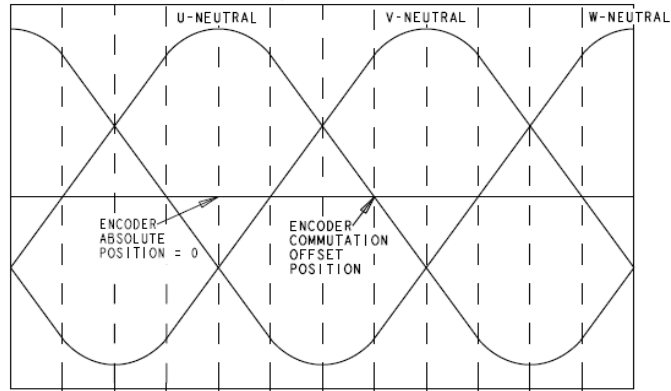
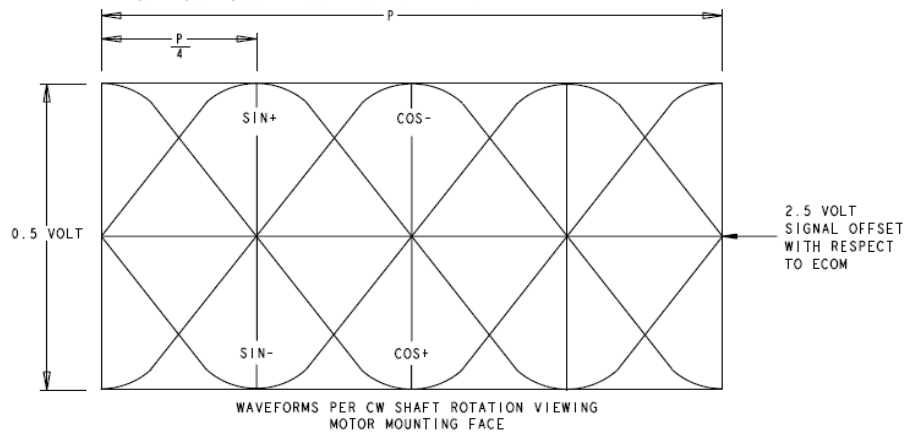


PHASE - NEUTRAL BACK EMF, ENCODER ABSOLUTE POSITION



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

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




NOTES:

General Specifications:

1. Motor type: 3 phase, wye winding, permanent magnet rotor, totally enclosed, non-ventilated.	
2. Motor poles:	46
3. Operating Speed, max:	490 RPM
4. Base speed (max speed at peak torque), Ref, at 440 VAC RMS operating voltage:	262 RPM
5. Continuous stall torque, max, at max winding temperature in a 40C ambient:	426 Nm (2726 lb-in)
6. Winding temperature, max, in a 40C ambient:	150 degrees C
7. Continuous stall current, max:	50.9 Amps 0 to peak
8. Heatsink size, aluminum, attached to front mounting flange for continuous torque specifications:	508 x 508 x 19.1mm (20 x 20 x 0.75 inch)
9. Peak stall torque, max:	1050 Nm (9293 lb-in)
10. Peak stall current, max:	191 Amps 0 to peak
11. Rated Speed (UL file and motor nameplate Rated RPM):	350 RPM
12. Continuous power rating, max:	8.69 kW (11.65 hp)
13. Speed at continuous power rating:	361 RPM
14. Continuous torque, max, at continuous power rating:	230 Nm (2036 lb-in)
15. Continuous current, Ref, at continuous power rating:	28.7 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:	1120 V/kRPM 0 to peak
20. Kt (sine), Ref, at 25C +/- 5C:	9.26 Nm/Amp (81.96 lb-in/Amp) 0 to peak
21. Winding resistance, +/- 10%, phase to phase at 25C +/- 5C:	0.232 ohms
22. Winding inductance, Ref, phase to phase:	4.58 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:	70 dbA
25. Rotor inertia, +/- 10%:	0.302 kg-m ² (2.67 lb-in-sec ²)
26. Friction torque, Ref:	6.5 Nm (57.5 lb-in)
27. Cogging torque, Ref:	4.62 Nm (40.9 lb-in) peak to peak
28. Thermal resistance, Ref, winding to ambient:	0.136 degrees C/watt
29. Thermal time constant, Ref, winding to ambient:	148 minutes
30. Product weight, Ref:	136 kg (300 lb)
31. Shipping weight, Ref:	160 kg (353 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 4	
	THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF ROCKWELL AUTOMATION, INC. AND MAY NOT BE USED, COPIED OR DISCLOSED TO OTHERS, EXCEPT WITH THE AUTHORIZED WRITTEN PERMISSION OF ROCKWELL AUTOMATION, INC.	RDB-B41035-3B72AA		Size A	10000065579
	Dr. S. Johnson	Date	10-13-09	Ver 00	

