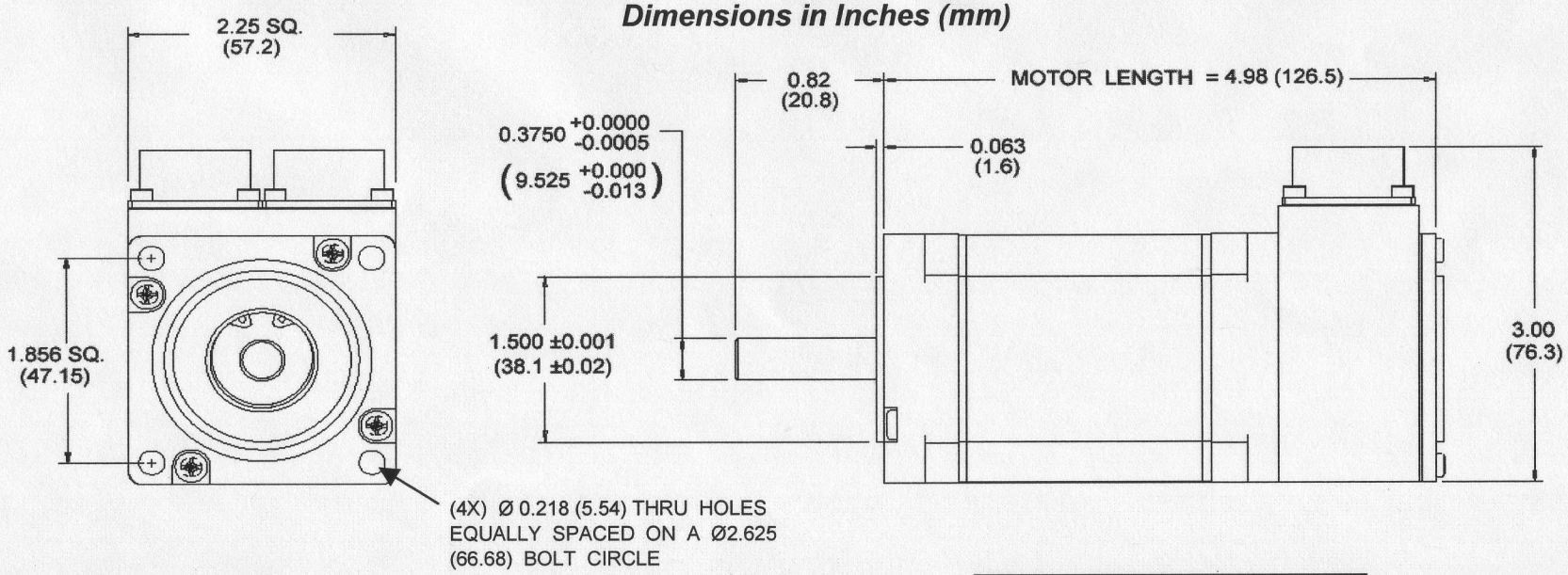
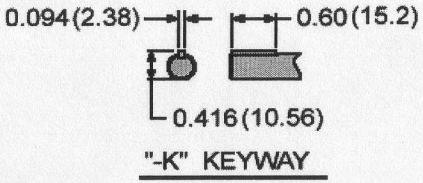
Dimensions in Inches (mm)



NEMA 23 FRAME
NON-VENTED / TOTALLY ENCLOSED
MS STYLE CONNECTORS
KEYWAY SHAFT
VITON SEALED SHAFT
CE COMPLIANT



"-K" KEYWAY

Motor Connection

Designation	Pin Number MS14-12	Wire Color "MS"/"RS" Cables	Wire Color "GS/GB" Cables
Phase A	J	Red/Yellow	Black 1
Phase B	K	White/Yelow	Black 2
Phase C	L	Black/Yellow	Black 3
Ground	M	Green/Yellow	Green/Yellow
Shield	N.C.	Clear	N.C.

Encoder Specifications

Mechanical	Accuracy	±2 min of arc
Electrical	Input power	5 VDC ±5%, 135 mA
	Operating frequency	250 kHz max
	Output device	26LS31
	Sink/Source, nominal	20 mA
	Suggested user interface	26LS32

