



## Type SCA24

- Shaft Encoder -  $\varnothing$  24 mm
- Shaft:  $\varnothing$  2 mm to  $\varnothing$  1/4 inch
- Resolution up to 7500 ppr
- Enclosure IP Rating 64 (IP 50 for IDC connector option)

### Electrical Specifications

<b>Code:</b>	Incremental
<b>Resolution:</b>	1 to 7500 ppr (pulses per revolution)
<b>Supply Voltage:</b>	4,5 Vdc min. to 30 Vdc max. (35 mA max. - no load) **
<b>Output Voltage:</b>	Low: 500 mV max. at 10 mA High: ( $V_{in} - 0,6$ ) at -10 mA ( $V_{in} - 1,3$ ) at -25 mA
<b>Output Current:</b>	25 mA max. load per output channel **
<b>Frequency Response:</b>	200 kHz max. **
<b>Output Format:</b>	Two channel (A, B) quadrature with Index (Z) and optional complementary (A-, B-, Z-) outputs
<b>Phase Sense:</b>	A leads B clockwise (CW) from the mounting end of the encoder
<b>Index:</b>	Gated with Channels A and B high
<b>Accuracy:</b>	+/- 0,8 arc-min.
<b>Outputs:</b>	ASIC Push pull and Differential OL7272 Push-pull and Differential Line Driver 26C31 Differential Line Driver 5V output (with 5V input)
<b>Electrical Protection:</b>	Reverse polarity and output short circuit protected
<b>Noise Immunity:</b>	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. values for all 3 parameter

### Mechanical Specifications

<b>Material:</b>	Housing: Brass Cap: Electroplated Steel Aluminum (flat cable option) Shaft: Stainless Steel
<b>Weight:</b>	Encoder: ~ 35 gr (1,23 oz) Cable: 50 gr / meter (1,76 oz / meter)
<b>Bearing Life:</b>	> $1,9 \times 10^{10}$ revolutions at rated load
<b>Shaft Speed:</b>	12.000 rpm (max.)
<b>Starting Torque:</b>	< 0,005 Nm (0,708 oz-in) at 25° C
<b>Mass Moment of Inertia:</b>	1,0 gcm <sup>2</sup> ( $1,42 \times 10^{-5}$ oz-in-sec <sup>2</sup> )
<b>Shaft Loads:</b>	Axial: 20 N (4,5 lbs) max. Radial: 20 N (4,5 lbs) max.

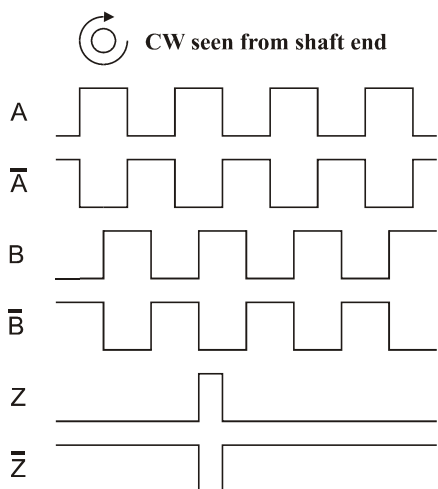
### Environmental Specifications

<b>Operating Temp.:</b>	-40° to +85° C
<b>Storage Temp.:</b>	-40° to +85° C
<b>Shock:</b>	100 G / 11 ms
<b>Vibration:</b>	10-2000 Hz / 10 G
<b>Bump:</b>	10 G / 16 ms (1000 x 3 axis)
<b>Humidity:</b>	98 % RH without condensation
<b>Enclosure Rating:</b>	IP 64 / Nema 4 (approx.) IP 50 / Nema 5 (approx.) - flat cable

### Connection Options

<b>Cable:</b>	8 leads (0,05 mm <sup>2</sup> , 30 AWG) - Differential 5 leads (0,14 mm <sup>2</sup> , 26 AWG) - Standard twisted pairs; shielded
<b>Flat Cable:</b>	10 lead flat cable with IDC connector

## Output waveform



Channel tolerance             $180\text{ e}^\circ \pm 36\text{ e}^\circ$   
 Phase difference tolerance    $90\text{ e}^\circ \pm 18\text{ e}^\circ$   
 Z channel tolerance            $90\text{ e}^\circ \pm 18\text{ e}^\circ$

