

HS20 Hollow Shaft Incremental Encoder

Features

Incremental encoder with
2" outer diameter

Integral flex mount

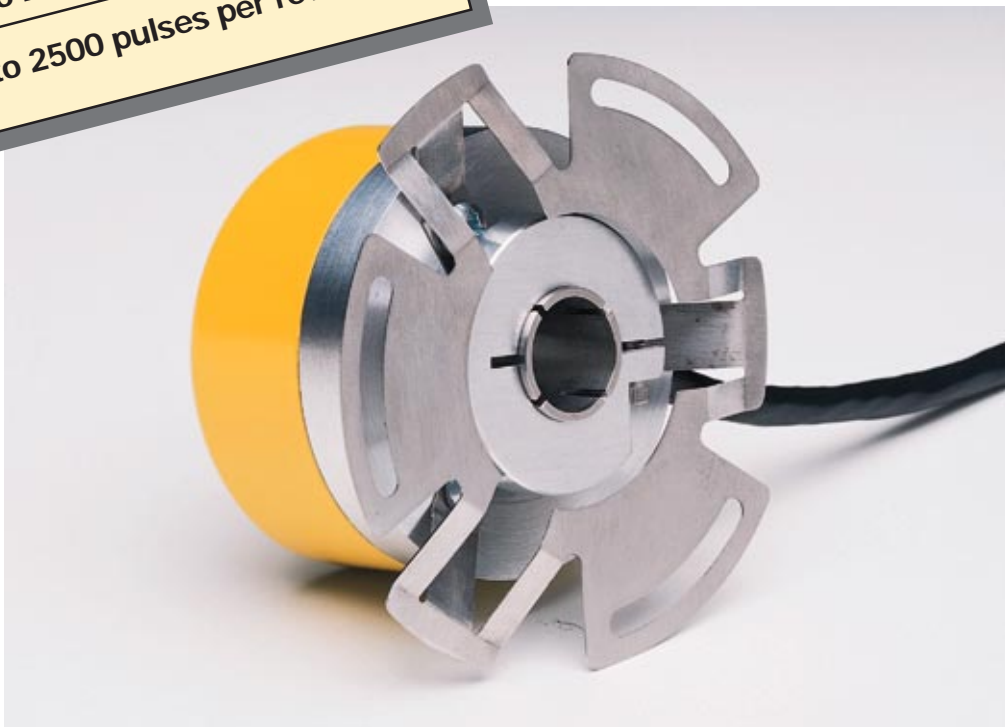
Quadrature output with
reference marker

5 V Line Driver output

5 V or 12 V Open Collector output

8 V to 24 V Line Driver output

10 to 2500 pulses per revolution



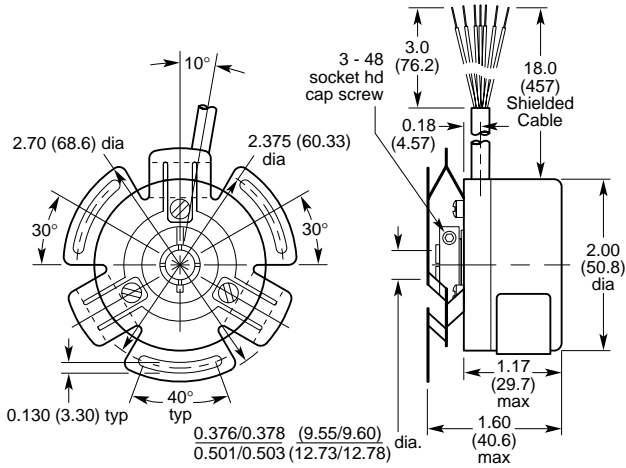
Technical Data/Features

Number of pulses per revolution (Z)	10, 20, 30, 50, 60, 100, 128, 150, 180, 200, 240, 250, 256, 300, 336, 360, 400, 500, 512, 600, 720, 800, 900, 960, 1000, 1024, 1140, 1152, 1200, 1230, 1250, 1260, 1270, 1386, 1500, 1512, 1800, 1888, 2000, 2048, 2400, 2500
Interfaces	RS 422 (3487 Line driver) Open collector (7406) 8-24 V Line driver (7272)
Dimensions	See drawing
Mass	4 oz (0.12 kg)
Moment of inertia of rotor	2.75×10^{-4} oz-in-sec ² (19.4 gcm ²)
Measurement step	90/Z°
Reference (marker) signal	Number: 1 Position: Non-gated 180°±90° electrical Gated 180° nominal (gated w/count channel A)
Error limits	45/Z°
Measurement step deviation	45/Z°
Max output frequency	100 kHz
Max operating speed	3000 rpm at max shaft loading
Max angular acceleration	50,000 radians/sec ²
Max starting torque	1.0 oz-in (7.0 Ncm)
Permissible shaft movement	Radial 0.005 in (0.13 mm) Axial ±0.030 in (±0.76 mm)
*Service life of bearings	2.4×10^9 revolutions
Working temp. range	0...+70 °C
Storage temp. range	-20...+85 °C
Permissible relative humidity	95 % (condensation not permitted)
Working voltage range	4.75 to 5.25 V 11.4 to 12.6 V 8.0 to 24.0 V
