

SCH86BEX Removable End Cap



Scancon's SCH86BEX Encoder is designed for ATEX Zone 1 applications where reliability and size are critical. Smaller than the competition, and with a 1" hollow bore and removable end cap, it is the EX-proof (d) encoder of choice for rugged Oilfield applications.

- Ex-proof (d) Hollow Shaft Encoder - \varnothing 86 mm
- Through Hollow Bore: \varnothing 5/8 to \varnothing 1 inch
- IP 67 (~ Nema 6) Environmental Protection
- 22-micron Anodization or 316 Stainless Steel option
- ATEX, IECEx, EAC, North American (ISA/ANSI & CSA standards) Class I Div. 2 and AEx Class 1 Zone 1 certifications

EN 60079



Electrical Specifications

Code	Incremental
Resolution	See Table 1
Supply Voltage*	4.5 V min. to 30 V max.
Current	35 mA max. (no load)
Output Voltage	Low: 500 mV max. at 10 mA High: (V _{sup} - 0.6) at -10 mA (V _{sup} - 1.6) at -25 mA
Output Current*	35 mA max. load per output
Frequency Response*	300 kHz max. 150 kHz max. for MW output
Output Format	Two channels (A, B) in quadrature with Index (Z); and complementary outputs (A-, B-, Z-)
Output Phase Sense	A leads B clockwise (CW)
Index	Gated with Channels A and B high, 1/4 cycle
Outputs:	ASIC Push-pull and Differential OL7272 Push-pull and Differential Line Driver iC-DL Differential Line Driver
Electrical Protection:	Outputs short circuit protected Reverse polarity protected Miswiring protected - (MW output only)
Noise Immunity:	Tested to EN61000-6-2 : 2005 and EN 61000-6-3 : 2007

Mechanical Specifications

Material	Housing: Aluminum / AISI 316 SS option Cap: Aluminum / AISI 316 SS option Hollow Shaft: AISI 316 SS
Weight	Aluminum: ~ 1250 gr. (2.76 lb.) AISI 316 SS: ~ 3750 gr. (8.27 lb.) Cable: 50 gr / meter (1.76 oz / meter)
Bearing Life	100 thousand hours @ rated load
Shaft Speed	3,000 rpm continuous (max.) IP 67
Starting Torque	< 0.1 Nm (14.16 oz-in) at 25° C
Mass Moment of Inertia	750 g-cm ² (10.6 x 10 ⁻³ oz-in-sec ²)

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 65 / Nema 4 (approx.) IP 66 / Nema 6 (approx.) option IP 67 / Nema 6 (approx.) option

Connection Options

Terminal Blocks (Removable End Cap)	See Table 2
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* It is recommended user not combine max. values for all 3 parameters

Certifications

ATEX	Certificate No.: ITS09ATEX16841X II 2 G Ex db IIC T5 Gb II 2 D Ex tb IIIC T100°C Db -40°C < Tamb < +70°C
IECEEx	Certificate No.: ITS13.0025X Ex db IIC T5 Gb Ex tb IIIC T100°C Db -40°C < Tamb < +70°C
North America	Certificate No: LR1192 Class I, Division 2, Groups ABCD T5 Class II, Division 2, Groups FG Ex db IIC T5 Gb Class I, Zone 1, AEx db IIC T5 Gb Tamb = -40 °C to +70 °C V= 4.5 – 30 Vdc; Imax= 100 mA
EAC Ex	Certificate No. TC RU C-DK.ГБ05.B.00974 RU No. 0249626 and RU No. 0178209 1Ex d IIC T5 Gb X Ex tb IIIC T100°C Db X МИНУС 40 ДО +70°

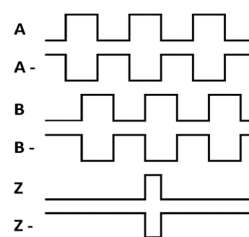
Table 1. Disk Resolutions (pulses per revolution)

