



## Type SCH32F

- Hollow Shaft Encoder -  $\varnothing$  32 mm
- Hollow Bore:  $\varnothing$  6 mm to  $\varnothing$  3/8 inch
- Resolution up to 5000 ppr
- IP 65 (IP 50 for IDC connector option)

### Electrical Specifications

<b>Code:</b>	Incremental
<b>Resolution:</b>	1 to 5000 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 parameters

### Mechanical Specifications

<b>Material:</b>	Housing: Aluminum Cap: Nickel-plated Steel Aluminum (flat cable option) Hollow Shaft: Brass
<b>Weight:</b>	Encoder: ~ 50 gr (1,76 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>	6.000 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.

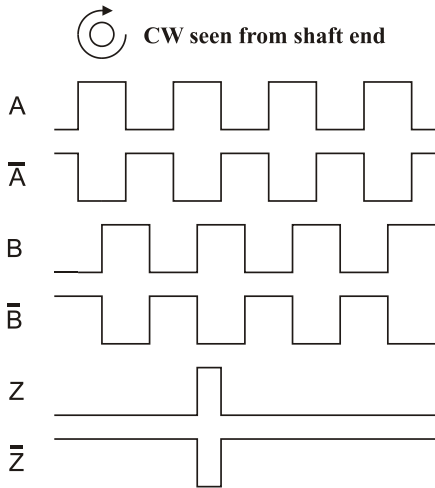
### Environmental Specifications

<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.) 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
<b>Connector:</b>	5-pin M12 - Standard 8-pin M12 - Differential

## Output waveform



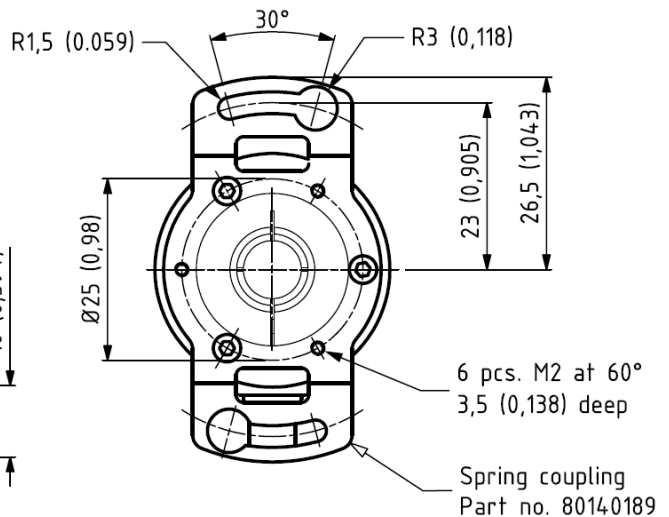
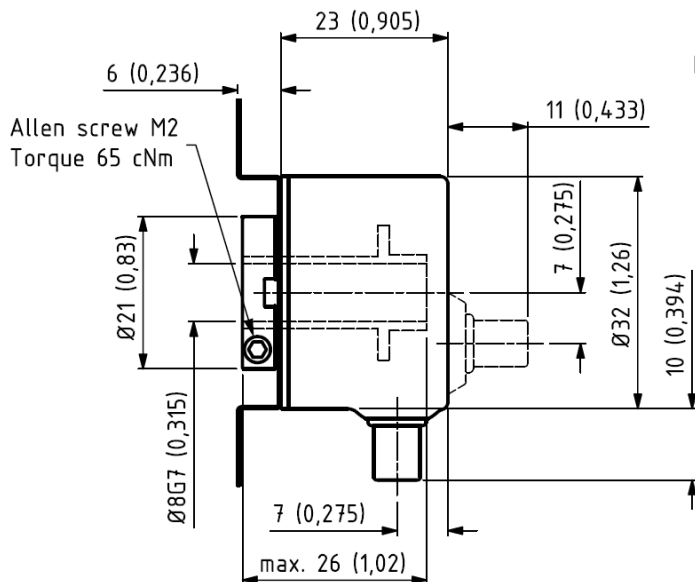
Channel tolerance  $180^\circ \pm 36^\circ$   
 Phase difference tolerance  $90^\circ \pm 18^\circ$   
 Z channel tolerance  $90^\circ \pm 18^\circ$

