DR857

Direct replacement encoder for AMS Controls incremental optical encoders



Designed as a drop-in replacement for the AMS Controls incremental optical encoders, the **DR857** meets or exceeds all OEM specifications. The DR857 is designed to provide precision feedback control on any AMS Controls machine that includes their optical encoder, from metal roll forming to material tracking equipment.

Features:

- Standard 3 inch round encoder body
- 0256, 0500, 1000, 2000, and 4000 CPR available
- 3/8" shaft made of 303 stainless steel
- 5V Line Driver output
- End-mount 10-pin MS connector
- Precision ABEC ball bearings
- IP66 sealing

Contact Customer Service for pricing. Discounts available for volume orders.

AMS Part #	EPC Order Number	CPR
N256	DR857-0256	0256
N500	DR857-0500	0500
N1000 / S1000	DR857-1000	1000
N2000 / S2000	DR857-2000	2000
N4000	**DR857-4000***	4000

**Price adder for 4000 CPR*

The Accu-Coder® Advantage

- *US-based since 1969*
- *Industry-best 3-year warranty*
- *Exceptional customer service*
- *Fast lead times – contact us for lead times and expedite options*

© 2023 Encoder Products Company. **DR857 Datasheet** REV 04/20/2023

DR857

Direct replacement encoder for AMS Controls incremental optical encoders

MODEL DR857 SPECIFICATIONS

Electrical

Input Voltage	4.75 to 28 VDC max for temperatures up to 70° C 4.75 to 24 VDC for temperatures between 70° C and 100° C
Input Current	100 mA max with no output load
Input Ripple	100 mV peak-to-peak at 0 to 100 kHz
Output Format	Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the encoder mounting face. See Waveform Diagram.
Output Type	Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)
Index	Occurs once per revolution. The index for units >3000 CPR is 90° gated to Outputs A and B. See Waveform Diagram.
Max Frequency	500 kHz
Electrical Protection	Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.
Noise Immunity	Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2
Symmetry	1 to 6000 CPR: 180° (±18°) electrical at 100 kHz output 6001 to 20,480 CPR: 180° (±36°) electrical
Quad Phasing	1 to 6000 CPR: 90° (±22.5°) electrical at 100 kHz output 6001 to 20,480 CPR: 90° (±36°) electrical
Min Edge Sep	1 to 6000 CPR: 67.5° electrical at 100 kHz output 6001 to 20,480 CPR: 54° electrical >20,480 CPR: 50° electrical
Rise Time	Less than 1 microsecond
Accuracy	Instrument and Quadrature Error: For 200 to 1999 CPR, 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. For 2000 to 3000 CPR, 0.01° mechanical (0.6 arc minutes) from one cycle to any other cycle. Interpolation error (units > 3000 CPR only) within 0.005° mechanical. (Total Optical Encoder Error = Instrument + Quadrature + Interpolation)

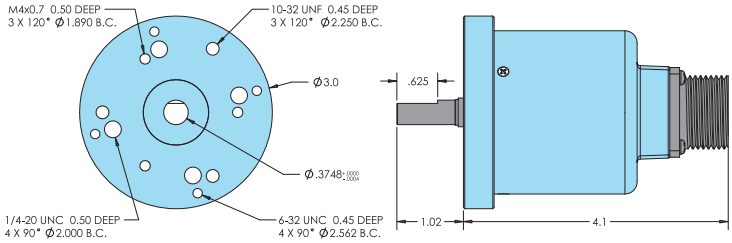
Mechanical

Max Shaft Speed	8000 RPM. Higher shaft speeds may be achievable, contact Customer Service.
Shaft Material	303 Stainless Steel
Shaft Rotation	Bi-directional
Radial Shaft Load	80 lb max. Rated load of 20 to 40 lb for bearing life of 1.5 x 10^9 revolutions
Axial Shaft Load	80 lb max. Rated load of 20 to 40 lb for bearing life of 1.5 x 10^9 revolutions
Starting Torque	1.0 oz-in typical with IP64 seal or no seal 3.0 oz-in typical with IP66 shaft seal 7.0 oz-in typical with IP67 shaft seal
Moment of Inertia	5.2 x 10^{-4} oz-in-sec^2
Housing	Black non-corrosive finish
Bearings	Precision ABEC ball bearings
Weight	20 oz typical

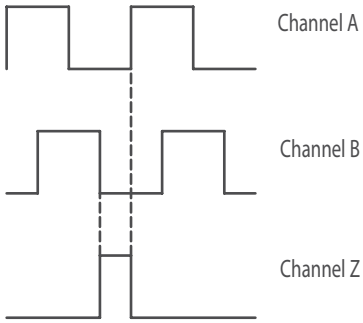
Environmental

Storage Temp	-25° to 85° C
Operating Temp	0° to 70° C for CPR of 0256 or 4000; 0° to 100° C for CPR 0500, 1000, or 2000
Humidity	95% RH non-condensing
Vibration	20 g @ 58 to 500 Hz
Shock	75 g @ 11 ms duration
Sealing	IP66

DR857 Dimensions



DR857 Waveform Diagram



CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE

NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES.
Waveform shown with optional complementary signals $\overline{A}$, $\overline{B}$, $\overline{Z}$ for HV output only.

DR857 Wiring Table

Pin	Function
I	+VDC
J	GND
A	A+
B	A'
C	B+
D	B'
E	Z+
F	Z'

Don't see the exact encoder you need?

*Call **(800) 366-5412** and our Technical Sales Department will cross-reference your encoder to the correct EPC model.*

© 2023 Encoder Products Company. **DR857 Datasheet** REV 04/20/2023