

SECTION 2 - SPECIFICATIONS

2.1 DRIVER SPECIFICATIONS

Delta Driver	DSD-1.5/RB	DSD-1.5/RA	DSD-4.25/RB	DSD-4.25/RA
Weight	3.3 lb 1.5 kg	3.3 lb 1.5 kg	3.3 lb 1.5 kg	3.3 lb 1.5 kg

Delta Driver	DSD-8.5/RB	DSD-8.5/RA	DSD-17.5/RA	DSD-35/RA	DSD-50/RA	DSD-70/RA	DSD-115/RA
Weight	3.3 lb 1.5 kg	3.3 lb 1.5 kg	5.5 lb 2.5 kg	10 lb 4.5 kg	10 lb 4.5 kg	24 lb 11 kg	35 lb 16 kg

2.1.1 MOTOR OUTPUT

Delta Driver	DSD-1.5/RB	DSD-1.5/RA	DSD-4.25/RB	DSD-4.25/RA
Motor Output	PWM, 3 Phase, sine wave			
Continuous Output Current	1.0 A rms	1.0 A rms	2.8 A rms	2.8 A rms
Max. Output Current See Figure 2.1	1.5 A rms	1.5 A rms	4.25 A rms	4.25 A rms
Motor Ripple Frequency	20 kHz	20 kHz	20 kHz	20 kHz

Delta Driver	DSD-8.5/RB	DSD-8.5/RA	DSD-17.5/RA	DSD-35/RA	DSD-50/RA	DSD-70/RA	DSD-115/RA
Motor Output	PWM, 3 Phase, sine wave						
Continuous Output Current	2.1 A rms	3.4 A rms	5.7 A rms	14.1 A rms	18.4 A rms	28.3 A rms	56.6 A rms
Max. Output Current See Figure 2.1	8.5 A rms	8.5 A rms	17.5 A rms	35.0 A rms	50.0 A rms	70.0 A rms	115.0 A rms
Motor Ripple Frequency	20 kHz	20 kHz	20 kHz	20 kHz	20 kHz	10 kHz	10 kHz

2.1.2 POWER SUPPLY

Delta Driver	DSD-1.5/RB	DSD-1.5/RA	DSD-4.25/RB	DSD-4.25/RA
Main Bus Power Supply Voltage	1 Phase, Nominal: 110 VAC, Max Range: 85-126 VAC, 50/60 Hz	1 Phase, Nominal: 220 VAC, Max Range: 170-264 VAC, 50/60 Hz	1 Phase, Nominal: 110 VAC, Max Range: 85-126 VAC, 50/60 Hz	1 Phase, Nominal: 220 VAC, Max Range: 170-264 VAC, 50/60 Hz
Main Supply Capacity	350 VA	350 VA	350 VA	350 VA
Control Voltage	Powered by main circuit supply			
Control Capacity	Powered by main circuit supply			
Main Circuit Heat Loss	17 W	17 W	17 W	17 W
Control Circuit Heat Loss	23 W	23 W	23 W	23 W
Regeneration Absorption Capacity	13 W + 17 J	13 W + 17 J	13 W + 17 J	13 W + 17 J

Delta Driver	DSD-8.5/RB	DSD-8.5/RA	DSD-17.5/RA	DSD-35/RA	DSD-50/RA	DSD-70/RA	DSD-115/RA
Main Bus Power Supply Voltage	1 Phase, Nominal: 110 VAC, Max Range: 85-126 VAC, 50/60 Hz	1 Phase, Nominal: 220 VAC, Max Range: 170-264 VAC, 50/60 Hz	3 Phase, Nominal: 220 VAC, Max Range: 170-264 VAC, 50/60 Hz				
Main Supply Capacity	570 VA	1.2 KVA	2.5 KVA	5.3 KVA	6.7 KVA	13 KVA	25 KVA
Control Voltage	Powered by main circuit supply			Single phase, 170-264 VAC, 50/60 Hz			
Control Capacity	Powered by main circuit supply			70 VA		80 VA	110 VA
Main Circuit Heat Loss	20 W	27 W	47 W	110 W	130 W	250 W	400 W
Control Circuit Heat Loss	23 W	23 W	23 W	26 W	26 W	30 W	60 W
Regeneration Absorption Capacity	17 W + 17 J	24 W + 17 J	37 W + 22 J	160 W + 38 J	180 W + 54 J	300 W + 94 J	480 W + 188 J

