

# Series HA725

- High resolutions - up to 10,000 PPR direct read - not interpolated
- Industry standard 2.5" package
- Environmentally sealed to NEMA 4 / IP66



## APPLICATION/INDUSTRY

Dynapar brand Series HA725 encoders feature the industry standard size 25 flange mount for easy installation.

## DESCRIPTION

Due to their very high resolutions (up to 10,000 PPR), they are ideal for use in precision positioning and cutting applications. All models have

NEMA 4 / IP66 sealing which also allows for use in washdown environments.

The Series HA725 includes push-pull or differential line driver outputs. Terminations are available with either side or end exit MS connectors.

Models are electrically protected from overvoltage and output short circuits. In addition, they are also noise immunity tested for electro static discharge, radio frequency interference, and electrical fast transients.

## FEATURES AND BENEFITS

Mechanical and Environmental Features

- Industry standard size 2.5 form factor
- NEMA 4 / IP66 washdown rating

Electrical Features

- High resolutions - up to 10,000 PPR
- Overvoltage & output short circuit protection
- Tested to EN50082-2 for noise immunity

## SPECIFICATIONS

### STANDARD OPERATING CHARACTERISTICS

Code: Incremental  
 Resolution: 8192 to 10,000 PPR (pulses/revolution)  
 Accuracy:  
 Any edge to any like edge of the same channel:  $\pm 10.8^\circ$ /PPR ( $\pm 3.9$  arc-sec at 10,000 PPR)  
 Any edge to any edge of the opposite channel:  $\pm 40^\circ$ /PPR ( $\pm 14$  arc-sec at 10,000 PPR)  
 Format: Two channel quadrature (AB) with optional Index (Z) and complementary outputs  
 Phase Sense: A leads B for CCW shaft rotation as viewed from the shaft end of the encoder  
 Quadrature Phasing:  $90^\circ \pm 25^\circ$  electrical  
 Symmetry:  $180^\circ \pm 25^\circ$  electrical  
 Index:  $90^\circ \pm 25^\circ$  electrical (gated with A and B high)  
 Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

### ELECTRICAL

Input Power: (not including output loads)  
 Push-pull: 10 min. to 30 VDC max. at 60 mA max.  
 Line driver: 5 VDC  $\pm 10\%$  at 40 mA max.  
 Outputs:  
 Push-pull:  $\pm 30$  mA, short circuit protected  
 Line Driver:  $\pm 20$  mA  
 Frequency Response:  
 Push-pull: 200 kHz min  
 Line Driver: 300 kHz min.  
 Noise Immunity: Tested to EN50082-2 (Heavy Industrial) for Electro Static Discharge, Radio Frequency Interference, Electrical Fast Transients, Conducted and Magnetic Interference

### CONNECTIONS

Mating Connector:  
 7 pin, style MS3106A-16S-1S (MCN-N5);  
 10 pin, style MS3106A-18-1S (MCN-N6)

### MECHANICAL

Shaft Loading: 35 lbs. radial, 24 lbs. axial  
 Shaft Speed: 10,000 RPM max. mechanical  
 Bearing Life:  
 $10^9$  revolutions at 35% of rated load  
 $10^8$  revolutions at 75% of rated load  
 $10^7$  revolutions at 100% of rated load  
 Moment of Inertia:  $2.83 \times 10^{-4}$  oz-in-sec<sup>2</sup>

### ENVIRONMENTAL

Operating Temperature: 0 to +70 °C;  
 Storage Temperature: -25 to +90 °C  
 Shock: 50 G's for 11 milliseconds duration  
 Vibration: 5 to 2000 Hz at 2 G's  
 Humidity: to 98% without condensation  
 Enclosure Rating: NEMA4/IP66 (dust proof, washdown)

