



EN 60079

Type SCH24EX

- Ex d - Proof Hollow Shaft Encoder - \varnothing 24 mm
- Hollow Bore: \varnothing 2 mm to \varnothing 1/8 in.
- Resolution up to 3600 ppr
- IP 64 (IP 65, 66, 67 options)
- ATEX, IECEX and North American Class I and Class II certified
- 22 micron Anodization - "Seawater-proof"
- Formerly named 2MCEX-H

Electrical Specifications

| | |
|-------------------------------|---|
| Code: | Incremental |
| Resolution: | 1 to 3.600 ppr (pulses per revolution) |
| Supply Voltage: | 5 Vdc min. to 24 Vdc (Max. for NA certification) (35 mA max. - no load) ** |
| Output Voltage: | Low: 500 mV max. at 10 mA High: (Vin - 0.6) at -10 mA (Vin - 1.3) at -20 mA |
| Output Current: | 20 mA max. load per output channel ** |
| Frequency Response: | 200 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. |
| Output: | ASIC Push-pull and Differential |
| Electrical Protection: | Reverse polarity and output short circuit protected |
| Noise Immunity: | Tested to EN61000-6-2 : 2005 (industrial environments) Electromagnetic compatibility (EMC) and 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 / Brass Cap: Aluminum Hollow Shaft: Brass |
| Weight: | Encoder: Approx. 80 gr (44.1 oz) Cable: 50 gr / meter (1.76 oz / meter) |
| Bearing Life: | > 1.9 x 10 ¹⁰ revolutions at rated load |
| Hollow Shaft Speed: | 12,000 rpm continuous (max.) IP 50 3,000 rpm continuous (max.) IP 67 |
| Starting Torque: | < 0.001 Nm (0.14 oz-in) at 25° C |
| Mass Moment of Inertia: | 0.2 gcm ² (2.8 x 10 ⁻⁶ oz-in-sec ²) |
| Shaft Loads: | Axial 10 N (2.25 lbs) max. Radial 10 N (2.25 lbs) max. |

Environmental Specifications

| | |
|--------------------------|---|
| Operating Temp.: | -40° to +70° C |
| Storage Temp.: | -40° to +85° C |
| Shock: | 100 G @ 11 ms |
| Vibration: | 10-2000 Hz @ 10 G |
| 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.) option IP 66 / Nema 6 (approx.) option IP 67 / Nema 6 (approx.) option |

Connection Options

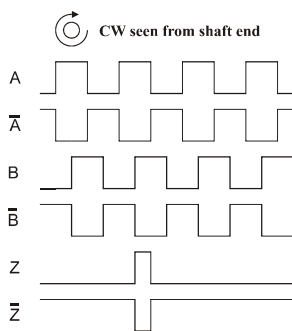
| | |
|---------------|--|
| Cable: | 8 leads (0.05 mm ² , 30 AWG) twisted pairs; shielded |
|---------------|--|

Certifications

| | |
|-----------------------|---|
| ATEX: | Certificate No.: TÜV 11 ATEX 091676X II 2 GD Ex db IIC T5 Gb and Ex tb IIIC T100°C Db IP 6x -40C ≤ Tamb ≤ +70C |
| IECEX: | Certificate No.: IECEX TUN 12.0005X Ex db IIC T5 Gb and Ex tb IIIC T100°C Db IP 6x -40C ≤ Tamb ≤ +70C |
| North America: | Certificate No. LR 1192-2 24VDC, Max. 100 mA Class I, Div 2 Groups ABCD T5 Class II, Div 1, Groups EFG Ex d IIC Gb T5 Class I, Zone 1 AEx d IIC T5 |
| EAC Ex: | Certificate No.: RU No. 0249626 НАНИО «ЦСВЭ» No. TC RU C-DK.ГБ05.В.00974 1Ex d IIC T5 Gb X Ex tb IIIC T100°C Db X -40°C < T.amb < +70°C |