Parker
COMPUMOTOR Division
5500 Business Park Drive
Rohnert Park, CA 94928

TITLE :	**MOTOR, SERVO - BRUSHLESS, SIZE 23**	
PART NO. :	CM232AE-KGSV	REV
SCALE : NONE		SHEET : 1 of 3

Size 23, Encoder Feedback, Specifications*

Parameter	Symbol	Units	SM232A
Stall Torque Continous[1]	T_{cs}	lb-in	6.6
		oz-in	106
		Nm	0.74
Stall Current Continuous[1,4,8]	I_{cs}(sine)	Amps Peak	2.8
Stall Current Continuous[1,7]	I_{cs}(trap)	Amps DC	2.4
Peak Torque[6]	T_{pk}	lb-in	19.8
		oz-in	316
		Nm	2.21
Peak Current[4,6,8]	I_{pk}(sine)	Amps Peak	8.3
Peak Current[6,7]	I_{pk}(trap)	Amps DC	7.2
Rated Speed[2]	ω_r	rpm	7500
Current@Rated Speed	I_r(sine)	Amps	2.3
Current@Rated Speed	I_r(trap)	Amps	2.0
Torque@Rated Speed	T_r	lb-in	5.1
		oz-in	81
		Nm	0.57
Shaft Power@Rated Speed	P_o	watts	449
Voltage Constant[3,4]	K_b	Volts/rad/s	0.310
Voltage Constant[3,4]	K_e	Volts/KRPM	32.46
Torque Constant[9]	K_t(sine)	oz-in/Amp Peak	38.02
		Nm/Amp Peak	0.266
Torque Constant[3,4]	K_t(trap)	oz-in/Amp DC	43.90
		Nm/Amp DC	0.307
Resistance[3]	R	Ohms	7.50
Inductance[5]	L	mH	2.90
Maximum Bus Voltage	V_m	Volts DC	340
Therm. Resistance Wind-Amb	R_{th} w-a	°C/watt	1.54
Motor Constant	K_m	oz-in/√watt	16.03
		Nm/√watt	0.112
Viscous Damping	B	oz-in/Krpm	0.360
		Nm/Krpm	2.52 E-3
Static Friction	T_f	oz-in	0.70
		Nm	4.90 E-3
Motor Thermal Time Constant	τ_{th}	minutes	21.6
Electrical Time Constant	τ_{elec}	millisecs	0.39
Mechanical Time Constant	τ_{mech}	millisecs	7.2
Intermittent Torque Duration[10]	T_{2x}	seconds	18
Peak Torque Duration[11]	T_{3x}	seconds	6
Rotor Inertia	J	lb-in-sec²	8.2 E-4
		kg-m²	9.3 E-5
Number of Poles	Np		4
Weight	#	lbs	3.0
		kg	1.4
Winding Class			H

1 *@ 25°C ambient, 125°C winding temperature, motor connected to a 10"x10"x1/4" aluminum mounting plate. @40°C ambient derate phase currents and torques by 12%.*

2 *Operation with 340 VDC bus. Maximum speed is 5000 RPM. For higher speed operation please call the factory.*

3 *Measured Line to Line, +/- 10%.*

4 *Value is measured peak of sine wave.*

5 *+/-30%, Line-to-Line, inductance bridge measurement @1Khz.*

6 *Initial winding temperature must be 60°C or less before peak current is applied.*

7 *DC current through a pair of motor phases of a trapazoidally (six state) commutated motor.*

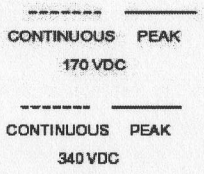
8 *Peak of the sinusiodal current in any phase for a sinusoidally commutated motor.*

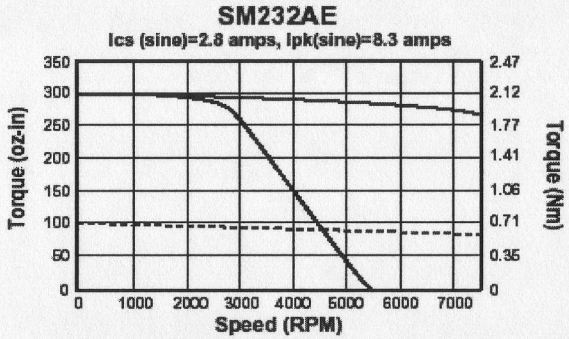
9 *Total motor torque per peak of the sinusoidal amps measured in any phase, +/-10%.*

10 *Maximum time duration with 2 times rated current applied with initial winding temp at 60°C.*

11 *Maximum time duration with 3 times rated current applied with initial winding temp at 60°C.*

These specifications are based on theorectical motor performance and are not specific to any amplifier.





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TITLE :	**MOTOR, SERVO - BRUSHLESS, SIZE 23**	
PART NO. :	CM232AE-KGSV	REV
SCALE : NONE	SHEET : 2 of 3	

Environmental Motor Specification:

The **"MS"** connection option for the **SM Series** motors, which is the circular bayonet style connectors attached to the motor body, provides quick disconnect and added environmental protections. The mating cable / connector contains the motor phase and temperature switch wires in one assembly, with hall and encoder signals in a second cable / connector assembly. This connector assembly arrangement prevents EMI / RFI intrusion into the electrical system. This system is ***CE Compliant.***

SM Series motors have totally enclosed, non-vented housing. When the **"MS"** connection option is employed, the motor receives an environmental exposure rating of ***IP65***. To better clarify this rating, please review the information shown.

NEMA Standards defines an ***IP65*** rating as "water projected by a nozzle against a machine from any direction shall have no harmful effect."

IP65

Dust protection		Water protection	
First characteristic numeral	**Brief description**	**Second characteristic numeral**	**Brief description**
0	Non-protected	0	Non-protected
1	Protected against solid objects greater than 50mm	1	Protected against dripping water
2	Protected against solid objects greater than 12.5mm	2	Protected against dripping water when tilted up to 15°
3	Protected against solid objects greater than 2.5mm	3	Protected against spraying water
4	Protected against solid objects greater than 1mm	4	~~Protected against splashing~~
5	~~Dust-protected~~	**5**	**Protected against water jets**
6	**Dust tight**	6	~~Protected against heavy seas~~
		7	Protected against the effects of immersion
		8	Protected against submersion

Parker	**COMPUMOTOR** Division 5500 Business Park Drive Rohnert Park, CA 94928	
TITLE :	**MOTOR, SERVO - BRUSHLESS, SIZE 23**	
PART NO. :	CM232AE-KGSV	REV
SCALE : NONE	SHEET : 3 of 3	