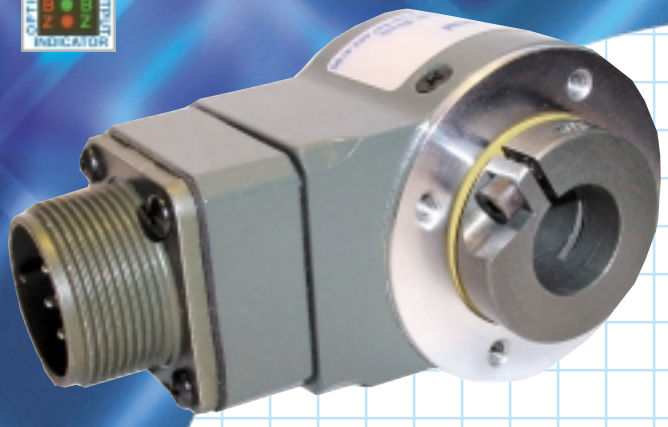
Series HS20 Sealed Hollow Shaft



- ***Hollowshaft design eliminates mounting bracket, flexible shaft coupling, and installation labor***
- ***Direct shaft mount eliminates shaft alignment procedures***
- ***Flexible tether minimizes bearing load***
- ***Robust metal hubshaft***
- ***Electrically isolated***

The Dynapar brand Series HS20 Sealed Hollowshaft encoder is designed for easy installation on motor or machine shafts. Its hollowshaft design eliminates the need for a flexible shaft coupling, mounting bracket, flower pot, or flange adapter. This not only reduces the installation depth, but also lowers total cost.

The Series HS20 Sealed Hollowshaft's floating shaft mount and spring tether minimize bearing loads and eliminate flexible shaft couplings to reduce wear and maintenance.

Series HS20 has complete electrical protection from overvoltage, reverse voltage, and output short circuits. In addition, the Series HS20 is electrically isolated, and environmentally sealed with shaft seals at both ends.

Mechanical and Environmental Features

- Flexible mounting
- Minimal bearing loads
- Shaft seals at both ends of hollowshaft
- Sealed connector or cable exit

Electrical Features

- Overvoltage, reverse voltage, & output short circuit protection
- Noise immunity to EN50082-2
- Electrically isolated

SPECIFICATIONS

Electrical

Code: Incremental

Resolution: 1 to 2540 PPR (pulses/revolution)

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

Phase Sense: A leads B for CCW shaft rotation viewing the hub clamp end of the encoder

Quadrature Phasing: 90° ± 22.5° electrical

Symmetry: 180° ±18° electrical

Index: 180° +18°/-135° electrical (gated with B low)

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

Input Power:
4.5 min. to 26 VDC max. at 100 mA max., not including output loads

Outputs:
ET7273 Open Collector: 30 VDC max., 40 mA sink at 0.5 VDC max.
ET7272 Push-Pull and Differential Line Driver: 40 mA sink or source

Frequency Response: 100 kHz min.

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

Noise Immunity: Tested to EN50082-2 (Heavy Industrial) for Electro Static Discharge, Radio Frequency Interference, Electrical Fast Transients, Conducted and Magnetic Interference

Mechanical

Bearing Life: 14,000 hours at 6000 RPM (at maximum tether loading)

Shaft Speed: 6000 RPM max.

Shaft Bore Tolerance: Nominal +0.0002"/ +0.0008" (+0.005/+0.020 mm)

Mating Shaft Requirements:
Runout: ±0.005" (±0.13mm) radial, max.
Endplay: ±0.050" (±1.27 mm) axial, max.
Length: 0.80" (20 mm), minimum

Starting Torque: 3.0 oz-in max.

Moment of Inertia: 5.1 x 10^{-4} oz–in–sec^2

Weight: 10 oz. max.

Environmental

Operating Temperature:
Standard: 0 to +70° C
Extended: –40 to +85° C

Storage Temperature: –40 to +85° C

Shock: 50 G's for 11 milliseconds duration

Vibration: 5 to 2000 Hz at 2.5 G's

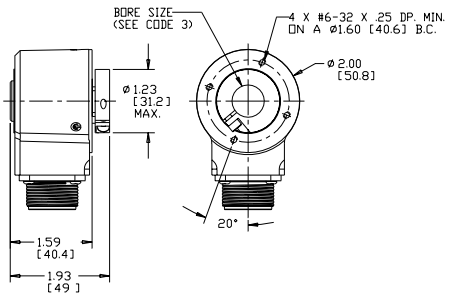
Humidity: to 98% without condensation

Enclosure Rating: NEMA4/IP65 (dust proof, washdown)

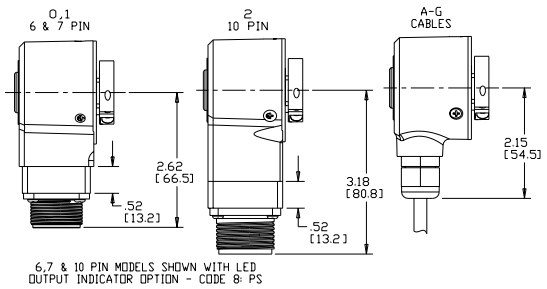
Electrical Connections *Mating connector/cable assembly wire color information is provided here for reference.

