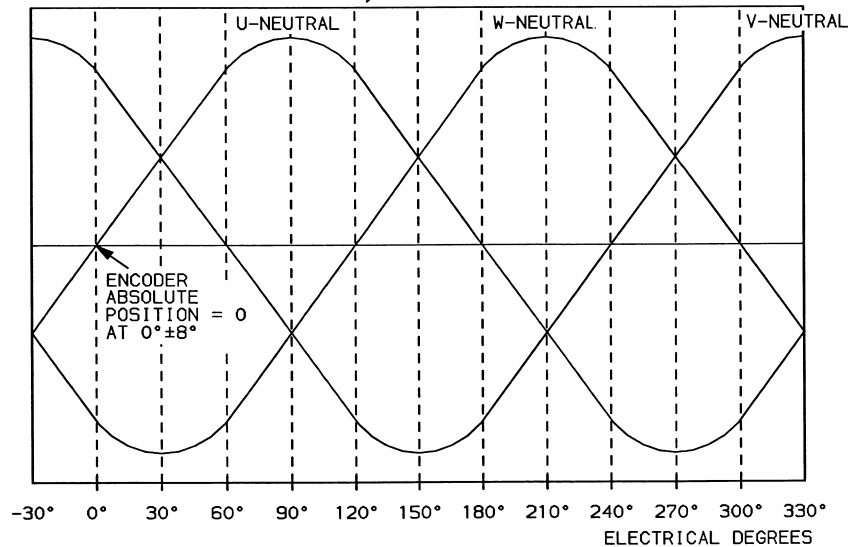
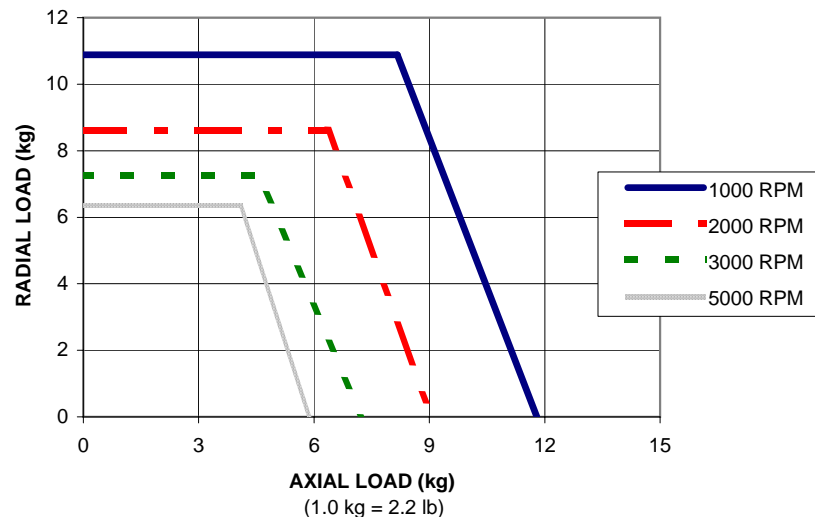


PHASE - NEUTRAL BACK EMF, ENCODER ABSOLUTE POSITION



WAVEFORMS PER CW SHAFT ROTATION VIEWING MOTOR MOUNTING FACE

**SHAFT LOAD RATING** for 20,000 hour L10 bearing life and RADIAL LOAD applied mid-way along shaft extension (move this chart down to see data behind)



Notes: Print or enlarge waveforms for improved clarity.  
For additional specifications see TLA110PBJ34AAESM.

01	1007016	JH	RELEASED		
REV	ECN	BY	REVISION DESCRIPTION	CHKR	DATE
PREPARED BY		DATE	DESIGN ENGINEER		DATE
JH		4/15/2004			
TITLE					
TL-A110P-BJ34AA, ESE					
Allen-Bradley		PART NO.			
		TLA110PBJ34AAESE			
A SIZE				SHEET	1 OF 4

Specifications:

