



Features

- Non-contacting magnetic technology
- Highly resistant to vibration/shock
- Highly resistant to fluid/dust ingress
- Programmable at factory for zero position
- Robust design for industrial applications
- Highly repeatable
- RoHS compliant*

DMS22B Non-Contacting Feedback Rotary Sensor with SSI

Electrical Characteristics¹ (@ 25 °C)

VDD Supply Voltage	4.5 V min., 5 V typ., 5.5 V max.
Supply Current	25 mA max.
Output Signal (Single)	Digital SSI
Independent Linearity	±0.3 %
Hysteresis	0.2 % max.
Effective Electrical Angle	360 °
Output Range	0 to 4095
Output Resolution	12 bit
Load Resistance Recommended	10K ohms to open
Overvoltage Protection	+20 V DC
Reverse Voltage Protection	-10 V DC

Environmental Characteristics

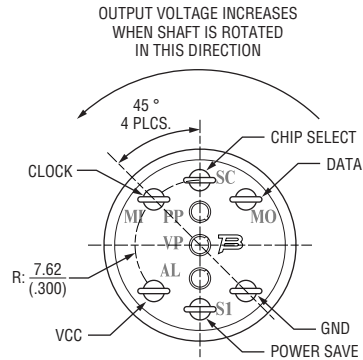
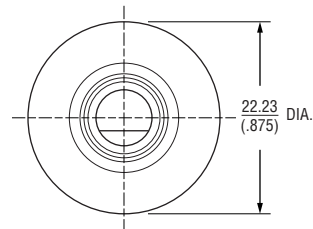
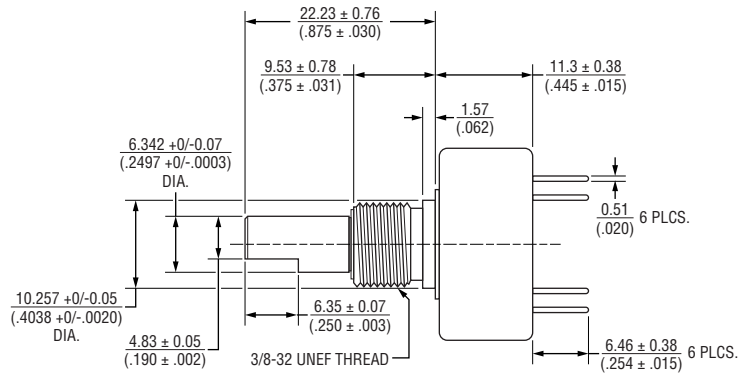
Operating Temperature	-40 °C to +125 °C
Moisture Resistance	MIL-STD-202, Method 106
Insulation Resistance @ 500 V AC	500 MW min.
Vibration	15 G, 10 to 2000 Hz
Shock	.50 G
IP Rating	IP 50
ESD Rating	2 kV max.
Soldering Condition	
Wave Soldering	96.5 Sn / 3.0 Ag / 0.5 Cu with no-clean flux; 260 °C (500 °F) max. for 5 s
Manual Soldering	96.5 Sn / 3.0 Ag / 0.5 Cu solid wire or no-clean rosin cored wire 370 °C (700 °F) max. for 3 s
Wash Processes	Not recommended

Mechanical Characteristics

Mechanical Angle	Continuous (360 °)
Shaft/RPM	120 RPM max.
Torque	
Starting & Running	1.06 N-cm (1.5 oz-in.) max.
Mounting	170-200 N-cm (15-18 lb.-in.) max.
Shaft Material	Stainless steel
Terminals	Brass / 100 % matte tin over Ni strike (e3)
Bearing	Oil impregnated sleeve
Rotational Life	50 million shaft revolutions

¹At room ambient: +25 °C nominal and 50 % relative humidity nominal, except as noted.

Product Dimensions



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WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex. Specifications are subject to change without notice. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf.

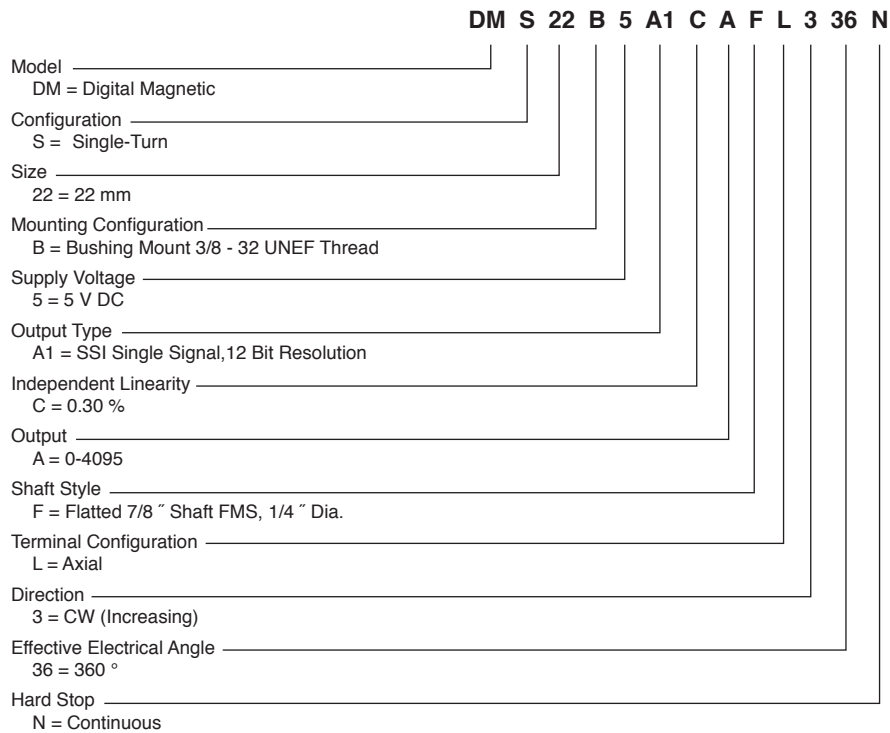
Applications

- Patient platform positioning feedback
- Pneumatic control valve position feedback
- Draw wire position sensors
- Remote communications antenna positioning
- Actuator motor position feedback
- Automated manufacturing robotics
- Tilt control and tilt positioning feedback

