

## HD32 Incremental Encoder

### Features

- Heavy duty encoder with 100 lb. radial shaft rating
- Rugged die-cast aluminum housing with IP65 protection
- Double ended shaft option
- 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

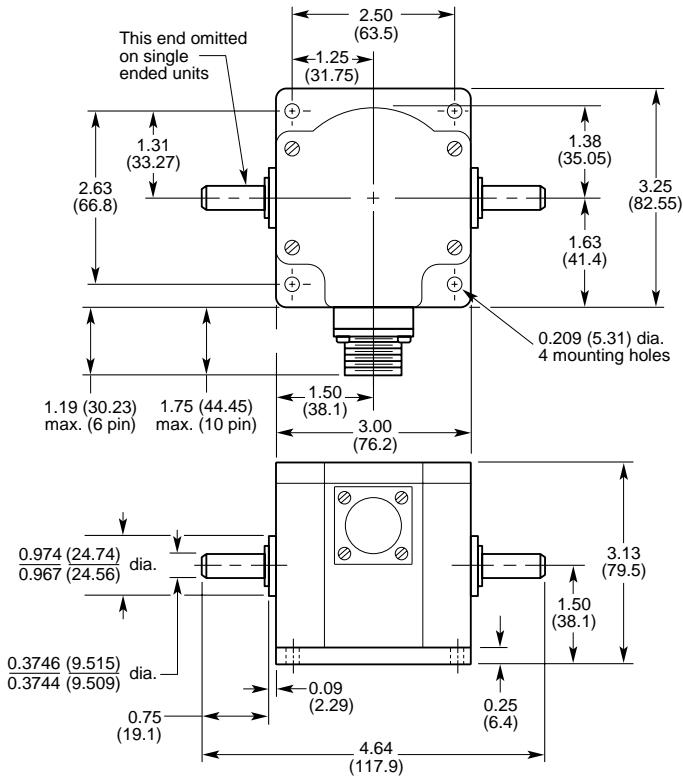


## Technical Data/Features

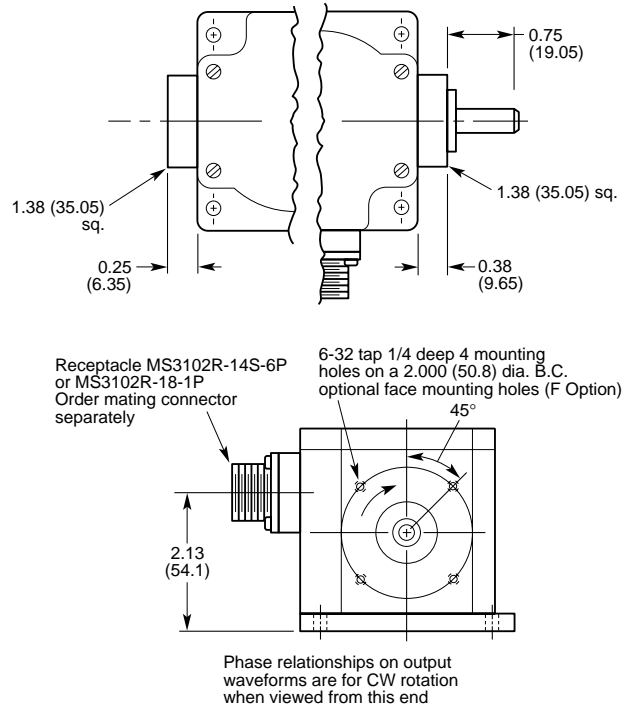
Number of pulses per revolution (Z)	10, 20, 30, 50, 60, 100, 128, 150, 180, 200, 240, 250, 256, 300, 336, 360, 400, 500, 512, 600, 720, 800, 900, 960, 1000, 1024, 1140, 1152, 1200, 1230, 1250, 1260, 1270, 1386, 1500, 1512, 1800, 1888, 2000, 2048, 2400, 2500		
Interfaces	RS-422 (3487 Line driver) Open collector (7406) 8-24 V Line driver (7272)		
Dimensions	See drawing		
Mass	24 oz (0.68 kg)		
Moment of inertia of rotor	$3.1 \times 10^{-4}$ oz-in-sec <sup>2</sup> (21.9 gcm <sup>2</sup> )		
Measurement step	90/Z°		
Reference (marker) signal	Number: 1 Position: 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 5000 rpm at reduced shaft loading		
Max angular acceleration	50,000 radians/sec <sup>2</sup>		
Max starting torque	without shaft seal	2.0 oz-in	(14 Ncm)
	with (1) shaft seal	6.0 oz-in	(42 Ncm)
	with (2) shaft seal	10.0 oz-in	(70 Ncm)
Permissible shaft loading	Radial (at end of shaft)	100 lb	(445 N)
	Axial	40 lb	(178 N)
*Service life of bearings	2.0 x 10 <sup>9</sup> revolutions		
Working temp. range	0...+70 °C		
Storage temp. range	-20...+85 °C		
Permissible relative humidity	95% (condensation not permitted)		
Protection Class	IP65		
Working voltage range	4.75 to 5.25 V 8.0 to 24.0 V		
Working current at no load	120 mA		

