



## Type SCA24 IP65

- Shaft Encoder -  $\varnothing$  24 mm
- Shaft:  $\varnothing$  4 mm to  $\varnothing$  6 mm
- Resolution up to 7500 ppr
- Standard IP 65
- Formerly named 2RM-IP65

### 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)

### 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

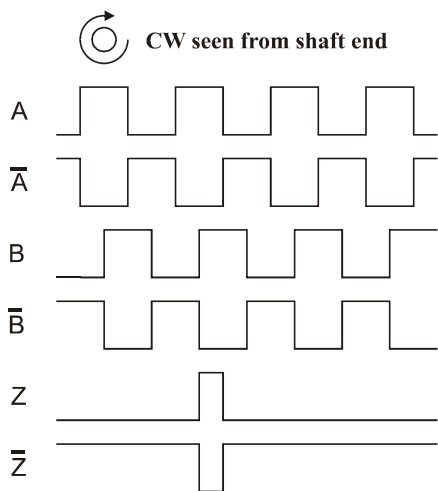
<b>Operating Temp.:</b>	-40° to +85° C
<b>Storage Temp.:</b>	-40° to +85° C
<b>Shock:</b>	100 G / 11 ms
<b>Vibration:</b>	10-2000 Hz / 10 G
<b>Bump:</b>	10 G / 16 ms (1000 x 3 axis)
<b>Humidity:</b>	98 % RH without condensation
<b>Enclosure Rating:</b>	IP 65 / Nema 4 (approx.)

### 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

\*\* = It is recommended user not to combine max. values for all 3 parameter

## Output waveform



## Disk Resolutions (pulses per revolution)

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

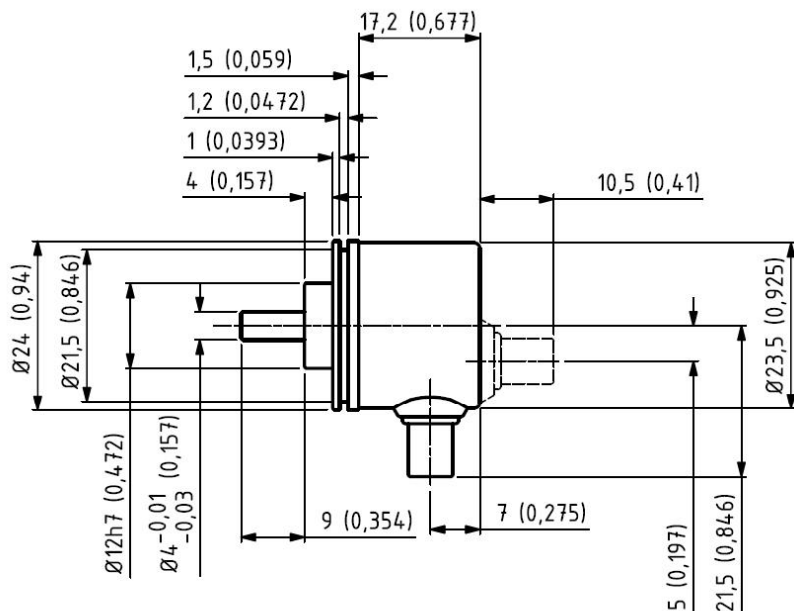
### Other options on request

Pulses per revolution,  
min. 1 – max. 7.500

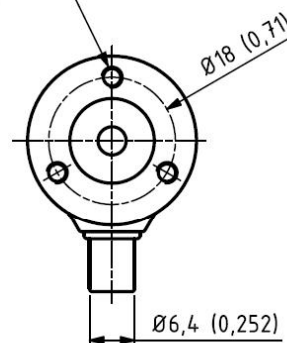
Channel tolerance            180 e° +/- 36 e°  
Phase difference tolerance    90 e° +/- 18 e°  
Z channel tolerance            90 e° +/- 18 e°

