

# SERIES SL85

**NorthStar™ brand**

## Bearingless Encoder

### Key Features

- **Bearingless Design Mounts to 180 C-Face Motors**
- **Magneto-Resistive Technology Resists Dust, Dirt, Oil, Water, and Other Contaminants**
- **Dual-C-Face Versions Available for “Sandwich” Mounting**
- **Single or Dual Isolated Outputs Available**
- **New Model Available with Larger Air Gap and Diagnostic LED. See ST85.**



## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

**Code:** Incremental, Magnetic  
**Pulses per Revolution:** 64-1024 PPR  
**Phasing Sense:** A leads B for Counter-Clockwise rotation (CCW) viewing encoder-mounted end  
**Quadrature Phasing:**  $90^\circ \pm 22^\circ$   
**Symmetry:**  $180^\circ \pm 54^\circ$   
**Index:**  $270^\circ$ , ungated (optional gated to falling B edge)  
**Number of Output Modules:** Single or Dual

### ELECTRICAL

**Input Power Requirements:** 5-15 Volts DC, 45 mA typical per sensor module plus line driver load  
**Output Signals:**  
 4428 Differential Line Driver: 150mA, sink or source  
 IC-WE Differential Line Driver: 150mA, sink or source  
**Frequency Response:** 0 - 120kHz Data & Index.  
 Please refer to our performance curve diagram for frequency and temperature details\*\*

### ELECTRICAL (CONT.)

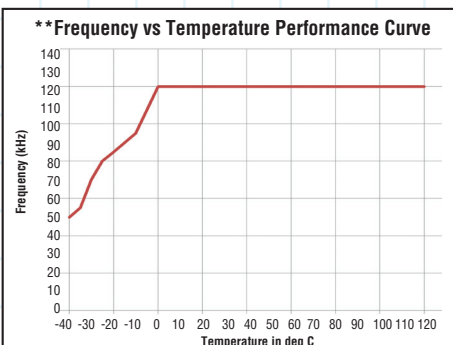
**Noise Immunity:** Tested to EN61326-1  
**Electrical Immunity:** Reverse polarity and short circuit protected  
**Connector:** 10 pin industrial duty latching, sealed NEMA 4 & 12, IP65

### MECHANICAL

**Bore Size:** 5/8" to 3.75"  
**Mounting Configuration:** 8.5" 180 C-Face Mount for NEMA MG1 standards  
**Max: Shaft Speed:** 5,000 RPM  
**Shaft Length Required:** 1.0" min  
**Allowable Shaft End-Play:**  $\pm 0.050"$   
**Allowable Shaft Runout:** 0.003" TIR  
**Acceleration Rate:** 3600 rpm/sec max  
**Housing Material:** Cast Aluminum  
**Weight:** 9.2 lbs

### ENVIRONMENTAL

**Operating Temperature Range:**  
**Standard:**  $-40^\circ\text{C}$  to  $+90^\circ\text{C}$   
**Extended:**  $-40^\circ\text{C}$  to  $+100^\circ\text{C}$   
**Storage Temperature Range:**  $-40^\circ\text{C}$  to  $+120^\circ\text{C}$   
**Shock (Sensor Module):** 30 G's Min  
**Vibration:** 18 G's @ 5-2000 Hz spectrum  
**Humidity:** Up to 98% (non-condensing)



### ELECTRICAL CONNECTIONS

Signal	Connector Pin	Pigtail Cable	MS 3102E18-IT#
Common	1	Black	F
B	2	Green	B
A	3	Blue	A
Z *	4	Violet	C
No Connection	5	—	E
Vcc (5-15 VDC)	6	Red	D
B	7	Yellow	I
A	8	Gray	H
Z *	9	Orange	J
Shield	10	Braid	G

