

Encoder Technology's HD2.5 Heavy Duty Industrial Encoder has been designed to withstand even the most severe conditions of today's harsh industrial environments. Utilizing new manufacturing technology that requires no electronic bias adjustments or mechanical alignments, the HD2.5 is tougher and more reliable than conventionally manufactured encoders. Its size and mounting options are configured to industry standards, making it interchangeable with other units currently in use. Monolithic opto components have reduced manufacturing costs while increasing MTBF, allowing substantial savings to be passed along to the OEM as well as the end user. The HD2.5 provides quality, reliability and value available only through Encoder Technology's proprietary design and manufacturing capabilities.

HD2.5 Heavy Duty Optical Encoder for Harsh Industrial Environments



Technical Specifications

Mechanical

Shaft diameter	As specified
Flat on shaft	0.70 long x 0.018 deep
Shaft loading	Up to 100 lbs axial and radial
Shaft runout	0.0005 TIR at midpoint
Shaft	303 stainless steel (passivated)
Starting torque at 25°C	<i>Without shaft seal:</i> 1.0 in-oz. maximum <i>With optional shaft seal:</i> 2.5 in-oz. maximum
Bearings	5200ZZ double row
Bearing life	5 x 10 ⁸ revs at rated shaft loading, 5 x 10 ¹¹ revs at 10% of rated shaft loading. (manufacturers' specs)
Housing and cover	Die Cast Aluminum
Disc material	Metal or mylar
Moment of inertia	2.0 x 10 ⁻⁴ oz-in-sec ²
Weight	14 ounces, typical

Electrical

Code	Incremental
Cycles per Revolution	See "Current Resolutions" list
Supply voltage	See ordering information
Current requirements	50 mA (no load condition)
Output format	Channels A and B In quadrature ± 15° electrical
Output format options	Index, complementary outputs, and commutation signals
Output IC's	2N2222, 4469, ET7272, ET7273
Illumination	LED
Frequency response	125 kHz (data and index)
Output termination	See Table 1
Circuit Protection	Reverse over voltage and output short circuit

Environmental

Operating temp	-40 to 100°C
Operating temp ATEX	-40 to 80°C
Storage temperature	-40 to 100°C
Shock	50G's for 11msec duration
Vibration	5 to 2000Hz @ 20 G's
Humidity	98%RH without condensation
NEMA 4 and 13	When ordered with shaft seal

The above specifications are subject to change without notice. Dimensions shown in inches.

Ordering Information – This model series is available in an intrinsically safe version Certified to ATEX EEx ia IIB T4

Example part number:

HD2.5 D O - SS - 37F - 512 - AB C - 72 - S 16 - 28

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

1. Housing Configuration

Square flange (standard).....	D
Servo Mount (ø2.50).....	E
Servo Mount (ø2.62).....	G

2. Face Mount

Not required.....	0
Or specify.....	F1, F2, F3 or F4

3. Shaft Seal/Sealed Bearing

If not required (shielded).....	(blank)
Sealed bearing.....	SB
Shaft seal (not available with "G" housing).....	SS

4. Shaft Diameter

0.2497/0.2495.....	25
0.3747/0.3745 (standard).....	37F
0.3935/0.3942 (10mm).....	39
"F" = flat on shaft.....	i.e. 37F

5. Standard Resolutions

Many resolutions from 1 to 32,768. See "Current Resolutions" list. Others by special order. Consult the factory.

6. Output Channels

Single.....	A
Dual quadrature.....	AB
Dual with index (standard).....	ABZ
Commutation signals available. Contact the factory.	

