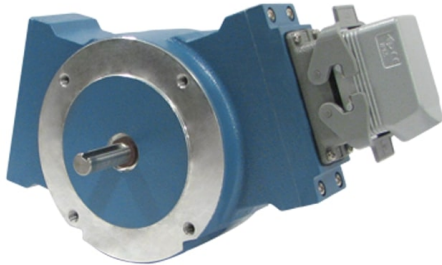


## Avtron AV485 SMARTach™ III Encoders



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

### Magnetic Durability in a Compact Encoder

---

Severe Mill Duty

---

Up to 5000 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

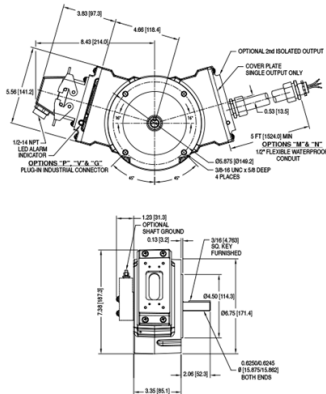
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Optional Dual Isolated Outputs

### AV485

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.

## 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](http://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)	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	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)	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	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 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	000 - No Special Options 003 - Analog Brushless Converter (K661/C14326) Package Included 004 - Super Magnetic Shielded Sensor(S) 005 - Krytox XP2A2 Greased Bearings for Protection Against Hydrocarbon Exposure 030 - Special Dual Shaft Modification 6 in. on DE end, 4 in. on ODE 056 - Dual Shaft Mod to add (0.5" OD x 0.75") shaft to rear of encoder for small hollow-shaft encoder addition 401 - 1270 PPR (Special) Left Output (Set Left PPR Code to 0) 402 - 150 PPR (Special) Left Output (Set Left PPR Code to 0) 403 - 50 PPR (Special) Left Output (Set Left PPR Code to 0) 404 - 16 PPR (Special) Right Output (Set Right PPR Code to 0) 405 - 16 PPR (Special) Left Output (Set Left PPR Code to 0) 406 - 6000 PPR (Special) Left Output (Set Left PPR Code to 0) 407 - 2800 PPR (Special) Left Output (Set Left PPR Code to 0) 408 - 1400 (Special) Left Output PPR (Set Left PPR Code to 0) 409 - 30 PPR (Special) Left Output (Set Left PPR Code to 0) 410 - 6000 PPR (Special) Right Output (Set Right PPR Code to 0) 411 - 12000 PPR (Special) Left Output (Set Left PPR Code to 0) 412 - 200 PPR (Special) Left Output (Set Left PPR Code to 0) 413 - 30 PPR (Special) Left & Right Output (Set Left & Right PPR Codes to 0) 414 - 1500 PPR (Special) Left Output (Set Left PPR Code to 0)



Nidec Industrial Solutions  
243 Tuxedo Avenue - Cleveland, Ohio 44131  
encoderhelpdesk@nidec-industrial.com  
+1 216-642-1230 - www.avtronencoders.com



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MODEL	TEMPERATURE RATING	FOOT MOUNTING	SHAFT MOUNTING	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR OPTIONS	MODIFICATIONS
				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			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	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, MS40 pin out X - No connector, no sensor (housing only) 0 - Custom Connector, Consult Factory	415 - 3000 PPR (Special) Left Output (Set Left PPR Code to 0) 416 - 3600 PPR (Special) Left Output (Set Left PPR Code to 0) 417 - 1250 PPR (Special) Left Output (Set Left PPR Code to 0) 418 - 2400 PPR (Special) Left and Right Output (Set Left & Right PPR Code to 0) 419 - 160 PPR (Special) Left & Right Output (Set Left & Right PPR Codes to 0) 420 - 450 PPR (Special) Left Output (Set Left PPR Code to 0) 421 - 30 PPR (Special) Right Output 422 - 96 PPR (Special) Right Output 423 - 10000 PPR (Special) Right Output 429 - 320 PPR (Special) Left & Right Output (Set Left and Right PPR Codes to 0) 436 - 3 PPR (Special) Left Output (Set Left PPR Code to 0) 437 - 3 PPR Left and 9 PPR Right (Set Left and Right PPR Codes to 0) 601 - Mechanical overspeed, 1200 RPM, 1 NO & 1 NC Contacts, 5-13mm dia. Cable 602 - Mechanical overspeed, 2700 RPM, 1 NO & 1 NC Contacts, 5-13mm dia. Cable 603 - Mechanical overspeed, 720 RPM, 1 NO & 1 NC Contacts, 5-13mm dia. Cable 604 - Mechanical overspeed, 900 RPM, 1 NO & 1 NC Contacts, 5-13mm dia. Cable 605 - Mechanical overspeed, 2400 RPM, 1 NO & 1 NC Contacts, 5-13mm dia. Cable 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



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MODEL	TEMPERATURE RATING	FOOT MOUNTING	SHAFT MOUNTING	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR OPTIONS	MODIFICATIONS
									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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