



## Avtron AV12 SMARTach™ III Sensor Module for AV125 Encoder



### Severe Duty Magneto-resistive Sensor for AV125 Encoder

#### Superior Sensors for No-Bearing Encoders

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

3 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.

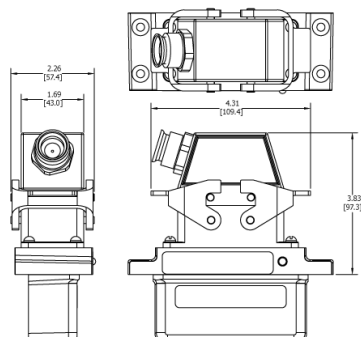
The AV12 + AV125 rotor allows large through-shaft applications up to 7 7/8" [200mm], ideal for large hollow shaft motors, large brakes and applications requiring large bore hollow shafts for application cooling water or cooling air.

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

## MORE 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)

\* 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.

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

## SELECTION GUIDE

MODEL	LINE DRIVER	PPR	CONNECTOR OPTIONS	MODIFICATIONS
AV12-	6 - 5-24v in, 5-24v out (7272) recommended for single-ended wiring (A,B,Z, no A/B/Z) 8 - 5-24v in, 5-24v out hi-power standard (Hx) 9 - 5-24v, 5v fixed out (7272) A - 5-24v in, 5-24v out (7272) - High Performance B - 5-24v in, 5-24V out (Hx) - High Performance C - 5-24v, 5v fixed out (7272) - High Performance	F - 60 PPR C - 64 PPR G - 100 PPR H - 120 PPR A - 128 PPR N - 256 PPR P - 300 PPR E - 360 PPR B - 480 PPR Q - 500 PPR R - 512 PPR S - 600 PPR U - 720 PPR V - 900 PPR J - 960 PPR Y - 1024 PPR Z - 1200 PPR 6 - 1800 PPR 3 - 2000 PPR 4 - 2048 PPR 5 - 2500 PPR D - 4096 PPR 8 - 4800 PPR 9 - 5000 PPR 0 - Special PPR	A - 10 pin MS style w/o Mating Plug B - 10 pin MS style w/Plug 5 - 10 pin MS style w/o Plug, Dynapar Pin Out C - 10 pin MS style w/Plug & Flex Cond. Adapt. D - 10 pin MS style with Plug & 5 ft. Flexible Conduit E - M737A Pinout 5 pin MS, w/o Plug F - M737A Pinout 5 pin MS style with Plug G - Industrial EPIC Style w/Lakeshore Pinout H - M727A Pinout 5 pin MS, w/o Plug J - M727A Pinout 5 pin MS, with Plug K - Condulet with Color Coded Leads L - 10 pin MS style w/90 Degree Elbow Plug N - 5 ft [1.5m] Flex Conduit, Color Coded Leads Only P - Industrial EPIC Style w/Plug Q - Industrial Mini-EPIC Style on Remote Base for Motor Cover Mount on 1.5 ft. cable, w/plug R - Baldor Mini MS style w/Plug S - Baldor Mini MS style on 3' Cable w/Plug T - 5 ft [1.5m] Flex Conduit w/Terminal Box W - 3' Sealed Cable w/Color Coded Leads Z - Industrial EPIC Style on 3' Cable with Plug 1 - Industrial Mini-EPIC Style w/Plug (replaces M3/M4) 2 - Tall Conduit box with 3/4" NPT Conduit Adapter 4 - 2m cable, Special LED wiring for Hubner compatibility	000 - No Special Options 004 - Super Magnetic Shielded Sensor(s) 005 - Expand Top Speed to 6000 RPM (requires special B34091-CG rotor) 006 - Additional Sensor Sealing to Housing + Super Magnetic Shield 008 - Special terminal box (use with connection option '4' only) 009 - 6000 (Special) PPR (Set PPR Code = 0), Super Magnetic Shielding 010 - 18ft/5.5m built-in Marine Cable, Oversize Mounting Holes, Super Magnetic Shielding 011 - 6000 (Special) PPR (Set PPR Code = 0), 5/1.5m Built-in Cable, Super Magnetic Shielding 029 - Super Magnetic Shielded Sensors w/B35183 cable (MS to remote "Q" terminal block/base) 401 - 1270 PPR (Special) Output (Set PPR Code to 0) 402 - 150 PPR (Special) Output (Set PPR Code to 0) 403 - 50 PPR (Special) Output (Set PPR Code to 0) 405 - 16 PPR (Special) Output (Set PPR Code to 0) 406 - 6000 PPR (Special) Output (Set PPR Code to 0) 407 - 2800 PPR (Special) Output (Set PPR Code to 0) 408 - 1400 (Special) Output PPR (Set PPR Code to 0) 409 - 30 (Special) Output PPR (Set PPR Code to 0) 411 - 12000 (Special) Output PPR (Set PPR Code to 0) 414 - 1500 (Special) Output PPR (Set PPR Code to 0) 415 - 3000 (Special) Output PPR (Set PPR Code to 0) 416 - 3600 (Special) Output PPR (Set PPR Code to 0) 417 - 1250 (Special) Output PPR (Set PPR Code to 0) 418 - 2400 (Special) Output PPR (Set PPR Code to 0) 419 - 160 (Special) Output PPR (Set PPR Code to 0) 420 - 450 (Special) Output PPR (Set PPR Code to 0) 422 - 96 (Special) Output PPR (Set PPR Code to 0) 423 - 10000 (Special) Output PPR (Set PPR Code to 0) 901 - Special 1'/0.3m cable length built into sensor 902 - Special 2'/0.6m cable length built into sensor 903 - Special 3'/0.9m cable length built into sensor 905 - Special 5'/1.5m cable length built into sensor 910 - Special 10'/3m cable length built into sensor 915 - Special 15'/4.5m cable length built into sensor 920 - Special 20'/6m cable length built into sensor 925 - Special 25'/7.5m cable length built into sensor 930 - Special 30'/9m cable length built into sensor 933 - Special 33'/10m cable length built into sensor