2.1.3 CONTROL PERFORMANCE

Feedback	Resolver
Feedback Resolution	12000 bits/rev * number of resolver cycles ie. 2X resolver = 2*12000 bits/rev = 24000 bits/rev. See motor drawings in Appendix A.6 for resolver type.
Feedback Accuracy	18 arc minutes spread for motors with 95 mm mounting face or smaller ± 20 arc minutes for B series motors 8 arc minute spread for all other motors
Current Loop Update Rate	100 μ sec
Velocity Loop Update Rate	400 μ sec
Position Loop Update Rate	800 μ sec
Speed Regulation	Load (0%-100%): $\pm 0.02\%$ Power (85-126 VAC or 170-264 VAC): $\pm 0.02\%$ Temperature (0-55°C/32-131°F): $\pm 0.2\%$
Torque Regulation	Power (85-126 VAC or 170-264 VAC): $\pm 2\%$ Temperature (0-55°C/32-131°F): $\pm 2\%$

Feedback	Encoder
Feedback Resolution	See motor/driver speed torque curves in Appendix A.4 for encoder resolution.
Feedback Accuracy	Less than 2 arc minutes
Current Loop Update Rate	100 μ sec
Velocity Loop Update Rate	400 μ sec
Position Loop Update Rate	800 μ sec
Speed Regulation	Load (0%-100%): $\pm 0.02\%$ Power (85-126 VAC or 170-264 VAC): $\pm 0.02\%$ Temperature (0-55°C/32-131°F): $\pm 0.2\%$
Torque Regulation	Power (85-126 VAC or 170-264 VAC): $\pm 2\%$ Temperature (0-55°C/32-131°F): $\pm 2\%$

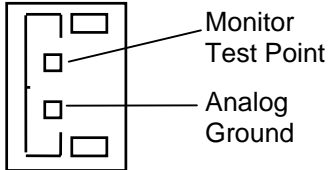
2.1.4 ENVIRONMENT

Storage Temperature	-10 to 70°C/14-158°F
Operating Temperature	0 to 55°C/32-131°F
Humidity	35 to 90% Relative Humidity, non-condensing
Shock and Vibration	1 G or less
Operating Conditions	Free of dust, liquids, metallic particles and corrosive gases. Use in a pollution degree 2 environment.
Drive Enclosure	The drive is rated as "open type equipment" by Underwriters Laboratories, Inc.

2.1.5 I/O CONTROL SIGNALS

Standard Sinking I/O	Control Input	24 VDC 8 ma: common to +24V, optically isolated
	Control Output	24 VDC 40 ma: common to 24G, optically isolated
Optional Sinking I/O DINT-300K	Control Input	24 VDC 6 ma: common to +24V, optically isolated
	Control Output	24 VDC 400 ma: common to 24G, optically isolated
Optional Sourcing I/O DINT-300S	Control Input	24 VDC 6 ma: common to 24G, optically isolated
	Control Output	24 VDC 400 ma: common to +24V, optically isolated
Internal Power Supply	24 VDC \pm 15% 100 ma maximum, ground isolated	
External Power Supply	24 VDC \pm 15%	

