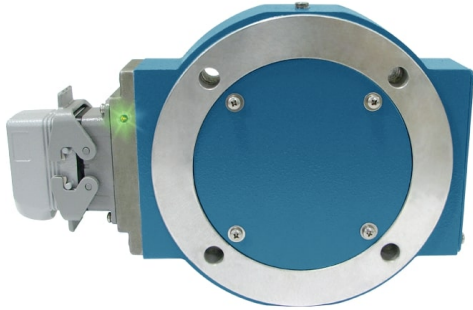


## Avtron AV850 SMARTach™ III Encoders



### Heavy Mill Duty Magnetic Modular Encoder, 8.5" C-Face Mount

#### Superior No-Bearing Encoder

Heavy Mill Duty
Installation in Minutes!
Up to 50000 PPR
Removable Sensors
Wide-Gap Technology, No Air Gap Adjustment Required
Mounts Securely to Motor
Outputs Fully Short Circuit Protected
Self-Diagnostic LED & Alarm Output
Sealed Electronics
-40°C to +100°C Operation
3 Year No-Hassle Warranty
Excellent for Gear Motors and Brake Applications

#### AV850

SMARTach™ III Magnetic, Modular Encoder, 8.5" C-Face Mount

AV850 SMARTach III heavy mill duty modular magnetic encoders fit standard 8.5" FC-Face motors. Other models, from 115mm to 12.5", are available to fit other motor sizes, and hazardous duty models: **XR850** and **XP8** intrinsically safe and **SV850** functional safety encoders are also available.

Quite simply, the AV850 is designed to eliminate encoder failures.

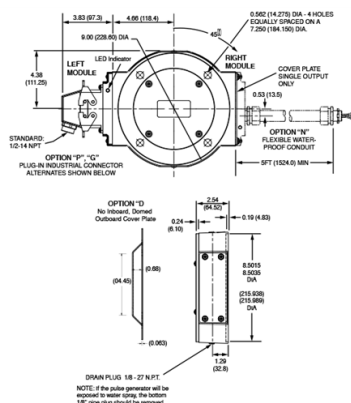
All AV850 electronics are fully encapsulated. There are no moving wearing parts. AV850 sensors locate over 4X farther from the rotor than the competition; no more sensor/rotor grinding!

Miswiring an encoder is common— and it shouldn't cost you time or money. The AV850 has full output short circuit and reverse voltage protection, plus surge protection. AV850 SMARTach III sensors digitally self-tune the outputs to eliminate drive trips caused by poor encoder signals. The universal 5-24V design drives longer cables and is protected against wiring errors.

**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.

If you think you need to replace your drives to end your encoder failures, try a better encoder instead. Specify AV850!

## OUTLINE DRAWING



## MORE AV850 ADVANTAGES

- SMARTach II sensors find problems before they cause failure
- Replaces Northstar/LakeShore RIM8500™, NexGen 8500; Avtron M193B, M285; GE AN-DG models
- Resists motor and brake interference noise
- Reverse voltage protection
- Mix and match any PPRs with any rotor
- Permits axial movement up to +/-0.100" [+/-2.54mm]
- Universal rotor for all GE CD style and many Reliance motors.
- Optional overspeed switch
- Optional shaft grounding

## MORE AV850 SPECIFICATIONS

**Operating Power (Each Sensor):** 5-24V\*

**Current:** 100mA (nominal, no load)

**Output Format:** 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:** 6000 RPM Max\*\*\*\*

**Rotor Positioning:** Up to +/-0.100" movement/misalignment

**Sensor-Rotor Gap:** 0.045", +0.015/-0.030" [1.14mm+0.38/-0.76mm]

**Temperature:** -40° to 100°C (rotor -40° to 150°C peak non-continuous)

**Electronics:** Fully Encapsulated, IP67\*\*

**Vibration:** 18G

**Shock:** 1 meter drop test

**Weight:** 9lbs. [4kg]; 11lbs. [5kg] dual

\* 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.

All dimensions are in inches [millimeters].

Specifications and features are subject to change without notice.

Rotors greater than 4.00" [100mm] do not include V-ring seals.

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



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SELECTION GUIDE

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MODEL	ROTOR BORE SIZE	COVER PLATES	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR OPTIONS	MODIFICATIONS