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, 0 to 20 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. Absolute position data: Binary, value increases with CW shaft rotation viewing motor mounting face.
- 10. Memory storage capacity available for Rockwell parameters, EEPROM, min: 64 words, 16 bits/word
- 11. EPWR 5V (encoder power) input voltage: 3.6 to 14 VDC
- 12. EPWR 5V continuous input current,max, at 5.0 VDC: TBD mA
- 13. EPWR 5V inrush input current, max, when connected to Kinetix6000 drive: TBD A
- 14. TS+, TS- PTC Thermistor transition temperature, +/-5C: 160 degrees C
- 15. TS+, TS- PTC thermistor circuit resistance, Ref, at thermistor transition temperature: 1100 ohms
- 16. TS+, TS- PTC thermistor circuit resistance, Ref, at 25 C +/- 5C: 160 ohms
- 17. TS+, TS- PTC thermistor resistance vs temperature curves applicable standards: DIN 44081 / 44082
- 18. TS+, TS- PTC thermistor circuit configuration (number of thermistors): 2 in series

Notes:

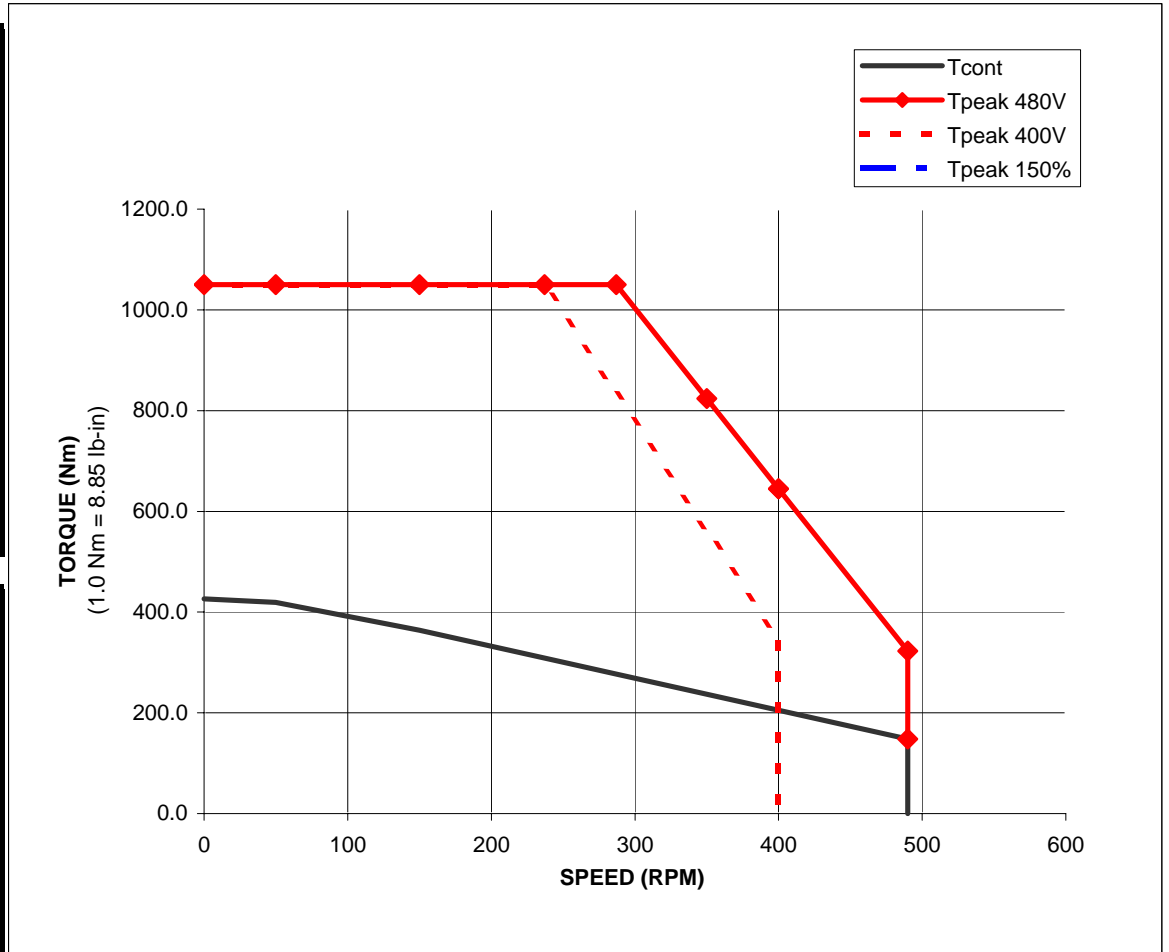
- 1. "Ref" denotes untoleranced specifications, provided for reference only.