2.1.6 ANALOG I/O SIGNALS

REF1 and REF2	<p>Maximum Input Voltage: \pm 10 VDC Input Impedance: 18 kΩ A/D resolution: 1/1024 at \pm10V (10 bit Standard, 14 bit Optional) Scalable with setup parameter</p>
Monitor Output	<p>Maximum Voltage Swing: \pm 3 VDC at 1 ma Output Impedance: 330 Ω Accuracy: \pm8% Monitor Scaling Speed: 3V equals motor rated speed Torque: 3V equals motor peak torque C-722006 Monitor Cable Available</p> 

2.1.7 HIGH SPEED DIGITAL I/O SIGNALS

Command Pulse FMA and /FMA FMB and /FMB	<p>On voltage: 5 VDC \pm 5% at 17 ma maximum Off voltage: 1 VDC \pm 5% less than 1 ma 200 KHz maximum frequency in pulse-pulse or pulse-direction modes 50 KHz in AB quadrature mode Optically isolated</p>
Pulse Output APD and /APD BPD and /BPD ZPD and /ZPD	<p>RS422 output: AM26LS31 or equiv. 400 kHz maximum frequency</p>

2.1.8 PROTECTION

Fault Checks	<p>Under Voltage, Over Voltage, Motor Short, Output Short, Feedback Loss, Regeneration Resistor Over Temperature and Malfunction, Driver Over Temperature, Motor rms Torque (motor overheat) Driver Rated Current, Over Speed, Motor Stall, Dynamic or Mechanical Brake Failure, Following Error, Internal Watchdog Timer, Processor Diagnostics</p>
Output Short Circuit Protection	<p>The drives are suitable for use on a circuit capable of delivering not more than 5000 rms symmetrical amperes, 240 volts maximum when protected by a circuit breaker having an interrupting rating not less than 5000 rms symmetrical amperes, 240 volts maximum.</p>

2.2 MOTOR SPECIFICATIONS

2.2.1 GENERAL

Duty	Continuous at rated speed and rated torque
Type	Permanent magnet synchronous
Insulation	Class F
Sealing	See motor drawings in Appendix A.6, A.7 & A.8
Storage Temperature	-10 to +70°C/14 to 158°F
Ambient Operating Temperature	-10 to +40°C/14 to 104°F
Shock and Vibration	2 G's
Mounting	Motor can be mounted in any position

2.2.2 FEEDBACK DEVICE

Type: Resolver	Resolver control transformer See motor drawings in Appendix A.6, A.7 & A.8
Type: Encoder	ABZ plus UVW 5V line driver

2.2.3 OTHER

Weight Shaft Loading Brake Specifications Dimensions	See motor drawings in Appendix A.6, A.7 & A.8
Torque Ratings Speed Torque Curves	See specifications in Appendix A.4

