MODEL HS22

Incremental Optical Encoder

The HS22 series of hollow shaft incremental encoder offers application advantages over conventional optical encoders. This heavy duty unit is designed for ease of installation to a servo motor, the encoder's flexible coupling fits over the driven motor shaft to provide an accurate, backlash-free method of attachment.

The mounting method eliminates the need for couplings, sprockets, or gearing. The integral flex mount provides for a 20-degree angular adjustment.

Through-shaft or blind shaft configurations of the HS22 encoder are available. Through-shaft units allow for applications where the center of the encoder must be used for transmission of fluids, cabling, or optics. Blind shaft units are designed to mate with shaft lengths of 0.50 to 1.50 inch. Standard outputs for both configurations incude: A and B in quadrature with index and optional commutation signals for brushless motor control.

Specifications

Mechanical

Shaft Bore: 0.500" (standard) 0.375", 0.250", 10mm, 8mm and 6mm available

Allowable Misalignment: 0.010 T.I.R. on mating shaft

Bore Runout: 0.001" T.I.R.

Starting Torque at 25°C: 5-in-oz (max)

Bearings: 52100 SAE high carbon steel

Shaft Material: 303 stainless steel

Bearing Housing: Die cast aluminum with iridite finish

Cover: Drawn aluminum with iridite finish

Bearing Life: 7.5 X 10^9 revs (50, 000 hrs at 2500 RPM)

Maximum RPM: 5,000 RPM

Moment of Inertia: 10 X 10^{-4} oz-in-sec^2

Weight: 10 oz (max)

Electrical

Code: Incremental Output Format, 2 channels in quadrature, one cycle (nominal) ungated index (other index options and commutation channels available—consult factory).

Cycles Per Shaft Turn: 1 to 2540 (see Table 2 on reverse)

Supply Voltage: 5, 12-15, 24-28 VDC

Current Requirements: 120 mA typical, 175 mA max

Output Device:
Line Driver 5 – 24 VDC, $V_{out} = V_{in}$ -2 volts

Protection Level: Output short circuit

Frequency Response: 100kHz allowable operating speed (RPM) = (100kHz/Resolution) x 60

Output Termination Pinouts: See Table 1 on reverse

Environmental

Enclosure Rating: NEMA 5 (IP50) for through shaft versions (TS) and NEMA 12 (IP52) for blind shaft (BS) versions

Temperature: Operating, 0° to 70° C; extended temperature testing available, -40° to 85° ; storage, -20° to 90° C unless extended temperature option called out.

Shock: 50 G's for 11 msec duration

Vibration: 5 to 2000 Hz @ 10 G's

Humidity: 98% RH non-condensing

HS22 Incremental Ordering Options

For assistance, call 800-350-2727

Use this diagram, working left to right to construct your model number.

Example: HS22F-50-R1-TS-256-ABZC-5V/V-SC18 *(one possible configuration of the HS22 Incremental)*

HS22 **F** – [ ] – **R1** – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

TYPE:
Hollow Shaft

HOUSING :
F = Standard

SHAFT BORE:
1/2 (Std.) = 50
10mm = 39
3/8 = 37
8mm = 31
1/4 = 25
6mm = 24

ANTI-ROTATION TETHER:
R1 = Flexmount

SHAFT/CLAMP CONFIGURATION:
Front clamp/setscrew = TS
Through Shaft
Front clamp/setscrew = BS
Blind Shaft

RESOLUTION NUMBER OF CYCLES:
1 to 2540

COMMUTATION TRACKS:
Blank = None
C2 = 2 pole pairs

CHANNELS:
A
AB
ABZ
ABZC

VOLTAGE:
5V/V = 5V IN/OUT TTL
15V/V = 12-15V IN/OUT
24V/V = 24-28V IN/OUT

OUTPUT TERMINATION SHIELDED CABLE:
SC18 = 18.0"

