

## Avtron AV125 SMARTach™ III Encoders



**Heavy Mill Duty Magnetic Modular Encoder, 12.5" C-Face Mount**

### Magnetic Durability in a Compact Encoder

Heavy Mill Duty
Up to 7.88" [200mm] Shafts
Up to 8192 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 Brake Applications

### AV125

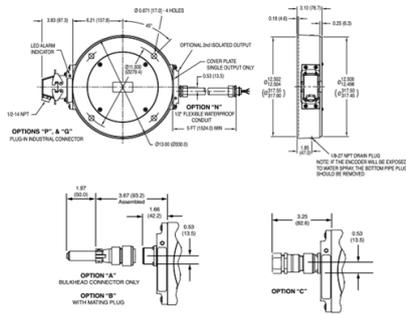
AV125 SMARTach™ III heavy mill duty modular magnetic encoders fit 12.5" motor and NEMA brake flanges. Other models, from 115mm to 8.5", are available to fit other motor sizes.

AV125 is ideal for large motor and brake applications where a large diameter through-shaft is needed. It permits shafts up to 7 7/8" [200mm] to pass through the encoder, facilitating motor-encoder-brake sandwich construction, as well as hollow shafts for water or air cooling systems to pass through the encoder. Because AV125 is super-reliable and features removable sensors, you can install it in hard-to-access configurations and locations without risk of downtime.

Quite simply, the AV125 is designed to eliminate encoder failures: All AV125 electronics are fully encapsulated. There are no moving wearing parts. AV125 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 AV125 has full output short circuit and reverse voltage protection, plus surge protection. 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 AV12 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. Why risk tiny fragile optical encoders perched precariously behind your large motor or brake. Specify a heavy duty AV125 encoder!

## OUTLINE DRAWING



## MORE AV125 ADVANTAGES

- SMARTach II sensors find problems before they cause failure
- Replaces Northstar/LakeShore RIM1250™, NexGen 1250, SL1250™; Avtron M1250 models
- Resists motor and brake interference noise
- Reverse voltage protection
- Mix and match any PPR with any rotor
- Permits axial movement up to +/-0.100" [+/-2.54mm]

## MORE AV125 SPECIFICATIONS

Operating Power: (Each Sensor): 5-24V\* Current: 100mA nom, 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: 5000 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: 15-17 lb. [6.8-8 kg]

\* 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

Northstar/LakeShore RIM1250™ and SL1250™ are trademarks of Dynapar.

Spare sensors, rotors, through-shaft cover plates, and shaft grounding kits can be ordered separately.

