



## Type SCA16

- Shaft Encoder -  $\varnothing$  16 mm
- Shaft:  $\varnothing$  1,5 mm to  $\varnothing$  4 mm
- Resolution up to 5000 ppr
- IP 50 (IP 65 option)
- Formerly named 2MCA

### Electrical Specifications

<b>Code:</b>	Incremental
<b>Resolution:</b>	Up to 5.000 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>	20 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 Differential or Inverted
<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. value for all 3 parameters

### Mechanical Specifications

<b>Material:</b>	Housing: Aluminum / Brass Cap: Aluminum Shaft: Brass
<b>Weight:</b>	Encoder: ~ 15 gr (0,53 oz) Cable: 50 gr / meter (1,76 oz / meter)
<b>Bearing Life:</b>	> $1,9 \times 10^{10}$ revolutions at rated load
<b>Bearing Pre-Load:</b>	1 to 3.600 ppr 2 (N) 4.000 to 5.000 ppr 7 (N)
<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>	0,25 gcm <sup>2</sup> ( $3,54 \times 10^{-6}$ oz-in-sec <sup>2</sup> )
<b>Hollow Shaft Loads:</b>	Axial: 10 N (2,25 lbs) max. Radial: 10 N (2,25 lbs) max.

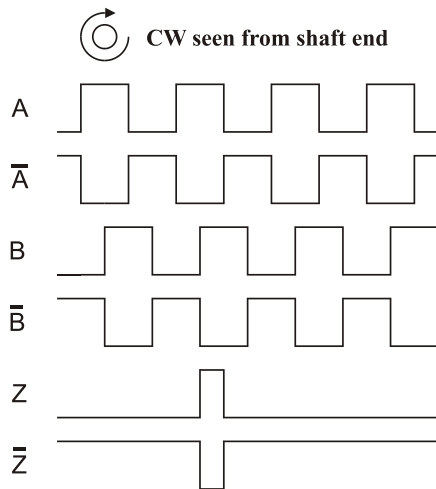
### Environmental Specifications

<b>Operating Temp.:</b>	-20° to +70° C
<b>Storage Temp.:</b>	-20° 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 50 / Nema 5 (approx.) IP 65 / Nema 4 (approx.)

### Connection Options

<b>Cable:</b>	8 leads (0,05 mm <sup>2</sup> , 30 AWG) 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 (pluses per revolution)

25	100	125	160	256
300	360	500	1000	1024
2000	2500	3600	5000*	

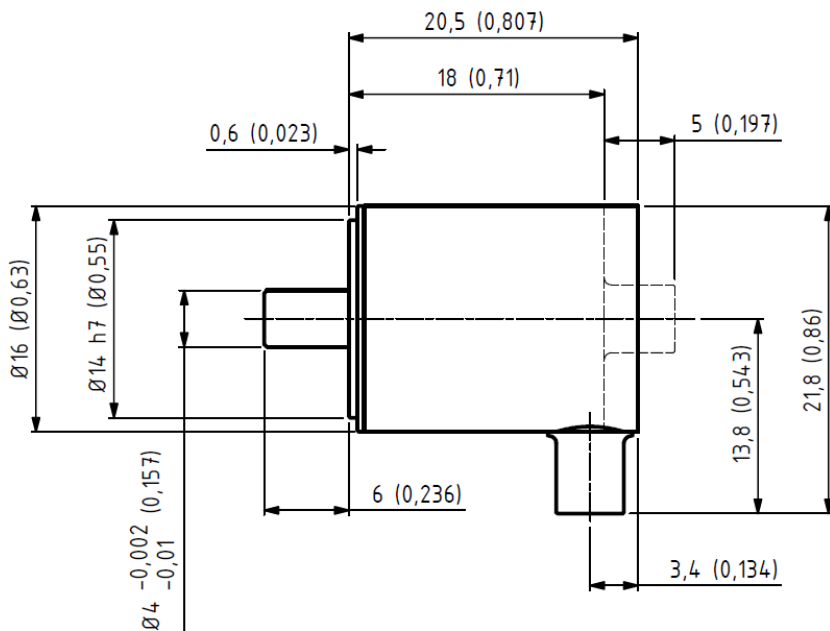
### Other options on request

Pulses per revolution,  
 min. 1 – max. 5.000

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

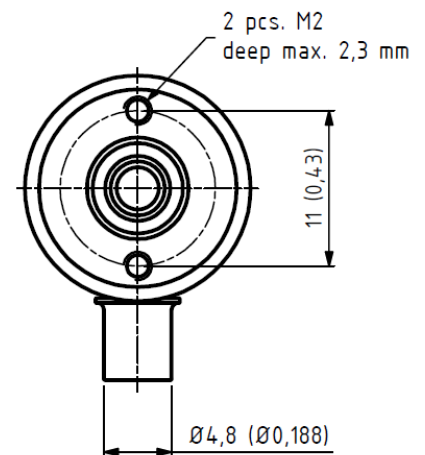
Puls tabel for SCA16, SCA18, SCA787, SCH16F, SCH16G, SCH24EX, SC