## Electrical Connections

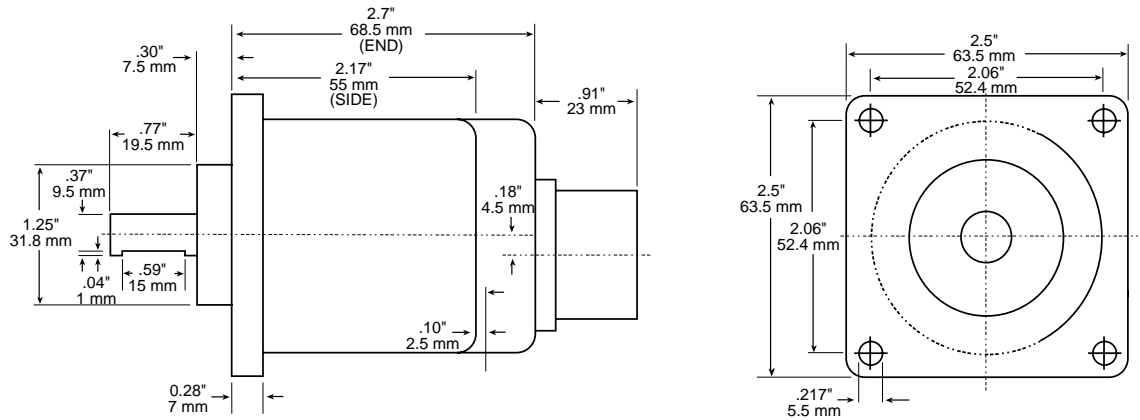
\*Mating connector/cable assembly wire color information is provided here for reference.

Encoder Function	Cable #108595-* 7 Pin Single Ended		Cable #1400635-* 10 Pin Dif Line Drv w/Inx	
	Pin	Wire Color	Pin	Wire Color
<b>Sig. A</b>	A	BRN	A	BRN
<b>Sig. B</b>	B	ORG	B	ORG
<b>Sig. Z</b>	C	YEL	C	YEL
<b>Power +V</b>	D	RED	D	RED
<b>Com</b>	F	BLK	F	BLK
<b>Case</b>	G	GRN	G	GRN
<b>N/C</b>	E	—	E	—
<b>Sig. <math>\bar{A}</math></b>	—	—	H	BRN/WHT
<b>Sig. <math>\bar{B}</math></b>	—	—	I	ORG/WHT
<b>Sig. <math>\bar{Z}</math></b>	—	—	J	YEL/WHT

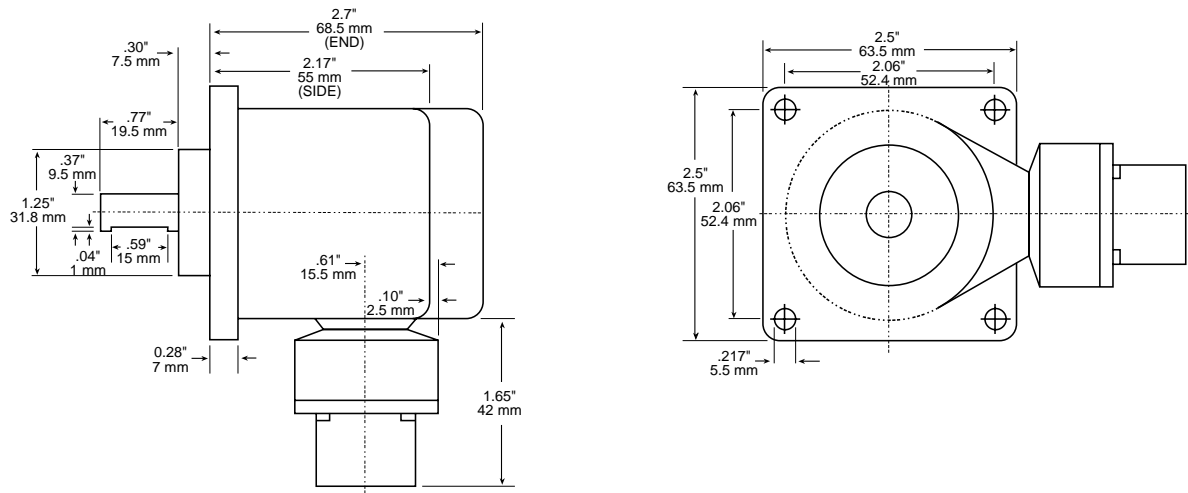
# Series HA725

## Dimensions

Code 6: Termination: 0



Code 6: Termination: 1



## Ordering Information

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

Code 1: Model	Code 2: PPR	Code 3: Mechanical	Code 4: Output	Code 5: Electrical	Code 6: Termination
<b>HA725</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
HA725 Size 25, High Resolution	08192 09000 10000	0 Flange Mount, 3/8" Shaft	0 Single Ended 2 Differential	Available when Code 4 = 0: 0 10-30V in; 10-30V Push-Pull out	0 Connector, End Mount 1 Connector, Side Mount
				Available when Code 4 = 2: 4 5V in; 5V Line Driver out	