



## Features

- Non-contacting magnetic technology
- Highly resistant to vibration/shock
- Highly resistant to fluid/dust ingress
- Programmable slope
- Robust design for industrial applications
- Ideal memory positioning sensor

■ RoHS compliant\*

## AMM20B Multiturn Magnetic Position Sensor

### Electrical Characteristics<sup>1</sup> (@ 25 °C)

|                                         |                                                                  |
|-----------------------------------------|------------------------------------------------------------------|
| VDD Supply Voltage                      | 5 V ± 10 %                                                       |
| Supply Current <sup>2</sup>             |                                                                  |
| For Low Speed Processing (Code L)       | 12 mA max.                                                       |
| For High Speed Processing (Code H)      | 15 mA max.                                                       |
| Output Signal (Single)                  | Analog                                                           |
| Independent Linearity                   | ±0.5 % (±0.3 % available on request)                             |
| Backlash                                | < 10 ° typ.                                                      |
| Effective Electrical Angle <sup>3</sup> |                                                                  |
| 3-10 Turns                              | 1080 °, 1440 °, 1800 °, 2160 °, 2520 °, 2880 °, 3240 ° or 3600 ° |
| 11-16 Turns                             | 3960 °, 4320 °, 4680 °, 5040 °, 5400 °, 5760 °                   |
| Voltage Output (Programmable)           | 1 to 99 % VDD ±1 %                                               |
| Output Resolution                       | 12 bit @ 3600 °                                                  |
| Load Resistance Recommended             | 10K ohms to ∞                                                    |
| Overvoltage Protection                  | +20 VDC                                                          |
| Reverse Voltage Protection              | -10 VDC                                                          |

### Environmental Characteristics

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| Operating and Storage Temperature   | -40 ° to +125 °C                     |
| Humidity                            | MIL-STD-202, Method 103, Condition B |
| Insulation Resistance @ 500 VAC     | 100 MΩ min.                          |
| Rotational Life (Shaft Revolutions) | 50 million                           |
| Vibration                           | 15 G                                 |
| Shock                               | 50 G                                 |
| IP Rating                           | IP50                                 |

### Mechanical Characteristics (@ 25 °C)

|                      |                                                                                                |
|----------------------|------------------------------------------------------------------------------------------------|
| Mechanical Angle     |                                                                                                |
| 3-10 Turns           | 3960 ° min.                                                                                    |
| 11-16 Turns          | 6480 ° min.                                                                                    |
| Shaft/RPM            | 500 RPM max.                                                                                   |
| Torque               |                                                                                                |
| Starting & Running   | 2.82 N-cm. (4.0 oz.-in.) max.                                                                  |
| Mounting             | 170-200 N-cm (15-18 lb.-in.) max.                                                              |
| Shaft Material       | Stainless steel                                                                                |
| Terminal Pins        | Phos. Bronze, 100 % tin plated (e3)                                                            |
| Bearing              | Bronze sleeve                                                                                  |
| Housing and Rear Lid | UL94V0                                                                                         |
| Soldering Condition  |                                                                                                |
| Manual Soldering     | 96.5Sn/3.0Ag/0.5Cu solid wire or no-clean rosin cored wire; 370 °C (700 °F) max. for 3 seconds |
| Wave Soldering       | 96.5Sn/3.0Ag/0.5Cu solder with no-clean flux; 260 °C (500 °F) max. for 5 seconds               |
| Wash processes       | Not recommended                                                                                |

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

<sup>2</sup> See "Processing Speed" in How to Order selection guide.

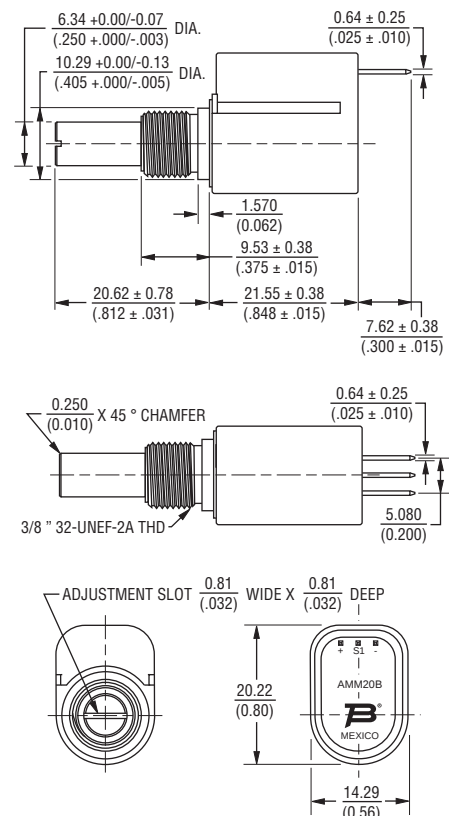
<sup>3</sup> Other Effective Electrical Angles available. See How to Order selection guide.

### Resolution

| No. of Turns | EEA  | Resolution |
|--------------|------|------------|
| 3            | 1080 | 1228       |
| 4            | 1440 | 1638       |
| 5            | 1800 | 2047       |
| 6            | 2160 | 2456       |
| 7            | 2520 | 2866       |
| 8            | 2880 | 3275       |
| 9            | 3240 | 3685       |

| No. of Turns | EEA  | Resolution |
|--------------|------|------------|
| 10           | 3600 | 4094       |
| 11           | 3960 | 2816       |
| 12           | 4320 | 3072       |
| 13           | 4680 | 3328       |
| 14           | 5040 | 3584       |
| 15           | 5400 | 3840       |
| 16           | 5760 | 4096       |

### Product Dimensions



TOLERANCES EXCEPT WHERE NOTED

DECIMALS: .XX ± .50 (.02) .XXX ± .127 (.005)

DIMENSIONS: MM (INCHES)

\*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.