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Output waveform



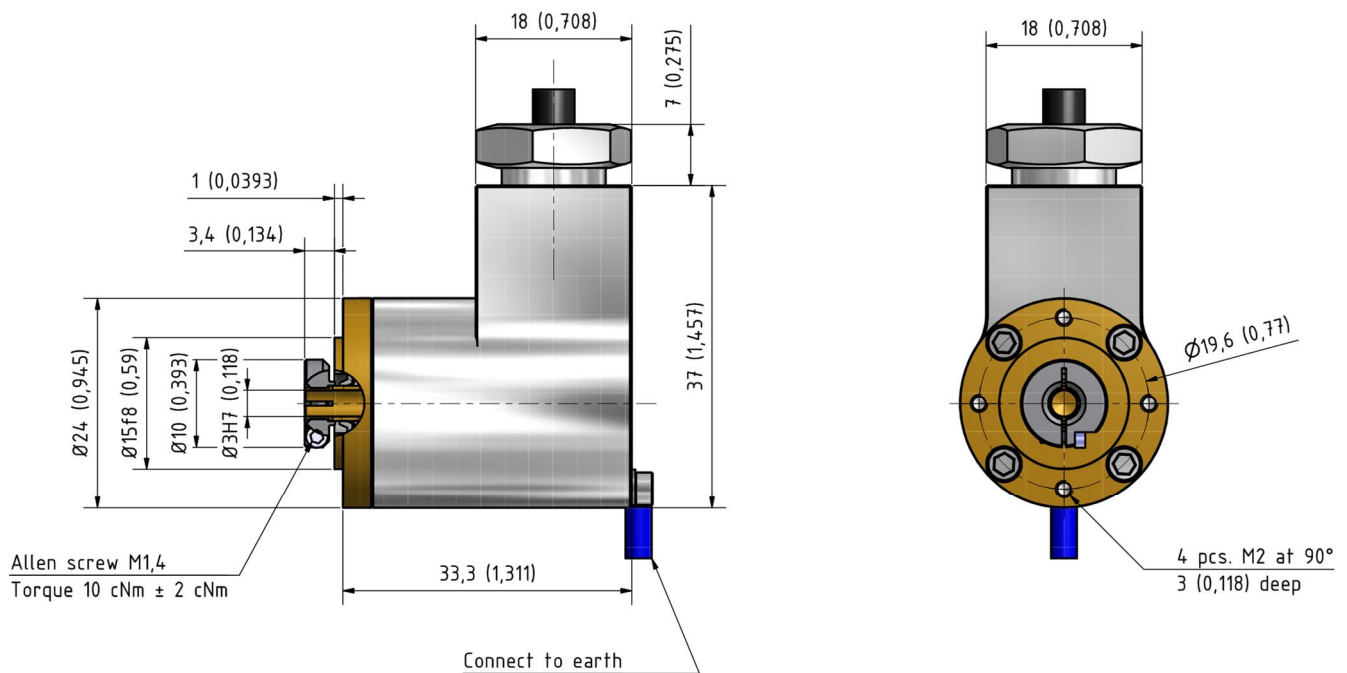
Channel tolerance **180 e° +/- 36 e°**
 Phase difference tolerance **90 e° +/- 18 e°**
 Z channel tolerance **90 e° +/- 18 e°**

