

## CI20 Size 2" Incremental Encoder

Featuring

**CoreTech™**  
by **STEGMANN**



### Features

Any resolution from 1 to 8192 ppr

Electronic marker set

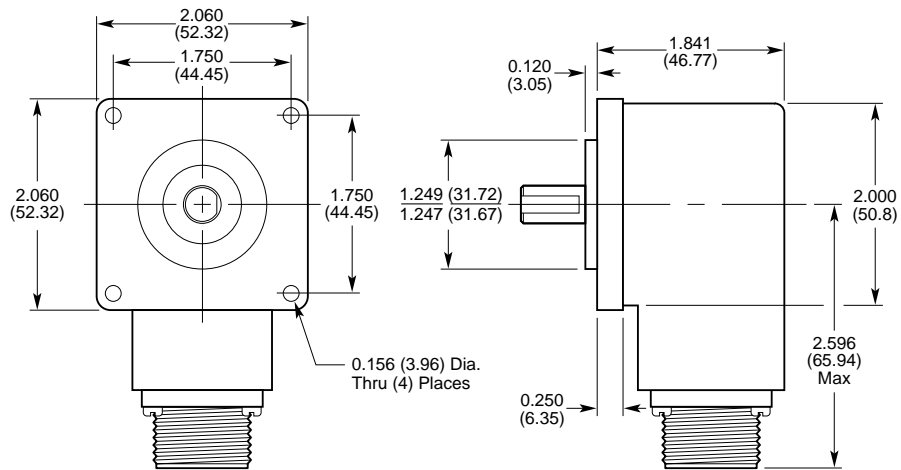
Up to 820 kHz frequency response

2-3 day shipment

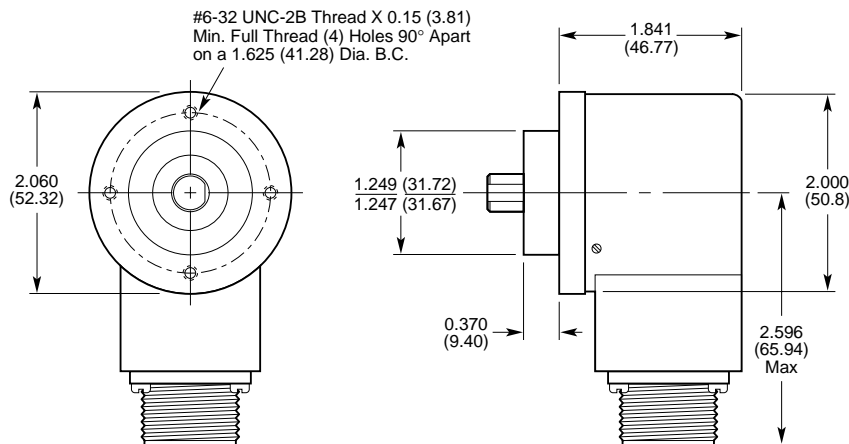


Dimensions in. (mm)