1. Motor type: 8 pole, 3 phase, wye winding, permanent magnet rotor, totally enclosed, non-ventilated.
2. Operating speed: 5000 RPM max.
3. Continuous stall torque: 0.086 Nm (0.76 lb-in) max at 125C winding temperature in a 40C ambient, when mounted on an 8 inch sq x 1/4 inch thick aluminum heatsink.
4. Peak stall torque: 0.22 Nm (1.94 lb-in) max.
5. Continuous output rating: 0.037 kW (0.050 hp) max at continuous rated operating point: 5000 RPM, 0.071 Nm (0.63 lb-in), 0.50 Amps 0 to peak max.
6. Operating voltage: 230 VAC RMS Ref. (Not for direct connection to AC line).
7. Continuous stall current: 0.50 Amps 0 to peak max.
8. Peak stall current: 1.50 Amps 0 to peak max.
9. Insulation class: 155C (Class F).
10. Housing temperature: 110C (230F) max.
11. Ke: 25.2 to 30.8 (28 nom) V/kRPM 0 to peak, phase to phase at 20C to 30C.
12. Kt: (sine) 0.231 Nm/Amp 0 to peak (2.05 lb-in/Amp 0 to peak) Ref at 20C to 30C.
13. Winding resistance: 81 to 99 Ohms, phase to phase at 20C to 30C.
14. Winding inductance: 93 mH, phase to phase Ref.
15. Dielectric rating of motor power connections (U,V,W) to ground: 1800 VAC RMS 50/60 Hz for 1 second.
16. Rotor inertia: 0.000004 kg-m<sup>2</sup> (0.000035 lb-in-sec<sup>2</sup>) Ref.
17. Rotor balancing: Quality grade G-6.3.
18. Friction torque: 0.0020 Nm (0.018 lb-in) Ref.
19. Friction torque with shaft seal option installed: 0.0052 Nm (0.046 lb-in) Ref.
20. Cogging torque: 0.0018 Nm (0.016 lb-in) peak to peak Ref.
21. Damping: 0.0020 Nm/kRPM (0.018 lb-in/kRPM) Ref.
22. Thermal resistance, winding to ambient: 2.1 degrees C/watt Ref.
23. Thermal time constant, winding to ambient: 4.8 minutes Ref.
24. Product weight: 0.55 kg (1.2 lb) Ref.
25. Shipping weight: 0.82 kg (1.8 lb) Ref.
26. Operating ambient temperature: 0C to 40C (32F to 104F).
27. Storage ambient temperature: -10C to 85C (14F to 185F).
28. Relative humidity: 20% to 85% non-condensing.
29. Liquid / dust protection: IP65 when optional shaft seal is installed, excluding flying lead connectors (connectors rating: IP30).
30. Shock: 20 g peak max, 6 msec duration (18 occurrences tested).
31. Vibration: 2.5 g peak max, 30 to 2000 Hz.
32. Bearing arrangement: Outer diameter of rear bearing is trapped axially.
33. Shaft material: Steel, grade S45C.

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

Brake Specifications:

1. Type: Spring-set holding brake, releases when voltage applied.
2. Holding torque: 0.32 Nm (2.8 lb-in) max.
3. Voltage input: 21.6 to 26.4 VDC, may be applied either polarity.
4. Current input: 0.18 to 0.22 ADC at 24 VDC, at 20C to 30C.
5. Coil resistance: 103 to 127 Ohms at 20C to 30C.
6. Coil resistance: 135 to 165 Ohms with motor operating at max continuous stall torque rating in a 40C ambient.
7. Release time delay (when voltage applied): 21 msec Ref.
8. Engage time delay (when voltage removed): 40 msec Ref with diode (or 7.0 msec Ref with MOV) used as arc suppression device in external control circuit.
9. Rotational backlash: 1.0 degrees Ref with brake engaged.
10. Dielectric rating of brake connections (BR+,BR-) to ground: 1200 VAC RMS 50/60 Hz for 1 second.

01	TITLE	
REV	TL-A110P-BJ34AA, ESE	
Allen-Bradley	PART NO.	
	TLA110PBJ34AAESE	
	A SIZE	SHEET 2 OF 4

Feedback Specifications:

Encoder Function:

1. 17 bit single turn absolute position data is provided, via serial output, with or without an external battery connected.
2. 16 bit multi-turn absolute position data is provided, along with the 17 bit single turn absolute position data, via serial output, when an external battery is connected.

Electrical Hardware:

1. SD+, SD- (serial data) output / input: RS 485 differential line driver / receiver.
2. EPWR (encoder power) voltage input: 4.75 to 5.25 VDC.
3. EPWR current input: 60 mADC nominal, 110 mADC max continuous. 1.3 ADC max inrush.
4. BAT+ (battery) voltage input: 3.6 VDC nominal.
5. BAT+ current input, with +5VDC applied to EPWR input: 3.6 uA nominal.
6. BAT+ current input, with no EPWR input applied: 110 uA max.
7. Battery alarm fault (battery change required) voltage level: 3.1 VDC Ref.
8. Battery error fault (absolute multi-turn position not saved at power loss) voltage level: 2.5 VDC Ref.

Serial Communication:

1. SD+, SD- serial data rate: 2.5 Mbps, asynchronous.
2. Communication hierarchy: Encoder is slave, communication is externally initiated.
3. Single turn absolute position value range: 0 to 131,071 (17 bit).
4. Multi-turn absolute shaft revolution value range: 0 to 65,535 revolutions (16 bit).
5. Absolute position data: Binary, value increases with CCW shaft rotation viewing motor mounting face.
6. Memory storage capacity: 80 bytes, EEPROM.

