



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 Characteristics¹ (@ 25 °C)

VDD Supply Voltage	5 V ± 10 %
Supply Current ²	
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 ³	
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

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

² See "Processing Speed" in How to Order selection guide.

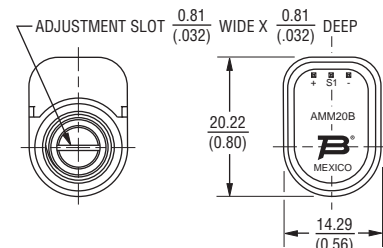
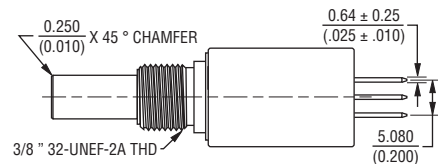
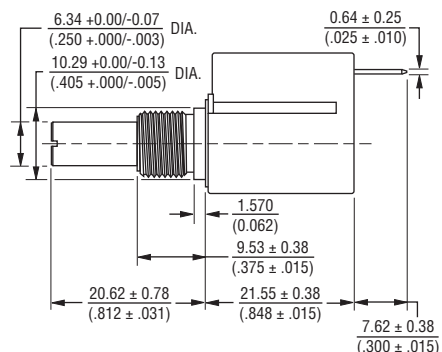
³ Other Effective Electrical Angles available. See How to Order selection guide.

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: $\frac{\text{MM}}{\text{(INCHES)}}$

*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.

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.