\* Index (Z) optional. See Ordering Information

**Ordering Information**

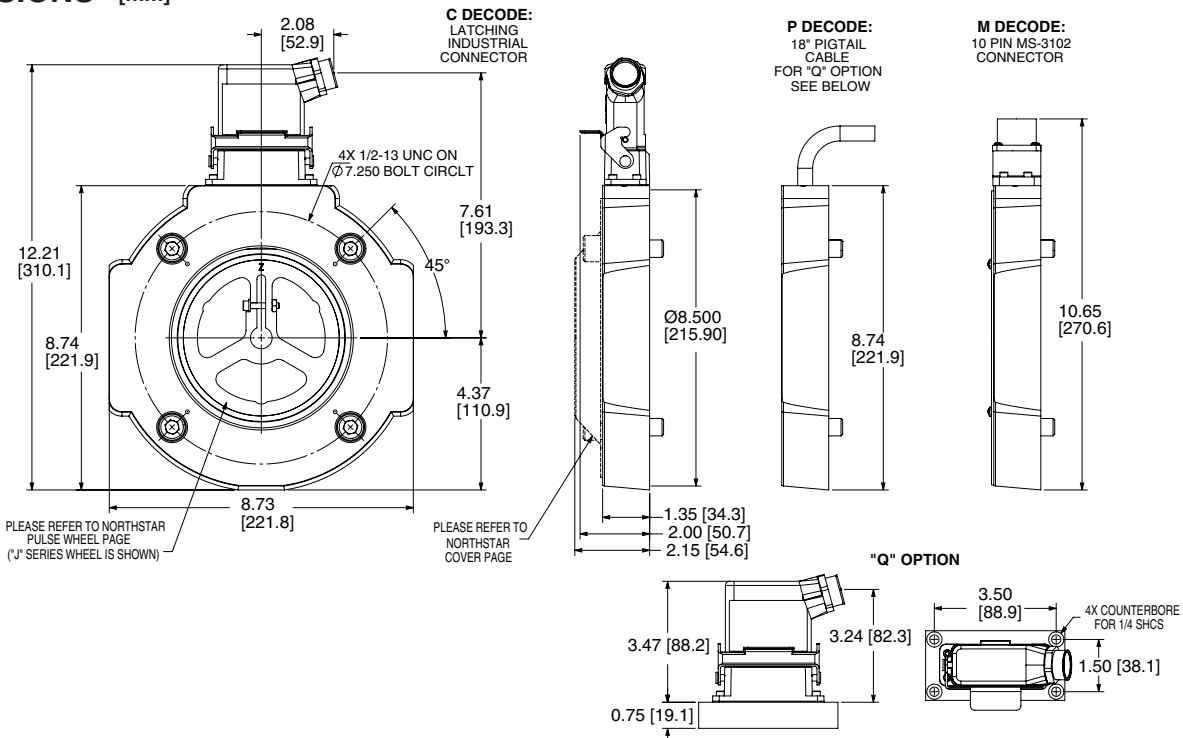
To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: PPR	Code 3: Index	Code 4: Wheel Bore	Code 5: Termination	Code 6: Electrical	Code 7: Cover/Adapter
<input type="checkbox"/> <b>8</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ordering Information						
<b>S8</b> Motor Mount Ring, for 8 1/2" C-Face Motors (180C) Single Output  <b>D8</b> Motor Mount Ring, for 8 1/2" C-Face Motors (180C) Dual Output	<b>0064</b> <b>0128</b> <b>0256</b> <b>0512</b> <b>1024</b>	<b>L</b> No Index  Available when Code 2 is 0512, or 1024  <b>G</b> Gated Index (Z, $\bar{Z}$ )  <b>Z</b> Differential Index (Z, $\bar{Z}$ )	<b>J04</b> 5/8" <b>J05</b> 7/8" <b>J06</b> 1.00" <b>J07</b> 1-1/8" <b>K09</b> 1-3/8" <b>K10</b> 1-1/2" <b>K11</b> 1-5/8" <b>K12</b> 1-3/4" <b>K13</b> 1-7/8" <b>K14</b> 2.00" <b>K15</b> 2-1/8" <b>K16</b> 2-1/4" <b>K17</b> 2-3/8" <b>K18</b> 2-1/2" <b>K19</b> 2-7/8"  For additional bore sizes up to 3.75" maximum, please consult factory.  <b>End of Shaft Mounting for GE &amp; Emerson Motors</b>  <b>N01</b> 1.125" EOS <b>N06</b> 2.125" EOS <b>N08</b> 2.375" EOS <b>N10</b> 2.875" EOS	<b>C</b> Latching Industrial Connector with 1/2" NPT  <b>M</b> 10 pin MS Connector  <b>Double C-face Sandwich Version</b>  <b>D</b> 1" Extended Height Connector <b>E</b> 3" Extended Height Connector <b>F</b> Latching Industrial Connector without Mating Connector <b>G</b> 1" Extended Height Latching Industrial Connector without Mating Connector <b>H</b> 3" Extended Height Latching Industrial Connector without Mating Connector <b>P</b> 18" Pigtail Cable <b>Q</b> Latching Industrial Connector on 18" Pigtail Cable  <b>R</b> Latching Industrial Connector on 18" Pigtail Cable without Mating Connector	<b>L</b> 5-15V in, 5-15V Line Driver (4428) out  <b>H</b> Same as L with extended temp. to 100°C  <b>V</b> 5-26V in, 5-26V Line Driver (IC-WE) out  <b>5</b> 5-15V in, 5V Line Driver (4428) out  Differential, bidirectional signals (A, $\bar{A}$ , B, $\bar{B}$ )	<b>C</b> Standard Flat Cover <b>E</b> Extra heavy duty steel pie pan cover <b>F</b> Flat Thru-hole cover  <div style="border: 1px solid black; padding: 5px; width: fit-content;">                         Grounding brush kits available for End of Shaft Mounting, Consult Factory for ordering                     </div>