	CONFIDENTIAL AND PROPRIETARY INFORMATION	Engineering Specification Electrical		Sheet 3 of 4	
	THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF ROCKWELL AUTOMATION, INC. AND MAY NOT BE USED, COPIED OR DISCLOSED TO OTHERS, EXCEPT WITH THE AUTHORIZED WRITTEN PERMISSION OF ROCKWELL AUTOMATION, INC.	RDB-B41035-3B72AA		Size	10000065579
	Dr. S. Johnson	Date	10-13-09	A	Ver 00

**RDB-B41035-3B72AA Performance with 2099-BM09S
at 480 and 400 VAC 3 phase Drive Input, 40C Motor Ambient**

SPEED RPM	TORQUE			
	Tcont	Tpeak 480V	Tpeak 400V	Tpeak 150%
	Nm	Nm	Nm	Nm
0	426	1050	1050	#N/A
50	419	1050	1050	#N/A
150	364	1050	1050	#N/A
237	309	1050	1050	#N/A
287	277	1050	834	#N/A
350	237	824	562	#N/A
400	205	645	346	#N/A
400	205	645	0	#N/A
490	148	323	#N/A	#N/A
490	0	148	#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	3770	9293	9293	#N/A
50	3708	9293	9293	#N/A
150	3222	9293	9293	#N/A
237	2735	9293	9293	#N/A
287	2452	9293	7382	#N/A
350	2098	7293	4974	#N/A
400	1814	5709	3062	#N/A
400	1814	5709	0	#N/A
490	1310	2859	#N/A	#N/A
490	0	1310	#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:

1. Nm torque values shown are converted from tested lb-in data.
2. "Tpeak 150%" line shown applies when the drive peak current limit is set to 150% of the drive continuous current rating.



CONFIDENTIAL AND PROPRIETARY INFORMATION

THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF ROCKWELL AUTOMATION, INC. AND MAY NOT BE USED, COPIED OR DISCLOSED TO OTHERS, EXCEPT WITH THE AUTHORIZED WRITTEN PERMISSION OF ROCKWELL AUTOMATION, INC.

Engineering Specification Electrical

RDB-B41035-3B72AA

Dr. S. Johnson Date 10-13-09

Sheet **4** of **4**

Size
A

1000065579

Ver
00