Rev: 11-06-15



# **Avtron AV850 SMARTach II Encoders**



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

## Ultra-Reliable! AV850

- 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
  - ı 3 Year No-Hassle Warranty
- Excellent for Gear Motors and Brake

Applications

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

AV850 SMARTach II 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!

The AV850's high-power outputs have over 50X more capacity.

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 II sensors digitally self-tune the outputs to eliminate drive trips caused by poor encoder signals.

AV850 sensors feature unsurpassed diagnostics. If the encoder signal is not ideal, the alarm output and LED inform the machine operator that the encoder should be checked, before a failure occurs! The AV850 even checks the rotor position before you start running!

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

#### **OUTLINE DRAWING**

#### 0.562 (14.275) DIA - 4 HOLES EQUALLY SPACED ON A 7.250 (184.150) DIA. -8.75 (222.25) 9.00 (228.60) DIA-RIGHT MODULE COVER PLATE SINGLE OUTPUT ONLY LEFT MODULE 4.38 (111.25) r No STANDARD 1/2-14 NPT 5 FT (1524) -OPTION "P", "G", "Y" PLUG-IN INDUSTRIAL CONNECTOR SEE MANUAL FOR ALTERNATIVES OPTION "N" FLEXIBLE WATER-PROOF CONDUIT 4.83 (122.68) -0.19 (4.83) 0.70 (17.78) 8.500 8.503 DIA 5.64 (143.28) ROTOR (215.900) (215.976)

Check out our website for more detailed specifications, drawings, and Weight: 9lbs. [4kg]; 11lbs. [5kg] dual installation instructions. www.avtronencoders.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, 100mA Output Format: A Quad B with marker (A,A-, B,B-, Z,Z-)

Frequency Range: 0 to 165 KHz

Maximum Instantaneous Current Output: 3000mA\*

**PPR**: 8 - 5000

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: 18 g's

Shock: 1 meter drop test

All dimensions are in inches [millimeters].

Specifications and features are subject to change without notice

\*Output option 8; see manual for details.

\*\*Connector options may reduce IP rating.