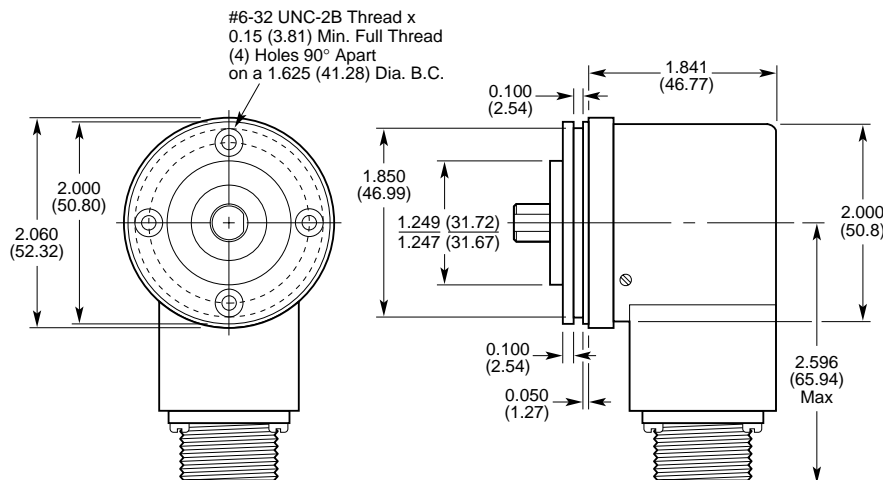
## 2.0" Square Flange Mount



## 2.0" Face Mount with Pilot

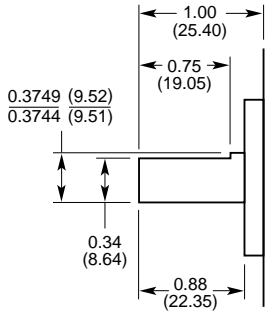


## 2.0" Servo Flange Mount

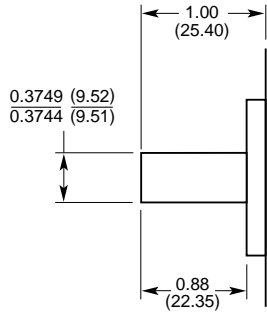


Dimensions in. (mm)

