



# 4442S012

Brushless DC Servo Motor

Assembly Data	Symbol	Units	Value
Reference Voltage	E	V	38.2
No-Load Speed	$S_{NL}$	rpm (rad/s)	5,925 (620)
Continuous Torque (Max.) <sup>1</sup>	$T_C$	oz-in (N-m)	14 (1.0E-01)
Peak Torque (Stall) <sup>2</sup>	$T_{PK}$	oz-in (N-m)	100 (7.1E-01)
Weight	$W_M$	oz (g)	19 (539)
Motor Data			
Torque Constant	$K_T$	oz-in/A (N-m/A)	8.67 (6.12E-02)
Back-EMF Constant	$K_E$	V/krpm (V/rad/s)	6.41 (6.12E-02)
Resistance	$R_T$	$\Omega$	3.30
Inductance	L	mH	0.64
No-Load Current	$I_{NL}$	A	0.02
Peak Current (Stall) <sup>2</sup>	$I_P$	A	11.6
Motor Constant <sup>2</sup>	$K_M$	oz-in/ $\sqrt{W}$ (N-m/ $\sqrt{W}$ )	4.77 (3.37E-02)
Friction Torque	$T_F$	oz-in (N-m)	0.15 (1.1E-03)
Rotor Inertia	$J_M$	oz-in-s <sup>2</sup> (kg-m <sup>2</sup> )	8.0E-04 (5.7E-06)
Electrical Time Constant	$\tau_E$	ms	0.20
Mechanical Time Constant	$\tau_M$	ms	5.0
Viscous Damping	D	oz-in/krpm (N-m-s)	0.044 (3.0E-06)
Damping Constant	$K_D$	oz-in/krpm (N-m-s)	16.8 (1.1E-03)
Maximum Winding Temperature	$\theta_{MAX}$	$^{\circ}F$ ( $^{\circ}C$ )	266 (130)
Thermal Impedance	$R_{TH}$	$^{\circ}F/watt$ ( $^{\circ}C/watt$ )	44 (6.4)
Thermal Time Constant	$\tau_{TH}$	min	25.6
Gearbox Data			
Encoder Data			
Channels			3
Resolution		CPR	500

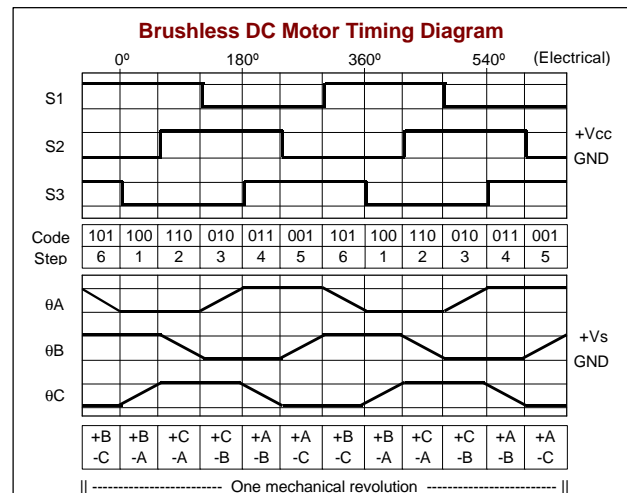
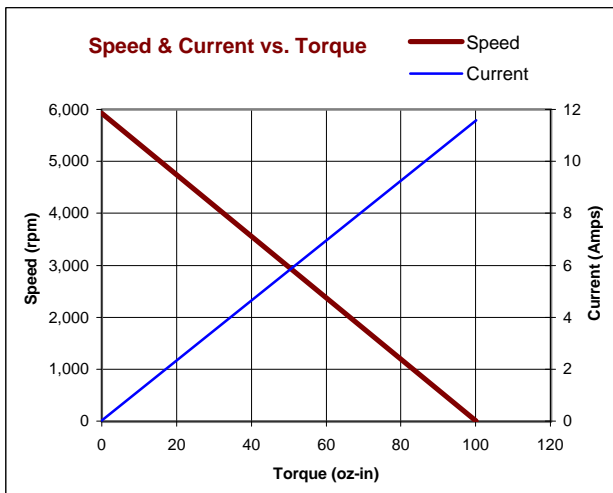
1 - Specified at max. winding temperature at 25°C ambient without heat sink. 2 - Theoretical values supplied for reference only.

## Included Features

- 4-Pole Rotor
- Neodymium Magnets
- 3-Phase Slotless Stator
- Rugged Metal Housings
- Stainless Steel Shaft
- Ball Bearings
- Hall Sensors

## Customization Options

- Alternate Winding
- Modified Output Shaft
- Custom Cable Assembly
- Spur or Planetary Gearbox
- Optional Encoder
- Fail-Safe Brake



All values are nominal. Specifications subject to change without notice. Graphs are shown for reference only.