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

MODEL	ROTOR BORE SIZE	COVER PLATES	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR OPTIONS	MODIFICATIONS
AV125	XX - No Rotor CH - 1.375" Thru-Shaft Rotor, Cam Screw Mount CJ - 1.625 in. Thru-Shaft Rotor CL - 1.875 in. Thru-Shaft Rotor CM - 2.000 in. Thru-Shaft Rotor CN - 2.125 in. Thru-Shaft Rotor CQ - 2.250 in. Thru-Shaft Rotor CP - 2.375 in. Thru-Shaft Rotor CR - 2.500 in. Thru-Shaft Rotor CT - 2.625 in. Thru-Shaft Rotor C2 - 2.875 in. Thru-Shaft Rotor CV - 3.125 in. Thru-Shaft Rotor CW - 3.250 in. Thru-Shaft Rotor CY - 3.375 in. Thru-Shaft Rotor CS - 3.750 in. Thru-Shaft Rotor C4 - 3.875 in. Thru-Shaft Rotor C1 - 4.000 in. Thru-Shaft Rotor, Cam Screw Mount CB - 4.125 in. Thru-Shaft Rotor C5 - 4.250 in. Thru-Shaft Rotor CC - 4.375 in. Thru-Shaft Rotor	X - No Cover Plates F - Flat Outboard Cover T - Outboard Seal Plate and V-Ring Seal for Thru-Shaft 0 - Custom Cover Plate, 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 In 5V 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 Y - 1024 PPR Z - 1200 PPR 6 - 1800 PPR	X - No Right Output 6 - 5-24v in, 5-24v out (7272) recommended for single-ended wiring (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 Y - 1024 PPR Z - 1200 PPR 6 - 1800 PPR	X - No Connector A - 10 pin MS style without Mating Plug B - 10 pin MS style with Plug 5 - 10 pin MS style w/o Plug, Dynapar Pin Out C - 10 pin MS style with Plug & Flexible Conduit Adapter L - 10 pin MS style with 90° Plug K - Condulet with leads N - 5 ft. Flex Conduit, Leads Only T - 5 ft. Flex Conduit with Terminal Box P - Industrial EPIC Style with Plug G - Industrial EPIC Style with Lakeshore Pinout (No alarm contact) Q - Small EPIC Style with plug on Remote Base for Motor Hood Mount Z - Industrial EPIC Style on 3 ft. Cable with Plug R - Baldor Mini MS style with Plug S - Baldor Mini MS style on 3 ft. Cable with Plug W - 3 ft. Sealed Cable with Leads E - M737A Pinout 5 pin MS, without Plug F - M737A Pinout 5 pin MS, with Plug H - M727A Pinout 5 pin MS, without Plug J - M727A Pinout 5 pin MS, with Plug	000 - None 004 - Super Magnetic Shielded Sensors 005 - Expand Top Speed to 6000 RPM (rotor & per-sensor) 006 - Super Magnetic Shielded Sensors with Sealed Housing (Marine Apps) 007 - Option 006 with A38162 Stator Housing O-Ring and Rear Cover Plate Sealing Kit 009 - Super Magnetic Shielded Sensors with 6000 PPR & 25mm bore 011 - Super Magnetic Shielded Sensors with 6000 PPR & 5 ft. cable built into sensor 029 - Super Magnetic Shielded Sensors with B35183 cable (MS to remote "Q" terminal block/base) 062 - Special mounting flange Bucyrus/CAT Shovel (Model B37870 or B37874) 401 - 1270 (Special) PPR 402 - 150 (Special) PPR 403 - 50 (Special) PPR 404 - 16 PPR (Special) Right Output (Set Right PPR Code to 0) 405 - 16 (Special) PPR (Set PPR Code(s) = 0) 406 - 6000 (Special) PPR (Set PPR Code(s) = 0) 407 - 2800 (Special) PPR (Set PPR Code(s) = 0) 408 - 1400 (Special) PPR (Set PPR Code(s) = 0) 409 - 30 (Special) PPR (Set PPR Code(s) = 0) 410 - 6000 (Special) Right PPR Only (Set PPR Code = 0) 411 - 12000 (Special) PPR (Set PPR Code(s) = 0)



