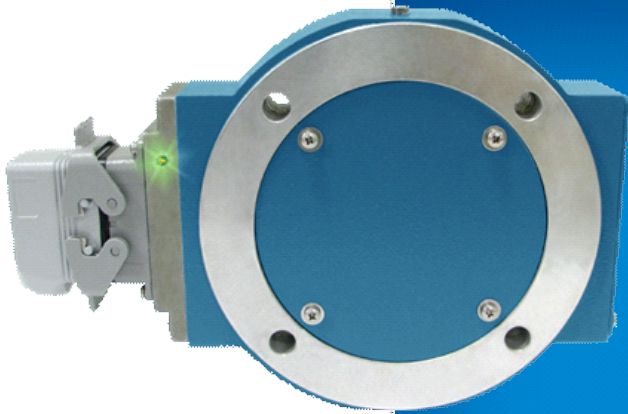


# Avtron AV850 SMARTach™ III Encoders



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

### Time isn't Money. UPTIME is Money!

- | Heavy Mill Duty
- | Installation in Minutes!
- | Up to 5000 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](#) are also available.

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

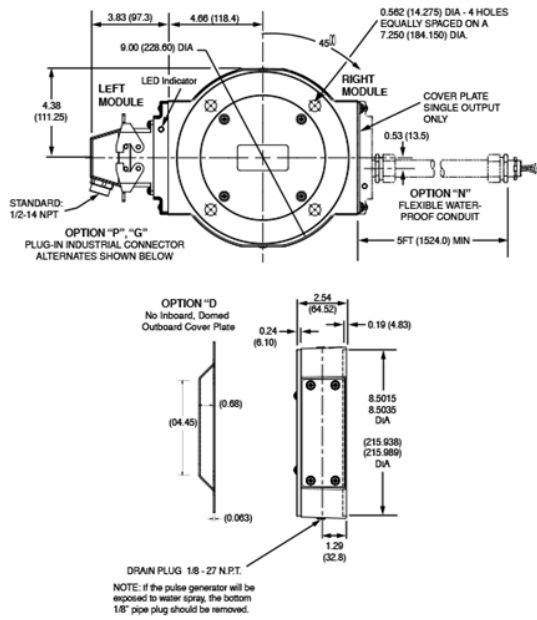
All AV850 electronics are fully encapsulated. There are no moving wearing parts. AV850 sensors locate over 4X farther from the rotor than the competition; no more sensor/rotor grinding!

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 and surges.

**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



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

# 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

# AV850 SPECIFICATIONS

- Operating Power (Each Sensor):** 5-24V\*
- Current:** 100mA
- 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/-0.040" [1.14mm+0.38/-1.0]
- Temperature:** -40° to 100°C (rotor -40° to 150°C peak)
- 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.

# SELECTION GUIDE

| AV850 PART NUMBERS AND AVAILABLE OPTIONS |             |            |  |   |   |   |   |   |  |  |  |  |                   |               |
|--|-------------|------------|--|---|---|---|---|---|--|--|--|--|-------------------|---------------|
| Model                                    | Rotor Style | Shaft Size | Inboard & Outboard Cover Plates  |   | Left Module   |   |   |   | Right Module   |  |  |  | Connector Options | Modifications |
|  |             |            | Line Driver  | PPR   | Line Driver   | PPR   | Line Driver   | PPR   |  |  |  |  |                   |               |
| AV850                                    |             |            | X- none<br>D- no inboard, domed outboard cover plate<br>B- inboard, thru outboard<br>F- no inboard, flat outboard<br>N- inboard, flat outboard<br>T- no inboard, thru outboard | X- none<br>6- 5-24V in/out (7272)<br>8- 5-24V in/out (HX)<br>9- 5-24V in, 5V out (7272) | X- none B- 480 2- 1500<br>F- 60 Q- 500 6- 1800<br>C- 64 R- 512 3- 2000<br>G- 100 S- 600 4- 2048<br>H- 120 U- 720 5- 2500<br>A- 128 V- 900 D- 4096<br>L- 240 J- 960 8- 4800<br>M- 256 W- 1000 9- 5000<br>P- 300 Y- 1024 0- special<br>E- 360 Z- 1200 | X- none<br>6- 5-24V in/out (7272)<br>8- 5-24V in/out (HX)<br>9- 5-24V in, 5V out (7272) | X- none B- 480 2- 1500<br>F- 60 Q- 500 6- 1800<br>C- 64 R- 512 3- 2000<br>G- 100 S- 600 4- 2048<br>H- 120 U- 720 5- 2500<br>A- 128 V- 900 D- 4096<br>L- 240 J- 960 8- 4800<br>M- 256 W- 1000 9- 5000<br>P- 300 Y- 1024 0- special<br>E- 360 Z- 1200 | A- without Plug<br>C- with Plug & Flex Conduit Adapter<br>G- Large, (Northstar™ Pinout)<br>L- with Right Angle Plug<br>P- Large, with Plug<br>W- Leads only | 000- none<br>003- Include analog signal converter (K661)<br>004- Super sensor shielding<br>4xx- Special PPR (see chart)<br>700- Large Motor Stator Adapter |  |  |  |                   |               |

