



Type SCH50F

- Hollow Shaft Encoder - \varnothing 50 mm
- Hollow Bore: \varnothing 6 mm to \varnothing 8 mm
- Resolution up to 12.500 ppr
- IP 65 (IP 66 or IP 67 options)
Environmental Protection
- Formerly named 2RHF

Electrical Specifications

Code:	Incremental
Resolution:	1 to 12.500 ppr (pulses per revolution)
Supply Voltage:	4,5 Vdc min. to 30 Vdc max. (35 mA max. - no load) **
Output Voltage:	Low: 500 mV max. at 10 mA High: ($V_{in} - 0,6$) at -10 mA ($V_{in} - 1,3$) at -25 mA
Output Current:	30 mA max. load per output channel **
Frequency Response:	300 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.
Outputs:	ASIC Push pull and Differential OL7272 Push-pull and Differential Line Driver 26C31 Differential Line Driver 5V output (with 5V input)
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, not to combine max. Value for all 3 parameters

Mechanical Specifications

Material:	Housing: Aluminum Cap: Aluminum Hollow Shaft: Brass
Weight:	Encoder: ~ 120 gr (4,23 oz) Cable: 60 gr / meter (2,12 oz / meter)
Bearing Life:	> $1,9 \times 10^{10}$ revolutions at rated load
Shaft Speed:	12.000 rpm (max.)
Starting Torque:	< 0,01 Nm (1,42 oz-in) at 25° C
Mass Moment of Inertia:	4,0 gcm ² ($5,66 \times 10^{-5}$ oz-in-sec ²)
Hollow Shaft Loads:	Axial: 20 N (4,5 lbs) max. Radial: 20 N (4,5 lbs) max.

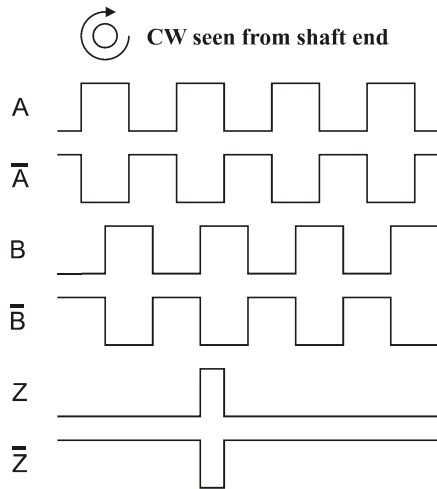
Environmental Specifications

Operating Temp.:	-40° to +85° 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
IP Rating:	IP 65 / Nema 5 (approx.) IP 66 / Nema 6 (approx.) option IP 67 / Nema 6 (approx.) option

Connection Options

Cable:	8 leads (0,14 mm ² , 26 AWG) twisted pairs; shielded
Connector:	5-pin M12 8-pin M12 9-pin M23 12-pin M23

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)

