



## 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\*

## AMS22S Non-Contacting Analog Rotary 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)       | 10 mA max.                      |
| For High Speed Processing (Code H)      | 20 mA max.                      |
| Output Signal (Single)                  | Analog                          |
| Independent Linearity                   | ±0.5 %                          |
|                                         | (±0.3 % available on request)   |
| Hysteresis                              | 0.2 % VDD max.                  |
| Effective Electrical Angle <sup>3</sup> | 340 °                           |
| Programmable Electrical Angle           | 10 ° to 360 ° (10 ° increments) |
| Voltage Output (Programmable)           | 1 to 99 % VDD ± 1 %             |
| Output Resolution                       | 12 bit @ 360 °                  |
| Load Resistance Recommended             | 10K ohms to ∞                   |
| Overvoltage Protection                  | +20 VDC                         |
| Reverse Voltage Protection              | -10 VDC                         |

### Environmental Characteristics

|                                     |                         |
|-------------------------------------|-------------------------|
| Operating Temperature               | -40 ° to +125 °C        |
| Moisture Resistance                 | MIL-STD-202, Method 106 |
| Insulation Resistance @ 500 VAC     | 500 MΩ min.             |
| Rotational Life (Shaft Revolutions) | 50 million              |
| Vibration                           | 15 G                    |
| Shock                               | 50 G                    |
| IP Rating                           | IP50                    |
| ESD Rating                          | 2 kV max.               |

### Mechanical Characteristics (@ 25 °C)

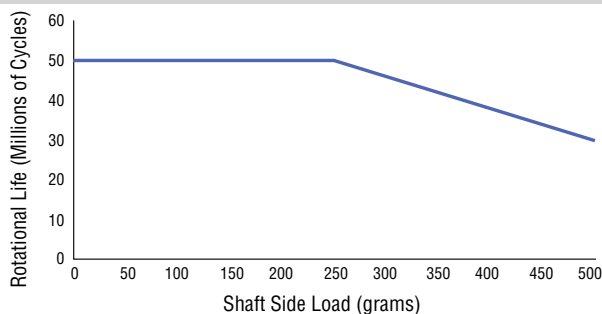
|                             |                                                                                                |
|-----------------------------|------------------------------------------------------------------------------------------------|
| Mechanical Angle            | Continuous                                                                                     |
| Shaft/RPM                   | 200 RPM max.                                                                                   |
| Torque (Starting & Running) | 1.06 N-cm. (1.5 oz-in.) max.                                                                   |
| Shaft Material              | Stainless steel                                                                                |
| Terminals                   | Brass / 100 % matte tin over Ni Strike (e3)                                                    |
| Bearing                     | Bronze sleeve                                                                                  |
| 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.

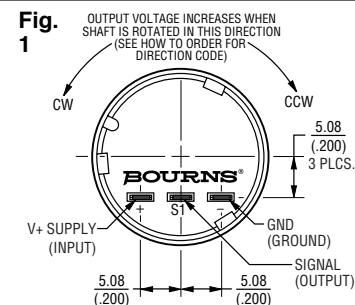
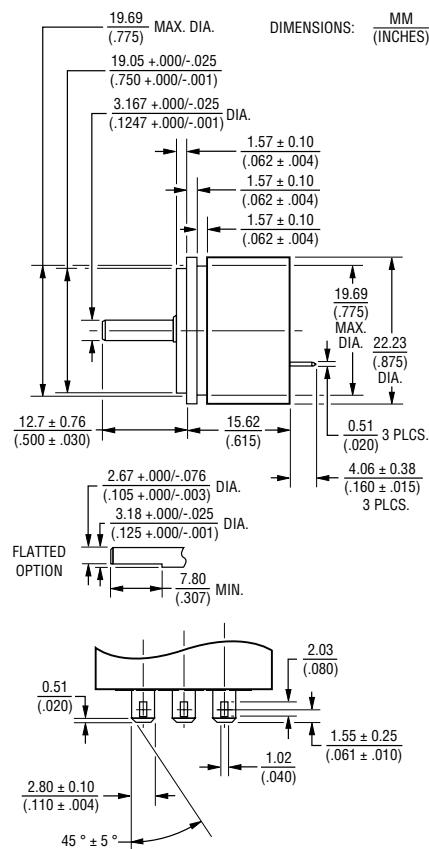
<sup>2</sup> See "Processing Speed" in How to Order selection guide.