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MODEL	ROTOR BORE SIZE	COVER PLATES	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR OPTIONS	MODIFICATIONS
	C6 - 4.500 in. Thru-Shaft Rotor CD - 4.625 in. Thru-Shaft Rotor CE - 4.690 in. Thru-Shaft Rotor CA - 4.875 in. Thru-Shaft Rotor CG - 5.000 in. Thru-Shaft Rotor TG - 5.000 in. Thru-Shaft Rotor - Set Screw CK - 5.250 in. Thru-Shaft Rotor C7 - 5.375 in. Thru-Shaft Rotor C3 - 6.000 in. Thru-Shaft Rotor CF - 6.250 in. Thru-Shaft Rotor TU - 6.375 in. Thru-Shaft Rotor C8 - 6.750 in. Thru-Shaft Rotor T9 - 7.875 in. Thru-Shaft Rotor TZ - 5.001 in. Thru-Shaft Rotor MY - Obsolete, use DY for 85mm Thru-Shaft Rotor, Cam Screw Mount DY - 85mm Thru-Shaft Rotor M4 - Obsolete, select D4 for 90mm Thru-Shaft Rotor for ISO g6, Cam Screw Mount S3 - 150mm bore rotor, ultra-high vibration withstand D4 - 90mm Thru-Shaft Rotor for ISO g6 M1 - 100mm Thru-Shaft Rotor			3 - 2000 PPR 4 - 2048 PPR 5 - 2500 PPR D - 4096 PPR 8 - 4800 PPR 9 - 5000 PPR 0 - Special PPR		3 - 2000 PPR 4 - 2048 PPR 5 - 2500 PPR D - 4096 PPR 8 - 4800 PPR 9 - 5000 PPR 0 - Special PPR	1 - 10 Pin Mini-Epic Style with Plug 4 - 2m cable, Special LED wiring for Hubner compatibility 0 - Custom Connector, Consult Factory	412 - 200 (Special) PPR (Set PPR Code(s) = 0) 413 - 30 (Special) Left Output PPR, 30 (Special) Right Output PPR 414 - 1500 (Special) PPR (Set PPR Code(s) = 0) 415 - 3000 (Special) Right PPR Only (Set PPR Code = 0) 416 - 3600 (Special) Right PPR Only (Set PPR Code = 0) 417 - 1250 (Special) Right PPR Only (Set PPR Code = 0) 418 - 2400 (Special) Left Output PPR, 30 (Special) Right Output PPR 419 - 160 (Special) Left Output PPR, 30 (Special) Right Output PPR 420 - 450 (Special) Right PPR Only 421 - 30 (Special) Right PPR Only (Set PPR Code = 0) 422 - 96 (Special) Right PPR Only 423 - 10000 (Special) Right PPR Only 901 - Special 1 ft. cable built into sensor 902 - Special 2 ft. cable built into sensor 903 - Special 3 ft. cable built into sensor 905 - Special 5 ft. cable built into sensor 910 - Special 10 ft. cable built into sensor 915 - Special 15 ft. cable built into sensor 920 - Special 20 ft. cable built into sensor 925 - Special 25 ft. cable built into sensor



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MODEL	ROTOR BORE SIZE	COVER PLATES	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR OPTIONS	MODIFICATIONS
	SB - 93mm bore rotor, ultra-high vibration withstand DC - 110mm Thru-Shaft Rotor MC - Obsolete, select DC for 110mm Thru-Shaft Rotor, Cam Screw Mount ME - Obsolete, select DE for 120mm Thru-Shaft Rotor, Cam Screw Mount DE - 120mm Thru-Shaft Rotor MG - Obsolete, select DG for 25mm Thru-Shaft Rotor, Cam Screw Mount DG - 25mm Thru-Shaft Rotor MK - Obsolete, select DK for 120mm Thru-Shaft Rotor for ISO e6, Cam Screw Mount DK - 120mm Thru-Shaft Rotor for ISO e6 MF - Obsolete, select DF for 160mm Thru-Shaft Rotor, Cam Screw Mount DF - 160mm Thru-Shaft Rotor M8 - Obsolete, select D8 for 170mm Thru-Shaft Rotor, Cam Screw Mount D8 - 170mm Thru-Shaft Rotor T0 - Custom Rotor Bore Signified By 8XX Special Option Code T1 - 4.000 in. Thru-Shaft Rotor							930 - Special 30 ft. cable built into sensor 933 - Special 33 ft. cable length built into sensor 801 - 5.875 in. Rotor Bore, Set Screw Mounted 802 - 25mm Rotor Bore, Set Screw Mounted 803 - 6.967 in. Rotor Bore, Set Screw Mounted 804 - 5.125 in. Rotor Bore, Cam Screw Mounted 805 - 7.75 in. Rotor Bore, Set Screw Mounted 807 - 3.625 in. Rotor Bore, Cam Screw Mounted 4XX - Custom PPR, Consult Factory 8XX - Custom Rotor Bore, Consult Factory 9XX - Custom Cable Length, Consult Factory



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