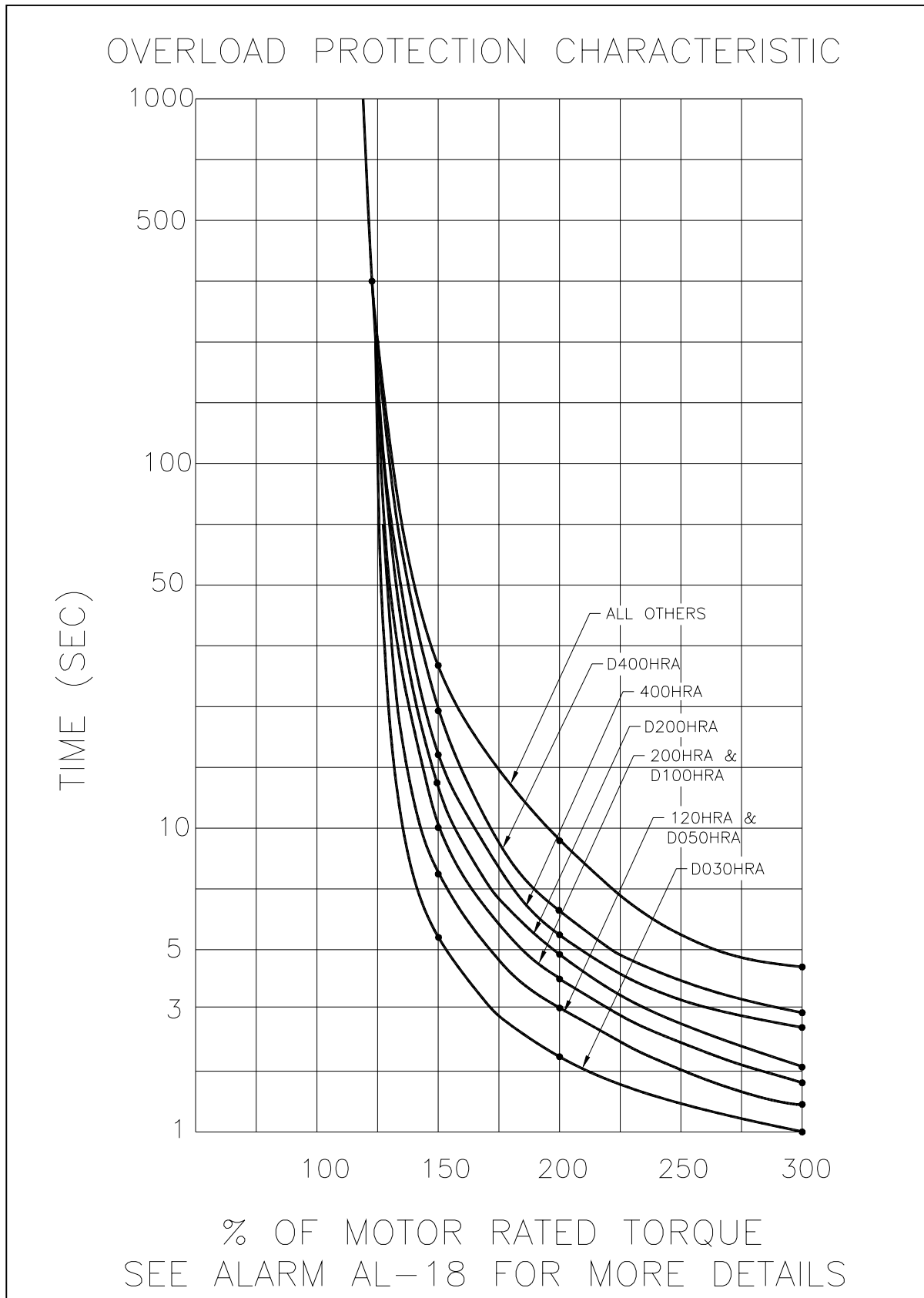


Figure 2.1 - Delta Overload Protection Characteristic

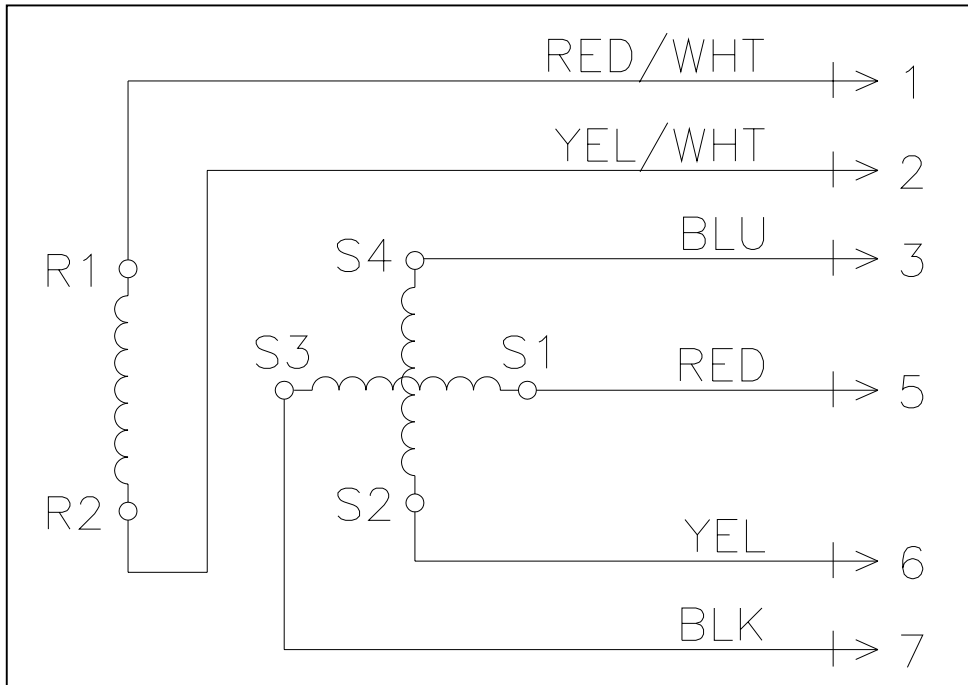


Figure 2.2 - Standard Resolver Wiring