

2CEX-H

- Hollow Shaft Encoder - Ø 68 mm
- Hollow Shaft: Ø10 mm to Ø16 mm
- Resolutions up to 10,000 ppr
- Non-removable end cap - delivered with MIL Connector
- ATEX, EAC Ex certified

Electrical Specifications

Code:	Incremental
Resolution:	1 to 10,000 ppr (pulses per revolution)
Supply Voltage:	4.5 Vdc min. to 30 Vdc max. (45 mA max. - no load) **
Output Voltage:	Low: 500 mV max. at 10 mA High: (V _{in} - 0.6) at -10 mA (V _{in} - 1.3) at -25 mA
Output Current:	30 mA max. load per output channel **
Frequency Response:	300 kHz max. **
Output Format:	Two channel (A, B) quadrature with Index (Z) and optional complementary (A-, B-, Z-) outputs
Phase Sense:	A leads B clockwise (CW) from the mounting end of the encoder
Index:	Gated with Channels A and B high
Accuracy:	+/- 0.8 arc-min.
Outputs:	ASIC Push-pull and Differential OL7272 Push-pull and Differential Line Driver 26C31 Differential Line Driver 5V output (with 5V input)
Electrical Protection:	Output short circuit protected Reverse polarity protected
Noise Immunity:	EN61000-6-2: 2005 (industrial environments) Electromagnetic compatibility (EMC) EN 61000-6-3: 2007 (residential, commercial, and light-industrial environments) for Electromagnetic compatibility (EMC)

**= It is recommended user not to combine max. Value for all 3 parameters

Mechanical Specifications

Material:	Housing: Aluminum Cap: Aluminum Hollow Shaft: Stainless Steel (AISI 303)
Weight:	Encoder: Approx. 540 gr (19 oz) Cable: 50 gr / meter (1.76 oz / meter)
Bearing Life:	> 1.9 x 10 ¹⁰ revolutions at rated load
Hollow Shaft Speed:	3,000 rpm continuous (max.) IP 67
Starting Torque:	< 0.1 Nm (14.16 oz-in) at 25° C IP 67
Mass Moment of Inertia:	50 gcm ² (7.08 x 10 ⁻⁴ oz-in-sec ²)
Hollow Shaft Loads:	Axial: 50 N (11.25 lbs) max. Radial: 100 N (22.50 lbs) max.

Environmental Specifications

Operating Temp.:	-40° to +70° C
Storage Temp.:	-40° to +85° C
Shock:	100 G / 11 ms
Vibration:	10 G / 10-2000 Hz
Bump:	10 G / 16 ms (1000 x 3 axis)
Humidity:	98 % RH without condensation
Enclosure Rating:	IP 64 / Nema 4 (approx.) IP 65 / Nema 4 (approx.) IP 66 / Nema 6 (approx.) IP 67 / Nema 6 (approx.) option

Connection Options

Connectors:	6-pin Mil radial (optional cap) 7-pin Mil radial (optional cap) 10-pin Mil radial (optional cap) See Table 2.
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Certifications

ATEX:	Certificate No.: ITS 09 ATEX 46134X II 3G Ex nA IIC T4 Gc, II 3D Ex tc IIIC T100°C Dc, -40°C<T.amb<+70°C
EAC Ex:	N/A