## Mechanical Dimensions



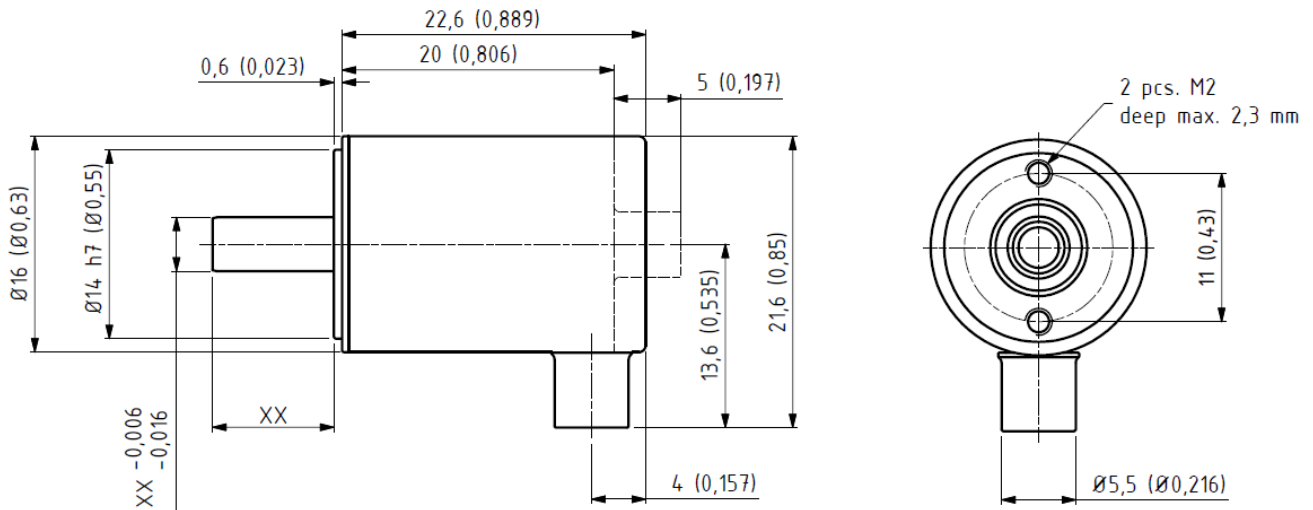
**NOTE: MAX length of screw used: 2,3 mm. long**  
**Other wise warranty is void**

**NOTE: MAX length of screw into the mounting**  
**hole: 2,3 mm. Other wise warranty is void**



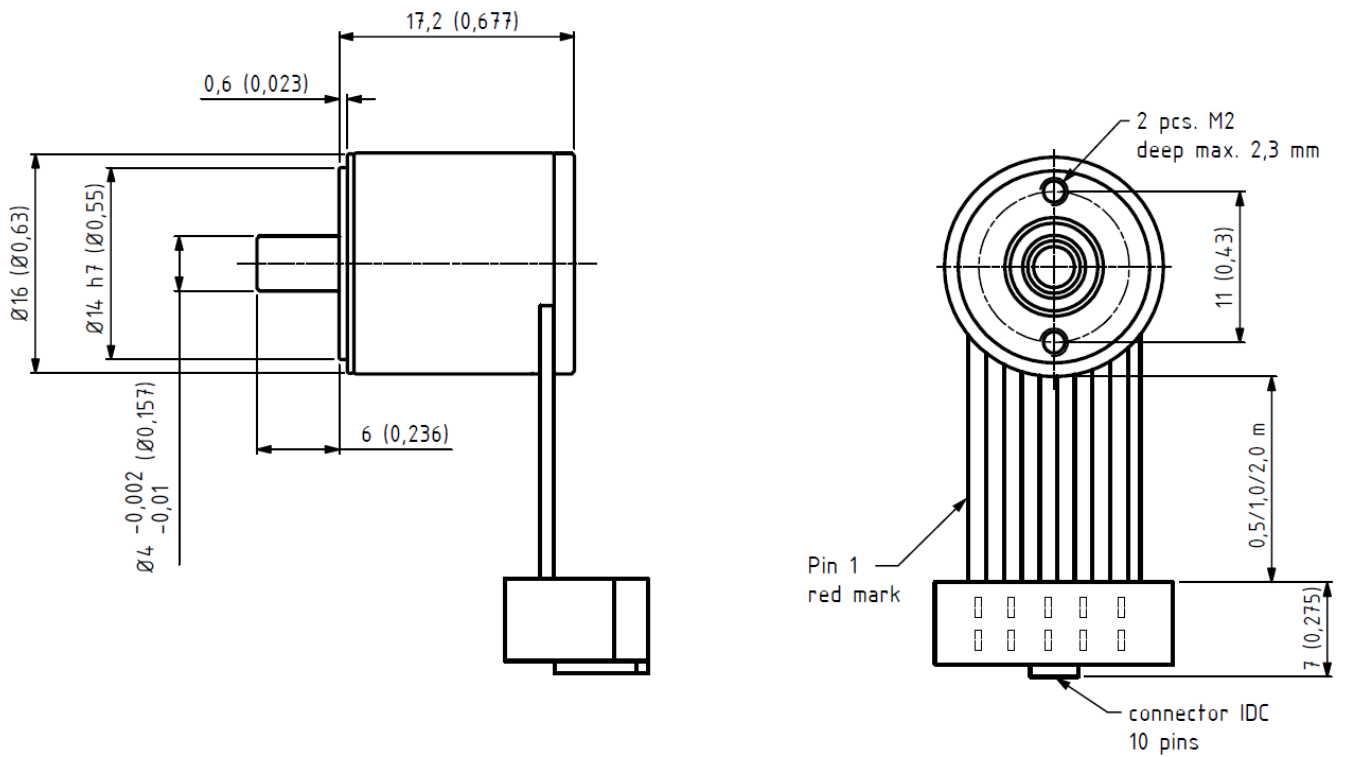
Standard Cable Gland  
 Side (S) or Back (B)

