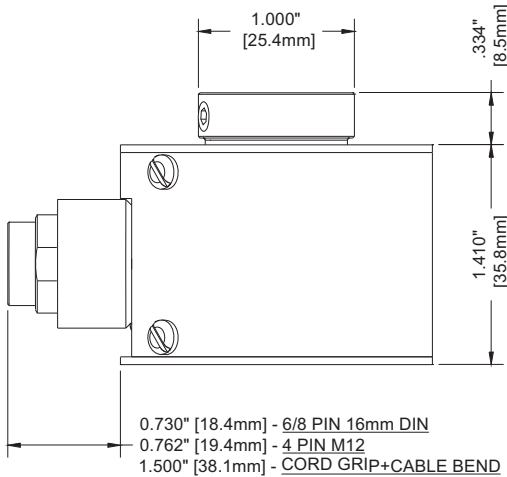
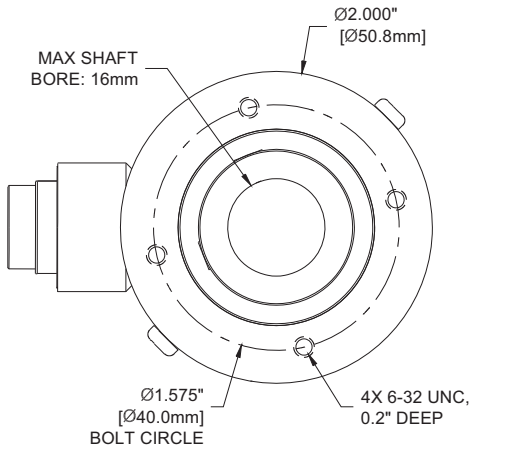


The BlueCoder model HSB20 is an optical incremental encoder that use the benefits of blue LED light. Housed in a size 20 2.00in diameter x 1.41in long ultra rugged enclosure. Four face-mounting holes allow for multiple tether mounting orientations and options. Electrical connection is through a circular connector or an attached cable.

- Three bearing system for longer bearing life
- High-Definition reflective blue-light phased array technology for increased accuracy over life-time.
- Compensated blue-light source for ultra stable operation over wide temperature variance range.
- Low-Lag Time. Excellent for motor regulation
- Wide operating voltage 4.75Vdc - 30Vdc
- High resolution up 10,000 CPR
- Unbreakable code disk

**DIMENSIONS**



CE  
 RoHS Compliant

**SPECIFICATIONS**

**Mechanical**

**Shaft Bore:** Up to 16mm.  
**Maximum Speed:** 6,000 rpm  
**Shaft Loading:**  
 Radial - 50lbs. / 22.7kg  
 Axial - 30lbs. / 13.6kg  
*Note: A flexible mounting bracket is recommended.*  
**Materials:** Case - Aluminum, anodized  
 Shaft - 303 Stainless steel  
**Weight:** 7 - 9 oz. (198 - 255 grams)  
**Sealing:** IP50

**Electrical Connections**

**Single Ended Outputs:**

16mm Din 6-pin	M12 4-pin	Function	Color
1	3	Common	Black
2	1	+vdc	Red
3	-	Output Z	Brown
4	4	Output A	White
5	2	Output B	Green
6	-	not used	-

6-pin connector is Amphenol T3402000 or equivalent  
 M12 4-pin is Turck FS4.4/18.25 or equivalent

**Differential Line Driver Outputs:**

16mm Din 8-Pin	Function	Color
1	Output A	White
2	Output B	Green
3	Output Z	Yellow
4	Supply voltage	Red
5	Common	Black
6	Output A̅	Blue or Green
7	Output B̅	Brown
8	Output Z̅	Orange

8-pin connector is Amphenol T3506000 or equivalent

**Electrical**

**Supply Voltages:** 4.75 Vdc to 30 Vdc  
**Current:** 40 mA max exclusive of load  
 Short circuit and ESD protected  
**Operating Temperature:** 0° to 85°C (32° to 185°F)  
**Quadrature Phase Error:**  
 Below 4800 CPR 90°±18° @ 100khz output,  
 Above 4800 CPR 90°±28° @ 100khz output.  
**Minimum Edge Separation:**  
 Below 4800 CPR 72° @ 100khz output,  
 Above 4800 CPR 62° @ 100khz output.  
**Maximum Frequency:** up to 1 Mhz  
**Noise Immunity:** Tested to EN61000-6-2  
**Output Type:** (specify when ordering)

- Single channel (A).
  - Quadrature (A,B).
  - Quadrature with index (A,B,Z).
- Note: Output A leads B by 90° for clockwise rotation when viewed from shaft clamp face.*  
**Counts per Revolution (CPR):** (specify when ordering) 500, 512, 540, 600, 625, 1000, 1024, 1080, 1200, 1250, 2000, 2048, 2160, 2400, 2500, 4000, 4096, 4320, 4800, 5000, 8000, 8192, 8640, 9600, 10000 (consult factory for other CPR's).

**Output Circuit:** (specify when ordering)

- Single Ended:**
- 7273 open collector (30 Vdc max, 50 mA max)
  - 7272 Push-Pull (50 mA max source or sink)
- Differential Line Driver:**
- 7272 differential line driver (output level same as supply voltage)
  - RS422 differential line driver (when input voltage is 5Vdc)
- Connections:** (specify when ordering)
- Attached 10ft cable (consult factory for other cable lengths).
  - 16mm 6/8-pin Din connector
  - M12 4-pin connector

**Accessories**

See our website or contact us for more information about cables, flexible mounting brackets, and shaft stubs.

**MODEL NUMBER**

**Build Encoder**

HSB20	Shaft Bore	Output Type	CPR	Output Circuit	Connections
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HSB20

**Shaft Bore:**

B = 3/8"  
 .5 = 1/2"  
 .625 = 5/8"  
 M10 = 10mm  
 M12 = 12mm  
 M16 = 16mm  
 (Consult factory for other bore sizes).

**Output Type:**

blank = single output on A,  
 Q = quadrature outputs on A & B  
 QZ = quadrature outputs on A & B with Z outputs

**Counts Per Revolution (CPR):**

*Choose one number:*  
 500, 512, 540, 600, 625, 1000, 1024, 1080, 1200, 1250, 2000, 2048, 2160, 2400, 2500, 4000, 4096, 4320, 4800, 5000, 8000, 8192, 8640, 9600, 10000 (consult factory for other CPR's).

**Output Circuit:**

blank = 7272 push/pull  
 C = NPN open collector open circuit  
 D = Differential line driver

**Connections:**

blank = attached 10ft. shielded cable  
 S = 16mm 6/8-pin Din connector  
 S3 = 4-pin M12 connector

Example: HSB20BQ-1024D- 3/8" shaft bore, quadrature outputs, 1024 cpr, differential line driver output