## Disk Resolutions (pulses per revolution)

32	200	500	2000	5000
64	250	1000	2500	
96	256	1024	3600	
100	360	1500	4096	

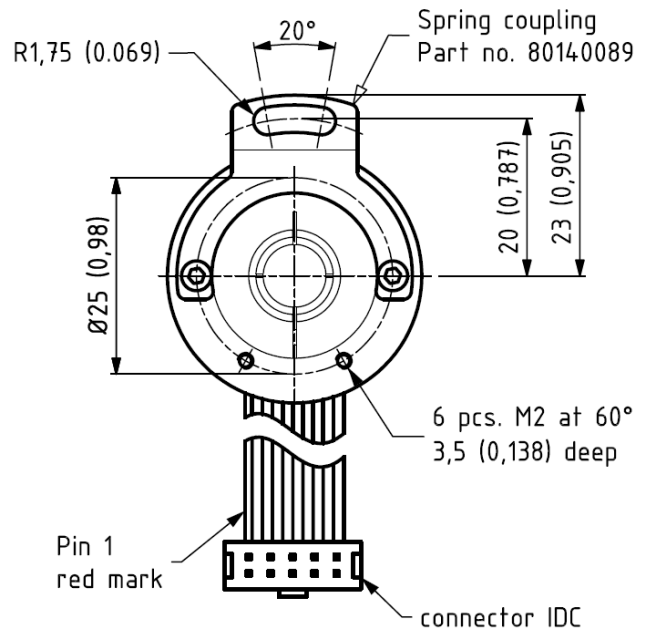
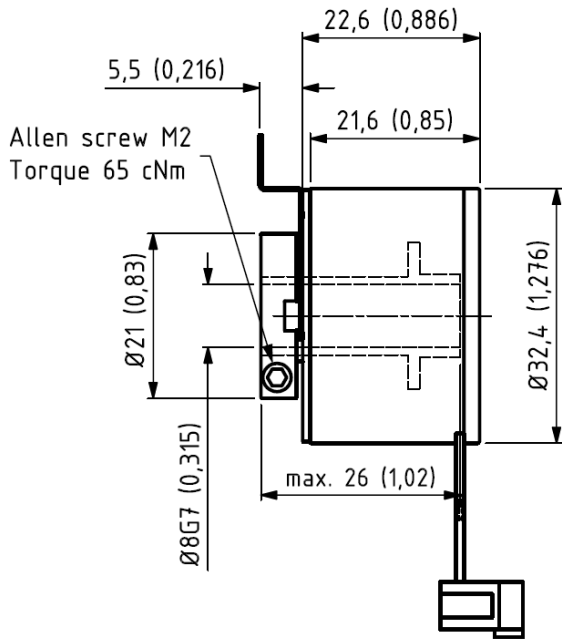
**Other options on request**  
 Pulses per revolution,  
 min. 1 – max. 5.000

## Mechanical Dimensions



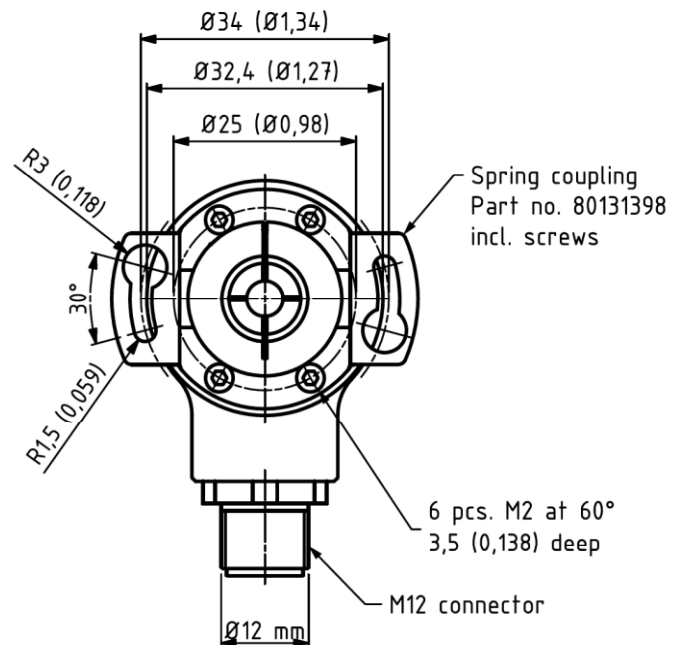
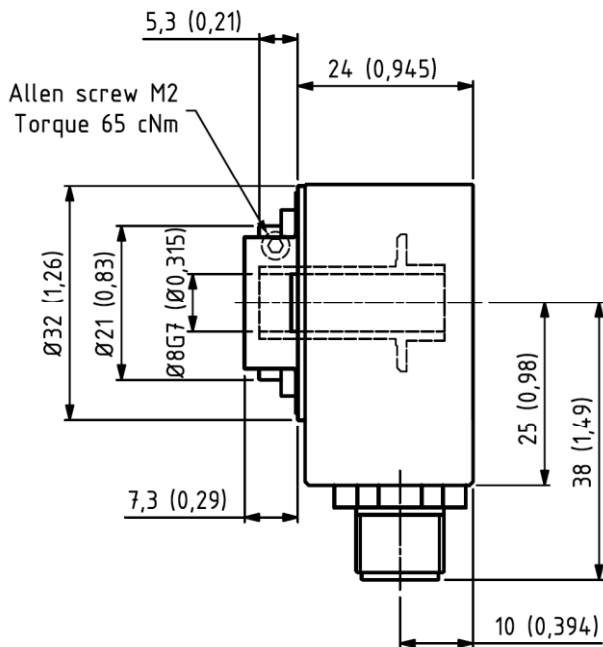
Standard Cable Gland  
 Side (S) or Back (B)

