

# Avtron AV12 SMARTach™ III Sensor Module for AV125 Encoder



## Severe Duty Magneto-resistive Sensor for AV125 Encoder

### Avtron AV12 SMARTach™ III

- | Wide-Gap Technology eliminates gapping and shimming
- | Mount in AV125 encoders
- | Usable for "pod+disk" applications
- | All electronics fully potted and sealed
- | \*\* -40°C to +100°C standard; +120°C option requires encoder cooling
- | 1 Year No-Hassle Warranty

### AV12

Avtron AV12 SMARTach™ III sensors are magneto-resistive, severe duty incremental quadrature sensors for the AV125 rotary encoder. The AV12 is also usable in applications where an encoder housing is not needed – simply mount the AV12 with your bracket, and use an AV125 or other rotor.

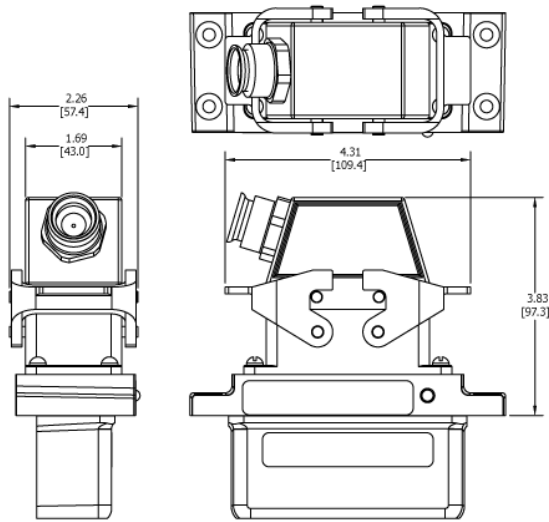
The AV12 + AV125 rotor allows large through-shaft applications up to 7 7/8" [200mm], ideal for large hollow shaft motors, large brakes and applications requiring large bore hollow shafts for application cooling water or cooling air.

The AV12 offers a full range of electrical connector options, including IP67 cable, IP66 MS connectors, and IP65 Industrial with built-in terminal strips. The AV12 sensor is fully protected against all types of wiring errors, including short circuits, reverse voltage, and phase-to-phase shorts. It is one tough sensor! For smaller bore applications, use AV5 sensors with the AV685 or AV850 encoder (or as stand-alone).

The universal 5-24V design drives longer cables and is protected against wiring errors and surges.

**Adaptive Electronics:** At power-up you know you installed it right! The green LED tells you your AV12 Sensor is aligned with the rotor and reading signal. If at any time, the AV12 cannot produce consistent signals, the LED changes to red and the optional remote alarm contact activates. However, the encoder keeps working to give you time to schedule service. Even wiring errors and short circuits that cause an over-temp situation will be detected and indicated by changing the LED to orange.

## OUTLINE DRAWING



## MORE AV12 ADVANTAGES

- High resolution up to 8192 PPR
- Sensor PPR can be factory reprogrammed
- Full protection against short circuits, reverse voltage, phase-to-phase shorts
- High-power outputs for long cable runs
- Optional 24V in, 5V out option for low-voltage, long-cable applications
- Diagnostic LED and alarm output contact indicates proper operation

## AV12 SPECIFICATIONS

**Operating Power:** Volts: 5 - 24 VDC\*

**Current:** 100mA nom, no load

**Output Signals:** A Quad B with Marker (A,A-, B,B-, Z,Z-)

**Frequency Range:** @5V, @1m cable, 250 kHz Max

@24V, @300m cable, #8 output, 45 kHz Max

**Maximum Cable Length:** 1000'

**PPR:** 4-50000\*\*\*

**Speed:** 5400 RPM Max\*\*\*\*

**Temperature Range:** -40° to 120°C^

**Electronics:** Fully Encapsulated - IP67\*\*

**Vibration:** 18G

**Shock:** 1 meter drop test

**Chemical:** Polyurethane enamel paint protects against salt spray, mild acids, and bases.

**Weight:** 2 - 3 lbs [0.9 - 1.36 kg] (will vary by connector options)

Check out our website for more detailed specifications, drawings, and installation instructions. [www.avtronencoders.com](http://www.avtronencoders.com)

\* Electrical specifications for SMARTach III model (serial #30,000 or higher), consult Nidec Industrial Solutions for earlier model specifications.

\*\* Certain connector options may affect IP rating.

\*\*\* (PPR) Standard maximum PPR is 5000. Consult Factory with your application for PPRs up to 50,000.

\*\*\*\* (Speed) Maximum RPM may be limited for PPR > 2,500. Consult Factory with your application.

^ Requires air cooling system option in AV485 & AV685 to reach +120°C rating

All dimensions are in inches [millimeters].

Specifications and features are subject to change without notice.

## SELECTION GUIDE

| AV12 Sensor                                      |  |  |   |   |   |                                  |  |
|--|--|--|---|---|---|----------------------------------|--|
| Model  | Line Driver  | PPR  |   | Connector Options   | Modifications   |                                  |  |
| AV12   | X- none<br>6- 5-24V in/out 7272<br>8- 5-24V in/ 5-15V out, 4125 hi-power<br>9- 5-24V in, 5V out 7272 | X- none<br>C*-50<br>F- 60<br>G- 100<br>H- 120<br>A- 128    | B*- 150<br>L- 240<br>N- 256<br>P- 300<br>E- 360<br>B- 480 | Q- 500<br>R- 512<br>S- 600<br>V- 900<br>J- 960<br>Y- 1024 | Z- 1200<br>A*- 1270<br>3- 2000<br>4- 2048<br>5- 2500<br>D- 4096 | 8- 4800<br>9- 5000<br>0-special  | 000- none<br>002*- Select alternate PPR assignment code<br>004- Super magnetic shielding |
| Connector Options                                |  |  |   |   |   |                                  |  |
| Mounted on Encoder Body                          |  |  | 3' Cable  |   | 5' Flexible Conduit   |                                  |  |
| Industrial Connector                             | 10 pin MS  | Other  | Industrial Connector                                      | Mini MS   | Other   |                                  |  |
| P- with Plug<br>G- (Northstar™ Pinout) with Plug | A- without Plug<br>B- with Plug<br>C- with Plug & Flex. Conduit Adapter<br>L- with Right Angle Plug  | K- Condulet with Leads<br>R- Mini MS/ Twist Lock with Plug | Z- with Plug<br>Q- 18" flex cable, with plug              | S- Baldor Twist Lock with Plug                            | W- Leads only   | N- Leads only<br>T- Terminal box |  |

\* To Specify this PPR, also specify modification code 002.

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