7. Complements

With Complements.....	C
(available with differential line drivers only)	
Without complements.....	(blank)

8. Output ICs

2N2222 open collector (5 to 28V).....	220C
2N2222 with pull-ups (5 to 28V).....	221K or 222K
Differential line drivers	
4469 (5 to 15V).....	69
ET7272 (5 to 28V).....	72
ET7273 open collector (5 to 28V).....	73

9. Output Location

End.....	E
Side (standard).....	S

10. Output Termination

MS3102R14S-6P (6 pin).....	14
MS3102R16S-1P (7 pin).....	16
MS3102E18-1P (10 pin).....	18
Side Cable with seal (18" std).....	SCS18
End Cable with seal (18" std).....	ECS18

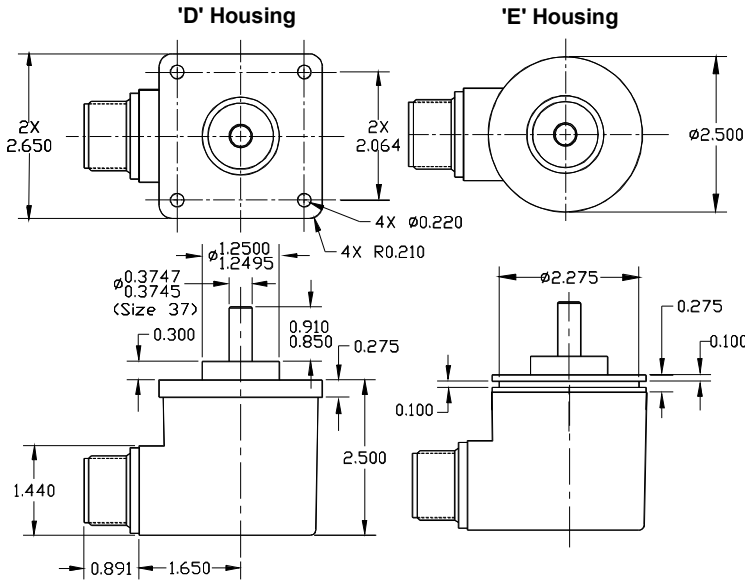
11. Voltage - Standard

5 to 15Vdc (4469).....	15
5 to 28Vdc.....	28
5 to 28Vdc in, 5vdc out (ET7272 only).....	28/5