**Note:** See ACCESSORIES Section For Connectors, Spare Parts and Pulse Wheels

**DIMENSIONS** inch [mm]

**STANDARD HOUSING – SINGLE C-FACE**



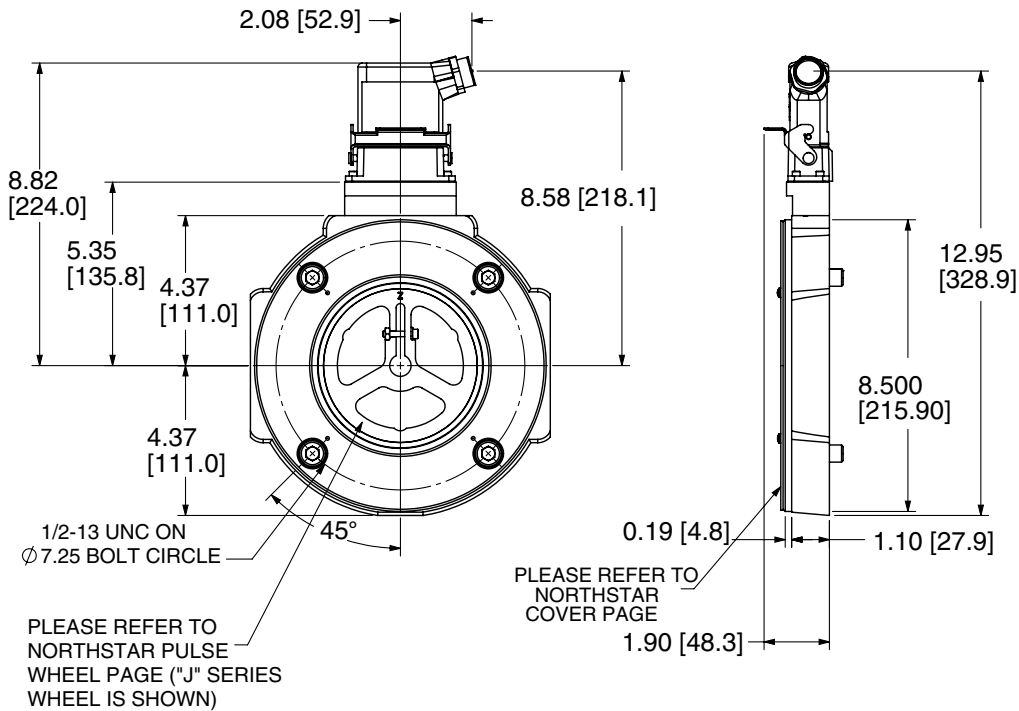
# SERIES SL85



DIMENSIONS inch [mm]