Connections for DBM-XXX/15R, DBM-500/30R and Larger

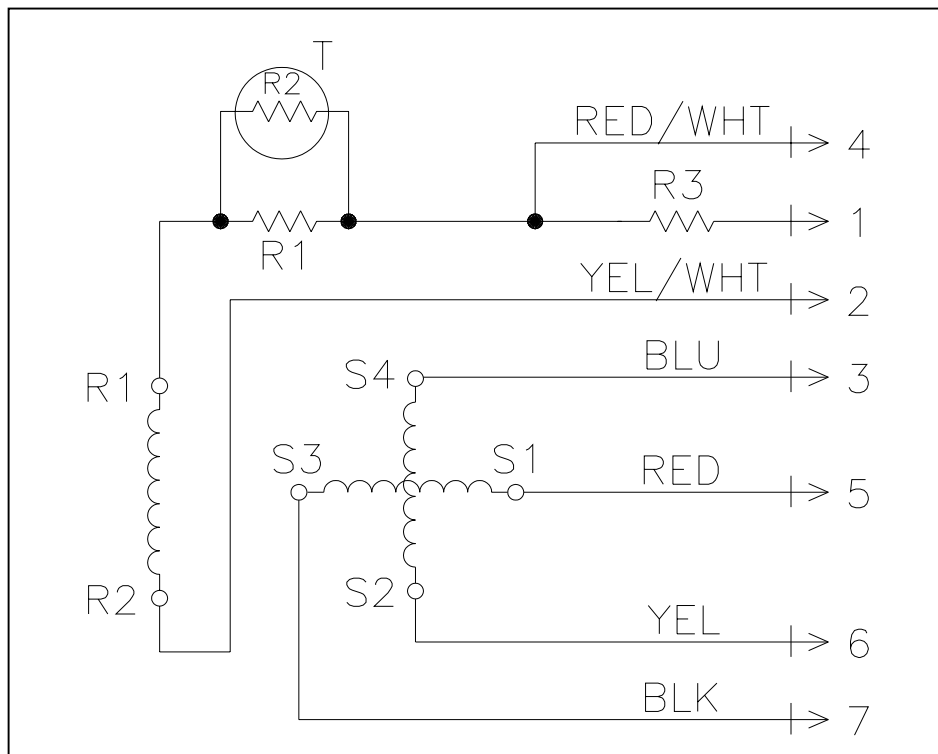


Figure 2.3 - Alternate Resolver Wiring Connections for DBM-XXX/15R, DBM-500/30R and Larger