## Disk Resolutions (Pulses per revolution)

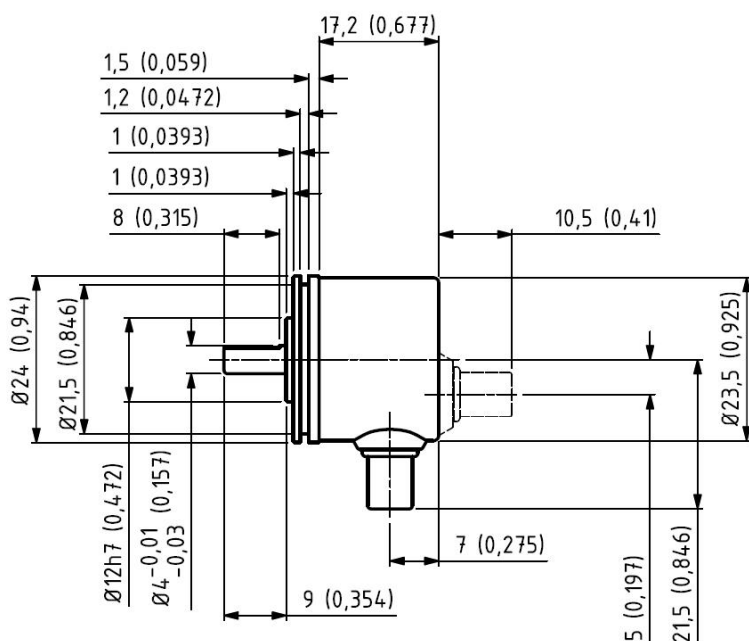
1	30	128	500	2500
4	36	150	512	3000
10	50	180	600	3600
11	60	200	1000	5000
12	64	250	1024	7500*
15	75	256	1250	
18	90	300	1800	
20	100	360	2000	
25	125	400	2048	

### Other options on request

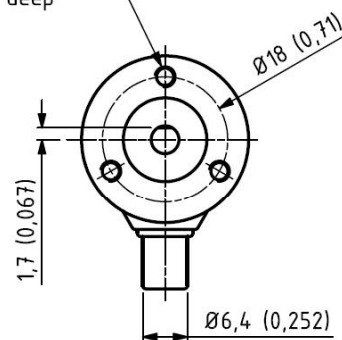
Pulses per revolution,  
 min. 1 – max. 7.500

\* Operating temperature:  $-20^\circ\text{C}$  to  $50^\circ\text{C}$

## Mechanical Dimensions

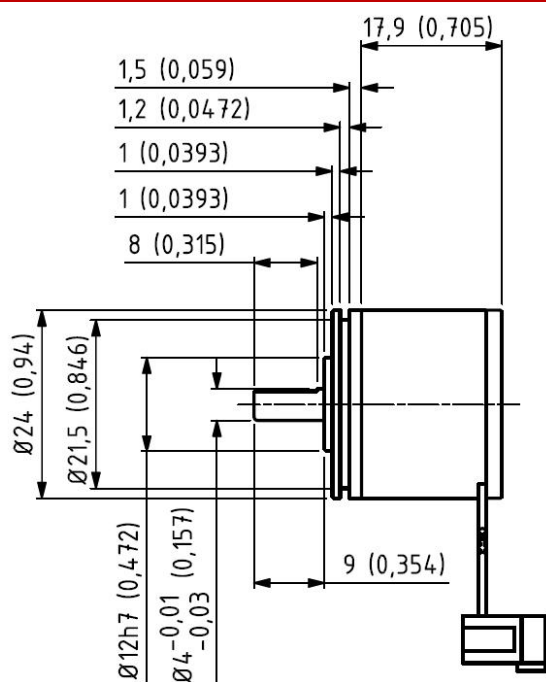


3 pcs. M3 at  $120^\circ$   
 max. 3,5 deep

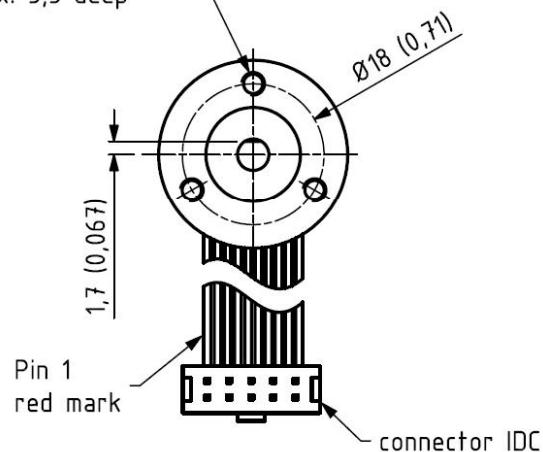


Standard Cable Gland  
 Side (S) or Back (B)

mm (inches)