Encoder Function	Cable #108594-* 6 Pin Single Ended		Cable #108596-* 7 Pin Dif Line Drv w/o Idx		Cable #108595-* 7 Pin (If Used)		Cable #1400635-* 10 Pin (If Used)	
	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	ORN	B	ORN	B	ORN
Sig. Z	C	YEL	—	—	C	YEL	C	YEL
Power +V	B	RED	D	RED	D	RED	D	RED
N/C	F	—	—	—	E	—	E	—
Com	A	BLK	F	BLK	F	BLK	F	BLK
Case	—	—	G	GRN	G	GRN	G	GRN
Sig. $\overline{A}$	—	—	C	BRN/WHT	—	—	H	BRN/WHT
Sig. $\overline{B}$	—	—	E	ORN/WHT	—	—	I	ORN/WHT
Sig. $\overline{Z}$	—	—	—	—	—	—	J	YEL/WHT
0V Sense	—	—	—	—	—	—	—	—
5V Sense	—	—	—	—	—	—	—	—

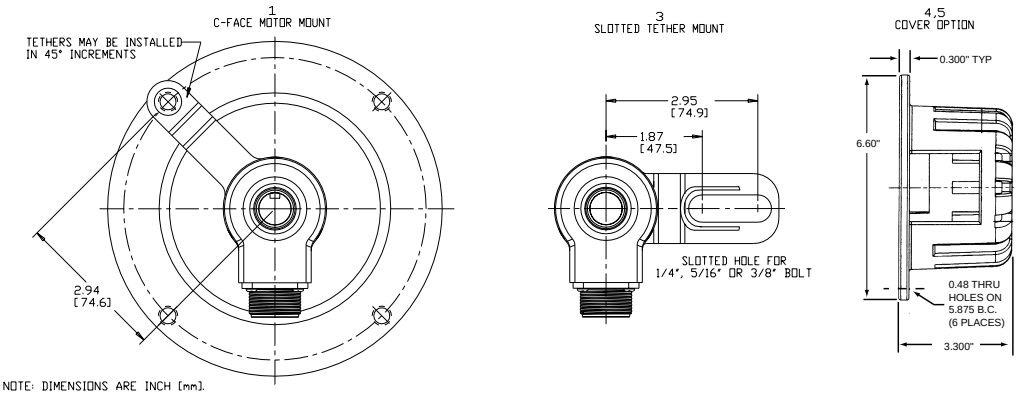
DIMENSIONS



CODE 7: TERMINATION



CODE 4: FIXING



NOTE: DIMENSIONS ARE INCH [mm].

Ordering Information

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

Code 1: Model	Code 2: PPR	Code 3: Bore Size	Code 4: Fixing	Code 5: Format	Code 6: Output	Code 7: Termination	Code 8: Options
HS20	□□□□	□	□	□	□	□	□□
Ordering Information							
HS20 Size 20 heavy-duty, sealed hollowshaft encoder	Metal Disk: **0001 0300** **0005 0360** **0010 0400** **0012 0500** **0050 0512** **0060 0600** **0100 0720** **0120 0768** **0180 0800** **0200 0900** **0240 1000** **0250 1024** **0256** Glass Disk: **1200 1968** **1250 2000** **1270 2048** **1500 2400** **1600 2500** **1800 2540**	**0** 6 mm **1** 1/4" **2** 5/16" **3** 8 mm **4** 3/8" **5** 10 mm **6** 12 mm **7** 1/2" **8** 5/8" **9** 15 mm **A** 16 mm	**0** None - customer supplied **1** Clearance hole for 3/8" bolt on 5.88" dia. bolt circle (to fit 4-1/2" NEMA C-face) **3** Slotted hole for bolt on 1.87" to 2.95" radius **4** Same as **'1'**, w/ protective cover kit **5** Same as **'3'**, w/ Protective cover kit	**0** single ended, undirectional (A) **1** single ended, bidirectional (AB) **2** single ended, bidirectional with index (ABZ) available when Code 6 is 3, 4, A or B: **3** differential, bidirectional ($A\bar{A}$ $B\bar{B}$) available when Code 6 is 3, 4, A or B and code 7 is 2, or 7 - G: **4** differential, bidirectional with index ($A\bar{A}$ $B\bar{B}$ $Z\bar{Z}$)	**0** 5-26V in, 5-26V open collector out **1** 5-26V in, 5-26V open collector out w/ 2.2kΩ pullups **2** 5-26V in, 5-26V push-pull out available when Code 5 is 3 or 4: **3** 5-26V in, 5V line driver out **4** 5-26V in, 5-26V line driver out **A** same as **'3'** with extended temp. –40˚ to 85˚C **B** same as **'4'** with extended temp. –40˚ to 85˚C	**0** 6 pin connector **1** 7 pin connector **2** 10 pin connector **5** 6 pin connector, plus mating connector **6** 7 pin connector, plus mating connector **7** 10 pin connector, plus mating connector **A** 18" (.5m) cable **B** 36" (1m) cable **C** 72" (2m) cable **D** 10' (3m) cable **F** 13" (.3m) cable with 10 pin connector plus mating connector **G** 13" (.3m) cable	available when Code 7 is 0 - 7 **PS** LED Output Indicator

112096-0001 Tether Kit (clearance hole for 3/8" bolt on 5.88" diameter bolt-circle)
112096-0002 Tether Kit (slotted hole for bolt on 1.87" to 2.75" radius)
112105-0001 Protective Cover Accessory