Working current at no load	120 mA
Signal cable	(power supply and drain wire are isolated from housing)—Diameter 0.19 in (5 mm)

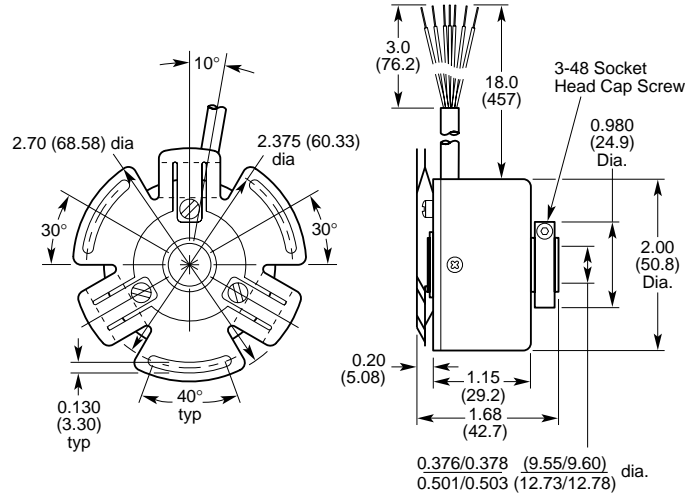
*B10 Life with shaft loading of of 1 lb (0.45Kg) axial and 3 lb (1.36 kg) radial (end of shaft)

HS20

Dimensions in. (mm)



HS20 3/4 AKR



HS20 3/4 DKR

How To Order

Type	Face Coupling 3/8" Shaft	Rear Coupling 3/8" Shaft	Face Coupling 1/2" Shaft	Rear Coupling 1/2" Shaft
5 V RS 422	HS20 3 AKR 5	HS20 3 DKR 5	HS20 4 AKR 5	HS20 4 DKR 5
5 V Open Collector	HS20 3 AKR 5C	HS20 3 DKR 5C	HS20 4 AKR 5C	HS20 4 DKR 5C
12 V Open Collector	HS20 3 AKR 12C	HS20 3 DKR 12C	HS20 4 AKR 12C	HS20 4 DKR 12C
24 V Line Driver	HS20 3 AKR 24	HS20 3 DKR 24	HS20 4 AKR 24	HS20 4 DKR 24



Example for ordering

HS20, 5 V RS-422, face coupling, shaft 1/2", 1024 pulses per revolution => **HS20 4 AKR 5, 1024**

Electrical Connections

Function	Line Driver Wire Color	Open Collector Wire Color
VDC input	Red	Red
Common	Black	Black
A output	White	White
B output	Green	Green
M output	White/Black	White/Black
\bar{A} output	Blue	NC
\bar{B} output	Orange	NC
\bar{M} output	Red/Black	NC
Shield	Drain Wire	Drain Wire

Output Waveforms

Notes

- Channel A** leads **Channel B** for clockwise rotation when viewed from face of encoder.
- Marker Pulses:**
Non-gated marker is approximately centered on positive-going edge of **Channel B** for clockwise rotation and is $180^\circ \pm 90^\circ$ wide.
- Complementary signals (\bar{A} , \bar{B} , and \bar{M}) are supplied only on units with line drivers.