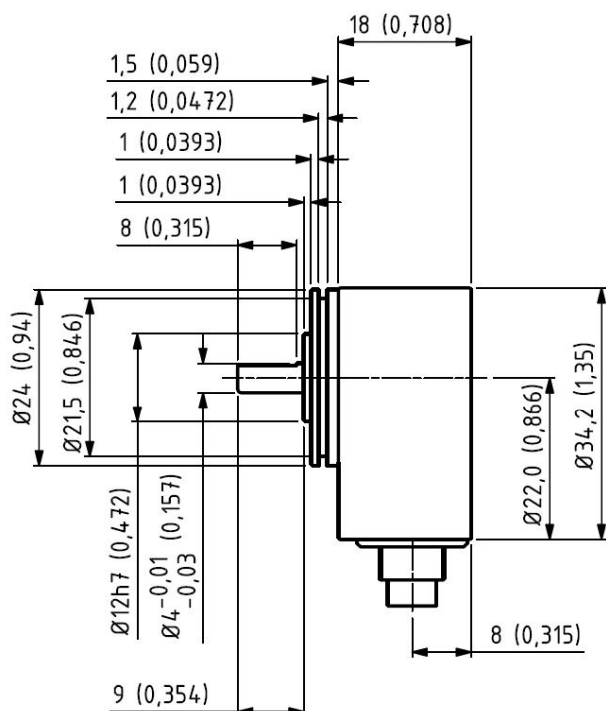


3 pcs. M3 at 120°  
max. 3,5 deep

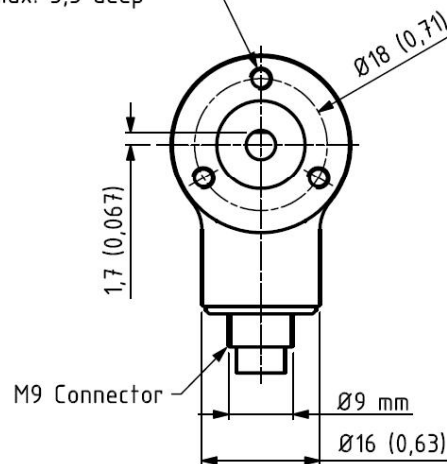


Flat Ribbon Cable with IDC connector

mm (inches)



3 pcs. M3 at 120°  
max. 3,5 deep



M9 Connector

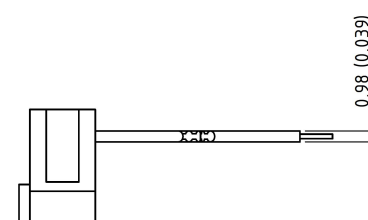
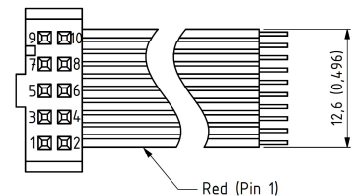
mm (inches)

## Output Terminations

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

GND = Circuit Ground

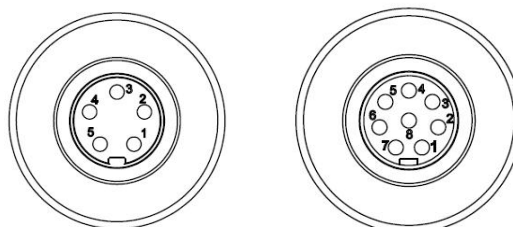
Position	Flat Cable w/ IDC Connector	
	Differential Output *	
Position	Channel	
1	NC	
2	Vsup	
3	GND	
4	NC	
5	A	
6	A -	
7	B	
8	B -	
9	Z -	
10	Z	



mm (inches)

- IP 50 rating
- CE mark not available
- 0,5 m, 1 m, or 2 m cable length only

\* Hewlett Packard (HP) compatible



Position	M9 5 - pin	M9 8 - pin
	Standard Output	Differential Output
Position	Channel	Channel
1	VDD	VDD
2	GND	GND
3	A	A
4	B	A -
5	Z	B
6		B -
7		Z
8		Z -

## Ordering Code

Example: SCA24 – 1024 – D – 1/4 – 10F – 64 – 01 – S – 00

### Type

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	<b>Pulses per Revolutio</b>	<b>Output</b>	<b>Shaft Dia.</b>	<b>Shaft Length</b>	<b>IP</b>	<b>Cable Length</b>	<b>Cable Takeout</b>	<b>Connector</b>																																															
	See Table				IP 50 <b>50**</b> IP 64 <b>64</b>																																																		
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\* = Available with flat (8mm length)

To order with flat, add "F" to the shaft length.

Example: 1/4 - 10 F

**Other options on request:**  
Please contact Scancon A/S

\*\*\* Designed specifically for Wind Power applications.

See **SCA24 COC** under *Industries – Wind Power – SCA24* for additional conformity standards testing.

TSM = Transient Suppression Module

Available only as Standard output