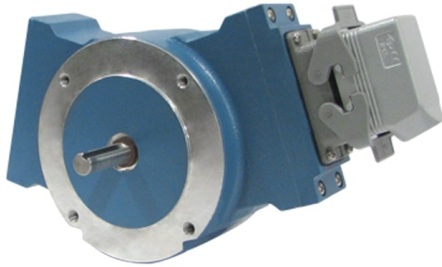# Avtron AV485 SMARTach™ III Encoders

Severe Mill Duty Magnetic Encoder; Foot or NEMA 56C Face Mount, 5/8" Solid Shaft

Incremental Severe Duty Shafted Encoder

Severe Mill Duty

Up to 50000 PPR

Replaces Competitive Models Without Rewiring

Self-Diagnostic LED & Alarm Output

Foot or NEMA 56C Face Mount

Removable Sensors

IP66 Enclosure

High-Power Output Standard

Outputs Fully Short Circuit Protected

Optional Dual Isolated Outputs

1 Year No-Hassle Warranty

AV485

AV485 SMARTach™ III severe duty magnetic encoders can be foot or NEMA 56C face/flange mounted. They feature our largest bearings on an ultra-wide stance for pulley and other rough applications. Also available: AV685 for hollow shaft mounting, and AV850 encoders for complete flowerpot/flange/coupling elimination.
The AV485 is designed to withstand the worst environments: buried in slag, coated in pulp, sprayed with salt water or cutting coolants, it keeps working. The modular, gull-winged design makes it easy to install and service; the base can be bolted in place without removing the encoder, and the AV5 wide-gap removable sensors require no adjustment or shimming.
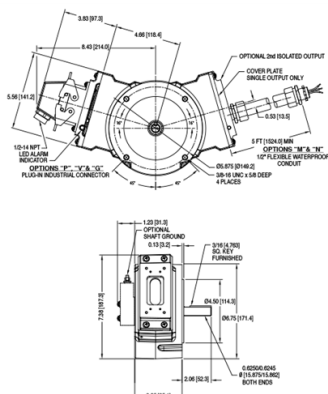
The sensors are fully potted to protect against liquids, and are interchangeable between AV850, AV485, and AV685 encoders. The universal 5-24V design drives longer cables and is protected against wiring errors and surges. A second backup output is available with the same or different PPR, and offers completely separate electronics for maximum uptime.

Adaptive Electronics: At power-up you know you installed it right! The green LED tells you your AV5 Sensor is aligned with the rotor and reading signal. If at any time, the AV5 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.

For easy upgrades, the AV485 matches the bolt pattern and shaft location of older analog and digital models.

Keep your mill running today, and for years to come: install the AV485!

OUTLINE DRAWING

MORE AV485 SPECIFICATIONS

Operating Power: Volts: 5 - 24 VDC*
Current: 100mA nom, no load
Output Format: A Quad B with Marker (A, /A, B, /B, Z, /Z)
Second Isolated Output: Optional
Frequency Range:
  @5V, @1m cable, 250 kHz Max
  @24V, @300m cable, #8 output, 45 kHz Max
Maximum Cable Length: 1000'
PPR: 4 - 50000***
Speed: 5000 RPM Max****
Electronics: Fully Encapsulated, IP67**
Temperature: -40° to 120°C* (150°C rotor)^
Vibration: 18 g's
Shock: 1 meter drop test
Chemical: Polyurethane enamel paint protects against salt spray, mild acids, and bases.
Weight: 14 lbs. [6.4 kg] / 16 lb [7.3 kg] dual output

* Electrical specifications for SMARTach III model (serial #30,000 or higher), consult Nidec Industrial Solutions for earlier model specifications.
** Certain connector options may reduce 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.
^ -20°C to 80°C Standard, requires high-temperature model and instrument air feed for 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

SELECTION GUIDE

MODEL	TEMPERATURE RATING	FOOT MOUNTING	SHAFT MOUNTING	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR OPTIONS	MODIFICATIONS
AV485	N - -20°C to +80°C (Standard) C - -40°C to +80°C H - -20°C to +120°C (NOTE: Requires instrument air flow) 0 - Custom Operating Temperature Range, Consult Factory	X - Standard NEMA 56C 4.5 in. Face Mount (No Foot Mount Included) 1 - Standard Bolt Pattern Foot Mount Bracket (Avtron & RIM6200/H56/Tamagawa Resolver) 2 - BC42/46 Bolt Pattern Foot Mount Bracket (GE Analog Tachogenerator) 0 - Custom Foot Mounting Bracket, Consult Factory	S - Standard Single Ended 5/8 in. x 2 in. Stainless Steel Shaft, with 3/16 in. Key way & Key D - Dual 5/8 in. x 2 in. Stainless Steel Shafts, each with 3/16 in. Key way & Key G - Shaft Grounding Option with Standard Single Ended Shaft Only O - Overspeed Switch (Select Special Option Code 6XX below) 0 - Custom Shaft Configuration, Consult Factory	X - No Left Output 6 - 5-24v in, 5-24v out (7272) recommended for single-ended wiring (A,B,Z, no complements) 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 in, 5v fixed out (7272) - High Performance	X - No Left Output F - 60 PPR C - 64 PPR G - 100 PPR H - 120 PPR A - 128 PPR L - 240 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 W - 1000 PPR Y - 1024 PPR Z - 1200 PPR 2 - 1500 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	X - No Right Output 6 - 5-24v in, 5-24v out (7272) recommended for single-ended wiring (A,B,Z, no complements) 8 - 5-24v in, 5-24v out hi-power standard (HX) 9 - 5-24V In 5V 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 in, 5v fixed out (7272) - High Performance	X - No Right Output F - 60 PPR C - 64 PPR G - 100 PPR H - 120 PPR A - 128 PPR L - 240 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 W - 1000 PPR Y - 1024 PPR Z - 1200 PPR 2 - 1500 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 w/Plug & 5 ft [1.5m] Flex Conduit, Color Coded Leads Only 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 w/90° Elbow Plug L - 10 pin MS style w/90° Elbow Plug M - 5 ft [1.5m] Flex Conduit with Insulating Adapter, Color Coded Leads 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 18 in. cable, w/plug R - Baldor Mini MS style w/Plug S - Baldor Mini MS style on 36 in. Cable w/Plug T - 5 ft [1.5m] Flex Conduit w/Terminal Box V - Industrial EPIC Style w/Plug w/Insulated Adapter W - 36 in. Sealed Cable w/Color Coded Leads Y - 5 ft [1.5m] Flex Conduit w/Terminal Box w/ins. Adapter Z - Industrial EPIC Style on 36 in. Cable with Plug 1 - Industrial Mini-EPIC Style w/Plug (replaces M3/M4) 3 - 6 Pin MS style w/Plug, M940 pin out X - No connector, no sensor (housing only) 0 - Custom Connector, Consult Factory	000 - No Special Options 003 - Analog Brushless Converter (K661/C14326) Package Included 004 - Super Magnetic Shielded Sensor(s) 056 - Dual Shaft Mod to add (0.5" OD x 0.75") shaft to rear of encoder for small hollow-shaft encoder addition 435 - 1575 PPR (Special) Right Output 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 4XX - Custom PPR, Consult Factory 6XX - Custom Overspeed Switch Trip Point, Consult Factory 9XX - Custom Cable Length, Consult Factory

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