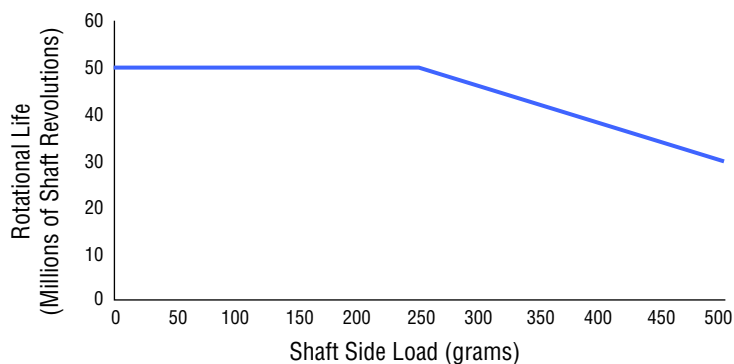
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How To Order



Rotational Life vs. Side Load



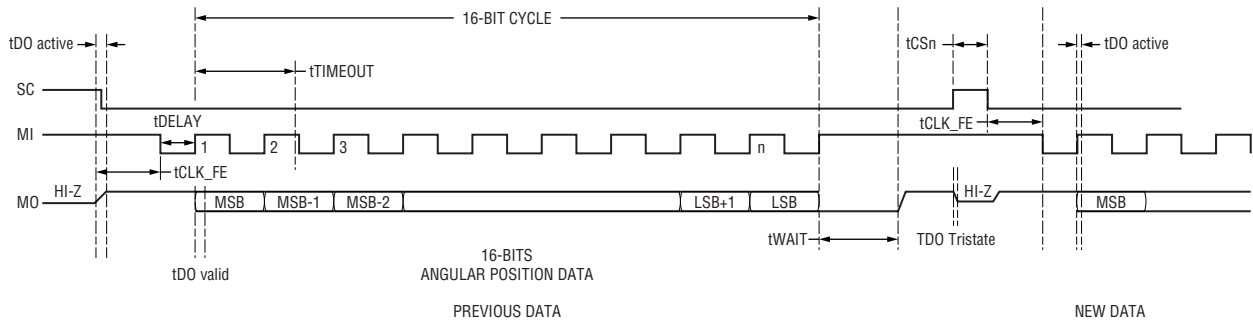
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Users should verify actual device performance in their specific applications.

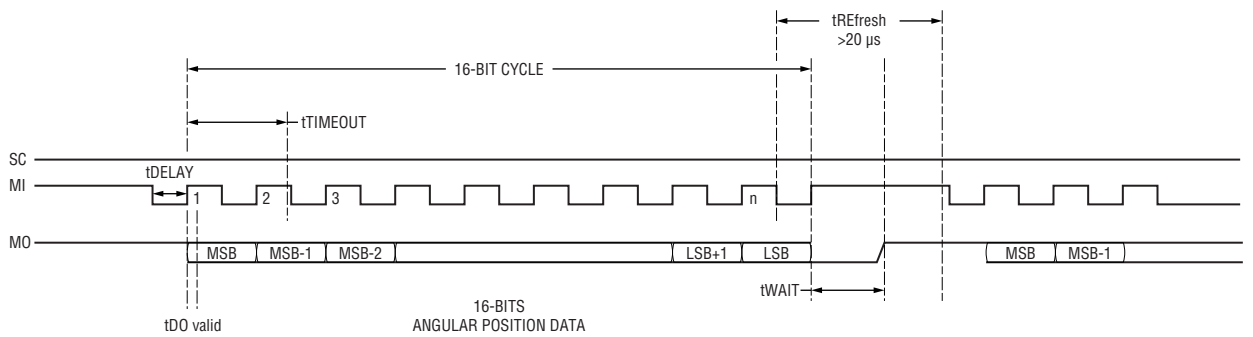
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SSI Timing Diagram

SSI 3-wired



SSI 2-wired



SSI Timing Characteristics

Parameter	Min.	Typ.	Max.	Units	Notes
fclk	—	—	1000	kHz	
tCLK FE	—	—	500	ns	minimum time required for encoder to freeze data and prepare shift registers before receiving the first rising edge to prompt the MSB
tDO active	—	100	—	ns	
tDO valid	—	50	—	ns	
tCSn	—	500	—	ns	
tDO Tristate	—	100	—	ns	
tDELAY	—	500	—	ns	minimum time required for encoder to freeze data and prepare shift registers before receiving the first rising edge to prompt the MSB
tREFRESH	20	—	—	μs	required waiting time to refresh position data between subsequent position reads
tTIMEOUT	—	—	20	μs	every falling edge of the clock
tWAIT	—	—	10	μs	max. time to hold DO to low

Note: SSI Timing Characteristics prevail over Recommended Operating Range unless otherwise specified.

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