

SERIES H20 Hubshaft

Dynapar™ brand

Shafted Encoder

Key Features

- Hubshaft with Spring Tether for Simplified Installation
- Industry Standard 2.0" Size
- IP66 Sealing Option



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental

Resolution: 1 to 2540 PPR (pulses/revolution)

Accuracy: (worst case any edge to any other edge) ≤ 1024 PPR (metal disk): ± 7.5 arc-min.
 > 1024 PPR (glass disk): ± 2.5 arc-min.

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: $90^\circ \pm 22.5^\circ$ electrical

Symmetry: $180^\circ \pm 18^\circ$ electrical

Index: $180^\circ \pm 18^\circ$ 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

4469 Differential Line Driver: 100 mA sink or source

Frequency Response: 100 kHz min.

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

Mating Connector:

6 pin, style MS3106A-14S-6S (MCN-N4);

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

Mating Shaft Requirements:

Length: 0.38" min., 0.50" max.

Runout: 0.010" max. TIR

Endplay: ± 0.025 " max.

Shaft Speed:

Resolutions ≤ 1024 PPR: 10,000 RPM max.

Resolutions > 1024 PPR: 5,000 RPM max.

Starting Torque: (max at 25 °C)

without shaft seal: 1.0 oz-in;

with shaft seal: 3.0 oz.-in

Moment of Inertia: 3.0×10^{-4} oz-in-sec²

Weight: 10 oz. max.

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: NEMA12/IP54 (dirt tight, splashproof); NEMA4/IP66 (dust proof, washdown) when ordered with shaft seal and either MS connector or watertight cable exit

Ordering Information

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

Code 1: Model	Code 2: PPR	Code 3: Housing	Code 4: Shaft	Code 5: Face Mount	Code 6: Shaft Seal	Code 7: Electrical	Code 8: Termination	Code 9: Options
H2 <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 <input type="checkbox"/>	<input type="checkbox"/>	2 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Ordering Information									
1 Unidirectional (Channel A only)	0001	0512	0 Servo Mount	2 5/8" Dia. Hub Shaft and flex coupling	2 (3) #4-40 @ 1.50" BC	0 no Shaft Seal	0 5-26V in, 5-26V Open Collector out	0 6 Pin Conn, End Mount	available when Code 8 is 0 to 5: PS LED Output Indicator Option
	0005	0600	C Same as "0" above includes protective cover kit for mounting on 4 1/2" C-face	3 3/8" Dia. Hub Shaft and flex coupling		5 Shaft Seal	1 5-26V in, 5-26V Open Collector out with 2.2 kΩ Pullups	1 6 Pin Conn, Side Mount	
2 Bidirectional (Channels A and B)	0050	1000		5 1/2" Dia. Hub Shaft and flex coupling			2 5-26V in, 5-26V Push-Pull out	2 7 Pin Conn, End Mount	
	0060	1024		6 1/4" Dia. Hub Shaft and flex coupling			A Same as "0" with extend. temp range	3 7 Pin Conn, Side Mount	
3 Bidirectional with Index (Channels A, B and Z)	0086	1200	F Same as "0" above includes protective cover kit for mounting on fan cover				B Same as "1" with extend. temp range	4 10 Pin Conn, End Mount	
	0100	1250					C Same as "2" with extend. temp range	5 10 Pin Conn, Side Mount	
	0120	1270					available when: Code 1 is 1 or 2 and Code 8 is 2 through M, Q or R; or Code 1 is 3 and Code 8 is 4 thru M, Q or R:	7 18" Cable, Side Exit	
	0180	1500					3 5-26V in, 5-26V Differential Line Driver out (7272)	9 36" Cable, Side Exit	
	0200	1600					4 5-26V in, 5V Differential Line Driver out (7272)	B 10' Cable, Side Exit	
	0240	1800					5 5-26V in, 5 V Differential Line Driver out (4469)	K 25' Cable, Side Exit	
	0250	1968					6 5-15V in, 5-15 V Differential Line Driver out (4469)	N 5 Pin M12 Connector, End Mount	
	0254	2000					D Same as "3" with extend. temp range	P 5 Pin M12 Connector, Side Mount	
	0256	2048					E Same as "4" with extend. temp range	Q 8 Pin M12 Connector, End Mount	
	0300	2400						R 8 Pin M12 Connector, Side Mount	
	0360	2500						available when Code 6 is 5:	
	0400	2540						D 18" Sealed Cbl, Side Exit	
	0500							F 36" Sealed Cbl, Side Exit	
								H 10' Sealed Cbl, Side Exit	
								M 25' Sealed Cbl., Side Exit	

109296-0001 Replacement flexible mount for Series H20 Hub Shaft

10 foot Cable Assemblies with MS Connector

- 108594-0010** 6 Pin MS, Cable Assy. For Use with Single Ended Outputs
- 108595-0010** 7 Pin MS, Cable Assy. For Use with Single Ended 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

Mating Connectors (no cable)

- 6 pin, style MS3106A-14S-6S (MCN-N4)
- 7 pin, style MS3106A-16S-1S (MCN-N5)
- 10 pin, style MS3106A-18-1S (MCN-N6)

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ELECTRICAL CONNECTIONS

6, 7 & 10 Pin MS Connectors and Cables - Code 8= 0 to 9, B to M

Connector & mate/accessory cable assembly pin numbers and wire color information is provided here for reference. H20 models with direct cable exit carry the same color coding as shown for each output configuration.

