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.

<table>
<thead>
<tr>
<th>AMS Part #</th>
<th>EPC Order Number</th>
<th>CPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>N256</td>
<td>DR857-0256</td>
<td>0256</td>
</tr>
<tr>
<td>N500</td>
<td>DR857-0500</td>
<td>0500</td>
</tr>
<tr>
<td>N1000 / S1000</td>
<td>DR857-1000</td>
<td>1000</td>
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<tr>
<td>N4000</td>
<td>DR857-4000*</td>
<td>4000</td>
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</tbody>
</table>

*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
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
- **Index**: Occurs once per revolution. The index for units > 3000 CPR is 90° gated to Outputs A and B. See Waveform Diagram.
- **Max Frequency**: 50 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 50081-2; BS EN61000-6-2; BS EN61000-6-4 (with European compliance option); BS EN61000-2-2; BS EN60988-2
- **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 Separation**: 1 to 6000 CPR: 67.5° electrical at 100 kHz output
- 6001 to 20,480 CPR: 54° 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 IP66 seal or no seal
- **Moment of Inertia**: 3.0 oz-in typical with IP66 shaft seal
- **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 2536 or 4000; 0° to 100° C for CPR 0500, 1000, or 2000
- **Humidity**: 95% RH non-condensing
- **Vibration**: 20 g @ 50 to 500 Hz
- **Shock**: 75 g @ 11 ms duration
- **Sealing**: IP66

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**DR857 Dimensions**

- **Channel A**
- **Channel B**
- **Channel Z**

CLOCKWISE ROTATION AS VIEWED FROM THE MOUNTING FACE

NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. Waveform shown with optional complementary signals X, B, Z for HV output only.

**DR857 Waveform Diagram**

**DR857 Wiring Table**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
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<tbody>
<tr>
<td>I</td>
<td>+VDC</td>
</tr>
<tr>
<td>J</td>
<td>GND</td>
</tr>
<tr>
<td>A</td>
<td>A+</td>
</tr>
<tr>
<td>B</td>
<td>A'</td>
</tr>
<tr>
<td>C</td>
<td>B+</td>
</tr>
<tr>
<td>D</td>
<td>B'</td>
</tr>
<tr>
<td>E</td>
<td>Z+</td>
</tr>
<tr>
<td>F</td>
<td>Z'</td>
</tr>
</tbody>
</table>

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**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.