

# SERIES HD35R

NorthStar™ brand

## Heavy Duty Encoder

### Key Features

- Phased Array Sensor for Reliable Signal Output
- Rugged Design with Wide-Spaced Oversized Bearings
- Unbreakable Code Disc up to 5000PPR
- Improved Seal Design for Increased Moisture Resistance



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

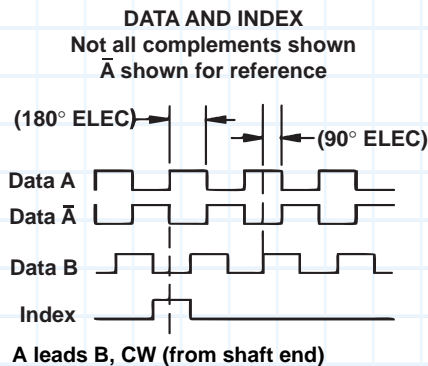
**Code:** Incremental  
**Resolution:** to 5000 PPR (pulses/revolution) See Ordering Information  
**Format:** Two channel quadrature (AB) with optional Index (Z), and complementary outputs  
**Phase Sense:** A leads B for CW shaft rotation viewing the shaft end of the encoder  
**Quadrature Phasing:** For resolutions to 1200 PPR: 90° ± 15° electrical; For resolutions over 1250 PPR: 90° ± 30° electrical  
**Symmetry:**  
 For resolutions to 1024PPR: 180° ± 18° electrical  
 For resolutions over 1024PPR: 180° ± 25° electrical  
**Waveforms:** Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

### WIRE COLORS

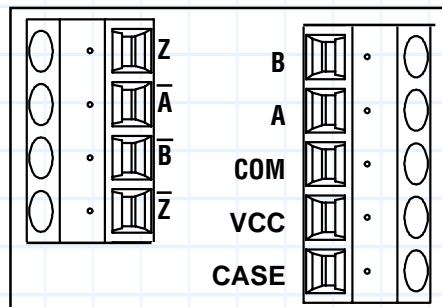
WIRE	PRIMARY FUNCTION	ALTERNATE FUNCTION
Black paired w/ Green	VCC	+UB
Green paired w/ Black	COM	COM
Black paired w/ Blue	A	K1
Blue paired w/ Black	$\bar{A}$	$\bar{K}1$
Black paired w/ Red	B	K2
Red paired w/ Black	$\bar{B}$	$\bar{K}2$
Black paired w/ White	Z	K0
White paired w/ Black	$\bar{Z}$	$\bar{K}0$

### ELECTRICAL

**Input Power:** 5-26VDC, 5-15VDC. 50 mA max., not including output loads.  
**Frequency Response:** 125 kHz (data & index)  
**Termination:** Pluggable screw terminals inside terminal box with M20 cable gland exit



### TERMINAL CONNECTIONS



### MECHANICAL

**Shaft Material:** Stainless Steel  
**Shaft Diameter:** 11mm with 4mm key  
**Shaft Speed:** 6000 RPM, Maximum  
**Starting torque:** 8.0 in-oz. maximum (at 25°C)  
**Running torque:** 5.0 in-oz. maximum (at ambient)  
**Bearings:** Deep groove, Dual arrangement  
**Housing and cover:** Hard Anodized Aluminum  
**Disc material:** Mylar (unbreakable)  
**Weight:** 4lb

### ENVIRONMENTAL

**Standard Operating Temperature:** -40 to +85°C. At shaft speed above 3000 RPM, derate 10°C per 1000 RPM  
**Extended Temperature Range:** -40 to +100°C (See ordering information)  
**Storage temperature:** -40 to +100°C  
**Shock:** 400g, 6mSec  
**Vibration:** 5 to 3000 Hz, 20g  
**Humidity:** 98%, non-condensing  
**Enclosure Rating:** IP67

