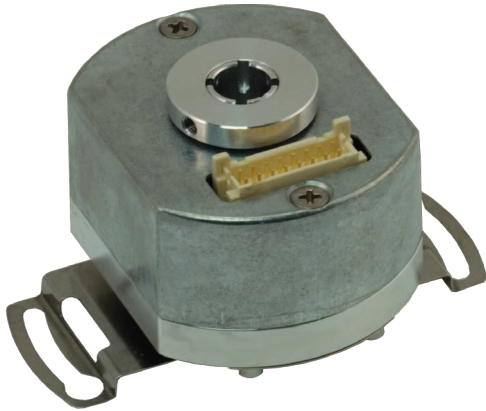


# DR21R

Direct Replacement Encoder for Select Renco RCH20D and RHS25D Models\*



The Accu-Coder DR21R is a highly customized, Direct Replacement Encoder with a unique, OEM-specific ABS stepped voltage output channel. DR21R configurations replace select Renco RCH20D and RHS25D models\* originally installed on legacy F, H, W, N and HSM servo motor models. An exact mechanical and electrical cross-reference for these obsolete Renco configurations, the DR21R also incorporates EPC's advanced Opto-ASIC sensing technology, providing superior thermal stability and signal reliability. The DR21R is available in 4 to 6 working days, with a Next Day Expedite option available, and it is fully backed by EPC's industry best 3-year warranty.

*\*These models have been discontinued by the manufacturer, and are increasingly difficult to find and costly to replace.*

## Features:

- Replaces select RCH20D and RHS25D Renco models
- Line Driver output with ABS stepped voltage output
- Quadrature with index
- 5VDC Input Voltage
- End mount 16-pin header connection
- Operating temperature up to 100°C

## Ordering Information

| RENCO MODEL NUMBER  | EPC DIRECT REPLACEMENT | CPR  | POLE COUNT | BORE SIZE | MOUNT BC | INDEX GATING | MOTOR SERIES  |
|---|------------------------|------|------------|-----------|----------|--------------|---------------|
| RCH20D-2000/4-1/2-5/0-LD/VC-7-M6-S                                      | DR21R-01               | 2000 | 8          | 0.500"    | 3.125"   | A            | F             |
| RHS25D-P3-2000/4-1/2-5-CA6-LD-MS-CM-S                                   | DR21R-01†              | 2000 | 8          | 0.500"    | 3.125"   | A            | F             |
| RCH20D-5000/4-1/2-5/0-LD/VC-1-M6-S                                      | DR21R-02               | 5000 | 8          | 0.500"    | 3.125"   | A & B        | F             |
| RCH20D-2000/2-8MM-5/0-LD/VC-1-M6-S                                      | DR21R-03               | 2000 | 4          | 8 mm      | 2.375"   | A & B        | H, HSM2       |
| RCH20D-2000/3-8MM-5/0-LD/VC-1-M6-S                                      | DR21R-04               | 2000 | 6          | 8 mm      | 2.375"   | A & B        | H, HSM3, HSM4 |
| RCH20D-2000/4-1/2-5/0-LD/VC-1-M6-S                                      | DR21R-05               | 2000 | 8          | 0.500"    | 2.375"   | A & B        | H, HSM6, HSM8 |
| RCH20D-5000/3-8MM-5/0-LD/VC-1-M6-S                                      | DR21R-06               | 5000 | 6          | 8 mm      | 2.375"   | A & B        | H             |
| RCH20D-2000/3-1/2-5/0-LD/VC-7-M6-S                                      | DR21R-07               | 2000 | 6          | 0.500"    | 2.375"   | A            | W             |
| RHS25D-P3-2000/3-1/2-5-CA6-LD-MS-CM-S                                   | DR21R-07†              | 2000 | 6          | 0.500"    | 2.375"   | A            | W             |
| RCH20D-2000/2-12MM-5/0-LD/VC-1-M4-S<br><i>Includes hub shaft cover.</i> | DR21R-08               | 2000 | 4          | 12 mm     | 1.812"   | A & B        | N             |

