

# Series HA725



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



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

## 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

### Electrical

**Code:** Incremental

**Resolution:** 8192 to 10,000 PPR (pulses/revolution)

#### Accuracy:

Any edge to any like edge of the same channel:  $\pm 10.8^\circ/\text{PPR}$  ( $\pm 3.9$  arc-sec at 10,000 PPR)

Any edge to any edge of the opposite channel:  $\pm 40^\circ/\text{PPR}$  ( $\pm 14$  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

**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

#### 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)

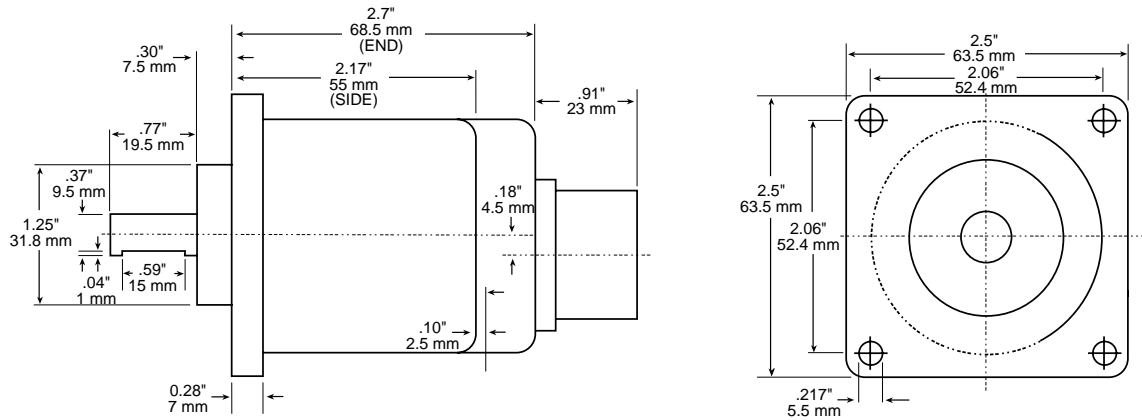
## Electrical Connections

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

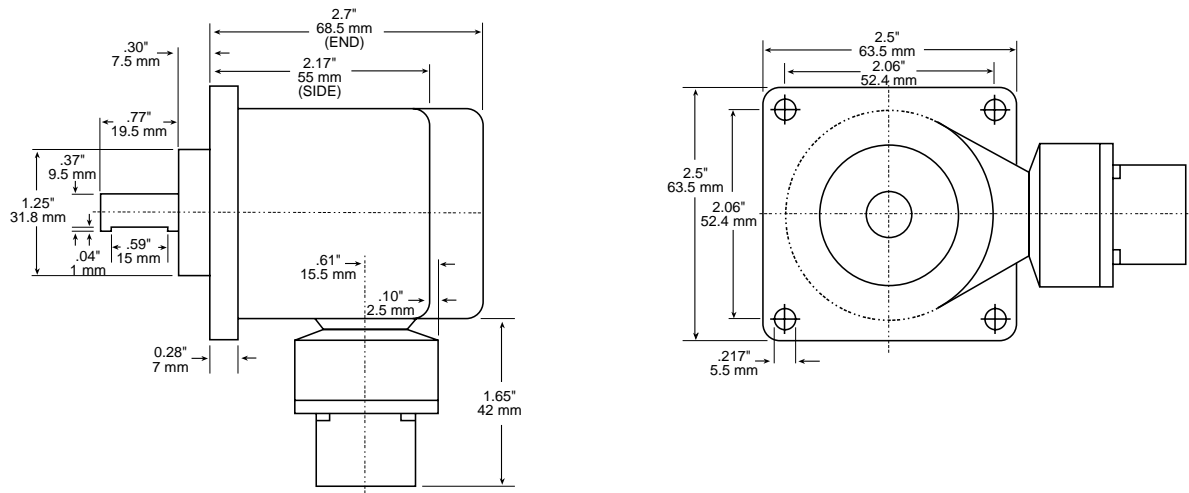
Encoder Function	Cable #108595-* 7 Pin Single Ended		Cable #1400635-* 10 Pin Dif Line Drv w/Inx	
	Pin	Wire Color	Pin	Wire Color
Sig. A	A	BRN	A	BRN
Sig. B	B	ORG	B	ORG
Sig. Z	C	YEL	C	YEL
Power +V	D	RED	D	RED
Com	F	BLK	F	BLK
Case	G	GRN	G	GRN
N/C	E	—	E	—
Sig. $\bar{A}$	—	—	H	BRN/WHT
Sig. $\bar{B}$	—	—	I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

### 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="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"/>
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	