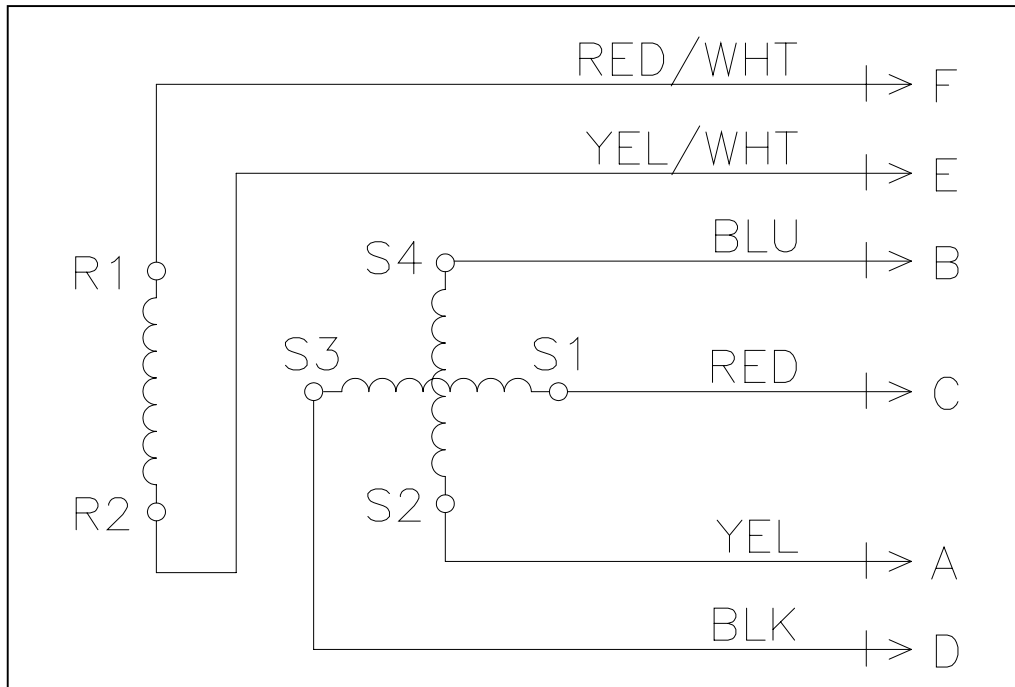


Figure 2.4 - Standard Resolver Wiring Connections for DBM-120/30R, DBM-200/30R, DBM-400/30R, DBM-BXXX/30R, DBM-D30/30R and DBM-D50/30R