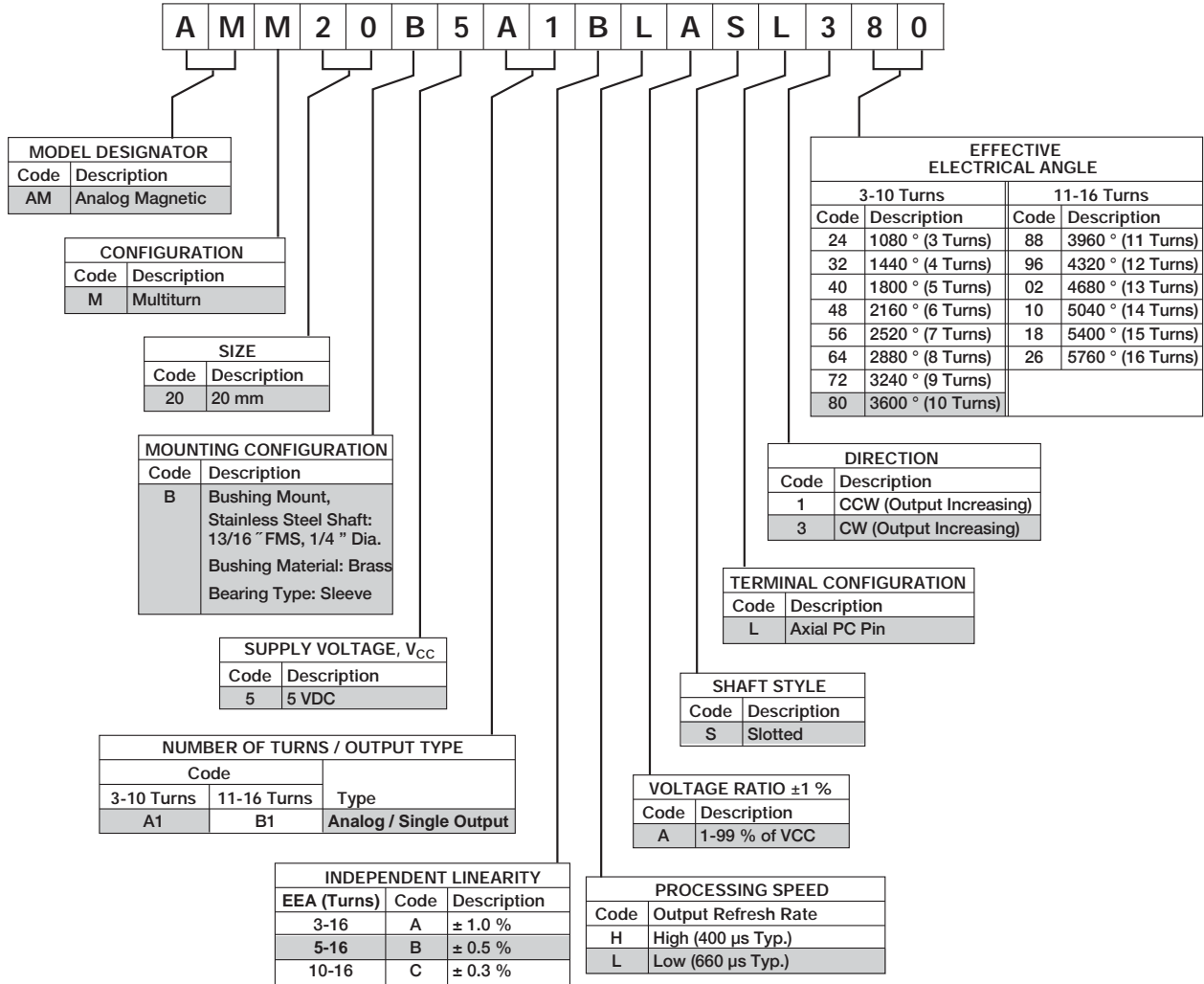


WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

AMM20B Multiturn Magnetic Position Sensor

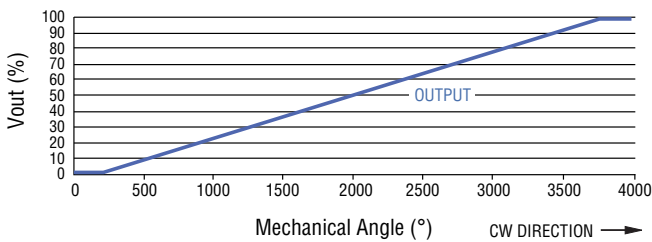
BOURNS®

How To Order

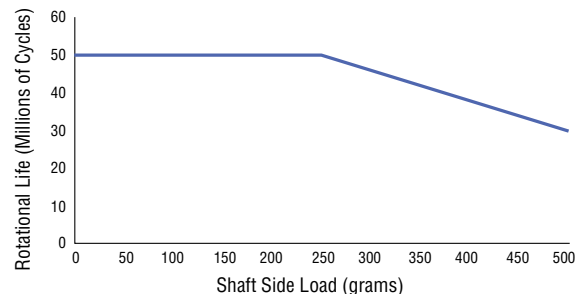


Shaded areas represent most common features.

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



Rotational Life vs. Shaft Side Load



REV. 10/19

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.

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, “Bourns”).

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain types of applications are based on Bourns’ knowledge of typical requirements in generic applications. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user’s application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Users should always verify the actual performance of the Bourns® product in their specific devices and applications, and make their own independent judgments regarding the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., ISO/TS 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification. Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in nuclear, lifesaving, life-critical or life-sustaining applications, nor in any other applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage. Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any Bourns® products in such unauthorized applications might not be safe and thus is at the user’s sole risk. Life-critical applications include devices identified by the U.S. Food and Drug Administration as Class III devices and generally equivalent classifications outside of the United States.

Bourns expressly identifies those Bourns® standard products that are suitable for use in automotive applications on such products’ data sheets in the section entitled “Applications.” Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard products in an automotive application might not be safe and thus is not recommended, authorized or intended and is at the user’s sole risk. If Bourns expressly identifies a sub-category of automotive application in the data sheet for its standard products (such as infotainment or lighting), such identification means that Bourns has reviewed its standard product and has determined that if such Bourns® standard product is considered for potential use in automotive applications, it should only be used in such sub-category of automotive applications. Any reference to Bourns® standard product in the data sheet as compliant with the AEC-Q standard or “automotive grade” does not by itself mean that Bourns has approved such product for use in an automotive application.

Bourns® standard products are not tested to comply with United States Federal Aviation Administration standards generally or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aircraft or space applications. Bourns expressly identifies Bourns® standard products that are suitable for use in aircraft or space applications on such products’ data sheets in the section entitled “Applications.” Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard product in an aircraft or space application might not be safe and thus is not recommended, authorized or intended and is at the user’s sole risk.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Users shall not sell, transfer, export or re-export any Bourns® products or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology in any facility which engages in activities relating to such devices. The foregoing restrictions apply to all uses and applications that violate national or international prohibitions, including embargos or international regulations. Further, Bourns® products and Bourns technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products may not, without prior authorization from Bourns and/or the U.S. Government, be resold, transferred, or re-exported to any party not eligible to receive U.S. commodities, software, and technical data.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties, including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: <http://www.bourns.com/legal/disclaimers-terms-and-policies>

PDF: <http://www.bourns.com/docs/Legal/disclaimer.pdf>