

SERIES HC25

Dynapar™ brand

Shafted Encoder

Key Features

- **Optional Extended Temperature Range of -40° to +85°C**
- **High 5000PPR Resolution Available**
- **Industry Standard Size 25 (2.5")**

CE



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental

Resolution: 3000 to 5000 PPR (pulses/revolution)

Accuracy: (Worst case any edge to any other edge) $\pm 10.8^\circ/\text{PPR}$

Format: Two channel quadrature (AB) with optional Index (Z) and complementary outputs

Phase Sense: A leads B for CW or CCW shaft rotation as viewed from the shaft end of the encoder; see Ordering Information

Quadrature Phasing: $90^\circ \pm 25^\circ$ electrical

Symmetry: $180^\circ \pm 25^\circ$ electrical

Index: $90^\circ \pm 25^\circ$ electrical (gated with B low)

Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

ELECTRICAL

Input Power: 4.5 min. to 26 VDC max. at 80 mA max., not including output loads

Outputs: 7273 Open Collector: 30 VDC max., 40 mA sink max.

7272 Push-Pull and Differential Line Driver: 40 mA sink or source

Frequency Response: 250 kHz

Electrical Protection: Overvoltage, reverse voltage and output short circuit protected

Noise Immunity: Tested to EN61326 (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)

5 pin, style M12: Cable with connector available

8 pin, style M12: Cable with connector available

MECHANICAL

Shaft Loading: 40 lbs. radial, 30 lbs. axial

Shaft Speed: 10,000 RPM max. (See Frequency Response)

Starting Torque: (max at 25 °C)

HC525: 1.0 oz-in;

HC625: 2.5 oz.-in

Moment of Inertia: 2.83×10^{-4} oz-in-sec²

ENVIRONMENTAL

Operating Temperature:

Standard: 0 to +70 °C;

Extended: -40 to +85 °C

Storage Temperature: -40 to +90 °C

Shock: 50 G's for 11 milliseconds duration

Vibration: 5 to 2000 Hz at 20 G's

Humidity: to 98% without condensation

Enclosure Rating:

HC525: NEMA12/IP54 (dirt tight, splashproof);

HC625: NEMA4/IP66 (dust proof, washdown)



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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	Code 7: Options
HC <input type="checkbox"/> <input type="checkbox"/> 25 <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"/> <input type="checkbox"/> <input type="checkbox"/>						

Ordering Information

HC525 Size 25 Enclosed, Shielded Bearings	3000 3,000 3600 3,600 4096 4,096 5000 5,000	0 Flange Mount, 3/8" Shaft	7 Pin Connector or Cable	0 5-26V in; 5-26V Open Collector with 2.2kΩ Pullup out	0 End Mount Connector	Blank None available when Code 4 is 0 thru G, and Code 6 is 0 or 1:
		1 2.50" Servo Mount/ 4 Hole, 2.00" BC Face Mount, 3/8" Shaft	0 Single Ended, no Index, Format A, Table 2	1 5-26V in; 5-26V Open Collector out	1 Side Mount Connector	
HC625 Size 25 Enclosed, with Shaft Seal		2 Flange Mount, 1/4" Shaft	1 Single Ended, with Index, Format A, Table 2	2 5-26V in; 5V Totem Pole out	Available when Code 1 is HC525:	PS LED Output Indicator
		3 2.50" Servo Mount/ 4 Hole 2.00" BC Face Mount, 1/4" Shaft	4 Single Ended, with Index, Format B, Table 2	3 5-26V in; 5V Line Driver out		
		4 2.50" Servo Mount/ 3 Hole, 2.00" BC Face Mount, 3/8" Shaft	6 Differential, no Index, Format C, Table 3	4 5-26V in; 5-26V Line Driver out	3 3' Cable, Side	
		5 2.50" Servo Mount/ 3 Hole, 2.00" BC Face Mount, 1/4" Shaft	A Single Ended, with Index, Format C, Table 2	A Same as "0" with extend. temp range	4 6' Cable, Side	
		6 2.50" Servo Mount/ 3 Hole, 1.88" BC Face Mount, 3/8" Shaft	C Single Ended, no Index, Format C, Table 2	B Same as "1" with extend. temp range	5 10' Cable, Side	
		7 2.50" Servo Mount/ 3 Hole, 1.88" BC Face Mount, 1/4" Shaft	G Single Ended, with Index, Format D, Table 2	C Same as "2" with extend. temp range	6 15' Cable, Side	
		8 2.62" Servo Mount/ 3 Hole, 1.88" BC Face Mount, 3/8" Shaft	10 Pin Connector or Cable	D Same as "3" with extend. temp range	J 18" Cable, End	
		9 2.62" Servo Mount/ 3 Hole, 1.88" BC Face Mount, 1/4" Shaft	2 Differential, no Index, Format A, Table 1	E Same as "4" with extend. temp range	K 3' Cable, End	
			3 Differential, with Index, Format A, Table 1		L 6' Cable, End	
			5 Differential, with Index, Format B, Table 1		M 10' Cable, End	
	B Differential, with Index Format C, Table 1		N 15' Cable, End			
	D Differential, no Index, Format C, Table 1		Available when Code 1 is HC625:			
	5 Pin M12 Connector		A 18" Watertight, Side			
	H Single ended, no index, Format A, Table 4		B 3' Watertight, Side			
	J Single ended, with index, Format A, Table 4		C 6' Watertight, Side			
	K Single ended, with index, Format B, Table 4		D 10' Watertight, Side			
	L Single ended, with index, Format C, Table 4		F 15' Watertight, Side			
	M Single ended, no index, Format C, Table 4		P 18" Watertight, End			
	N Single ended, with index, Format D, Table 4		Q 3' Watertight, End			
	8 Pin M12 Connector		R 6' Watertight, End			
	P Single ended, no index, Format A, Table 5		S 10' Watertight, End			
	Q Single ended, with index, Format A, Table 5		T 15' Watertight, End			
	R Single ended, with index, Format B, Table 5					
	S Single ended, with index, Format C, Table 5					
	T Single ended, no index, Format C, Table 5					
	U Single ended, with index, Format D, Table 5					
	V Differential, no index, Format A, Table 6					
	W Differential, with index, Format A, Table 6					
	X Differential, with index, Format B, Table 6					
	Y Differential, with index, Format C, Table 6					
	Z Differential, no index, Format C, Table 6					