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

## Mechanical Dimensions

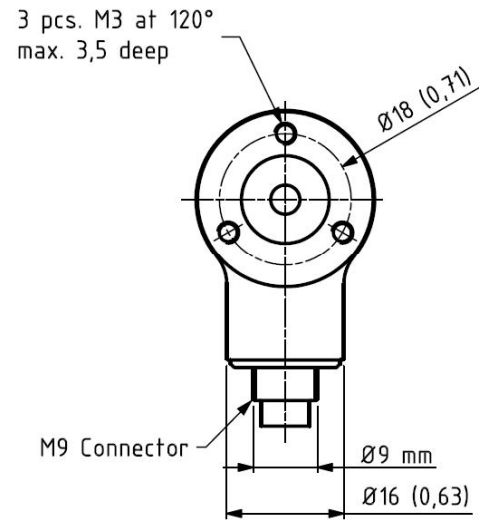
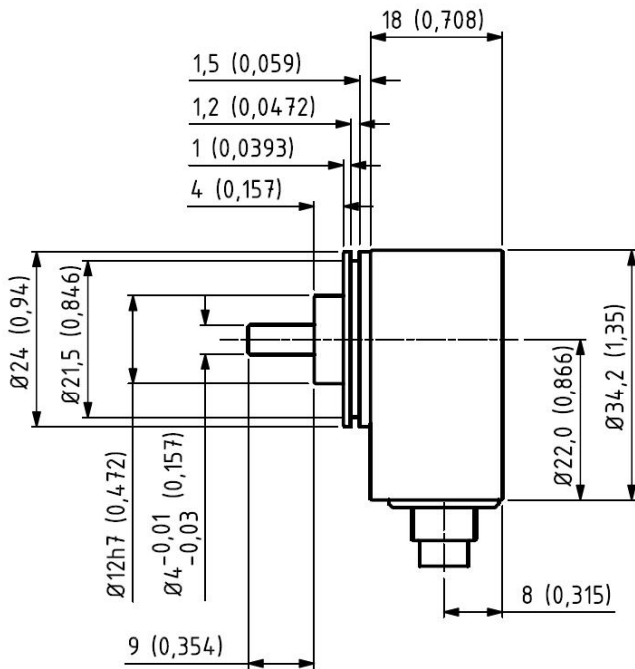


3 pcs. M3 at 120°  
max. 3,5 deep



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

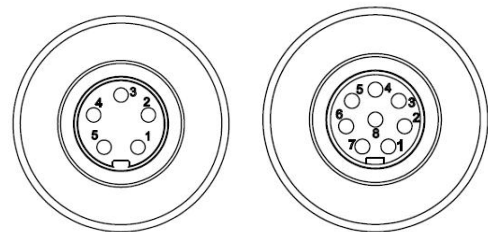
mm (inches)



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

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 -

GND = Circuit Ground

## Ordering Code

Example: SCA24-IP65 – 1024 – D – 1/4 – 10F – 64 – 01 – S – 00

### Type

SCA24-IP65 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Pulses per Revolution    Output    Shaft Dia.    Shaft Length    IP Rating    Cable Length    Cable Takeout    Connector

See Table

Standard	<b>N</b>
Differential	<b>D</b>
26C31 Line Driver 5V only	<b>L</b>
Standard – Open Collector NPN	<b>NON</b>
Standard – Open Collector PNP	<b>NOP</b>
OL 7272 Line Driver	<b>M</b>
Standard - with built-in TSM **	<b>T</b>

IP 65    **65**

<u>Standard Cable</u>	
Standard is 1 meter	<b>01</b>
Specify length	<b>XX</b>
No cable	<b>00</b>
<u>Flat Cable w/ IDC</u>	
0,5 meter	<b>0,5</b>
1,0 meter	<b>01</b>
2,0 meters	<b>02</b>

<u>Standard Cable</u>		
M9 5-pin		<b>M9/5</b>
M9 8-pin		<b>M9/8</b>
No Connector		<b>00</b>
<u>Flat Cable</u>		
IDC on flat cable		<b>IDC</b>

4.0 mm x 06 mm	<b>04</b>	-	<b>06</b>
4.0 mm x 09 mm	<b>04</b>	-	<b>09</b>
4.0 mm x 15 mm	<b>04</b>	-	<b>15</b>
4.0 mm x 20 mm	<b>04</b>	-	<b>20</b>
6.0 mm x 10 mm	<b>06</b>	-	<b>10</b>
6.0 mm x 14 mm	<b>06</b>	-	<b>14</b>

Side (radial) Standard cable	<b>S</b>
Side (radial) PUR cable	<b>PUR</b>
Back (axial)	<b>B</b>

\*\* Designed specifically for Wind Power applications.

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

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TSM = Transient Suppression Module

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Available only as Standard output

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

**See Accessories for drawings**