mm (inches)



Flat Ribbon Cable with IDC connector

mm (inches)



M12 Connector

mm (inches)

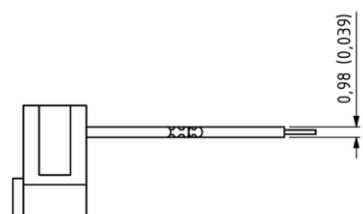
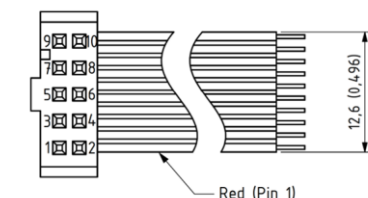
## Output Terminations

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

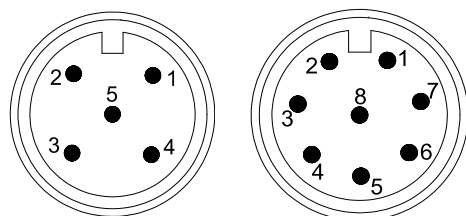
Position	Flat Cable w/ IDC Connector	
	Differential Output *	
Position	Channel	
1	NC	
2	Vsup	
3	GND	
4	NC	
5	A	
6	A -	
7	B	
8	B -	
9	Z -	
10	Z	

\* Hewlett Packard (HP) compatible



mm (inches)

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



Pin	5-pin M12	8-pin M12
	Standard Output	Differential Output
Pin	Channel	Channel
1	Vsup	A
2	B	Vsup
3	GND	A -
4	A	B
5	Z	B -
6		Z
7		GND
8		Z -

GND = Circuit Ground

Channel	5-pin M12	8-pin M12
	Mating Connector w/ Cable	Mating Connector w/ Cable
Channel	Wire Color	Wire Color
Vsup	Brown	Red
GND	White	Blue
A	Green	Pink
B	Yellow	Green
Z	Gray	White
A -		Gray
B -		Yellow
Z -		Brown

See Accessories for Mating Connector ordering information

## Ordering Code

Example: SCH32F – 1024 – D – 3/8 – 26 – 65 – 00 – S – C5 – S3

### Type

SCH32F				26					
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**Pulses per Revolution**

See table

**Output**

Standard	<b>N</b>
Differential	<b>D</b>
26C31 Line Driver 5V only	<b>L</b>
OL 7272 Line Driver	<b>M</b>

**Hollow Shaft Dia.**

**Hollow Shaft Length**

**IP Rating**

IP 50\* **50**  
IP 65 **65**

\* = Only Flat Cable

**Cable Length**

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

**Cable Takeout or Connector**

**Connector**

M12 con 5 pin	<b>C5</b>
M12 con 8 pin	<b>C8</b>
IDC on flat	<b>IDC</b>
No connector	<b>00</b>

**Spring Coupling**

5,0 mm x 26 mm	<b>05 - 26</b>
6,0 mm x 26 mm	<b>06 - 26</b>
7,0 mm x 26 mm	<b>07 - 26</b>
8,0 mm x 26 mm	<b>08 - 26</b>
1/4 inch x 26 mm	<b>1/4 - 26</b>
3/8 inch x 26 mm	<b>3/8 - 26</b>

Side (radial)	<b>S</b>
Flat cable	<b>SF</b>
Connector	<b>S</b>

\*=Only IP 50

1 hole p/n 80140078	<b>S1</b>
1 hole p/n 80140089	<b>S2</b>
2 holes p/n 80140189	<b>S3</b>
2 holes p/n 80131398	<b>S4</b>

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

See Accessories for dimensions