Output waveform

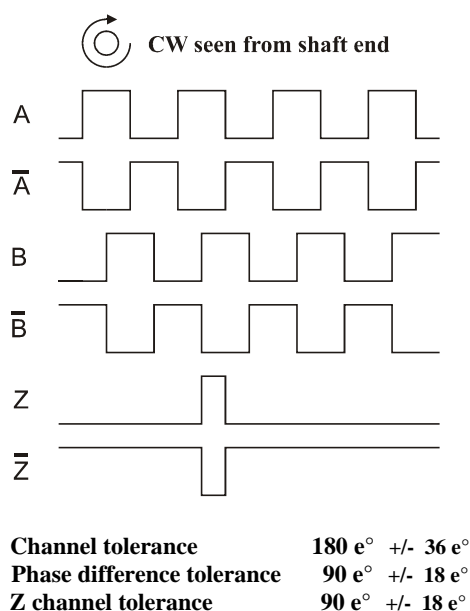


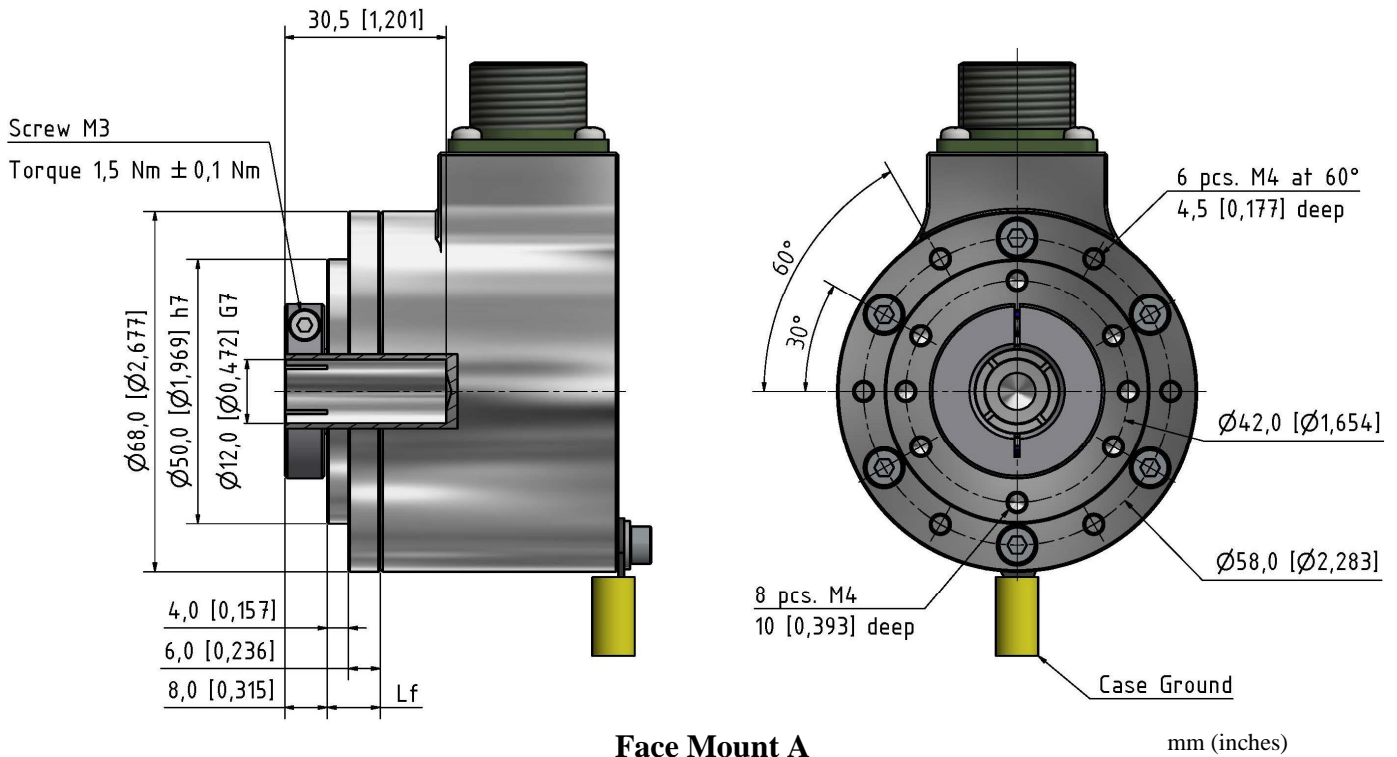
Table 1. Disk Resolutions (pulses per revolution)

1	32	125	720	3000
2	36	150	800	3072
5	40	180	1000	3600
6	45	200	1000	4000
7	47	250	1024	4096
8	50	256	1131	5000
10	60	300	1200	8192
12	64	360	1250	9000*
15	70	400	1270	10000*
16	75	455	1500	
18	80	500	2000	
20	90	512	2048	
25	100	600	2400	
30	120	635	2500	

