



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

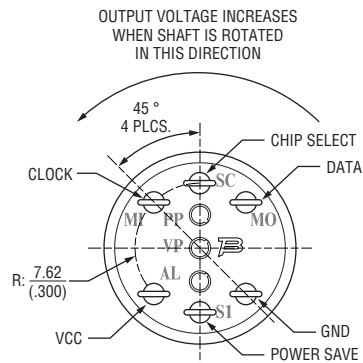
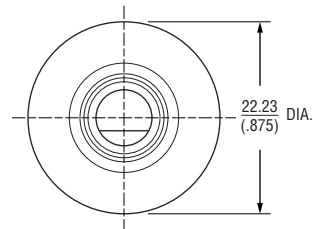
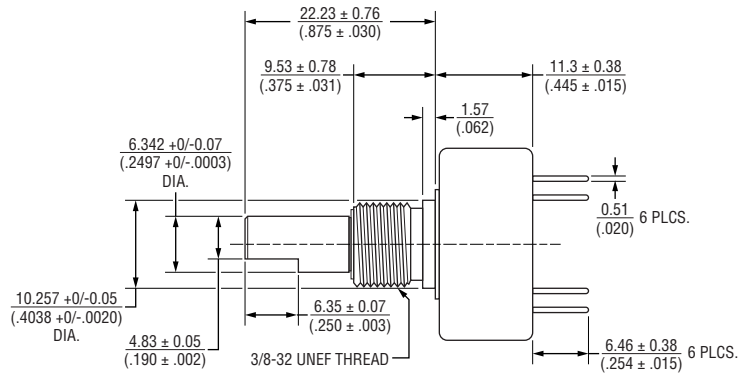
| | |
|----------------------------------|--|
| Operating Temperature | -40 °C to +125 °C |
| Moisture Resistance | MIL-STD-202, Method 106 |
| Insulation Resistance @ 500 V AC | 500 MW min. |
| Vibration | 15 G, 10 to 2000 Hz |
| Shock | .50 G |
| IP Rating | IP 50 |
| ESD Rating | 2 kV max. |
| Soldering 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.