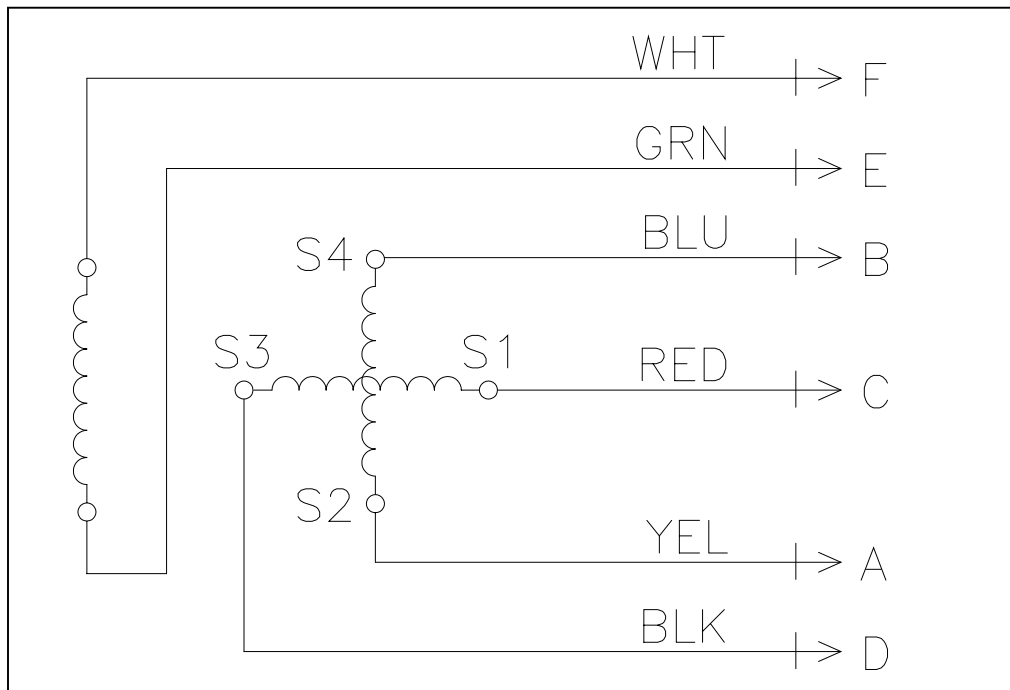


Figure 2.5 - Alternate Resolver Wiring Connections for DBM-120/30R, DBM-200/30R and DBM-400/30R

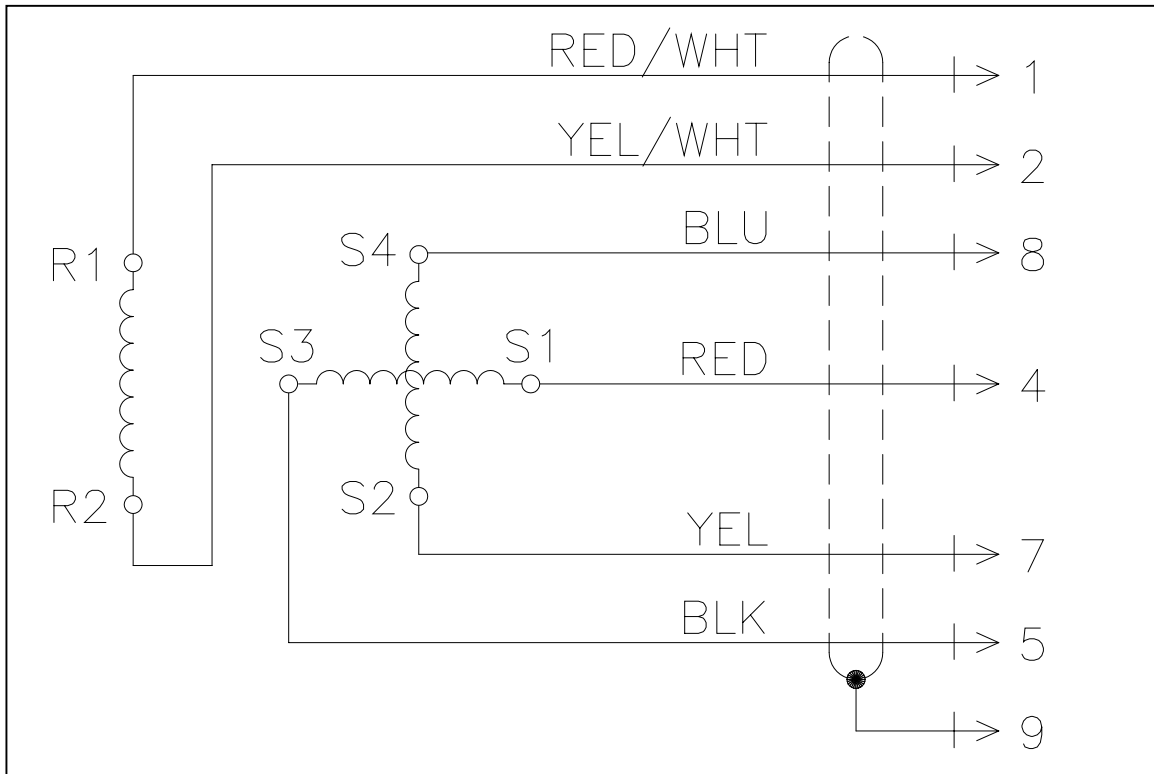


Figure 2.6 - Standard Resolver Wiring Connections for
DBM-D100/30R Through DBM-D800/30R