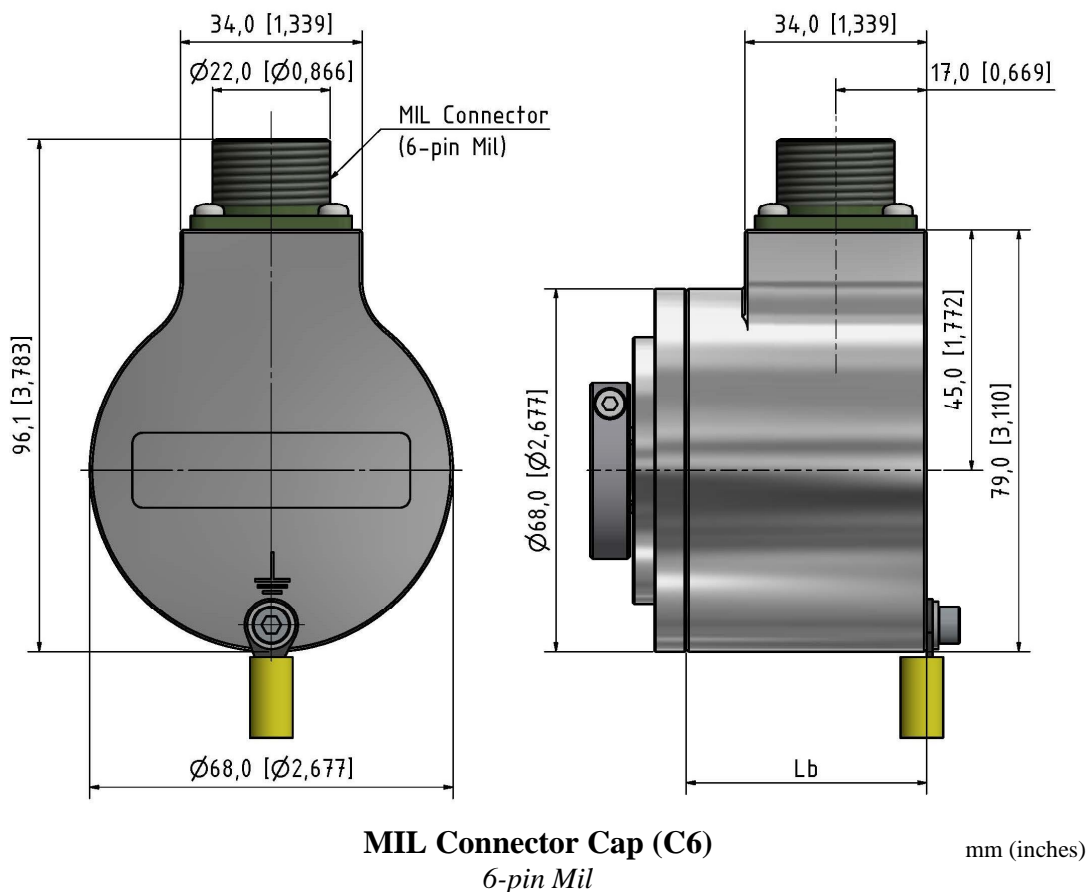
Other options on request
Pulses per revolution,
min. 1 – max. 10.000