mm (inches)



Standard Cable Gland - IP65  
Side (S) or Back (B)

mm(inches)



Flat Ribbon Cable with IDC connector

mm (inches)

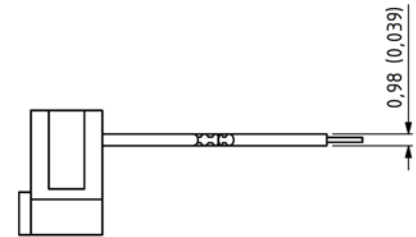
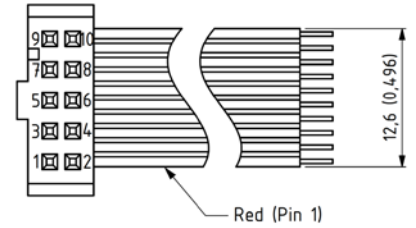
## Output Terminations

### Standard Cable

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

### Flat Cable w/ IDC Connector

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



mm (inches)

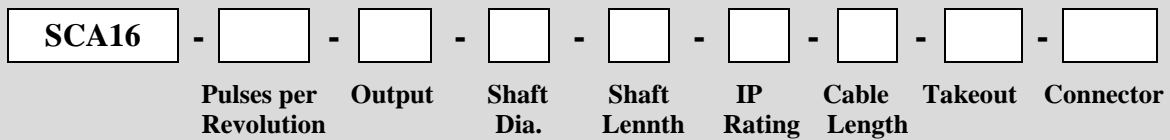
GND = Circuit Ground

\* Hewlett Packard (HP) compatible  
 \*\* ID # required for ordering

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

## Ordering Code

**Example: SCA16 – 1024 – D – 03 – 09 – 65 – 01 – B – 00**



See table

IP 50	<b>50</b>
IP 65*	<b>65</b>

\*Encoder total length is 22, 6mm for IP65

Differential	<b>D</b>
Inverted (Flat cable option only)	<b>I</b>

<b><u>Standard Cable</u></b>	
Standard is 1 meter	<b>01</b>
Specify length	<b>XX</b>
<b><u>Flat Cable w/ IDC*</u></b>	
0,5 meter	<b>0,5</b>
1,0 meter	<b>01</b>
2,0 meters	<b>02</b>

Side (radial)	<b>S</b>
Back (axial)	<b>B</b>
Flat cable w/ IDC connector*	<b>SF</b>

\*= Only IP 50

1,5 mm x 6 mm	<b>1,5 - 06</b>
2,0 mm x 6 mm	<b>02 - 06</b>
3,0 mm x 6 mm	<b>03 - 06</b>
3,0 mm x 9 mm	<b>03 - 09</b>
3,0 mm x 19 mm	<b>03 - 19</b>
4,0 mm x 6 mm	<b>04 - 06</b>
4,0 mm x 9 mm	<b>04 - 09</b>
4,0 mm x 18 mm	<b>04 - 18</b>

IDC on flat cable	<b>IDC</b>
No connector	<b>00</b>

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

*See Accessories for drawings*