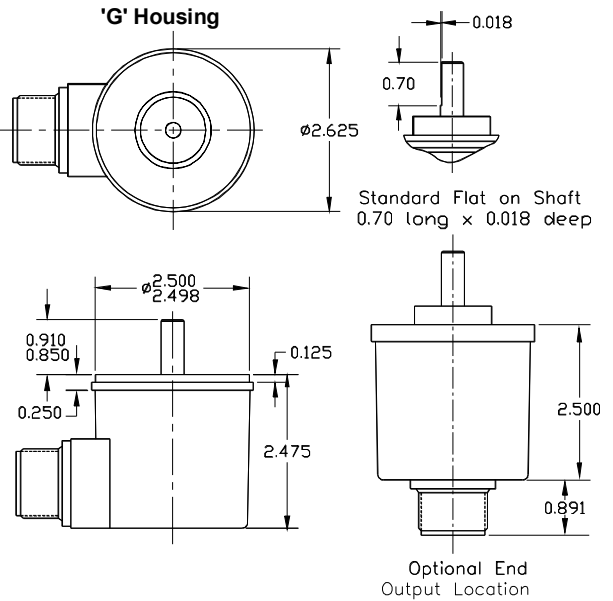
Voltage - ATEX

5 Vdc.....	5A
7 to 28Vdc.....	28A
7 to 28Vdc in, 5vdc out (ET7272 only).....	28/5A

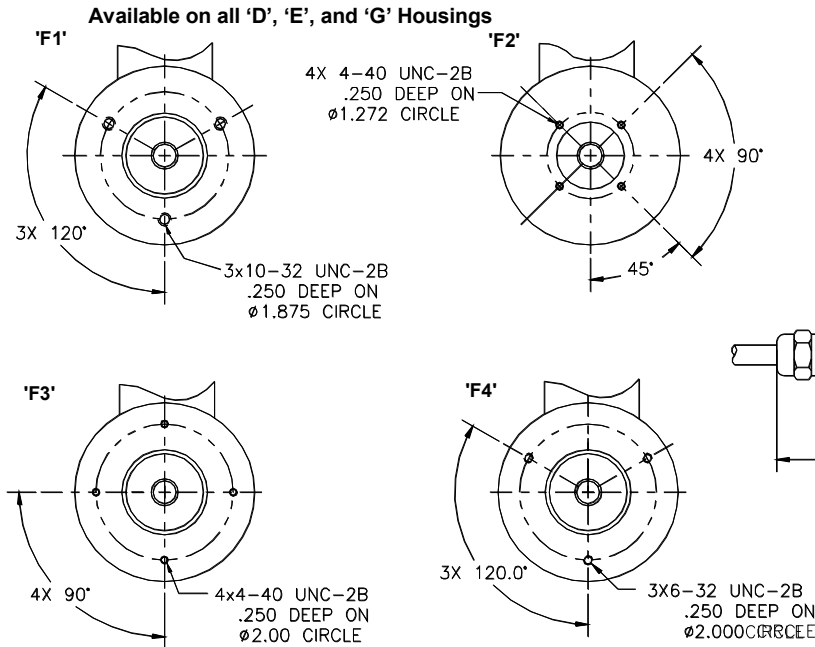
Outline Dimensions Standard 'D' and 'E' Housing



Optional 'G' Housing, Shaft and Output Location Options



Optional Face Mounts



Optional Output Termination Cable with Seal

See Shaft Diameter Options

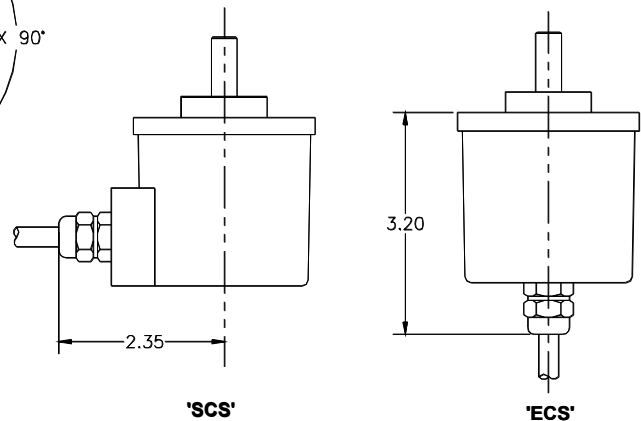
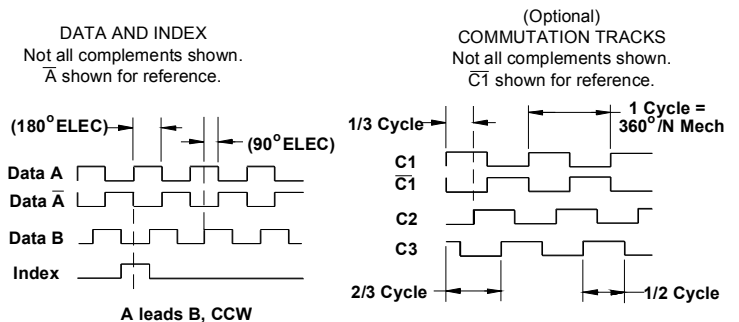


Table 1: Output Terminations (Pinout)

Connector Pins			Output Channels			Cable Termination	
M14	M16	M18	ABZ	ABC	ABZC	Wire Color	Function
E	A	A	A	A	A	Green	A
D	B	B	B	B	B	Blue	B
C	C	C	Z	A ^{Bar}	Z	Orange	Z
B	D	D	+V	+V	+V	Red	+Vdc
F	E	E	N/C	B ^{Bar}	N/C	Black	Ground
A	F	F	Circuit	Ground		Violet	A ^{Bar}
	G	G	Case Ground			Brown	B ^{Bar}
	H	H	N/C	N/C	A ^{Bar}	Yellow	Z ^{Bar}
	I	I	N/C	N/C	B ^{Bar}	White	Case Gnd
	J	J	N/C	N/C	Z ^{Bar}		

Case Ground not available on ATEX Certified Units

Output Format



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