†Requires accessory cable 080499-01

## Accessory Options

| PART NO.  | DESCRIPTION     |
|-----------|-----------------|
| 080499-01 | 6" Mating Cable |

# DR21R

Direct Replacement Encoder for Select Renco RCH20D and RHS25D Models



## Model DR21R Specifications

### Electrical

- Input Voltage..... 5 VDC
- Input Current..... 150 mA max with no output load
- Output Format..... Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation (as viewed from the mounting face), commutation and ABS stepped voltage. See Waveform Diagrams.
- Output Types ..... TTL Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)
- Index ..... Once per revolution. See Waveform Diagrams.
- Max. Frequency ..... 300 KHz
- Noise Immunity..... Tested to BS EN61000-6-2; BS EN50081-2; BS EN61000-4-2; BS EN61000-4-3; BS EN61000-4-6, BS EN55011
- Symmetry..... 180° (±18°) electrical
- Quad. Phasing ..... 90° (±22.5°) electrical
- Min. Edge Sep..... 67.5° electrical
- Accuracy ..... Within 0.01° mechanical from one cycle to any other cycle, or 0.6 arc minutes.
- Commutation ..... Up to 8 pole
- Comm. Accuracy ..... 1° mechanical

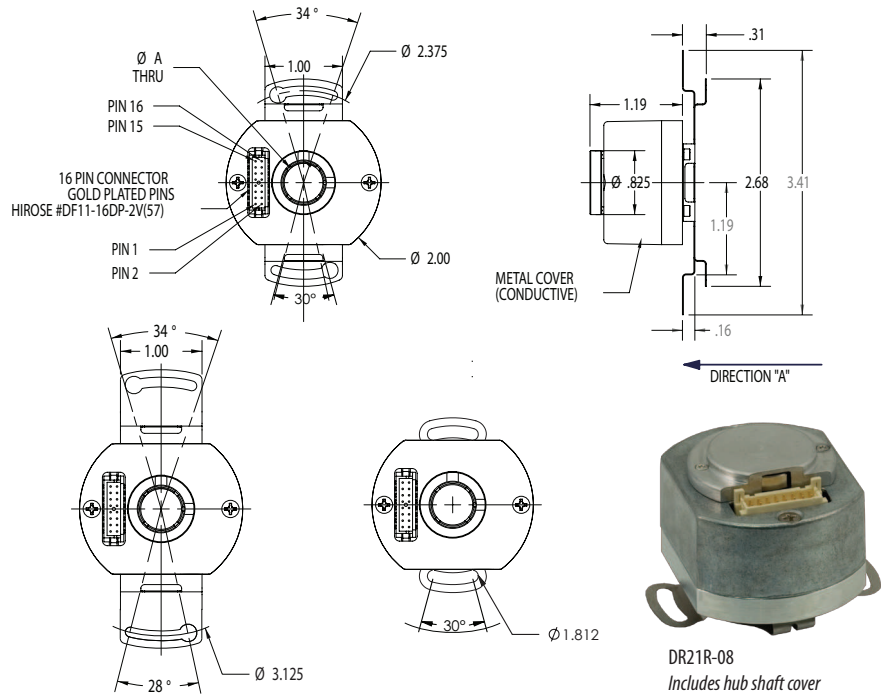
### Mechanical

- Max Shaft Speed..... 6000 RPM
- Bore Size..... 0.500" or 8 mm
- Bore Tolerance ..... -0.0000" / +0.0006"
- User Shaft Tolerances
- Radial Runout ..... 0.007" max
- Axial Endplay ..... ±0.030" max
- Starting Torque..... 0.50 oz-in
- Moment of Inertia... 3.9 X 10<sup>-4</sup> oz-in-sec<sup>2</sup>
- Max Acceleration..... 1 X 10<sup>5</sup> rad/sec<sup>2</sup>
- Electrical Conn ..... 16-pin End Mount Header
- Housing ..... All Metal Aluminum and Zinc Alloy
- Mounting..... 1.182", 2.375" or 3.125" Flex-Mount
- Weight..... 3.5 oz typical