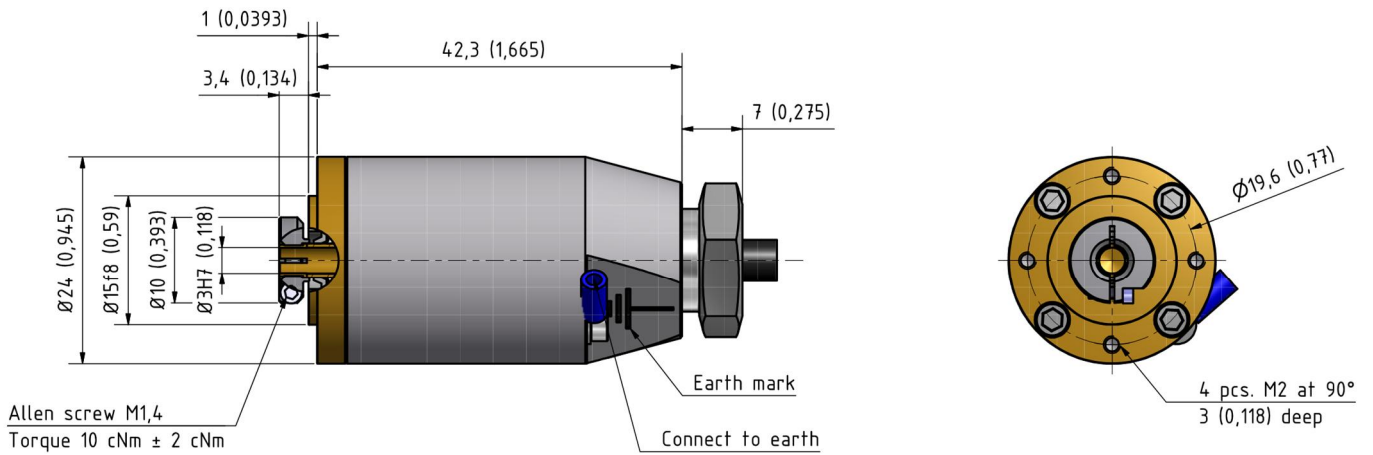
Disk Resolutions (pulses per revolution)

| | | | | |
|------|------|------|------|------|
| 100 | 125 | 160 | 256 | 300 |
| 360 | 500 | 635 | 1000 | 1024 |
| 2000 | 2500 | 3600 | | |

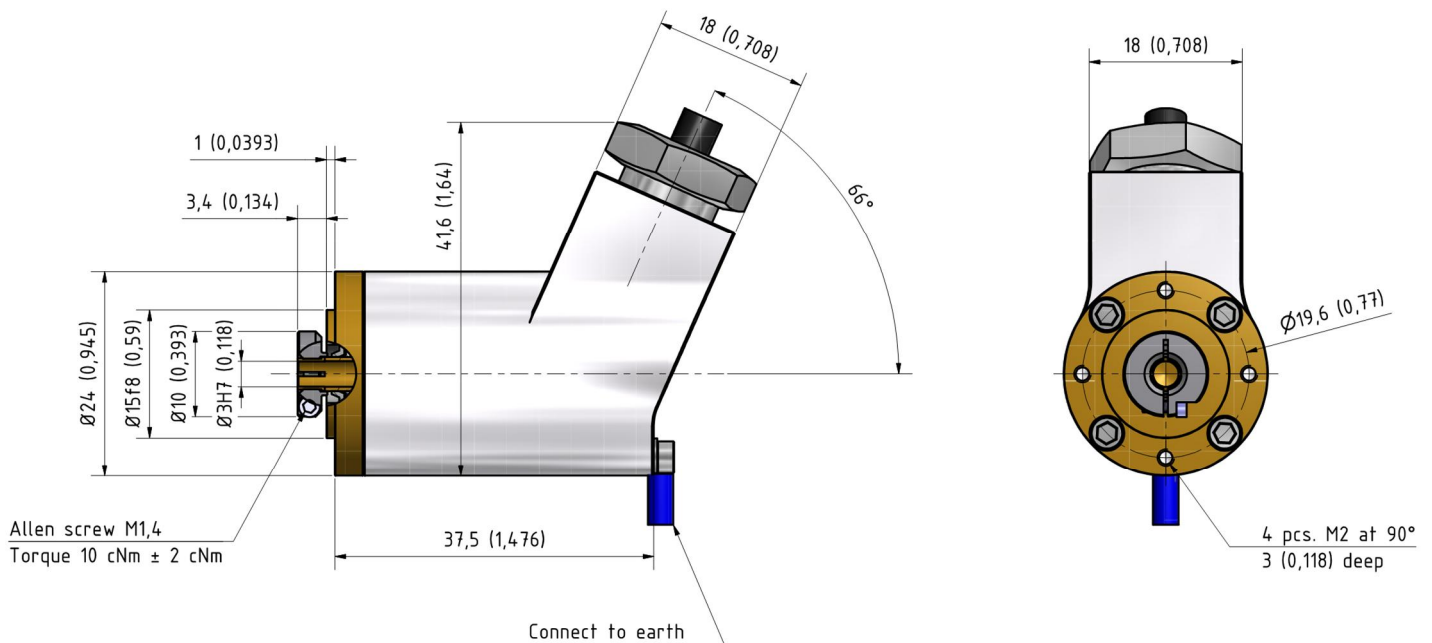
Other options on request
 Pulses per revolution,
 min. 1 – max. 5.000