Encoder Function	Cable # 108594-6 Pin Single Ended		Cable # 108595-7 Pin Single Ended		Cable # 108596-7 Pin Dif Line Drv w/o Idx		Cable # 1400635-10 Pin Dif Line Drv w/ Idx	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	E	BRN	A	BRN	A	BRN	A	BRN
Sig. B	D	ORN	B	ORG	B	ORG	B	ORG
Sig. Z	C	YEL	C	YEL	—	—	C	YEL
Power +V	B	RED	D	RED	D	RED	D	RED
Com	A	BLK	F	BLK	F	BLK	F	BLK
Case	—	—	G	GRN	G	GRN	G	GRN
N/C	F	—	E	—	—	—	E	—
Sig. \bar{A}	—	—	—	—	C	BRN/WHT	H	BRN/WHT
Sig. \bar{B}	—	—	—	—	E	ORG/WHT	I	ORG/WHT
Sig. \bar{Z}	—	—	—	—	—	—	J	YEL/WHT

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 8= N to R

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

Encoder Function	Cable # 112859-5 Pin Single Ended		Cable # 112860-8 Pin Single Ended		Cable # 112860-8 Pin Differential	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	4	BLK	1	BRN	1	BRN
Sig. B	2	WHT	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

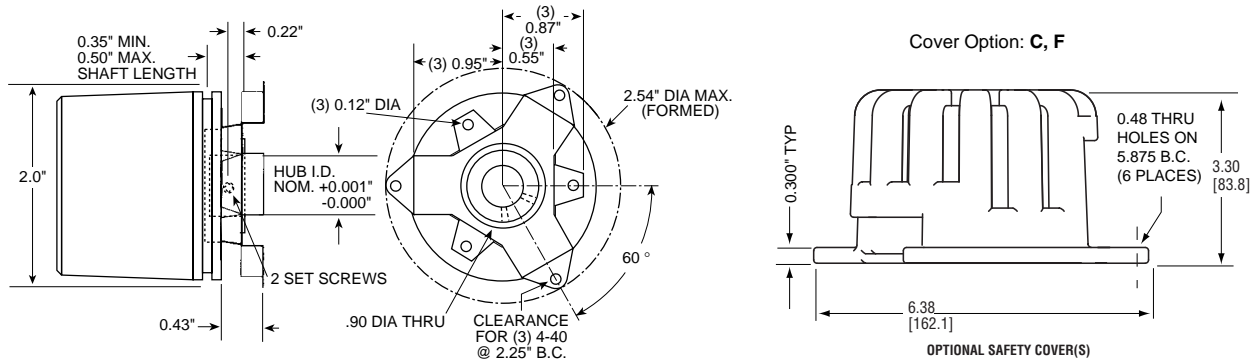
* Index not provided on all models. See ordering information

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

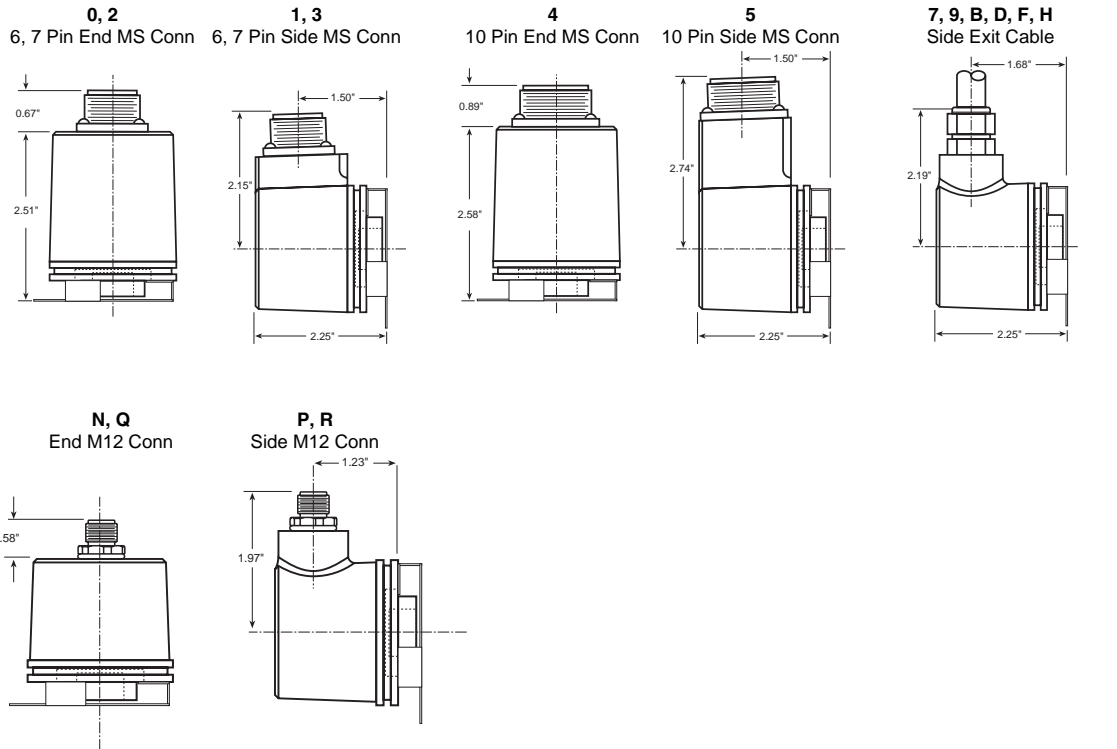
See "Accessories" Section for Connectors and Cable Assemblies Ordering Information

DIMENSIONS

Codes 3-5: Housing, Shafts, Face Mount



Code 8: Terminations



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