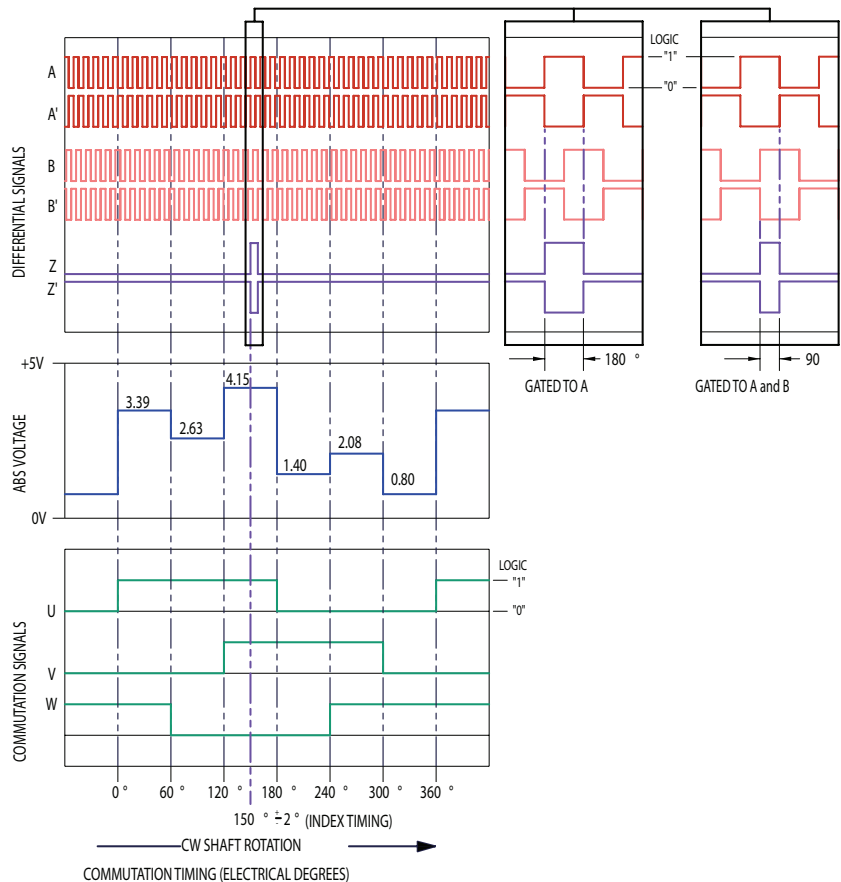
### Environmental

- Operating Temp..... 0° to 100°C
- Storage Temp..... -30° to 110° C
- Humidity ..... 5% – 90% RH non-condensing
- Vibration..... 10 g @ 58 to 500 Hz
- Shock..... 50 g @ 11 ms duration
- Sealing ..... IP50

## DR21R Dimensions



## DR21R Waveform Diagram



## DR21R Wiring Table

| Pin | Function    | Mating Cable Wire Color |
|-----|-------------|-------------------------|
| 1   | +5VDC       | White                   |
| 2   | U           | Violet                  |
| 3   | COM         | Black                   |
| 4   | V           | Gray                    |
| 5   | A           | Brown                   |
| 6   | W           | Red/Black               |
| 7   | A'          | Yellow                  |
| 8   | ABS         | Yellow/Black            |
| 9   | B           | Red                     |
| 10  | ---         | N/C                     |
| 11  | B'          | Green                   |
| 12  | ---         | N/C                     |
| 13  | Z (INDEX)   | Orange                  |
| 14  | ---         | N/C                     |
| 15  | Z' (INDEX)  | Blue                    |
| 16* | CASE GROUND | N/C                     |

\* A 0.10 uF capacitor is connected from common (COM) to case ground internal to encoder.