25	32	40	100
400	800	1024	2000
2048	2500	3072	3600
4096			

Other resolutions may be requested

Output Waveform

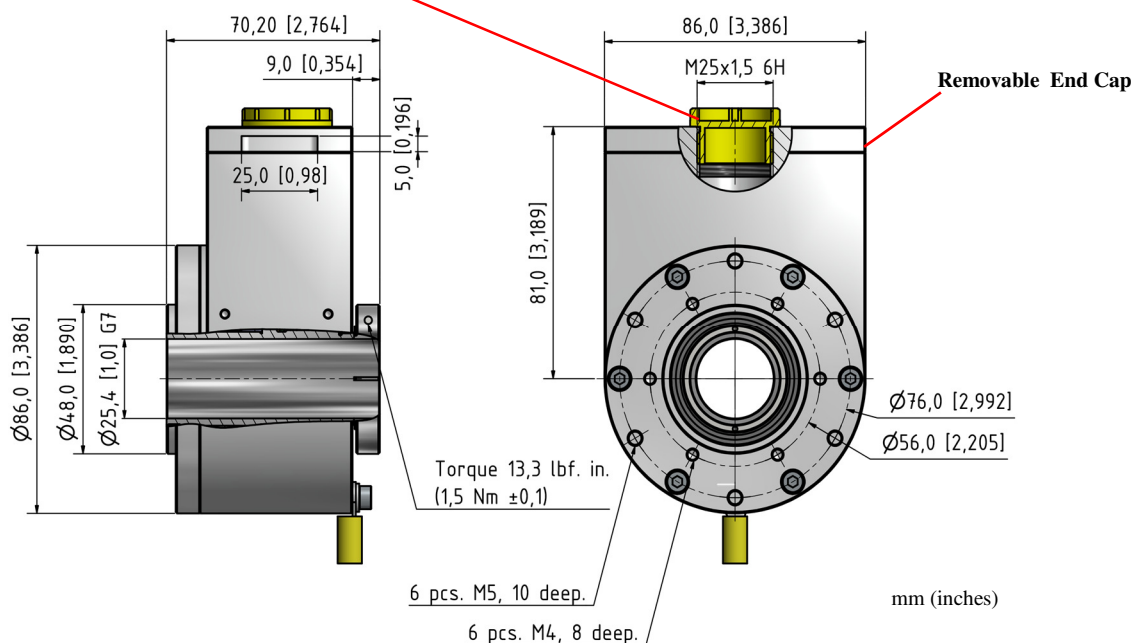
⌚ Clockwise seen from the front of the encoder looking away from the motor shaft



Channel tolerance 180 e° +/- 36 e°
Phase difference tolerance 90 e° +/- 18 e°
Z channel tolerance 90 e° +/- 18 e°

Mechanical Dimensions

Plastic screw plug is for cable outlet protection during shipping and storage. Plug must be replaced by an appropriately certified cable gland prior to use.



Removable End Cap - EC08, EC09, EC10 and EC11

See Table 2

Table 2 Terminal Block Outputs

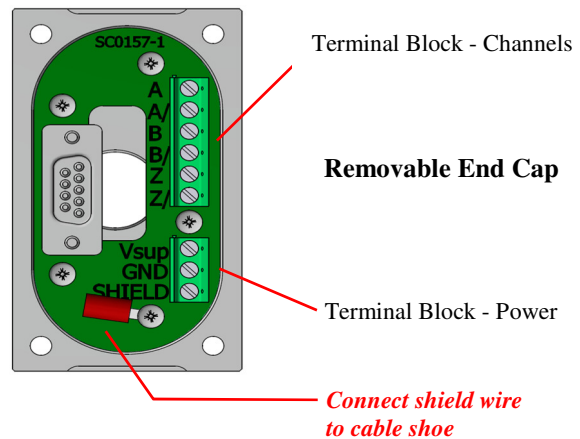
	Standard Output	Differential Output	Power
Position	Channel	Channel	
1	A	A	
2	NC	A -	
3	B	B	
4	NC	B -	
5	Z	Z	
6	NC	Z -	
7			Vsup
8			GND
9			Shield*

GND = Circuit Ground

Shield = Case Ground

*** Do not connect the shield wire to the terminal block
Connect shield wire to the cable shoe**

Wire conductor size: AWG 26 to 16
0.14 to 1.5 mm²



Mechanical Tolerances (mm)

Hollow Shaft (ISO tolerance):	ISO 286-2 ANSI B4.2
Hollow bore $\phi > 10$ mm to ≤ 18 mm	G7 (+0.006 / +0.024)
Hollow bore $\phi > 18$ mm to ≤ 30 mm	G7 (+0.007 / +0.028)
Shaft (recommended ISO tolerance):	ISO 286-2 ANSI B4.2
Shaft $\phi > 10$ mm to ≤ 18 mm	h6 (-0 / -.011)
Shaft $\phi > 18$ mm to ≤ 30 mm	h6 (-0 / -.013)
Shaft Runout (recommended TIR):	NEMA Std. MG1, 4.9.7 + / - 0.05 (0.002 in.)

Ordering Code

Example: SCH86BEX - 1024 - AL - MW - 01 - 00 - 67 - 00 - EC08 - A

SCH86BEX - - - - - - - - - -

1 2 3 4 5 6 7 8

1. Resolution

See Table 1.

Other resolutions may be requested

3. Output

Standard 4.5V to 30V N
 Differential 4.5V to 30V D
 OL7272 4.5V to 30V M
 iC-DL 9.0V to 30V MW*

* miswiring protected; and
built-in transient suppression

5. IP Rating

IP 65 65
 IP 66 66
 IP 67 67

7. End Cap

End Cap**
 M20 threaded outlet EC09
 M25 threaded outlet EC08
 1/2 inch NPT outlet EC10
 3/4 inch NPT outlet EC11

** appropriately certified cable gland required

2. Composition

Aluminum AL
 Stainless Steel* SA

* AISI 316

4. Hollow Shaft (diameter)

5/8 inch 01
 16 mm 02
 20 mm 03
 25 mm 04
 1 inch 05

6. Cable Length

No Cable (End Cap) 00

8. Flange

A A

See Accessories data sheet for Anti-rotation Springs/Torque Arm options