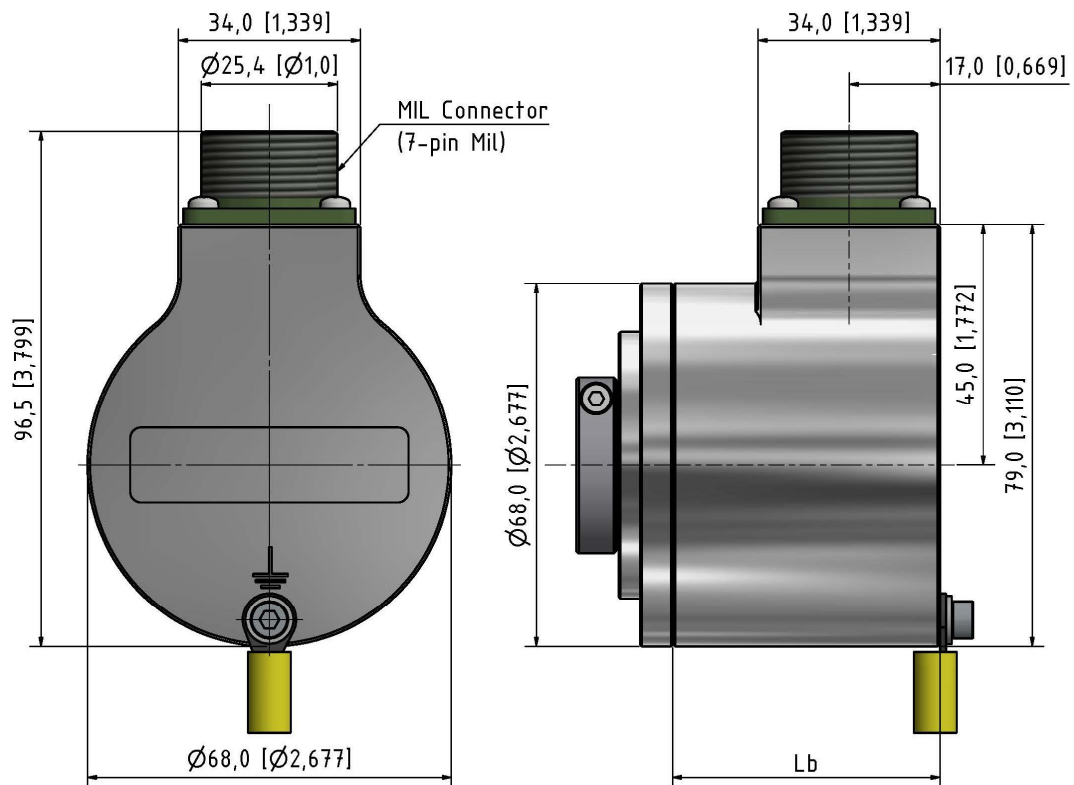
* Operating temperature: -20°C to 50°C

Face Mounts



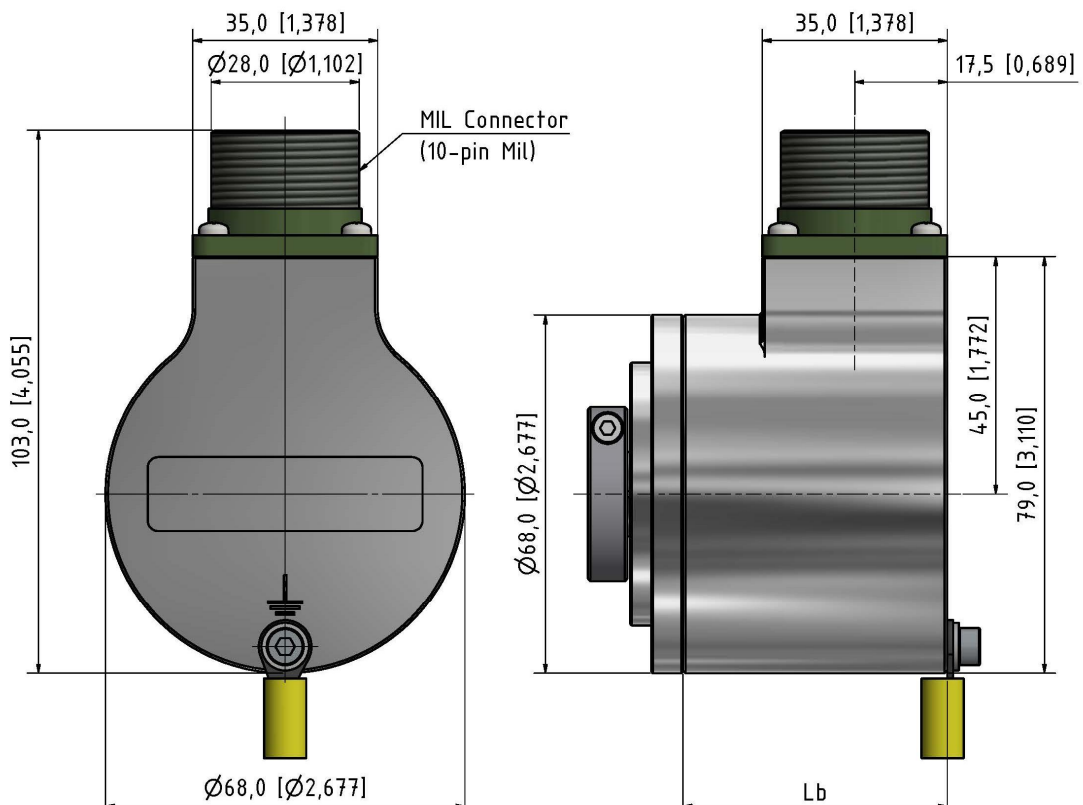
Caps with MIL Connector





MIL Connector Cap (C7)
7-pin Mil

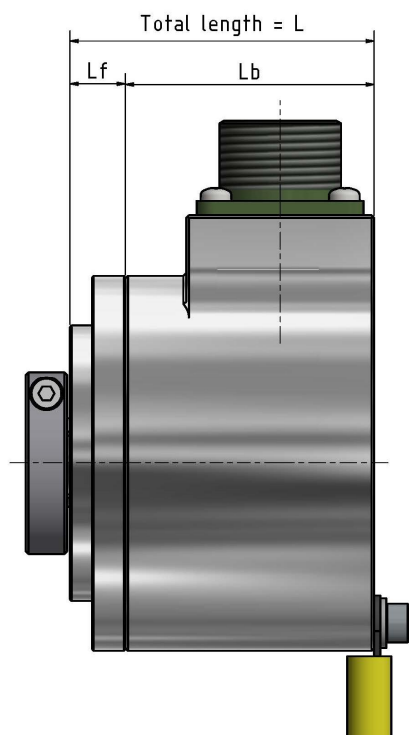
mm (inches)



MIL Connector Cap (C10)
10-pin Mil

mm (inches)

Encoder Length

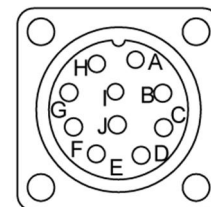
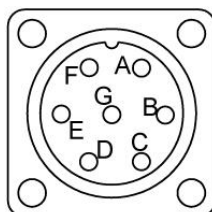
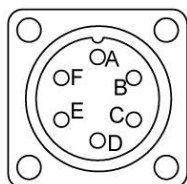


Total Encoder Length $L = L_b + L_f$

Cap	Face mount A
C6	55,0 mm (2,17 in)
C7	60,0 mm (2,36 in)
C10	60,0 mm (2,36 in)

Cap + Face Mount = Total Encoder Length

Table 2. Output Terminations – MIL Connectors



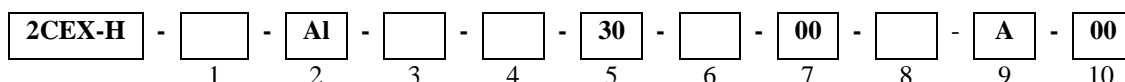
Pin	6-pin Mil		7-pin Mil		10-pin Mil	
	Standard Output	Standard Output	Optional Standard Output *	Optional Differential Output *	Differential Output	Optional Differential Output *
Channel	Channel	Channel	Channel	Channel	Channel	Channel
A	GND	A	A	A	A	A
B	Vsup	B	B	B	B	B
C	Z	Z	NC	A -	Z	A -
D	B	Vsup	Vsup	Vsup	Vsup	Vsup