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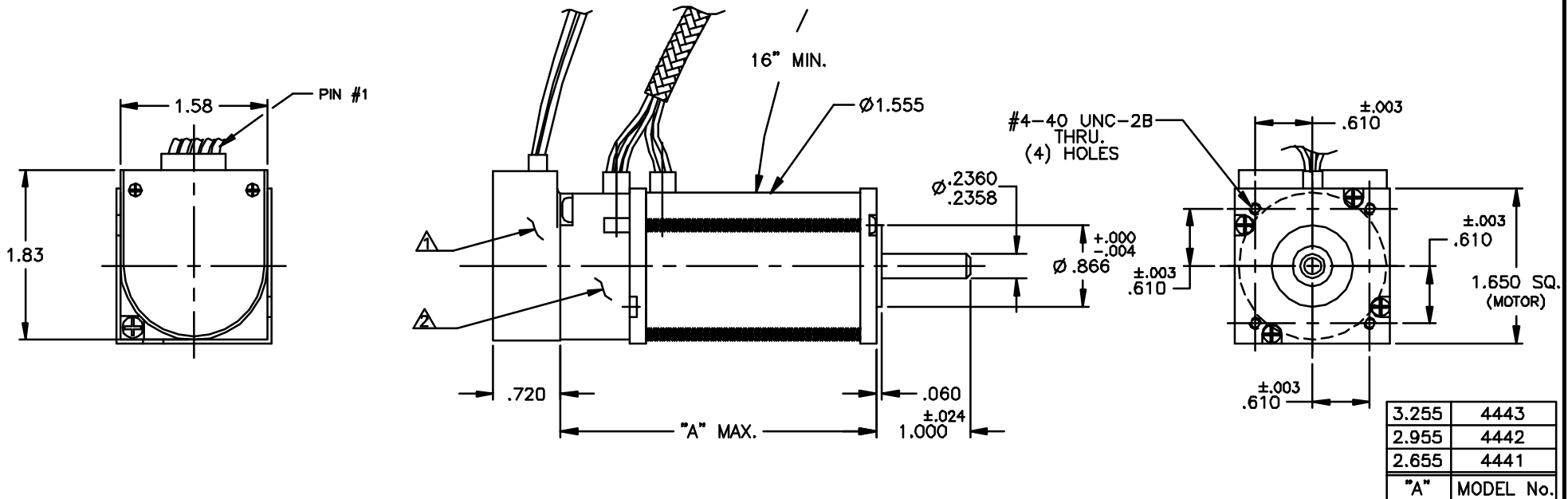
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REVISIONS				
LTR	DESCRIPTION	DRFT/ENGR	DATE	APPR
A	PRODUCTION RELEASE	DCS/DCS	3/10/99	RGR
B	-.004 WAS -.002	TJK/TJK		

ENCODER P/N CONNECTION CHART		
PIN No.	CONNECTION	COLOR
1	GROUND	BLACK
2	NC/INDEX	GREEN
3	CHANNEL A	YELLOW
4	Vcc	RED
5	CHANNEL B	BLUE

LEADWIRE & CONN. ASSY

LEAD FUNCTIONS		SENSOR				MOTOR			
3 PHASE	BLK(-) VID(+)	GRY(1)	BLU(2)	WHT(3)	BRN(A)	RED(B)	ORG(C)		
4 PHASE	BLK(-) VID(+)	GRY(1)	BLU(2)		BRN(A)	RED(B)	ORG(C)	YEL(D)	



3.255	4443
2.955	4442
2.655	4441
"A"	MODEL No.

NOTE(S):

- 1. ENCLOSURE IS A HEWLETT PACKARD OPTICAL ENCODER MODEL HEDS-91X0.
- 2. ENCLOSURE IS A HALL SENSE ASSEMBLY.
- 3. BALL BEARINGS ARE PRELOADED PER P-107BL.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTION DECIMAL ANGLES ±1/64 .015 .015 ±1° XX ±010 XXX±005 BREAK ALL SHARP EDGES		FILE: 150/605		<b>TITLE:</b> OUTLINE & MOUNTING DIMENSIONS STD. 40MM GOLD NEMA W91X0 & LEADS <b>DWG. NO.</b> B- 150-605 SCALE: NONE	<b>REV.</b> B
MATERIAL:	DRAFTED BY DCS DATE 3/4/99	<b>APPROVED BY</b> RGR 3/10/99			
FINISH:	ENGINEERED BY DCS 3/4/99	<b>APPROVED BY</b> RGR 3/10/99			
	APPROVED BY RGR 3/10/99	<b>APPROVED BY</b> RGR 3/10/99			
	NEXT ASSY:	USED ON:	SHEET 1		