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AV850	XX - No Rotor CB - 0.625 in. Thru-Shaft Cam Screw Mounted Rotor (Universal) CA - 0.750 in. Thru-Shaft Cam Screw Mounted Rotor CC - 0.875 in. Thru-Shaft Cam Screw Mounted Rotor CE - 1.000 in. Thru-Shaft Cam Screw Mounted Rotor CF - 1.125 in. Thru-Shaft Cam Screw Mounted Rotor BC - 1.250 in. Thru-Shaft Cam Screw Mounted Rotor CH - 1.375 in. Thru-Shaft Cam Screw Mounted Rotor C8 - 1.500 in. Thru-Shaft Cam Screw Mounted Rotor CJ - 1.625 in. Thru-Shaft Cam Screw Mounted Rotor CK - 1.750 in. Thru-Shaft Cam Screw Mounted Rotor CL - 1.875 in. Thru-Shaft Cam Screw Mounted Rotor BA - 1.9375 in. Thru-Shaft Cam Screw Mounted Rotor CM - 2.000 in. Thru-Shaft Cam Screw Mounted Rotor CN - 2.125 in. Thru-Shaft Cam Screw Mounted Rotor CQ - 2.250 in. Thru-Shaft Cam Screw Mounted Rotor CP - 2.375 in. Thru-Shaft Cam Screw Mounted Rotor CR - 2.500 in. Thru-Shaft Cam Screw Mounted Rotor BD - 2.4375 in. Thru-Shaft Cam Screw Mounted Rotor CT - 2.625 in. Thru-Shaft Cam Screw Mounted Rotor CS - 2.771 in. Thru-Shaft Cam Screw Mounted Rotor C2 - 2.875 in. Thru-Shaft Cam Screw Mounted Rotor CU - 3.000 in. Thru-Shaft Cam Screw Mounted Rotor BB - 3.125 in. Thru-Shaft Cam Screw Mounted Rotor CW - 3.250 in. Thru-Shaft Cam Screw Mounted Rotor CV - 3.375 in. Thru-Shaft Cam Screw Mounted Rotor CZ - 3.421 in. Thru-Shaft Cam Screw Mounted Rotor CV - 3.4375 in. Thru-Shaft Cam Screw Mounted Rotor C3 - 3.500 in. Thru-Shaft Cam Screw Mounted Rotor TD - 3.625 in. Thru-Shaft Set Screw Mounted Rotor TG - 3.750 in. Thru-Shaft Set Screw Mounted Rotor T4 - 3.875 in. Thru-Shaft Set Screw Mounted Rotor T1 - 4.000 in. Thru-Shaft Set Screw Mounted Rotor T5 - 4.125 in. Thru-Shaft Set Screw Mounted Rotor (Does not include V-ring seals) T7 - 4.250 in. Thru-Shaft Set Screw Mounted Rotor (Does not include V-ring seals) T6 - 4.500 in. Thru-Shaft Set Screw Mounted Rotor (Does not include V-ring seals) T9 - 4.5105 in. Thru-Shaft Set Screw Mounted Rotor (Does not include V-ring seals) DB - 14mm Thru-Shaft Cam Screw Rotor ISO h7 DE - 19mm Thru-Shaft Cam Screw Rotor ISO h7 DH - 40mm h7 Thru-Shaft Cam Screw	X - No Cover Plates B - Both Inboard and Outboard Covers for Thru-Shaft w/V-Ring Seals D - Domed Cover F - Flat Outboard Cover N - Inboard Seal Plate w/V-Ring Seal, Flat Outboard Cover T - Outboard Seal Plate for Thru-Shaft w/V-Ring Seal	X - No Left Output 6 - 5-24v in, 5-24v out (7272) 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 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) 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 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 Connector/Sensor A - 10 pin MS without Mating Plug B - 10 pin MS with Mating Plug 5 - 10 pin MS w/o Plug Dynapar Pin Out C - 10 pin MS style with Plug & Flexible Adaptor D - 10 pin MS style with Plug & 5 ft. Flexible Conduit E - M737A Pinout 5 pin MS, without Plug F - M737A Pinout 5 pin MS style with Plug G - Industrial EPIC Style with plug & Lakeshore Pinout (No alarm contact) H - M727A Pinout 5 pin MS, without Plug J - M727A Pinout 5 pin MS, with Plug K - Condulet with leads L - 10 pin MS style with 90° Plug N - 5 ft [1.5m] Flex Conduit, Leads Only P - Industrial EPIC Style w/Plug Q - Small EPIC Style with plug on Remote Base for Motor Hood Mount R - Baldor Mini MS style with Plug S - Baldor Mini MS style on 3' Cable with Plug T - 5 ft. Flexible Conduit with Terminal Box W - 3' Sealed Cable with Leads Z - Industrial EPIC Style on 3' Cable with Plug 1 - Small EPIC Style with Plug 3 - 6 Pin MS style with Plug to replace M940 7 - 7 Pin MS style (A,A',B,B', no marker)	000 - None 003 - K661/C14326 Brushless Converter Package Included 004 - Super Magnetic Shielded Sensor(s) 007 - Mechanically Sealed Sensor + Super Magnetic Shielding 061 - 120C Option: Vortex Cooler. NOTE REQUIRES INSTRUMENT AIR FEED. 077 - Outboard Sealing, Super Magnetically Shielding, Mechanically Sealed Housing, and Special Adapter Plate 102 - Magnetic Shielding + O-Ring Sealed Sensor + O-Ring Outboard Sealing 106 - Electrical Isolation Kit (isolates housing and fasteners from motor, for certain WEG and Reliance models using an isolating bearing cap) 107 - Electrical Isolation Kit + Super Magnetic Shielding (isolates housing and fasteners from motor, for certain WEG and Reliance models using an isolating bearing cap) 119 - Special rotor modification: add 1/2" keyway, set screw to retain keyway, std 2 cam screw
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