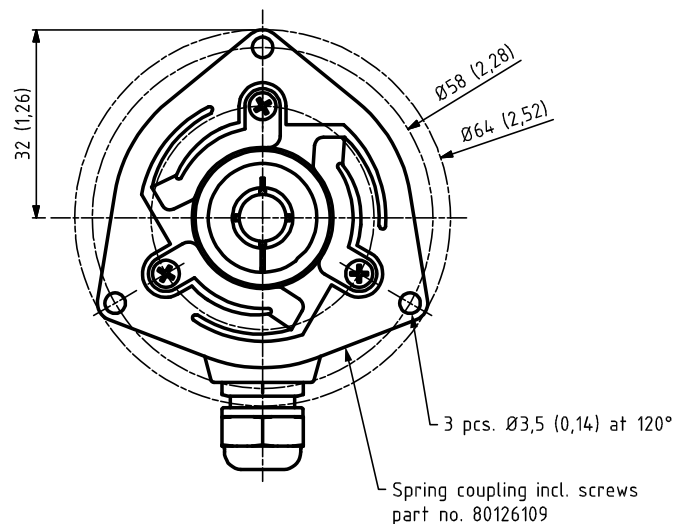
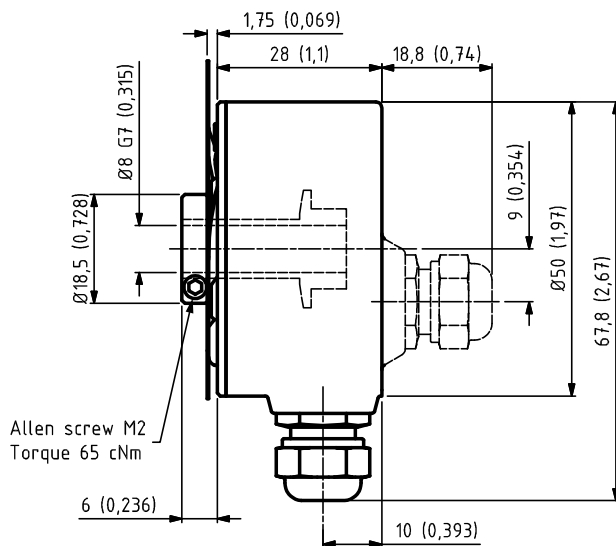
1	32	150	635	3000
2	36	180	720	3600
5	40	200	800	4000
6	47	250	1000	4096
8	50	256	1024	5000
10	60	300	1131	8192
15	64	360	1250	9000
16	75	400	1500	10000
18	80	455	2000	12500*
20	90	500	2048	
25	100	512	2400	
30	125	600	2500	

Other options on request

Pulses per revolution,
 min. 1 – max. 12.500

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

Mechanical Dimensions

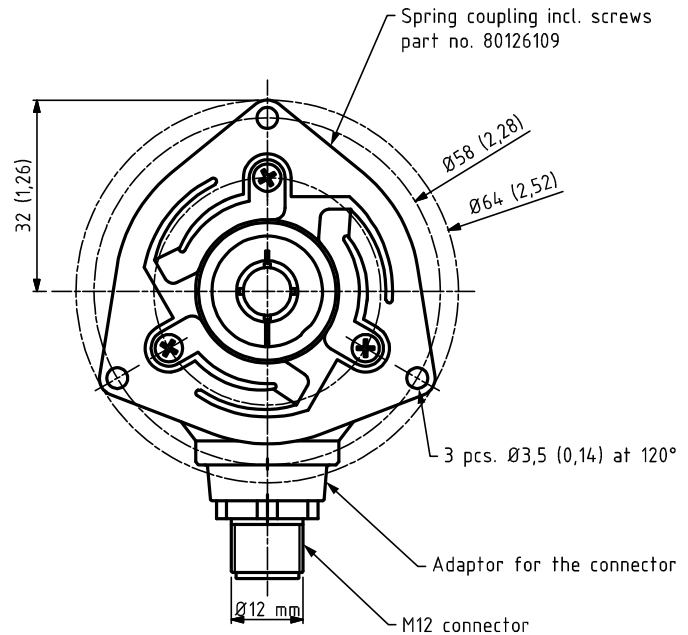
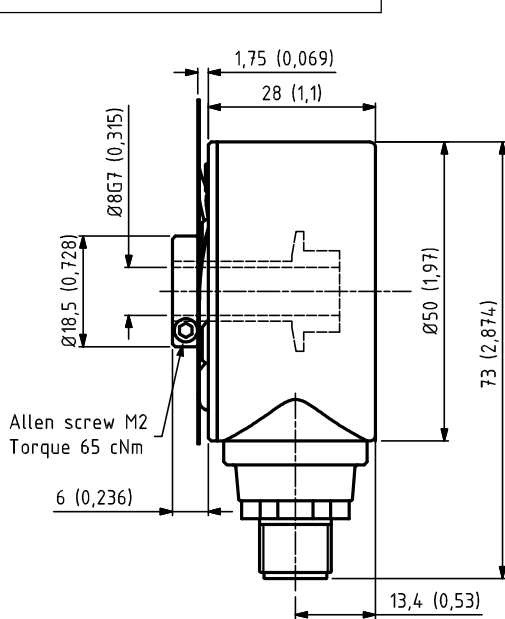