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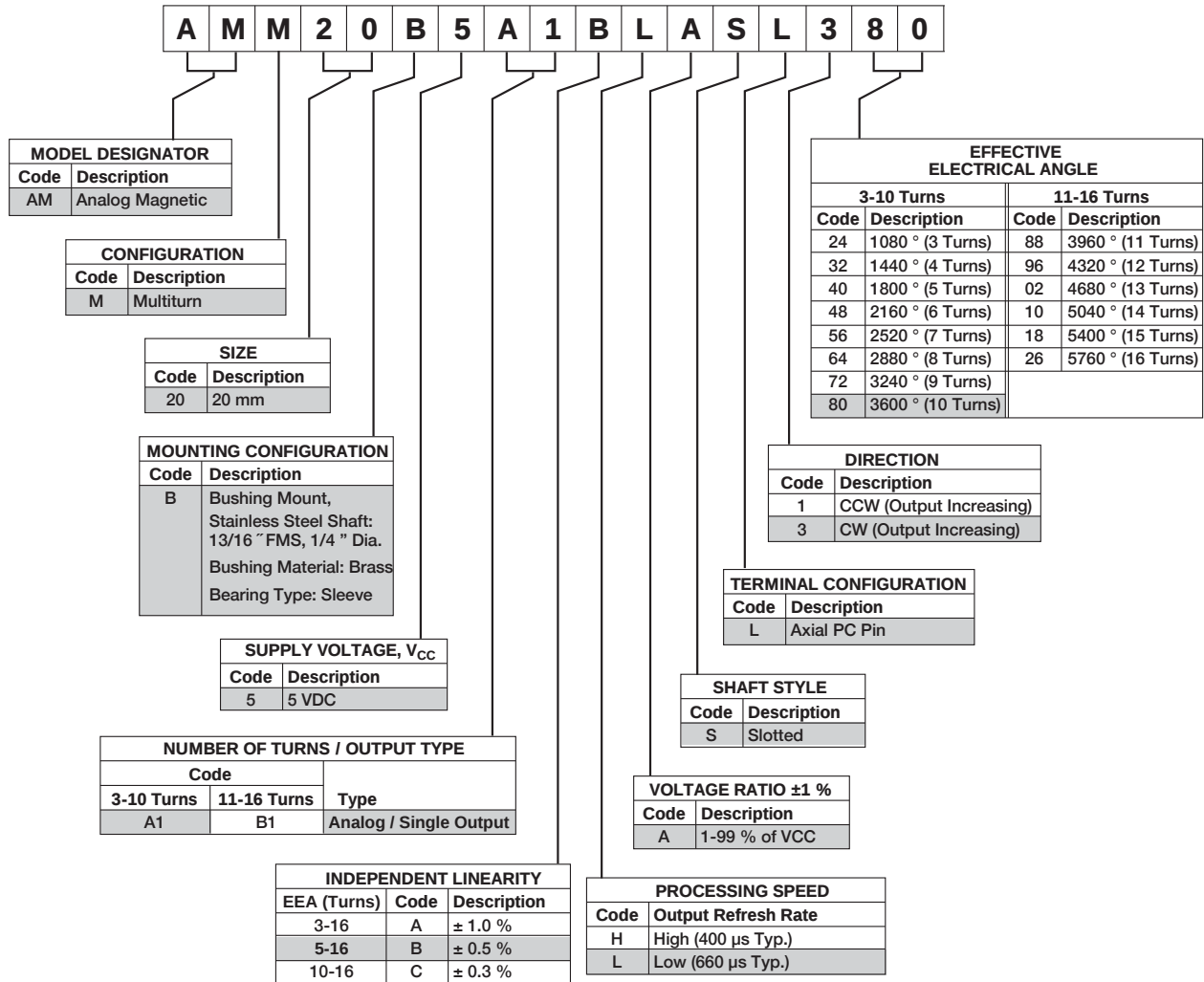


**WARNING** Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

# AMM20B Multiturn Magnetic Position Sensor

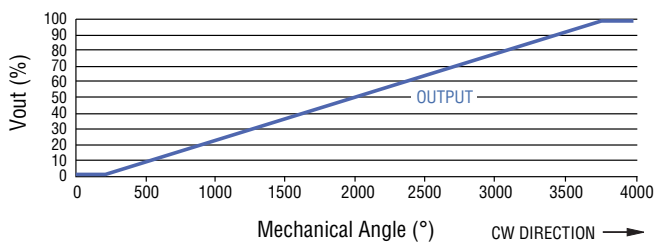
**BOURNS®**

## How To Order

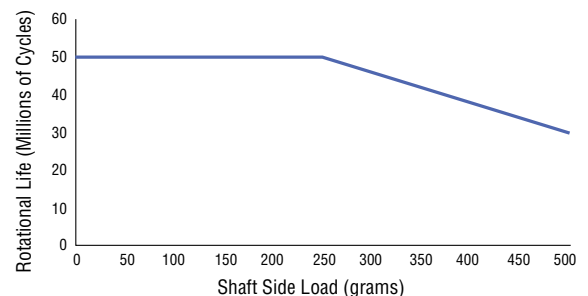


Shaded areas represent most common features.

### Standard Output: 10-Turn CW Increasing (Code 380 Shown)



### Rotational Life vs. Shaft Side Load



REV. 10/19

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