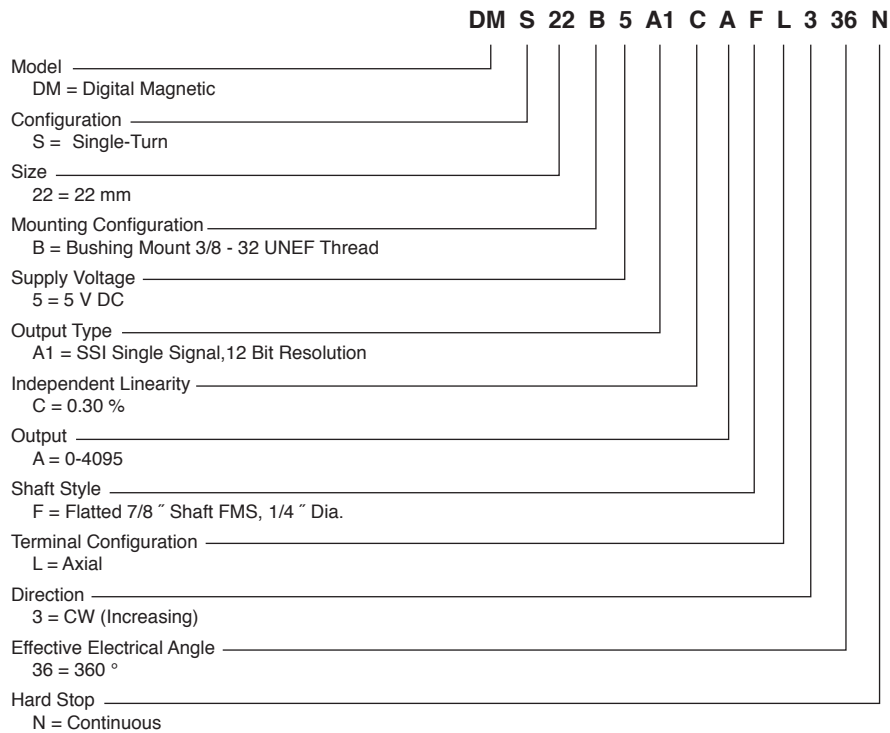
Applications

- 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

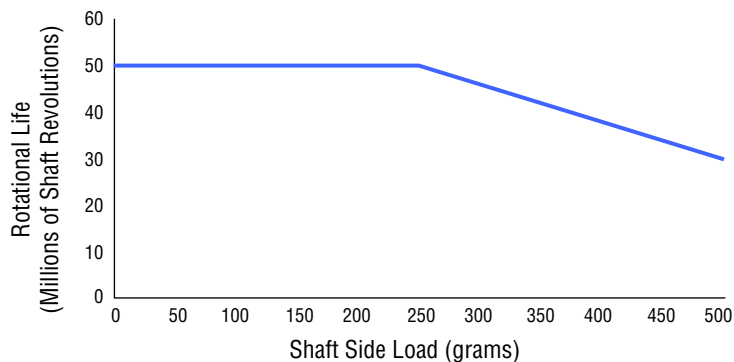
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How To Order



Rotational Life vs. Side Load



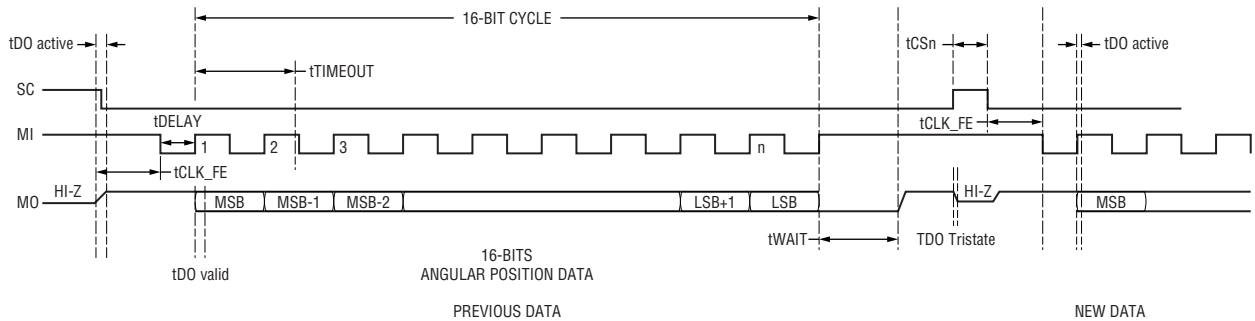
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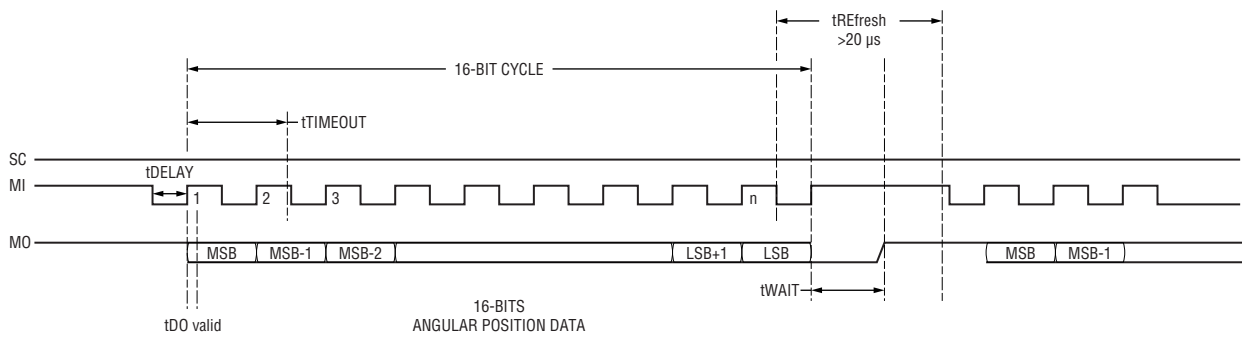
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SSI Timing Diagram

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.