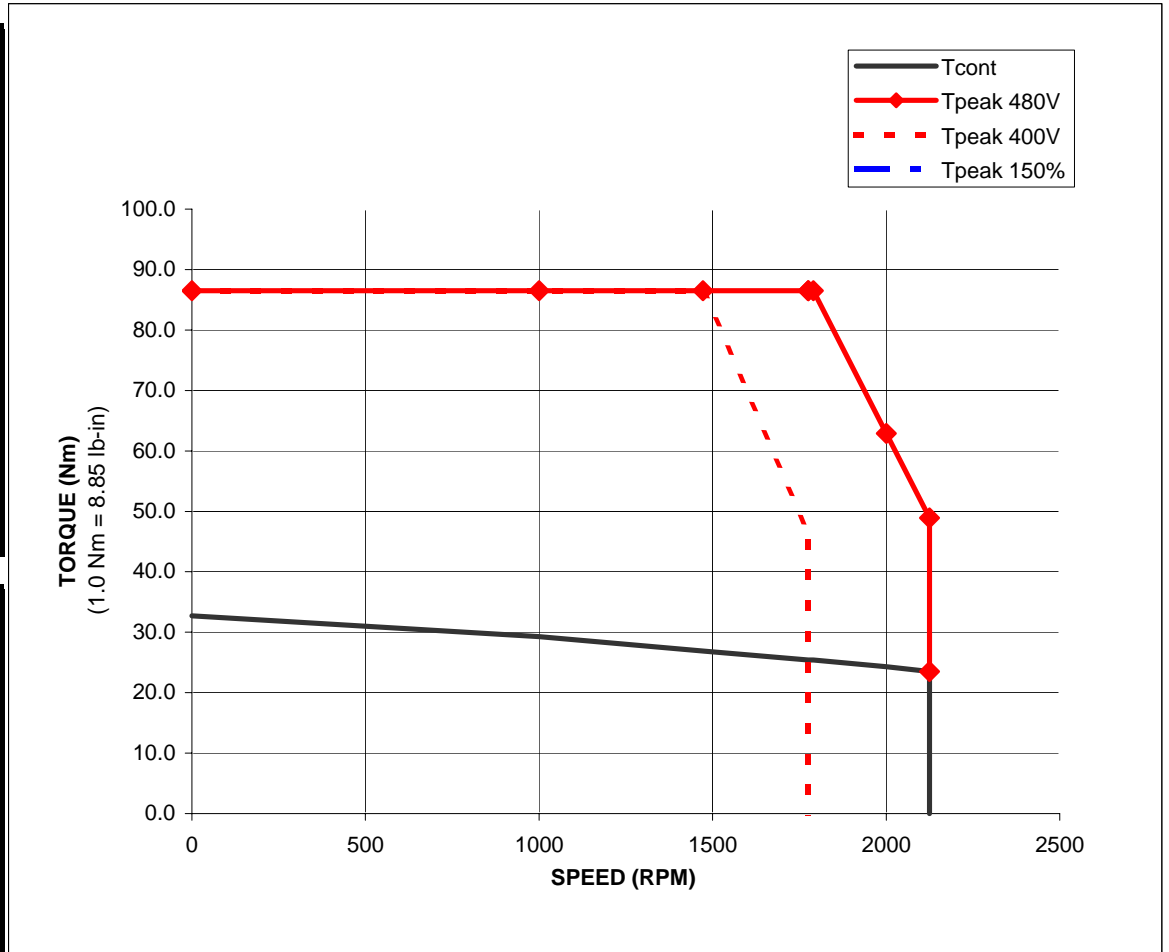
- 1. "Ref" denotes untoleranced specifications, provided for reference only.

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	Dr. S. Johnson	Date	10-13-09	Ver 01	

**RDB-B2151C-7B72AA Performance with 2094-BC07-M05S
at 480 and 400 VAC 3 phase Converter Input, 40C Motor Ambient**

SPEED RPM	TORQUE			
	Tcont	Tpeak 480V	Tpeak 400V	Tpeak 150%
	Nm	Nm	Nm	Nm
0	32.7	86.5	86.5	#N/A
1000	29.3	86.5	86.5	#N/A
1472	26.9	86.5	86.5	#N/A
1775	25.4	86.5	46.7	#N/A
1775	25.4	86.5	0	#N/A
1790	25.4	86.5	#N/A	#N/A
2000	24.3	62.9	#N/A	#N/A
2125	23.5	48.9	#N/A	#N/A
2125	0	23.5	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A

SPEED RPM	TORQUE			
	Tcont	Tpeak 480V	Tpeak 400V	Tpeak 150%
	lb-in	lb-in	lb-in	lb-in
0	289.4	765.6	765.6	#N/A
1000	259.3	765.6	765.6	#N/A
1472	238.1	765.6	765.6	#N/A
1775	224.8	765.6	413.3	#N/A
1775	224.8	765.6	0.0	#N/A
1790	224.8	765.6	#N/A	#N/A
2000	215.1	556.7	#N/A	#N/A
2125	208.0	432.8	#N/A	#N/A
2125	0.0	208.0	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A



Notes:

- "Tpeak 150%" line shown applies when the drive peak current limit is set to 150% of the drive continuous current rating.