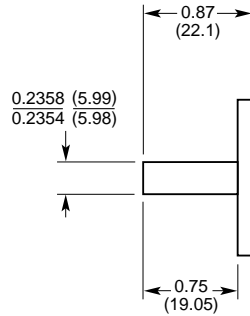
## Shaft Options



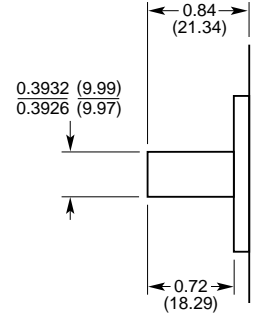
**Square Flange  
3/8" w/Flat**



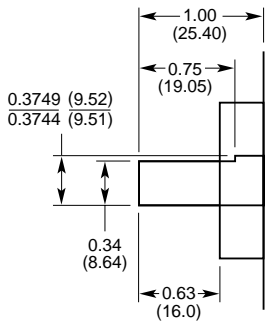
**Square Flange  
3/8"**



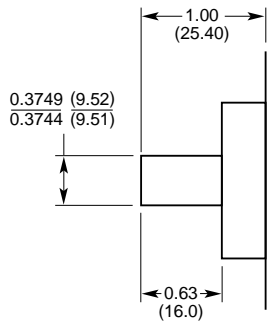
**Square Flange  
6mm**



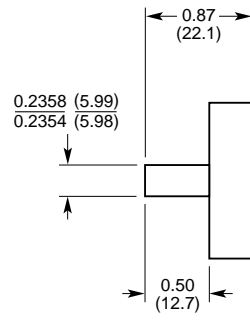
**Square Flange  
10mm**



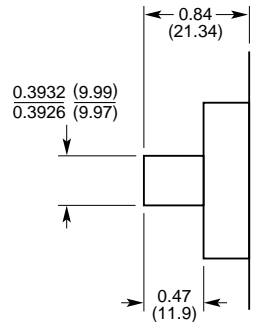
**Face Mount  
3/8" w/Flat**



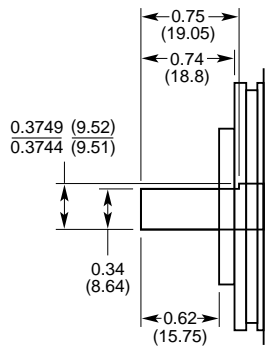
**Face Mount  
3/8"**



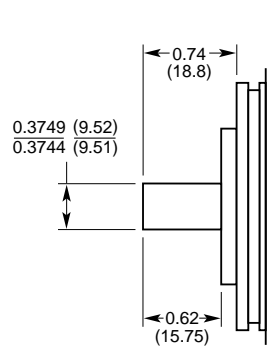
**Face Mount  
6mm**



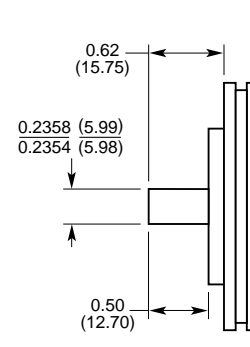
**Face Mount  
10mm**



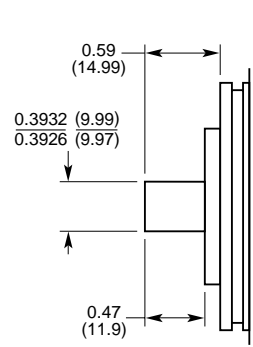
**Servo Mount  
3/8" w/Flat**



**Servo Mount  
3/8"**



**Servo Mount  
6mm**



**Servo Mount  
10mm**

## CI20 Technical Data and Features

Number of lines (Z)		1-8192
Output driver		+5 V in., +5 V differential line driver (3487) +8-24 V in., +5 V differential line driver (3487) +8-24 V in., differential line driver (7272)* *Output voltage is input voltage -2 V.
Dimensions		see drawings
Mass		approx . 0.5 (0.22) lb. (kg)
Moment of inertia of the rotor	6mm shaft 10mm shaft 3/8" shaft 3/8" shaft with flat	0.0164 lb-in <sup>2</sup> (48 g-cm <sup>2</sup> ) 0.0184 lb-in <sup>2</sup> (54 g-cm <sup>2</sup> ) 0.0181 lb-in <sup>2</sup> (53 g-cm <sup>2</sup> ) 0.0164 lb-in <sup>2</sup> (48 g-cm <sup>2</sup> )
Measuring step		(90/Z) degrees
Reference signal (marker)	Position	90° or 180° electrical, logically linked to A and B (see signal specifications)
Error Limits	binary number of lines non-binary number of lines	0.035° 0.046°
Measuring step deviation	binary number of lines non-binary number of lines	0.005° 0.016°
Max. output frequency	3487 Line Driver 7272 Line Driver	820 kHz 300 kHz
Max. angular acceleration		5 x 10 <sup>5</sup> rad/ sec <sup>2</sup>
Max. operating speed	With shaft seal Without shaft seal	6,000 rpm 10,000 rpm
Operating torque	6mm shaft 10mm shaft 3/8" shaft 3/8" shaft with flat	typ. 0.0177 in-lb (0.2 N-cm) typ. 0.0266 in-lb (0.3 N-cm) typ. 0.0221 in-lb (0.25 N-cm) typ. 0.0177 in-lb (0.2 N-cm)
Start-up torque	6mm shaft 10mm shaft 3/8" shaft 3/8" shaft with flat	typ. 0.0221 in-lb (0.25 N-cm) typ. 0.0354 in-lb (0.4 N-cm) typ. 0.0266 in-lb (0.3 N-cm) typ. 0.0221 in-lb (0.25 N-cm)
Permissible shaft loading	Radial Axial	40 lb. (90 N) 40 lb. (90 N)
Bearing Lifetime <sup>1</sup>		3.6 x 10 <sup>9</sup> Revolutions
Working temperature range		32 – 185°F (0 – 85°C)
Operating temperature range		-4 – 185°F (-20 – 85°C)
Storage temperature range		-40 – 212°F (-40 – 100°C)
Permissible relative humidity (condensation not permitted)		90%
EMC to EN 50082-2 and EN 50081-2		
Resistance to shocks (DIN IEC 68 Parts 2-27)		50/ 11 g/ ms

Continued on next page

## CI20 Technical Data and Features (continued)

Resistance to vibration (DIN IEC 68 Parts 2-6)	20/ 10 - 150 g/ Hz	
Protection class <sup>2</sup>	Connector with mating connector fitted Cable outlet	IP65 IP66
Operating voltage range	see output driver	
No-load operating current	3487 Line Driver (+5 V) 3487 Line Driver (+8-24 V) 7272 Line Driver (+8-24 V)	typ. 120 mA typ. 150 mA typ. 120 mA
Operation of zero-set (only with shaft stationary)	100 ms	
Initialization time after power on	40 ms	

- Notes: 1. Bearing lifetime is at typical loads of 2.25 lb. axial and 4.5 lb. radial. Bearing lifetime at maximum loads is  $2.0 \times 10^8$  cycles.  
2. Protection class is with shaft seal.