\*B10 Life with shaft loading of 15 lb (6.8 kg) axial and 40 lb (18.2 kg) radial (end of shaft)

## Dimensions in. (mm)



### Shaft Seal Version (S/SS Option)

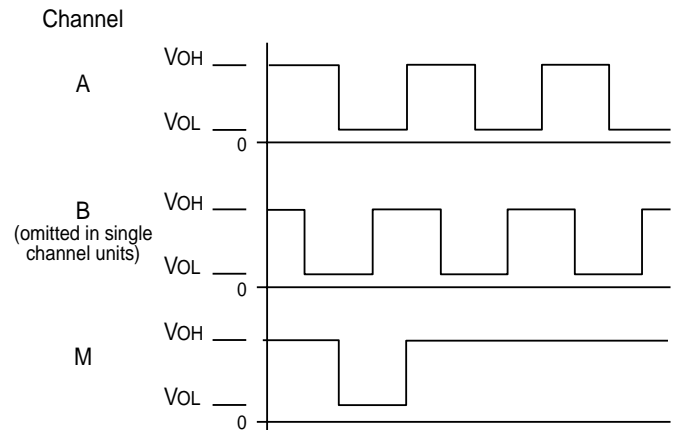


## General Outline Drawing

## Output Waveforms

### Notes

1. **Channel B** leads **Channel A** for clockwise rotation as defined on dimension drawing.
2. Marker pulse, when ordered, is gated with negative going **Channel A** and is negative going.
3. Complementary signals (**A**, **B**, and **M**) are standard on units with line drivers.



## How To Order

Shaft Option (see below) -1	-1F	-2	-2F	-S	-SS	
5V Single Ended	HD32 1 5E	HD32 1F 5E	HD32 2 5E	HD32 2F 5E	HD32 S 5E	HD32 SS 5E
5V RS 422	HD32 1 5	HD32 1F 5	HD32 2 5	HD32 2F 5	HD32 S 5	HD32 SS 5
24 V Line Driver	HD32 1 24	HD32 1F 24	HD32 2 24	HD32 2F 24	HD32 S 24	HD32 SS 24



Example for ordering

HD32, 5V RS422, shaft SS, 1024 pulses per revolution => **HD32 SS 5, 1024**

## Shaft Designation

1:	3/8" dia., double ended
1F:	Same as 1 with face mounting holes
2:	3/8" dia., single ended
2F:	Same as 2 with face mounting holes
SS:	3/8" dia., double ended with shaft seal
S:	3/8" dia., single ended with shaft seal

## Electrical Connections

Function	Standard 6-pin Receptacle	10-pin Receptacle (Supplied on Line Driver Units)
Common	A	A
+ Vs	B	B
M output	C	C
B output	D	D
A output	E	E
Case Ground	F	F
$\bar{A}$ Output	N/A	G
$\bar{B}$ Output	N/A	H
$\bar{M}$ Output	N/A	I
Receptacle	MS3102R-14S-6P	MS3102R-18-1P
Mating Conn.	MS3106F-14S-6S	MS3106F-18-1S

(Order separately)