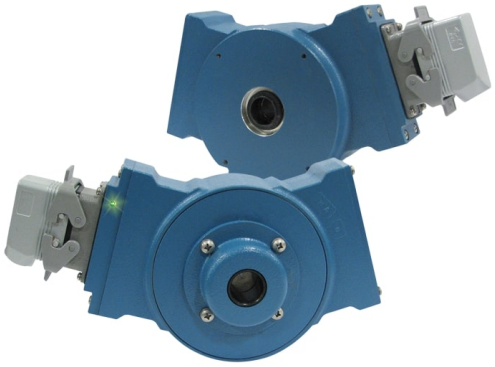
Avtron AV685 SMARTach™ III Encoders



Severe Mill Duty SMARTach™ III Magnetic Encoder, 1- 1/8" Hollow Shaft Mount

Magnetic Durability in a Compact Encoder

- Severe Mill Duty
- Up to 50000 PPR
- Replaces Competitive Models Without Rewiring
- Self-Diagnostic LED & Alarm
- Outputs Fully Short Circuit Protected
- Removable Sensors
- End of Shaft and Thru Shaft Models Available
- IP66 Enclosure
- High-Power Output Standard
- Optional Dual Isolated Outputs
- 1 Year No-Hassle Warranty

AV685

SMARTach™ III Magnetic Encoder, 1-1/8" Hollow Shaft Mount

AV685 hollow shaft encoders survive the worst conditions: dust, dirt, liquid sprays, and temperature extremes from -40°C* to +120°C*!

The durable hollow shaft design tolerates huge axial movements, and withstands more shaft runout than any other encoder available.

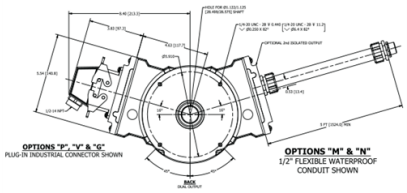
The dual, replaceable sensors have fully potted electronics and are interchangeable between AV485, AV685, and AV850. And, they feature high-power outputs that drive long cable lengths easily. These AV5 SMARTach III sensors have the best protection of any encoder—from surges, wiring outputs to power, ground, between phases, or even short circuits!

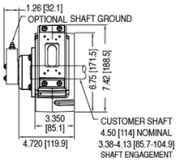
The universal 5-24V design drives longer cables and is protected against wiring errors and surges.

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.

So if you want the highest reliability most durable encoder in your mill, select AV685.

OUTLINE DRAWING





MORE AV685 ADVANTAGES

- SMARTach II sensors find problems before they cause failures
- Replaces Avtron M585, M685; Dynapar HS56, HS85 models
- Optional K661 signal converter for direct replacement of analog tachs (BC42, 46, etc.)
- Mix and match any PPR's
- No sensor shimming required
- Dual oversize bearings, spaced farther apart
- Synthetic bearing lubricant for longer life
- Optional overspeed switch
- Optional shaft grounding
- Huge range of stub shaft adapters available to fit shafts from 1 3/8" to 12" & most motor brands

MORE AV685 SPECIFICATIONS

Operating Power (Each Sensor): 5 - 24 VDC*
Current: 100mA, nominal, 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: 5400 RPM Max****
Electronics: Fully Encapsulated, IP67**
Temperature: -40°* to 120°C* (150°C rotor)^
Environmental: Electronics: Fully Encapsulated; IP66**; Nema 4, 13 Rating
Chemical: Polyurethane enamel paint protects against salt spray, mild acids, and bases.
Weight: 15-17 lbs. [6-8 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.
^ -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

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SELECTION GUIDE

MODEL	TEMPERATURE RATING	ANTI-ROTATIONAL TETHER	SHAFT MOUNTING	LEFT OUTPUT LINE DRIVER	LEFT OUTPUT PPR	RIGHT OUTPUT LINE DRIVER	RIGHT OUTPUT PPR	CONNECTOR OPTIONS	MODIFICATIONS
AV685	N - -20°C to +80°C (Standard) H - -20°C to +120°C (NOTE: Requires instrument air flow) C - -40°C to +80°C 0 - Custom Operating Temperature Range, Consult Factory	1 - 12 inch Threaded Rod Tether (B32809) 2 - 6.5 inch Threaded Rod Tether (B32809-2) X - None	E - Standard (End of Shaft) Mount T - Through Shaft Mount G - Standard End of Shaft Mount w/Shaft Grounding Added O - Overspeed Switch [Option Codes 6XX Below, Also Add Stub Shaft Separately]	X - No Left Output 6 - 5-24v in, 5-24v out (7272) Best for Single Ended Wiring (A B No Left OutputZ, 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 G - 100 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 2 - 1500 PPR 6 - 1800 PPR 3 - 2000 PPR 4 - 2048 PPR 5 - 2500 PPR T - 3072 PPR 7 - 3600 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) 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 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 2 - 1500 PPR 6 - 1800 PPR 3 - 2000 PPR 4 - 2048 PPR 5 - 2500 PPR T - 3072 PPR 7 - 3600 PPR D - 4096 PPR 8 - 4800 PPR 9 - 5000 PPR 0 - Special PPR	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 & Flex Conduit Adapter D - 10 pin MS style w/Plug on 5 ft. Flex Conduit (M585 Replacement) E - M737A Pin out 5 pin MS, without Plug F - M737A Pin out 5 pin MS style with Plug G - Industrial EPIC Style with Lakeshore Pin out H - M727A Pin out 5 pin MS, without Plug J - M727A Pin out 5 pin MS, with Plug K - Condulet with leads L - 10 pin MS style with 90° Plug M - 5 ft. Flex Conduit, with Insulating Adapter N - 5 ft. Flex Conduit, Leads Only P - Industrial EPIC Style with Plug Q - Industrial Mini-EPIC Style on Remote Base for Motor Cover Mount on 18" cable, with plug R - Baldor Mini MS style with Plug S - Baldor Mini MS style on 3 ft. Cable with Plug T - 5 ft. Flex Conduit with Terminal Box V - Industrial EPIC Style with Plug & Insulated Adapter W - 3 ft. Sealed Cable with Leads Y - 5 ft. Flex Conduit with Terminal Box & Insulated Adapter Z - Industrial EPIC Style on 3 ft. Cable with Plug X - No Connector/Sensor (Housing only) 1 - Industrial Mini-EPIC style with plug	000 - None 003 - Analog Brushless Converter (K661) Package Included 004 - Super Magnetic Shielded Sensor(s) 028 - Include Mounting Wrench Set (484017, 484018) 089 - Special mounting tether, coupling flange, and double electronic overspeed switches 120 - Special 8192 PPR (Left & Right) & 12' (Left & Right) flex conduit connection 901 - Special 1 ft. cable length built into sensor 902 - Special 2 ft. cable length built into sensor 903 - Special 3 ft. cable length built into sensor 905 - Special 5 ft. cable length built into sensor 910 - Special 10 ft. cable length built into sensor 915 - Special 15 ft. cable length built into sensor 920 - Special 20 ft. cable length built into sensor 925 - Special 25 ft. cable length built into sensor 930 - Special 30 ft. cable length built into sensor 933 - Special 33 ft. cable length built into sensor

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