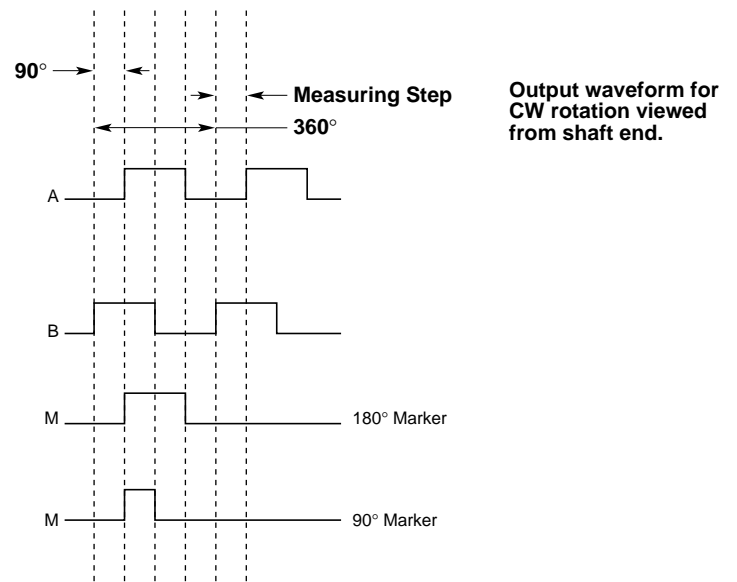
## CI20 Pin and Cable Allocation

### Conector Types

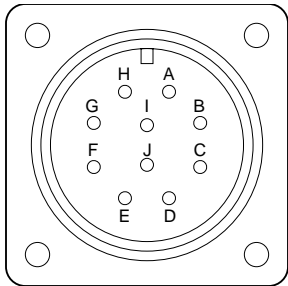
Signal	10 Pin	6 Pin	Cable
A	A	E	White
B	B	D	Black
M	C	C	Violet
A Not	H	N/A	Brown
B Not	I	N/A	Pink
M Not	J	N/A	Yellow
+Vs	D	B	Red
Common	F	A	Blue
Case Ground	G	F	Shield
Set Zero*	E	N/A	Green

\*For setting Marker (M) position—activated when connected to supply voltage for 100 ms.

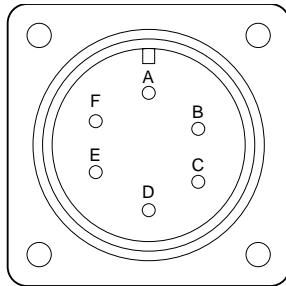
## CI20 Signal Specification



## CI20 Connector Drawings



10 Pin MS3102R



6 Pin MS3102R

Mating connectors are sold separately.

## How To Order

Use the numbered chart below to construct your ordering code as shown below.

TV  -  -  - 1 -

① ② ③ ④ ⑤ ⑥ ⑦

### ① Encoder Type

TV Incremental CoreTech

### ② Interface

- 1 +5 VDC diff. line driver (3487)
- 2 +8-24 VDC in., + 5 VDC diff. line driver out (3487)
- 4 +8-24 VDC diff. line driver (7272)

### ③ Width of Marker Pulse

- 1 90°
- 2 180°

### ④ Pulses per 360°

Maximum 8,192  
Enter 5 digits (Final part number will have a base 32 coded resolution)

### ⑤ Size and Mounting Arrangements

- 0 2" face mount
- 1 2" square flange
- 2 2" face/servo mount

### ⑥ Shaft Size

- 1 3/8"
- 2 3/8" with flat
- 3 1/4"
- 4 6 mm
- 5 10 mm

### ⑦ Electrical Connection

- 1 10 pin radial
- 3 6 pin radial
- 5 18' radial cable
- 6 3' radial cable
- 7 6' radial cable
- 8 10' radial cable
- 9 15' radial cable