Mechanical Dimensions





mm (inches)

Back Cable Takeout - B


mm (inches)

Angled Cable Takeout - V

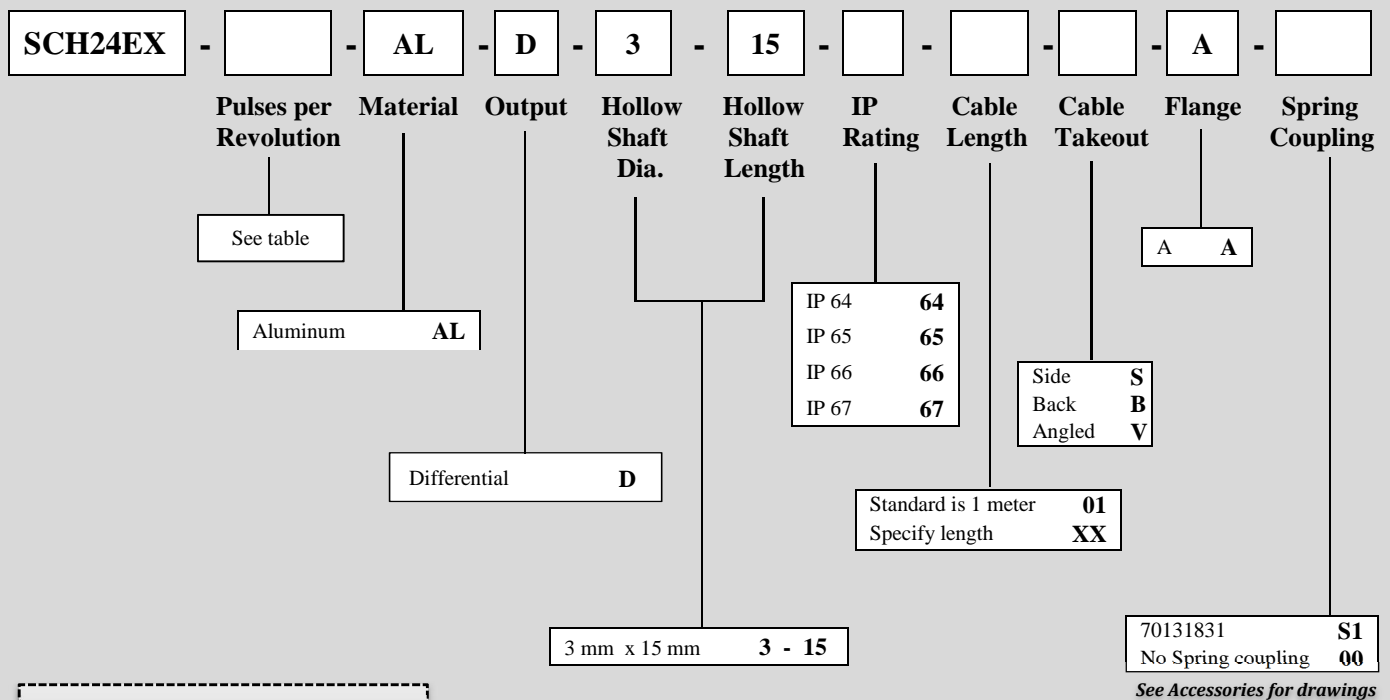
Output Terminations

| Standard Cable | |
|---------------------|------------|
| Differential Output | |
| Channel | Wire Color |
| A | Pink |
| A- | Gray |
| B | Green |
| B- | Yellow |
| Z | White |
| Z- | Brown |
| Vsup | Red |
| GND | Blue |

GND = Circuit Ground

Ordering Code

Example: SCH24EX - 1024 - AL - D - 3 - 15 - 67 - 01 - V - A - S1



Other options on request:
Please contact Scancon A/S