CONNECTOR OPTIONAL:
Blank = None
Consult Factory

SPECIAL FEATURES:
Blank = None
S = Special

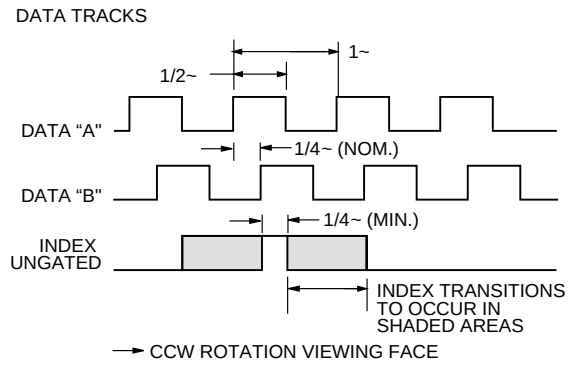
Table 1 Output Termination Pinouts

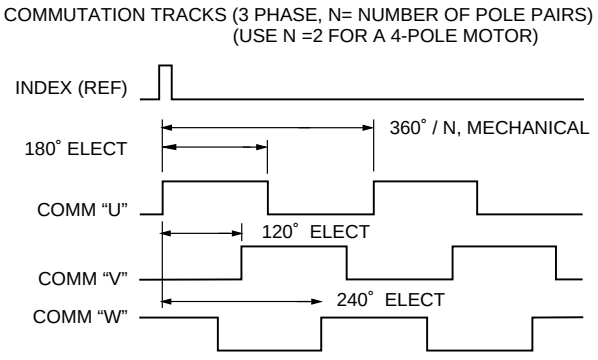
STANDARD INCREMENTAL OUTPUTS		OPTION COMMUTATION OUTPUTS	
COLOR	**FUNCTION**	**COLOR**	**FUNCTION**
YEL	A	GRY	U
WHT/YEL	A/	WHT/GRY	U/
BLU	B	BRN	V
WHT/BLU	B/	WHT/BRN	V/
ORN	Z	VIO	W
WHT/ORN	Z/	WHT/VIO	W/
RED	+V (SUPPLY)		
BLK	0 V (GROUND)		
BARE	SHIELD DRAIN		

Table 2 Disc Resolutions (cycles per turn)

100, 200, 250, 256, 360, 480, 500, 1000, 1024, 1200, 1440, 1800, 2000, 2048, 2500, 2540

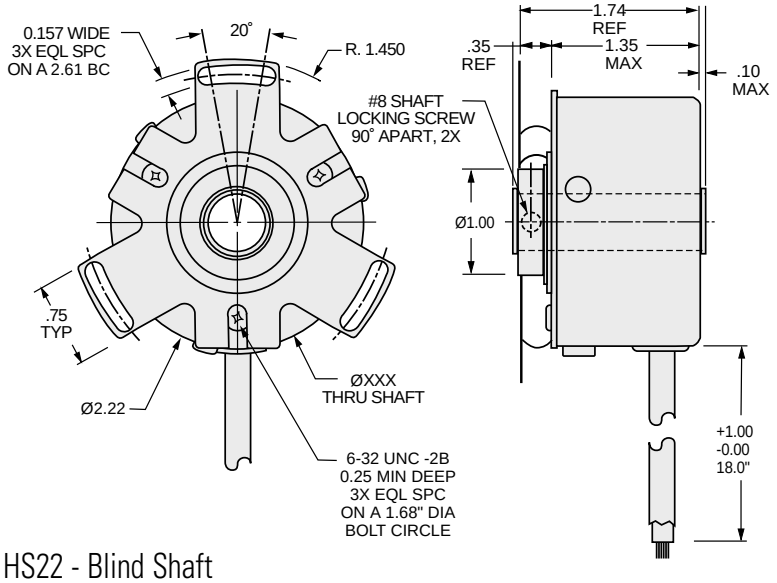
Figure 1 Output Waveforms



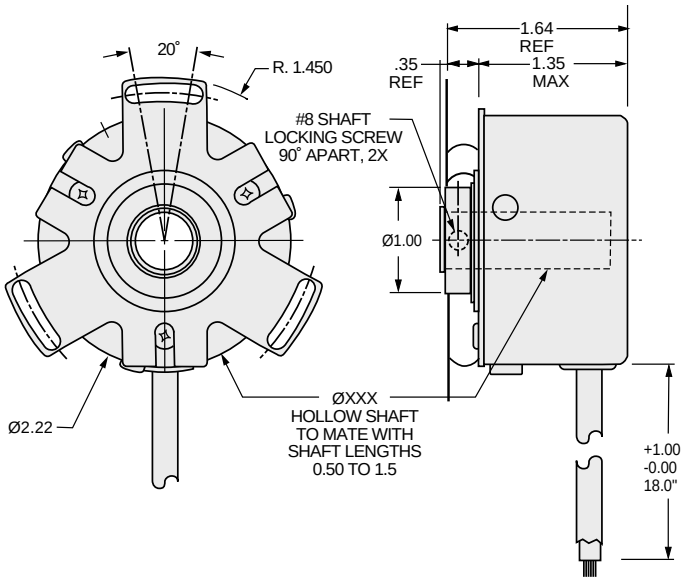


HS22 Incremental Dimensions

HS22 - Through Shaft



HS22 - Blind Shaft



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