



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

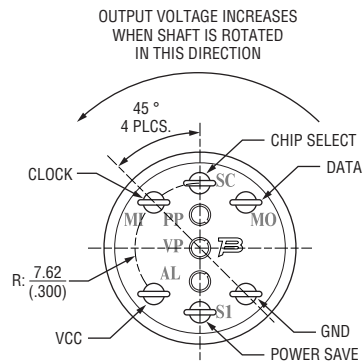
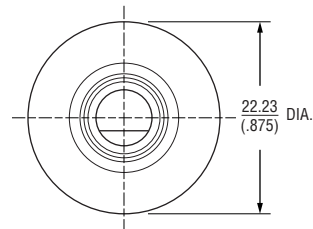
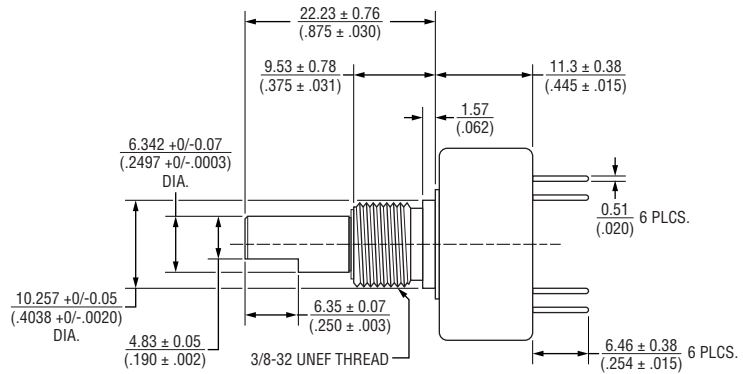
Operating Temperature	-40 °C to +125 °C
Moisture Resistance	MIL-STD-202, Method 106
Insulation Resistance @ 500 V AC	500 MW min.
Vibration	15 G, 10 to 2000 Hz
Shock	.50 G
IP Rating	IP 50
ESD Rating	2 kV max.
Soldering Condition	
Wave Soldering	96.5 Sn / 3.0 Ag / 0.5 Cu with no-clean flux; 260 °C (500 °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.

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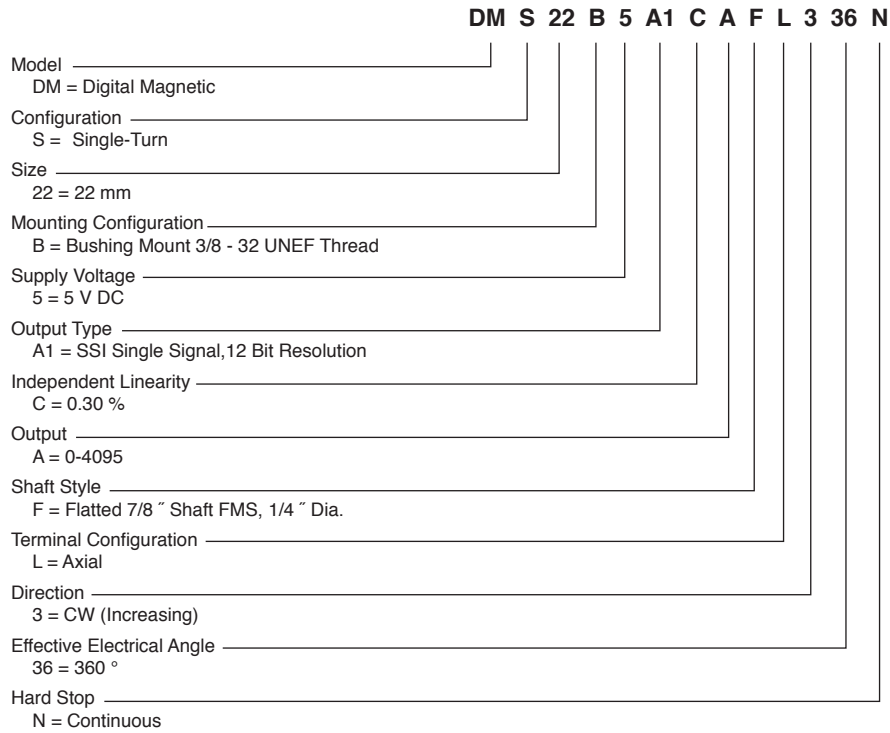
Applications