10 foot Cable Assemblies with MS Connector

- 1400431-0010** 7 Pin MS, Cable Assy. For Use with Single Ended w/Index Outputs
- 108596-0010** 7 Pin MS, Cable Assy. For Use with Differential Line Driver w/o Index Outputs
- 1400635-0010** 10 Pin MS, Cable Assy. For Use with Differential Line Driver with Index Outputs

15 foot Cable Assemblies with M12 Connector

- 112859-0015** 5 Pin M12, Cable Assy. For Use with Single Ended Outputs
- 112860-0015** 8 Pin M12, Cable Assy. For Use with Single Ended Outputs
- 112860-0015** 8 Pin M12, Cable Assy. For Use with Differential Line Driver Outputs

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ELECTRICAL CONNECTIONS

Prewired Cable or Accessory Cables with 7 or 10 Pin MS Connector - when Code 4= 0 to 6, or A, B, C, D or G

Note: Wire color codes are referenced here for models that are specified with pre-wired cable. Connector/cables are described in the Encoder Accessories section of this catalog and color-coding information is provided here for reference.

Table 1 – Differential			
Pin	Function (If Used)	Wire Color Code	Cable* Accessory Color Code
A	Signal A	BRN	BRN
B	Signal B	ORN	ORN
C	Signal Z	YEL	YEL
D	Power Source	RED	RED
E	No Connection	—	—
F	Common	BLK	BLK
G	Case	GRN	GRN
H	Signal \bar{A}	BRN/WH	BRN/WH
I	Signal \bar{B}	ORN/WH	ORN/WH
J	Signal \bar{Z}	YEL/WH	YEL/WH

*Cable Accessory: P/N 14006350010

Table 2 – Single Ended			
Pin	Function (If Used)	Wire Color Code	Cable* Accessory Color Code
A	Signal A	BRN	RED
B	Signal B	ORN	BLUE
C	Signal Z	YEL	YEL
D	Power Source	RED	WHT
E	No Connection	—	GRN
F	Common	BLK	BLK
G	Case	GRN	SHIELD

*Cable Accessory: P/N 14004310010

Table 3 – Differential		
Pin	Function (If Used)	Cable Accessory Color Code
A	Signal A	BRN
B	Signal B	ORN
C	Signal \bar{A}	BRN/WHT
D	Power Source	RED
E	Signal \bar{B}	ORN/WHT
F	Common	BLK
G	Case	GRN

*Cable Accessory: P/N 1085960010

Cable Configuration: PVC jacket, 105 °C rated, overall foil shield; 3 twisted pairs 26 AWG (output signals), plus 2 twisted pairs 24 AWG (input power)

5 & 8 Pin M12 Accessory Cables - when Code 4= H to Z

Connector pin numbers and cable assembly wire color information is provided here for reference.

