

# DR651

Direct Replacement Encoder For  
DRC 29L

**BRITISH**  
**ENCODER**  
PRODUCTS COMPANY

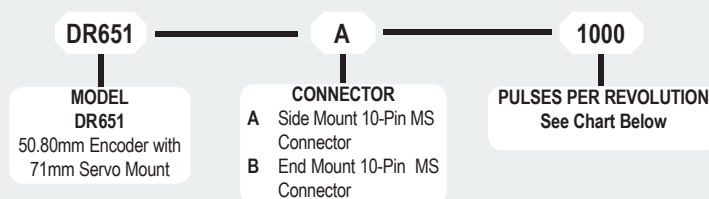


#### Features:

- Rugged 50.8mm (2.0") industrial encoder with 71mm (2.796") Servo Hub
- 0.3748" shaft with flat made from 303 stainless steel
- Quadrature with index
- Line Driver output
- 5 to 28 VDC Input Voltage
- Side or end mount 10-pin MS connector
- Frequency up to 100 kHz
- Sealing to IP66

The DR651 is British Encoder Product's Direct Replacement Encoder for the DRC 29L. DR651 is a heavy duty, rugged 50.80mm encoder designed for harsh industrial environments such as machine tools and robotics. The DR651 is an exact mechanical fit to the DRC 29L; a large shafted encoder with Servo hub, PPR, and Connector mount options. But the similarities stop there. The DR651 can withstand 36kg axial load, 27kb radial load, and 75 g of shock, as compared to the DRC 29L's 13kg of load and 50 g of shock. Select the DR651 for a more durable rugged replacement for the hard to find, DRC 29L.

#### ORDER GUIDE :-



**ACCU»CODER™**  
by Encoder Products Company

#### The Accu-Coder™ Advantage

- Get this encoder **FAST!**
- **Huge savings** in price!
- The accuracy, reliability, and quality that only come from an Accu-Coder™
- Industry Best **3-year** warranty!

#### DR651 CPR Options

0025	0050	0100	0128	0150	0160	0200
0250	0256	0300	0360	0400	0500	0512
0600	0625	0635	0720	0800	0900	1000
1024	1200	1250	1270	1440	1500	1800
2000	2500	5000	10,000			

#### Don't see the exact encoder you need?

Call +44(0)1978 262100 and our Technical Sales Department will  
cross-reference your encoder to the correct BEPC model.

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## DR651 Specifications

### Electrical

Input Voltage.....4.75 to 28 VCC max for temperatures up to 70° 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 Diagrams* below.  
Output Types .....Line Driver- 20 mA max per channel (Meets RS 422 at 5 VCC supply)  
Index .....Occurs once per revolution. See *Waveform Diagrams* below.  
Freq Response.....Up to 100 KHz.  
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 .....180° (±18°) electrical at 100 kHz output  
Quad Phasing.....90° (±22.5°) electrical at 100 kHz output  
Min Edge Sep.....67.5° electrical at 100 kHz  
Rise Time.....Less than 1 microsecond  
Accuracy.....Instrument and Quadrature Error: 0.017° mechanical (1.0 arc minutes) from one cycle to any other cycle. (Total Optical Encoder Error = Instrument + Quadrature + Interpolation)

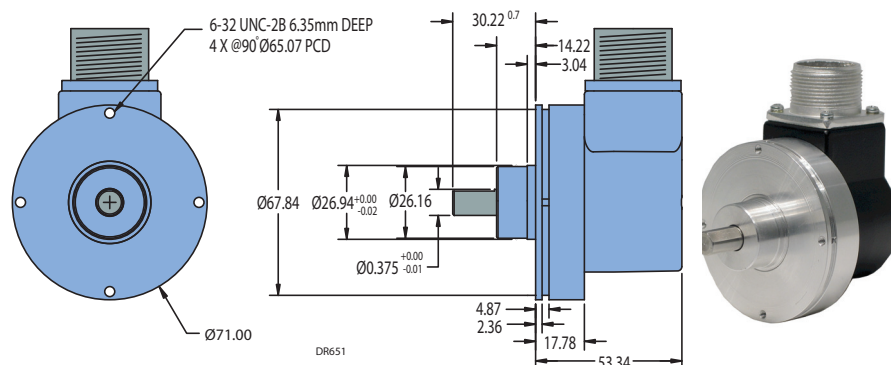
### Mechanical

Max Shaft Speed.....8000 RPM. Higher shaft speeds may be achievable, contact Customer Service.  
Shaft Size .....0.375"  
Shaft Material .....Stainless Steel  
Shaft Rotation.....Bi-directional  
Radial Shaft Load.....27kg max. Rated load of 7kg to 30.60kg for bearing life of  $1.5 \times 10^9$  revolutions  
Axial Shaft Load.....36kg max. Rated load of 4.5kg to 9kg for bearing life of  $1.5 \times 10^9$  revolutions  
Starting Torque .....0.021 Nm with IP66 Shaft Seal  
Max Acceleration..... $1 \times 10^5$  rad/sec<sup>2</sup>  
Connector Type .....Side or End mount 10 Pin MS  
Housing.....Black non-corrosive finish  
Bearings.....Precision ABEC ball bearings  
Mounting.....71mm Servo Flange  
Weight.....453g typical

### Environmental

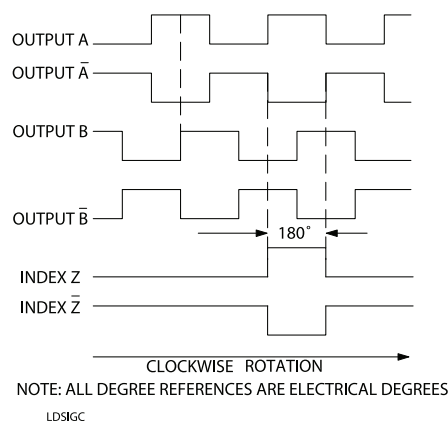
Operating Temp.....0° to 70° C for standard models  
Storage Temp.....-25° to +85° C  
Humidity.....98% RH non-condensing  
Vibration.....20 g @ 58 to 500 Hz  
Shock.....75 g @ 11 ms duration  
Sealing.....IP66

## DR651 Dimensions



All dimensions are in mm with a tolerance of  $\pm 0.127$ mm or  $\pm 0.254$  unless otherwise specified

## Waveform Diagram



## Wiring Table

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