- 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

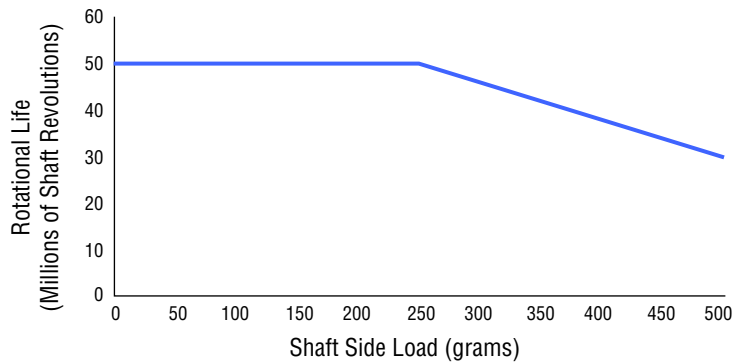
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How To Order



Rotational Life vs. Side Load



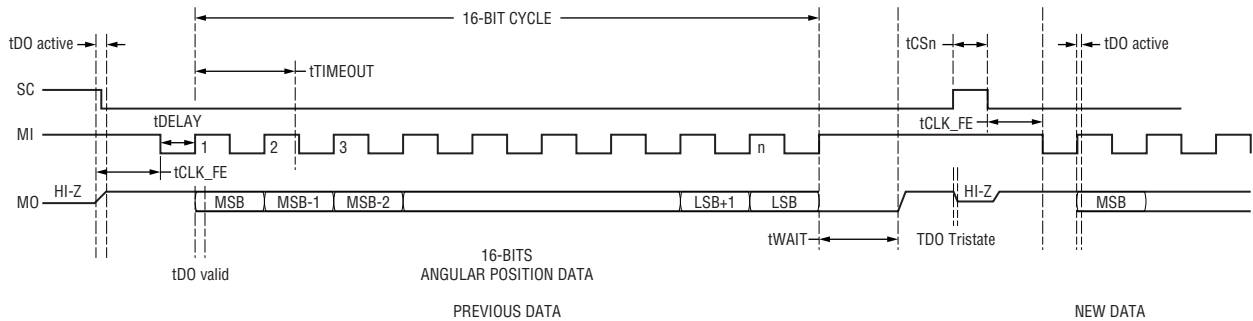
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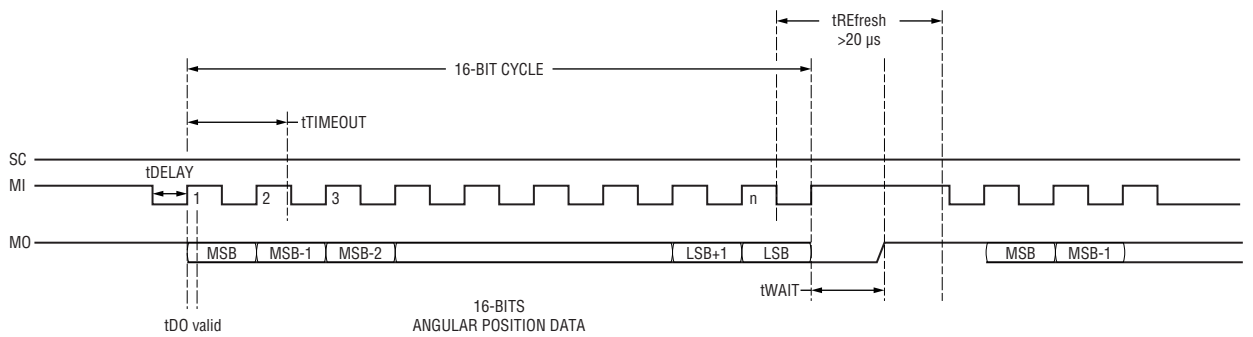
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SSI Timing Diagram

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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