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

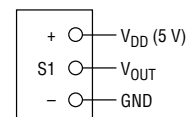
### Rotational Life vs. Shaft Side Load



### Product Dimensions



### Schematic



\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

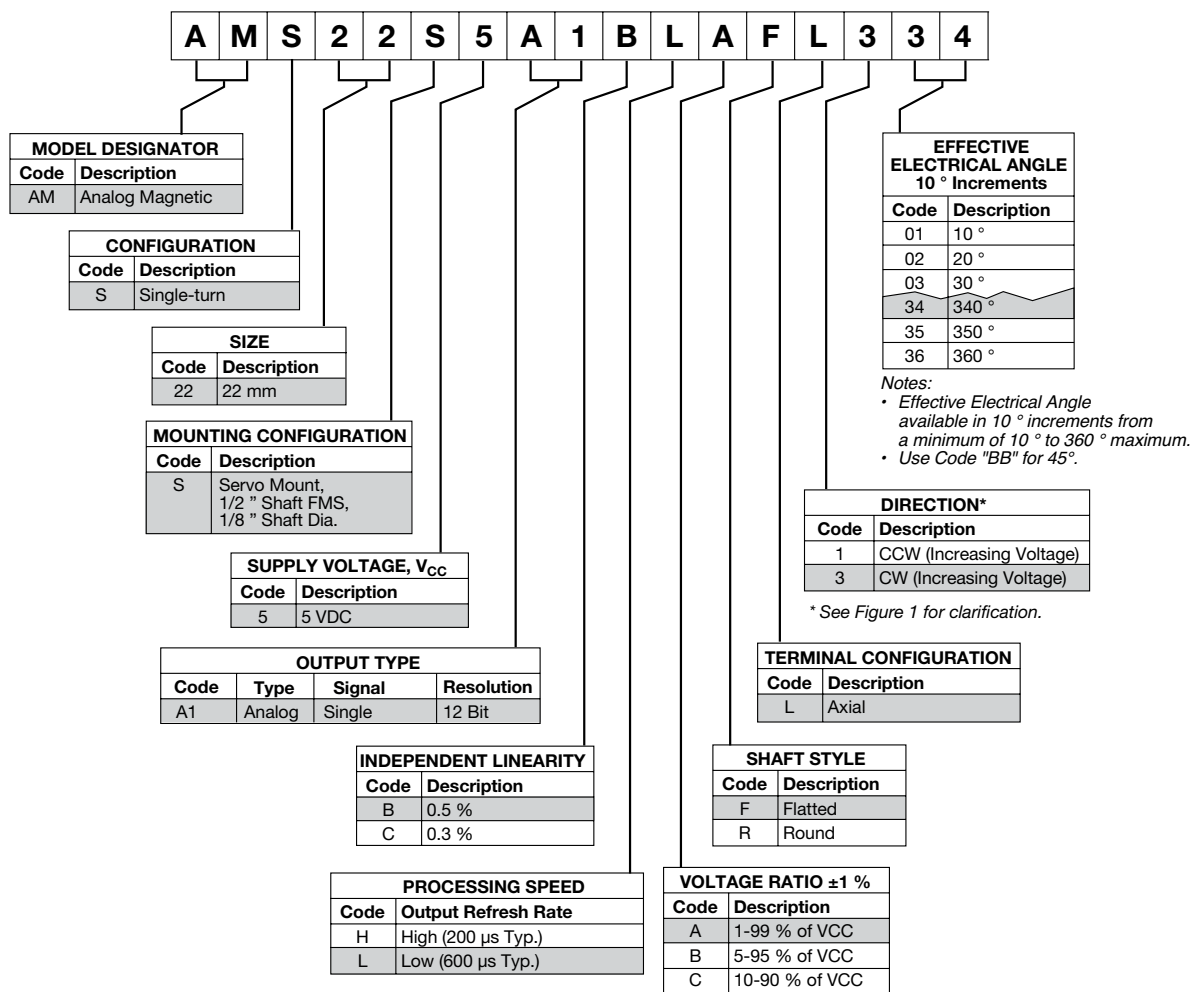
Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

# AMS22S Non-Contacting Analog Rotary Position Sensor

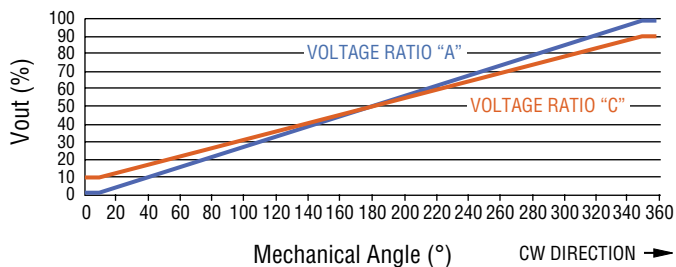
**BOURNS®**

## How To Order



Shaded areas represent most common features.

## Standard Output: 1-Turn CW Increasing (Code 334 Shown)



## Resolution

| EEA | Resolution | EEA | Resolution | EEA | Resolution |
|-----|------------|-----|------------|-----|------------|
| 10  | 114        | 130 | 1479       | 260 | 2958       |
| 20  | 228        | 140 | 1593       | 270 | 3072       |
| 30  | 341        | 150 | 1707       | 280 | 3186       |
| 40  | 455        | 160 | 1820       | 290 | 3300       |
| 45  | 512        | 170 | 1934       | 300 | 3413       |
| 50  | 569        | 180 | 2048       | 310 | 3527       |
| 60  | 683        | 190 | 2162       | 320 | 3641       |
| 70  | 796        | 200 | 2276       | 330 | 3755       |
| 80  | 910        | 210 | 2389       | 340 | 3868       |
| 90  | 1024       | 220 | 2503       | 350 | 3982       |
| 100 | 1138       | 230 | 2617       | 360 | 4096       |
| 110 | 1252       | 240 | 2731       |     |            |
| 120 | 1365       | 250 | 2844       |     |            |

REV. 01/17

Specifications are subject to change without notice.  
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.  
Users should verify actual device performance in their specific applications.