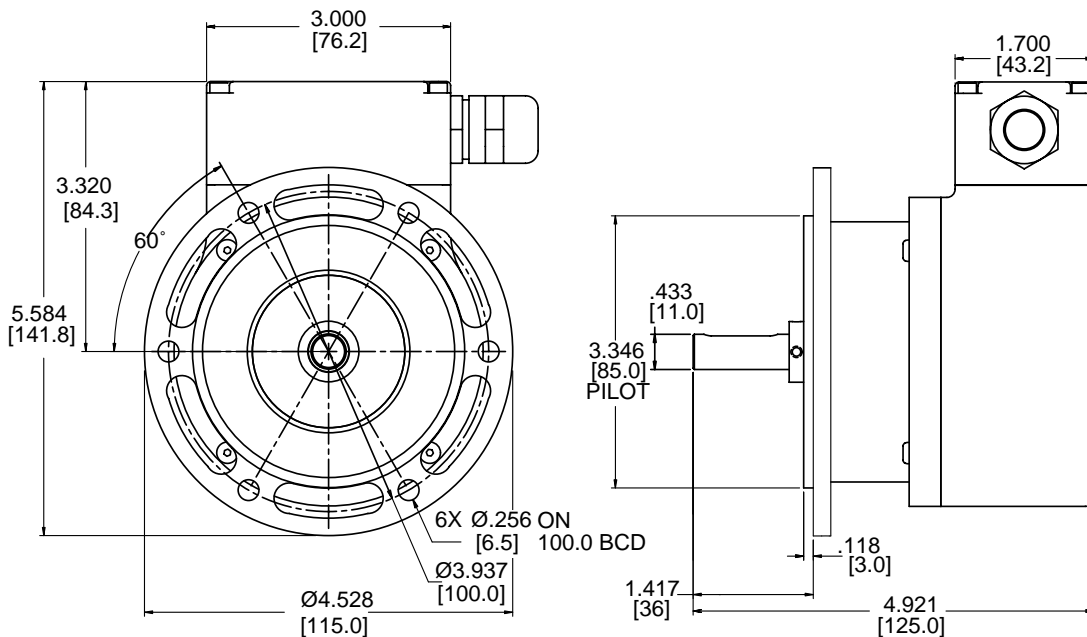
**Ordering Information**

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: PPR	Code 3: Mounting	Code 4: Output Format	Code 5: Termination	Code 6: Housing	Code 7: Options
<b>HD35R</b>	□□□□	□	□	□	□	□□
Ordering Information						
<b>HD35R</b> Heavy Duty IEC Flange Encoder	<b>0001 0500</b> <b>0003 0512</b> <b>0010 0600</b> <b>0012 0900</b> <b>0015 1000</b> <b>0032 1024</b> <b>0050 1200</b> <b>0060 1500</b> <b>0100 2000</b> <b>0120 2048</b> <b>0200 2400</b> <b>0240 2500</b> <b>0250 3072</b> <b>0300 4000</b> <b>0360 4096</b> <b>5000</b>	<b>0</b> 100mm IEC "Euro" flange, 11mm shaft w/ 4mm key	<b>0</b> Single Ended ABZ, 5-26VDC push-pull <b>1</b> Single Ended ABZ, 5-26VDC O/C <b>2</b> Single Ended ABZ, 5-26VDC O/C w2.2kOhm <b>H</b> Same as "0" with Extended temp range <b>J</b> Same as "1" with Extended temp range <b>K</b> Same as "2" with Extended temp range  <b>4</b> Differential AB only, 5-26VDC, 5-26VDC out <b>5</b> Differential AB only, 5-26VDC in, 5VDC out <b>A</b> Differential AB only, 5-26VDC in, 5VDC out <b>C</b> Differential AB only, 5-15VDC in, 5-15VDC out <b>L</b> Same as "4" with Extended temp range <b>M</b> Same as "5" with Extended temp range  <b>6</b> Differential ABZ, 5-26VDC in, 5VDC out <b>7</b> Differential ABZ, 5-26VDC in, 5-26VDC out) <b>8</b> Differential ABZ, 5-26VDC in, 5VDC out <b>9</b> Differential ABZ, 5-15VDC in, 5-15VDC out <b>N</b> Same as "6" with Extended temp range <b>P</b> Same as "7" with Extended temp range <b>W</b> ABZ, 10-24VDC Line Driver for over 80 meter cable runs	<b>0</b> Terminal Box, M20 gland	<b>0</b> Anodized Aluminum	<b>Blank</b> None <b>01</b> Wind Label

Accessories: 114917-001, Isolated coupling, 11mm

**DIMENSIONS** inch  
[mm]



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