E	A	NC	NC	B -	NC	B -
F	Shield	GND	GND	GND	GND	GND
G		Shield	Shield	Shield	Shield	Shield
H					A -	NC
I					B -	NC
J					Z -	NC

* ID number required

GND = Circuit Ground Shield = Case Ground

Ordering Code

Example: 2CEX-H – 1024 – AL – D – 10 – 30 – 65 – 00 – C7 – A – 00



1. Pulse per revolutions

See Table 1.

2. Material

Aluminum..... AL

3. Output

Standard..... N
 Inverted..... I
 Differential..... D
 26C31 Line Driver 5V only..... L
 OL 7272 Line Driver..... M

4 & 5 Hollow Shaft dimensions

	4.	x	5.
10 mm x 30.5 mm	10	x	30
12 mm x 30.5 mm	12	x	30
14 mm x 30.5 mm	14	x	30
15 mm x 30.5 mm	15	x	30
16 mm x 30.5 mm	16	x	30

6. IP Rating

IP 64.....	64
IP 65.....	65
IP 66.....	66
IP 67.....	67

7. Cable Length

No cable..... 00

8. Connector

MIL - 6 pins..... C6
 MIL - 7 pins..... C7
 MIL - 10 pins..... C10

9. Flange

Flange A..... A

10. Spring Coupling

No spring coupling.....	00
80147418.....	01
80140159.....	02
80141203.....	03
80142932.....	04
80142641.....	05
80132983.....	06
80230208.....	07