\*\*\*Max RPM may be limited For PPR > 2500 contact factory

## **SELECTION GUIDE**

Rotor Bore										1 1			11 11 11
Rotor Bore Size/Mounting				Inboard &		Left Module			Rigi		e	Connector	Modifi-
Model Thru Shaft		End of Shaft (GE Motors)			Outboard Cover Plates	Line Drive	r PF	PPR		Line Driver Pl		Options	cations
CK- 1.750° CL- 1.875° CM- 2.000° CN- 2.125° CQ- 2.250° CP- 2.375° CR- 2.500° CT- 2.625° CS- 2.771° C2- 2.875° CW-3.250°	UF- CD180-32x		B- inboard, thru outboard** 5 F- no inboard, flat outboard 1 N- inboard, flat outboard 1 T- no inboard, thru out board** 2 + Narge motor stator ad required if not previou installed + N/A with T6 rotor C B rotor is also "Univ rotor used in all UF-U GF-G9 kits.		8- 5-24V in/ 5-15V out hi power  9- 5-24V in, 5V fixed out  lator adapter previously  for o "Universal"  II UF-UU and	C*-50 F- 60 G- 100 H- 120 A- 128 B*-150	A*-1270 4- 2048 5- 2500 D- 4096 8- 4800 9- 5000	X- none 8- 5-24V in/ 5-15V out hi power 9- 5-24V in, 5V fixed out	C*-50 F- 60 G- 100 H- 120 A- 128 B*-150	A*-1270 4- 2048 5- 2500 D- 4096 8- 4800 9- 5000 0-special		000- non 002*-sele alternate PPR assign- ment cod 700- Larn Motor Stator Adapter* 004- Sup magnetic shielding	
C3- 3.500* TD- 3.625					Connector Options								
TG- 3.750 Rotor Optional		Industrial				Body	Indus		3' Cable			5' Flex	
		Connector	5 pin		10 p	in MS	Other		Twistlock	Othe	r Cond	fuit	
T6- 4.500 ***ABB Helsinki C0- special*		P- with Plug G- (Northstar™ Pinout)	withou	ut Plug	B- with P	lug	<ul> <li>Condulet with Leads</li> <li>Mini MS</li> </ul>	Q- 18"1			W- Leads	only N- Lead T- Term	
	US METRIC  CB- 0.625" MF- 30mm  CA- 0.750" MJ- 42mm  CC- 0.875" MP- 60mm  CF- 1.125" MZ- 80mm""  CH- 1.375" CH- 1.375"  CH- 1.875" CL- 1.875"  CL- 1.875"  CM- 2.000"  CN- 2.125"  CP- 2.375"  CR- 2.500"  CP- 2.375"  CR- 2.500"  CP- 2.375"  CR- 2.500"  CF- 2.875"  CR- 2.500"  CY- 3.375"  CY- 3.3	XX- no rotor US METRIC CB-0.625" MF- 30mm CC-0.875" MP- 90mm CF-1.125" MZ- 80mm*** CF-1.125" MZ- 80mm*** CF-1.125" MZ- 80mm*** CF-1.125" MC- 80mm*** CF-1.125" MC- 80mm*** UQ- CI CH-1.375" MG- 80mm*** UQ- CI CH-1.375" MG- 80mm*** UQ- CI CH-1.125" MC- 80mm*** UV- CI CK-1.125" MC- 90mm** 244 4400-1000** CF-2.375" UV- CI CP-2.375" UV- CI CP-3.375"	XX- no rotor US	XX- no rotor US METRIC CB- 0.625** MF- 30mm CA- 0.750* MJ- 42mm CC- 0.875* MP- 60mm CF- 1.125* MZ- 80mm*** CF- 1.125* MA- 95mm CJ- 1.125* MA- 95mm CL- 1.1875* MA- 95mm CL- 1.1875* CL- 1.875* CM- 2.000* CK- 1.750* CM- 2.000* CK- 2.250* CM- 2.250* CM- 2.250* CM- 2.250* CM- 2.250* CT- 2.625* CS- 2.771* CR- 2.500* CT- 2.625* CS- 2.771* CW- 2.255* CS- 2.7	XX- no rotor US METRIC  B- 0.625** MF- 30mm CA- 0.750* MJ- 42mm CC- 0.875* MP- 60mm CF- 1.125* MZ- 80mm** UP- CD180-32x GF- *UF* UN- CD36x GP- *UP* UN- CD36x GP- *U	XX- no rotor US METRIC CB- 0.825** MF- 30mm CA- 0.750* MJ- 42mm CC- 0.875, MP- 60mm CF- 1.125* MZ- 80mm** UP- CD180-32x GF- **UF* UN- CD38x GN- **UN* UP- CD4xx GP- **UP* UP- CD4xx GP- **UP* M4- 95mm UP- CD5xx, F5xx M2- 80mm** UR- CD507, 509 UV- CD43xx, GV- **UV** A4xx, 54xx, 64xx, 64xx, 64xx, 64xx, 65xx* UW-CD45xx, GW- **UW** T5xx, 76xx* GY- **UV** UP- CD4xx, GY- **UV** A4xx, 54xx, 64xx, 64xx, 64xx, 64xx, 65xx* UW-CD45xx, GW- **UW** T5xx, 76xx* GY- **UV** S5xx, 86xx* UW-CD45xx, GY- **UV** S5xx, 86xx* UW-CD45xx, GY- **UV** S5xx, 86xx* GP- **UP** S5xx, 86xx* GY- **UV** UP- CD4xx, GY- **UV** S5xx, 86xx* GY- **UP** S5xx, 86xx* SY- **UP** S5xx, 86xx* GY- **UP** S5xx, 86xx* SY- **UP** S5xx, 86xx* GY- **UP** S5xx, 86xx* SY- **UP** S	XX- no rotor US METRIC CB- 0.625** MF- 30mm CA- 0.750* MJ- 42mm CA- 0.750* MJ- 42mm CC- 0.875* MJ- 80mm CF- 1.125* MZ- 80mm** UP- CD180x GN- "UN" UP- CD180x GN- "UN" UP- CD180x GN- "UN" UP- CD4xx GP- "UP" CF- 1.125* MZ- 80mm** UP- CD180x CK- 1.750* MJ- 80mm UP- CD180x CK- 1.750* MJ- 80mm UP- CD4xx GP- "UP" T- no inboard, flat outboard N- inboard in inboard, flat outboard N- inboard, flat outboard N- inboard in inboard, flat outboard N- inboard, flat outboard N- inboard in inboard in inboard in inboard N- inboard in inboard i	XX- no rotor  WS  METRIC CB- 0.825" MF- 30mm MJ- 42mm CC- 0.875" MJ- 42mm CC- 0.875" MJ- 42mm CC- 0.875" MJ- 60mm CF- 0.125" MJ- 60mm CF- 1.125" MZ- 80mm** UP- CD54xx CF- 1.00" MJ- 60mm** UP- CD54xx CF- 1.125" MZ- 80mm** UP- CD54xx CF- 1.125" MZ- 80mm** UP- CD54xx CF- 1.125" MZ- 80mm** UP- CD54xx CF- 1.25" CM- 2.25" CM- 2.200" CN- 2.125" CM- 2.200" CN- 2.125" CM- 2.250" CP- 2.375" CM- 2.250" CT- 2.625" CS- 2.771" CZ- 2.875" CW- 3.250" CY- 3.3750 CW- 3.250" CW- 3.	XX- no rotor  WETRIC CB- 0.825" MF- 30mm MJ- 42mm CC- 0.875' MP- 60mm UP- CD180-32x GF- "UF" UN- CD36x GN- "UN" UP- CD4xx UP- CD4xx UP- CD4xx UP- CD4xx UP- CD5x GP- "UP" UN-	XX- no rotor US METRIC CB- 0.625** MF- 30mm CA- 0.750** MJ- 42mm CA- 0.750** MJ- 42mm CC- 0.875* MJ- 80mm UN- CD36x GN- "UN" UP- CD16xx GP- "UP" UP- CD4xx GP- "UP" UP- CD5xx GP- "UP" UP- CD5xx GP- "UP" UP- CD5xx GX- 100 GP- 5-24V in, 120 GP- 5-24V in, 120 GP- 5-24V in, 120 GP- 5-24V in, 120 GP- 100	XX- no rotor US METRIC CB- 0.825" MF- 30mm CA- 0.750" MJ- 42mm CC- 0.875 MP- 80mm CC- 0.875 MP- 80mm CF- 1.125 MZ- 80mm UP- CD16xx GP- "UP" UR- CD5xx G2 " "U2" UR- CD5xx G2 " "U2" UR- CD5xx Gx* UW- CD4xx GW- "UV" CK- 1.785" CM- 2.000 CK- 1.780" CM- 2.755 CM- 2.000 CK- 2.250" CM- 2.250	XX- no rotor   XX-	XX





Nidec-Avtron Makes the Most Reliable Encoders in the World

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All dimensions are in inches [millimeters]. Specifications and features are subject to change without notice EU-SMART™, SMARTSafe™, SMARTach II™, THIN-LINE™, THIN-LINE II™, WIDE-GAP™, and BULLSEYE32™ are trademarks of Nidec Avtron Automation. All other trademarks and registered trademarks are the property of their respective owners.