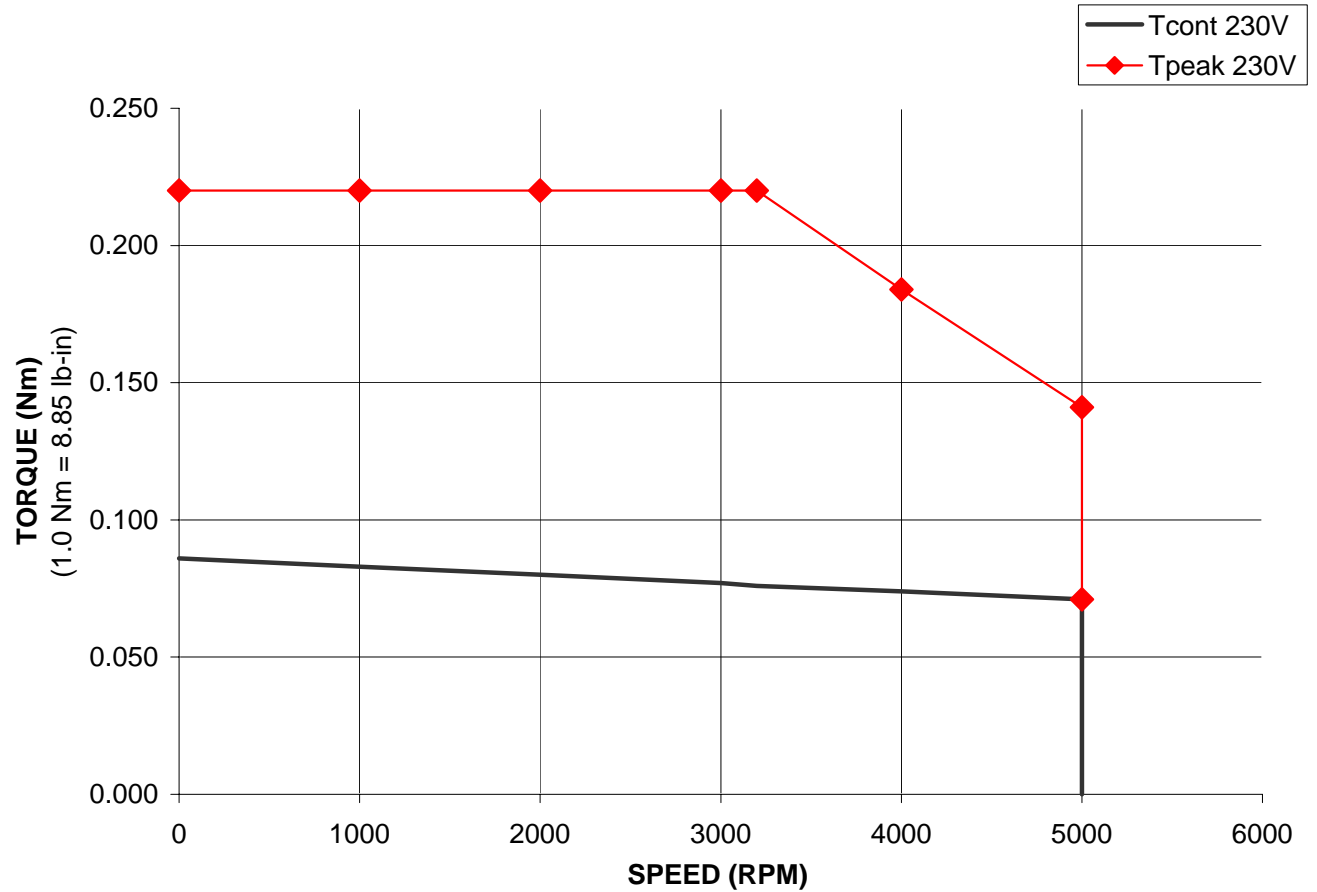
Note: "Ref" denotes untoleranced specifications, provided for reference only.

01	TITLE		
REV	TL-A110P-BJ34AA, ESE		
Allen-Bradley	PART NO.		
	TLA110PBJ34AAESE		
	A SIZE	SHEET	3 OF 4

SPEED RPM	TORQUE		
	Tcont 230V	Tpeak 230V	
	Nm	Nm	
0	0.086	0.220	
1000	0.083	0.220	
2000	0.080	0.220	
3000	0.077	0.220	
3200	0.076	0.220	
4000	0.074	0.184	
5000	0.071	0.141	
5000	0	0.071	

SPEED RPM	TORQUE		
	Tcont 230V	Tpeak 230V	
	lb-in	lb-in	
0	0.76	1.94	
1000	0.74	1.94	
2000	0.71	1.94	
3000	0.68	1.94	
4000	0.65	1.63	
5000	0.63	1.25	

**TL-A110P-BJ34AA (Ke=28) Performance with 2092-DA1  
at 230 VAC Drive Input, 40C Motor Ambient**



Note: Nm torque values shown are converted from tested lb-in data.

01	TITLE
REV	TL-A110P-BJ34AA, ESE
Allen-Bradley	PART NO.
	TLA110PBJ34AAESE
A SIZE	SHEET 4 OF 4