< Large motor stator adapter required if not previously installed. > N/A for End of Shaft rotor styles. \* Rotor Style "T" only.

| Rotor Style                           | Shaft Size            |  |                                   |  |   |          |           |           |           |  |
|---------------------------------------|-----------------------|--|-----------------------------------|--|---|----------|-----------|-----------|-----------|--|
| T- Thru Shaft (Inch)                  | A- 0.750              | E- 1.000                                     | J- 1.625                          | M- 2.000   | Q- 2.250                                | W- 3.250 | 2- 2.875  | G- 3.750* | 6- 4.500* |  |
| H- Thru Shaft, Cam Screw (Inch)       | B- 0.625              | F- 1.125                                     | K- 1.750                          | N- 2.125   | R- 2.500                                | Y- 3.375 | 3- 3.500  | 4- 3.875* |           |  |
|                                       | C- 0.875              | H- 1.375                                     | L- 1.875                          | P- 2.375   | T- 2.625                                | Z- 3.421 | D- 3.625* | 1- 4.000* |           |  |
| M- Thru Shaft (mm)                    | F- 30mm               | P- 60mm                                      | Z- 60mm (2)                       | 1) For Shaft DIA 80<br>-0.30/-0.47mm (ft)  | 2) For Shaft DIA 80<br>+0/-0.030mm (h7) |          |           |           |           |  |
|                                       | J- 42mm               | Y- 60mm (1)                                  | 4- 95mm                           |  |   |          |           |           |           |  |
| E- End of Shaft                       | F- 1.125 GE CD190-320 | P- 2.375 GE CD400                            | 2- 2.875 GE CD600                 | 9- GE CD6000, 6100, 6200, 6700, 6800, & 6900   |   |          |           |           |           |  |
| H- End of Shaft for Grounding Kit     | N- 2.125 GE CD360     | Q- 2.250 GE CD444/505E                       |                                   |  |   |          |           |           |           |  |
| U- Universal with End of Shaft        | F- 1.125 GE CD190-320 | 9- GE CD6000, 6100, 6200, 6700, 6800, & 6900 | Y- GE CD4900, 4700, 4800, & 4900* | U- Universal (Includes 1 Rotor and Shaft adapters for all motors except Q, R, Z & 4) |   |          |           |           |           |  |
| G- Universal with Grounding Kit       | N- 2.125 GE CD360     | V- GE CD4300, 4400, 5400, 6400 & 6500*       | Z- GE CD680-                      | Q- GE CD444/505E*  |   |          |           |           |           |  |
| Q- EOS Adapter for Stacked Encoders   | P- 2.375 GE CD400     | W- GE CD4500, 7500, 7600*                    | 4- ABB 95mm                       |  |   |          |           |           |           |  |
|                                       | 2- 2.875 GE CD600     |  |                                   |  |   |          |           |           |           |  |
| R- GE CD607, 509                      |                       |  |                                   |  |   |          |           |           |           |  |
| K-Keyway Thru Shaft, Cam Screw (Inch) | E- 1.000              |  |                                   |  |   |          |           |           |           |  |
| X- no rotor                           | X- no rotor           |  |                                   |  |   |          |           |           |           |  |

SPECIAL PPR OPTION CODES  
 For full list download manual



Nidec-Avtron Makes the Most Reliable Encoders in the World

8901 E. PLEASANT VALLEY ROAD • INDEPENDENCE, OHIO 44131-5508  
**TELEPHONE:** (1) 216-642-1290 • **FAX:** (1) 216-642-6037  
**E-MAIL:** [tachs@nidec-avtron.com](mailto:tachs@nidec-avtron.com) • **WEB:** [www.avtronencoders.com](http://www.avtronencoders.com)



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