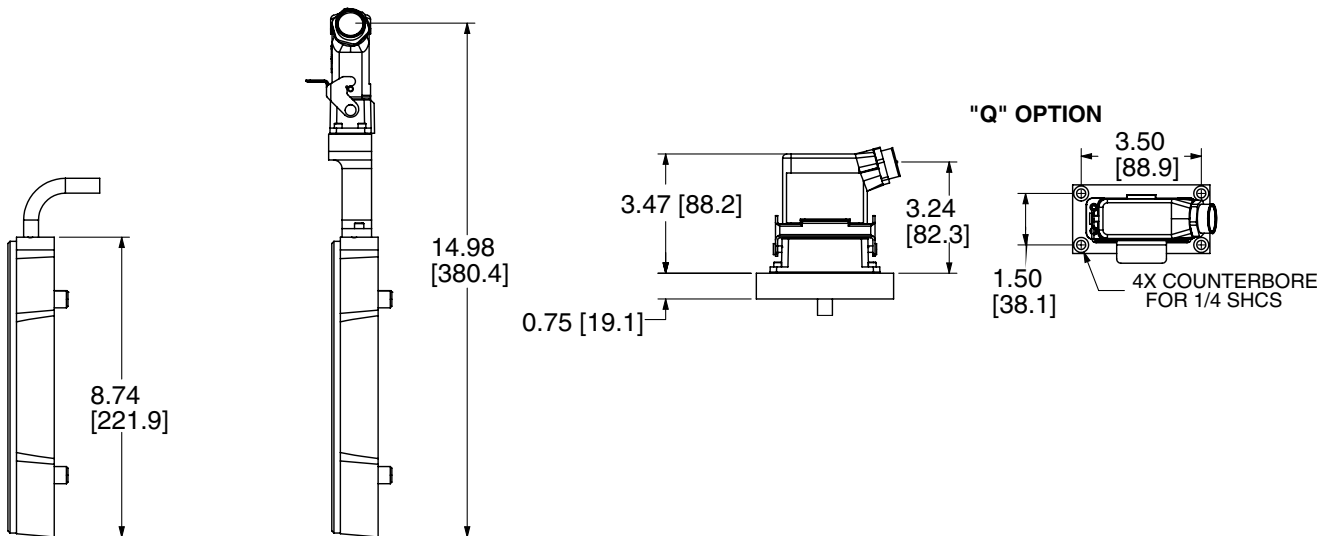
## DOUBLE C-FACE HOUSING

**D-DECODE:**  
DOUBLE C-FACE  
INDUSTRIAL  
1" EXTENDED HEIGHT  
LATCHING CONNECTOR



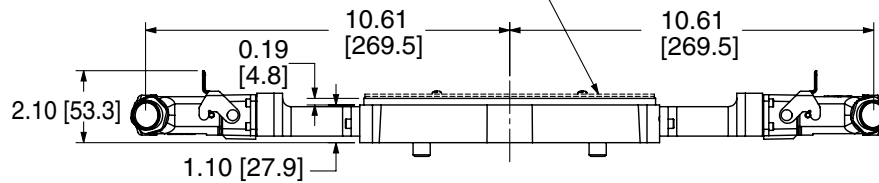
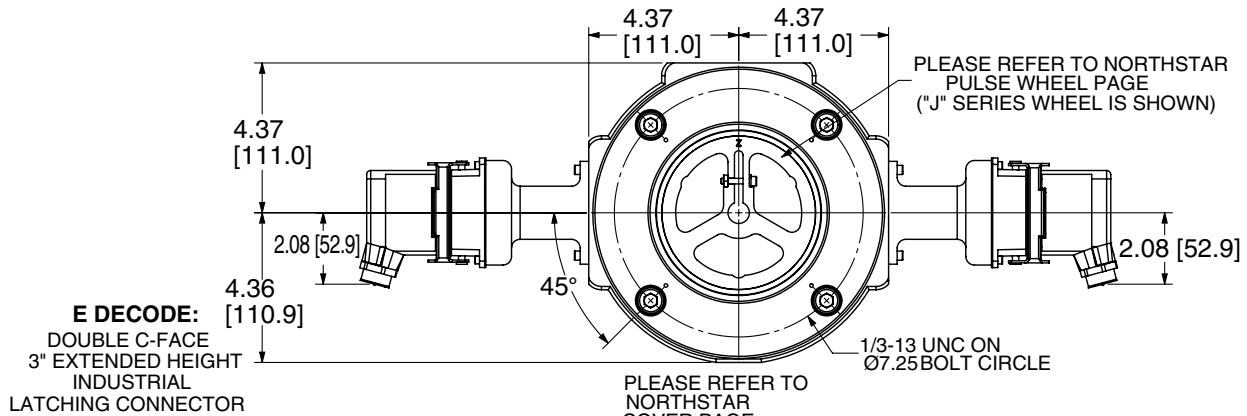
**P-DECODE:**  
DOUBLE C-FACE  
18" PIGTAIL  
SEE "Q"  
OPTION BELOW

**E-DECODE:**  
DOUBLE C-FACE  
3" EXTENDED HEIGHT  
INDUSTRIAL  
LATCHING CONNECTOR

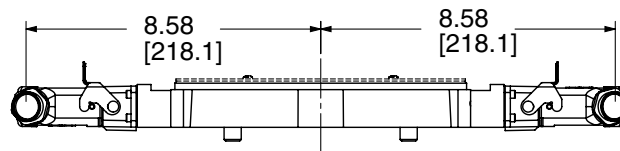


DIMENSIONS inch [mm]

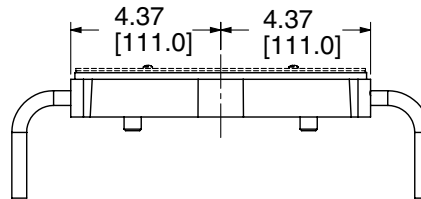
DUAL OUTPUT HOUSING



**D DECODE:**  
DOUBLE C-FACE  
1" EXTENDED HEIGHT  
INDUSTRIAL  
LATCHING CONNECTOR



**P DECODE:**  
DOUBLE C-FACE  
18" PIGTAIL  
SEE "Q" OPTION  
AT RIGHT



"Q" OPTION