Encoder Function	Table 4 5 Pin Single Ended		Table 5 8 Pin Single Ended		Table 6 8 Pin Differential	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	4	BLK	1	BRN	1	BRN
Sig. B	2	WHT2	4	ORG	4	ORG
*Sig. Z	5	GRY	6	YEL	6	YEL
Power +V	1	BRN	2	RED	2	RED
Com	3	BLU	7	BLK	7	BLK
Sig. \bar{A}	—	—	—	—	3	BRN/WHT
Sig. \bar{B}	—	—	—	—	5	ORG/WHT
*Sig. \bar{Z}	—	—	—	—	8	YEL/WHT

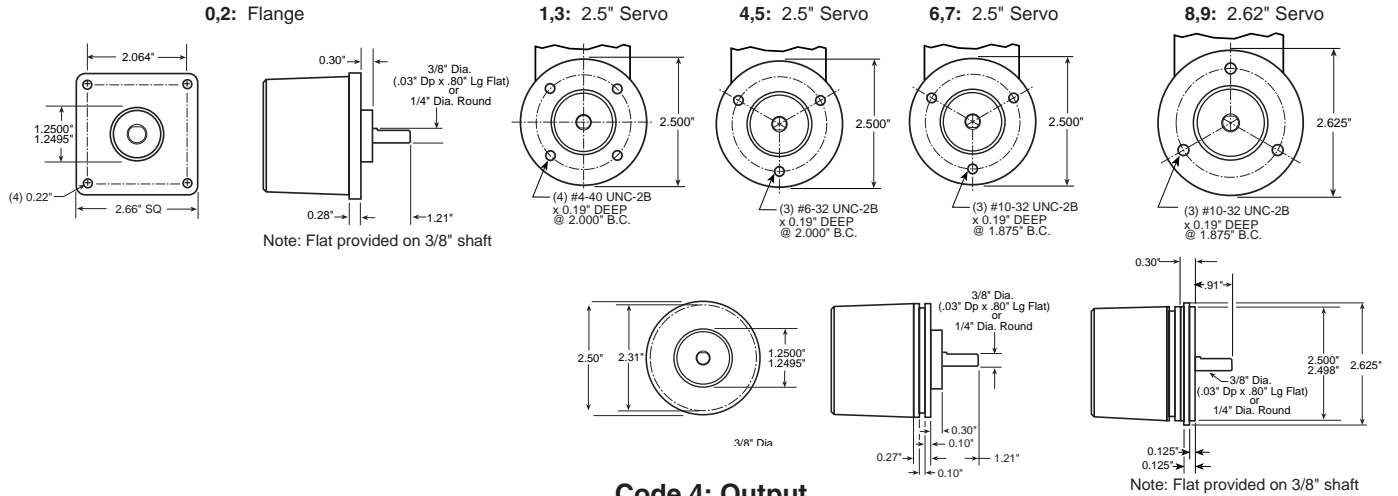
* Index not provided on all models. See ordering information

Cable Configuration: PVC jacket, 105 °C rated, overall foil shield; 24 AWG conductors, minimum

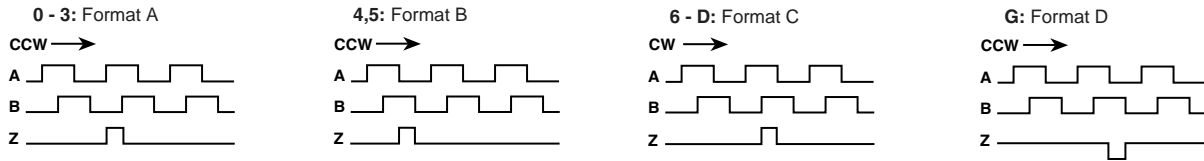
See “Accessories” Section for Connectors and Cable Assemblies Ordering Information

DIMENSIONS

Code 3: Mechanical

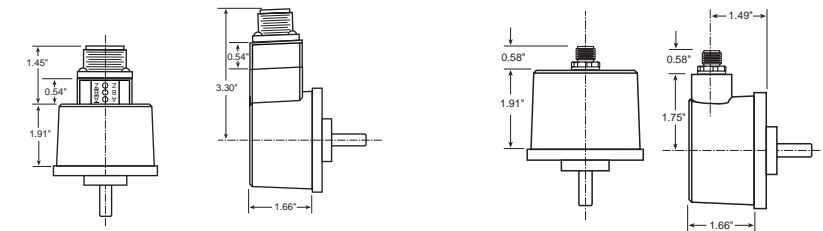


Code 4: Output



Code 6: Termination

0: End MS Connector **1: Side MS Connector** **0: End M12 Connector** **1: Side M12 Connector**
 When Code 5 is 0 to 6 or A to G When Code 5 is H to Z



Code 6: 0 & 1 dimensions shown with LED Output Indicator Option (Code 7: PS)