Standard Cable Gland
 Side (S) or Back (B)

mm (inches)

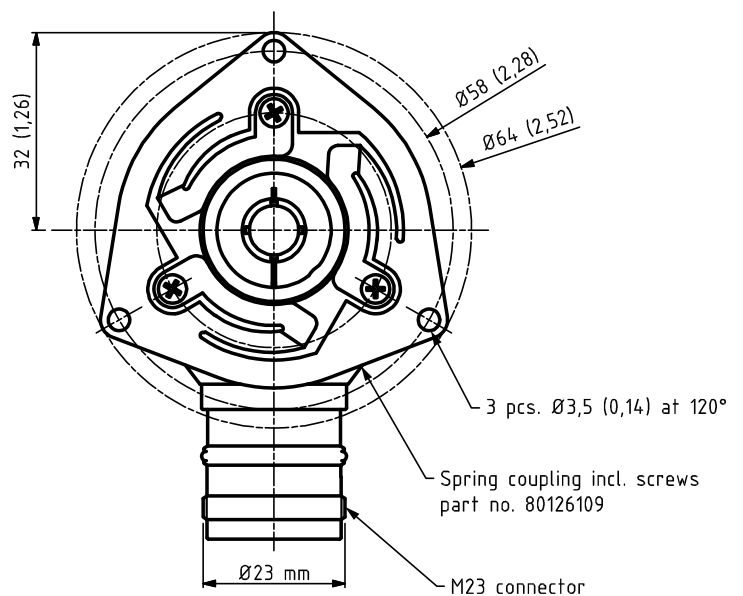
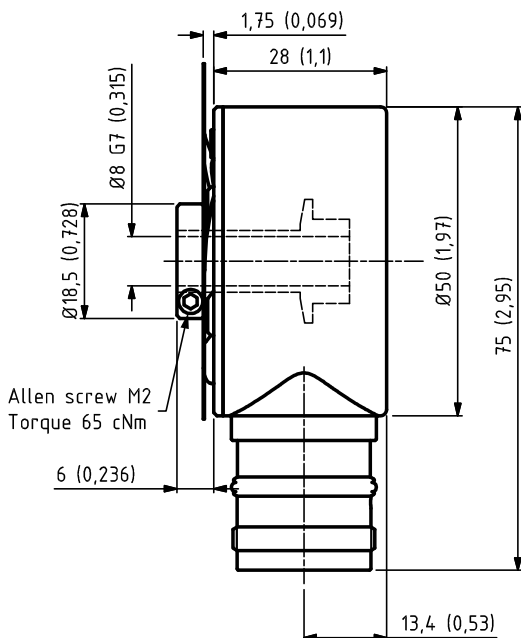
Tolerances according to ISO 2768 f

Tolerances according to ISO 2768 f



M12 Connector

mm (inches)

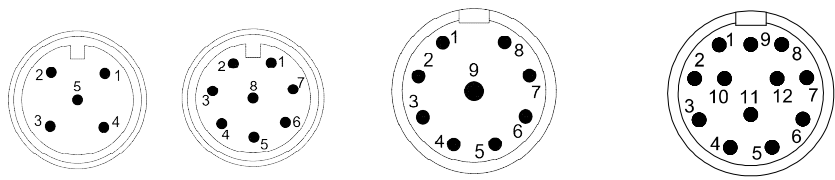


M23 Connector

mm (inches)

Tolerances according to ISO 2768 f

Output Terminations



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

GND = Circuit Ground

* Internally connected as GND

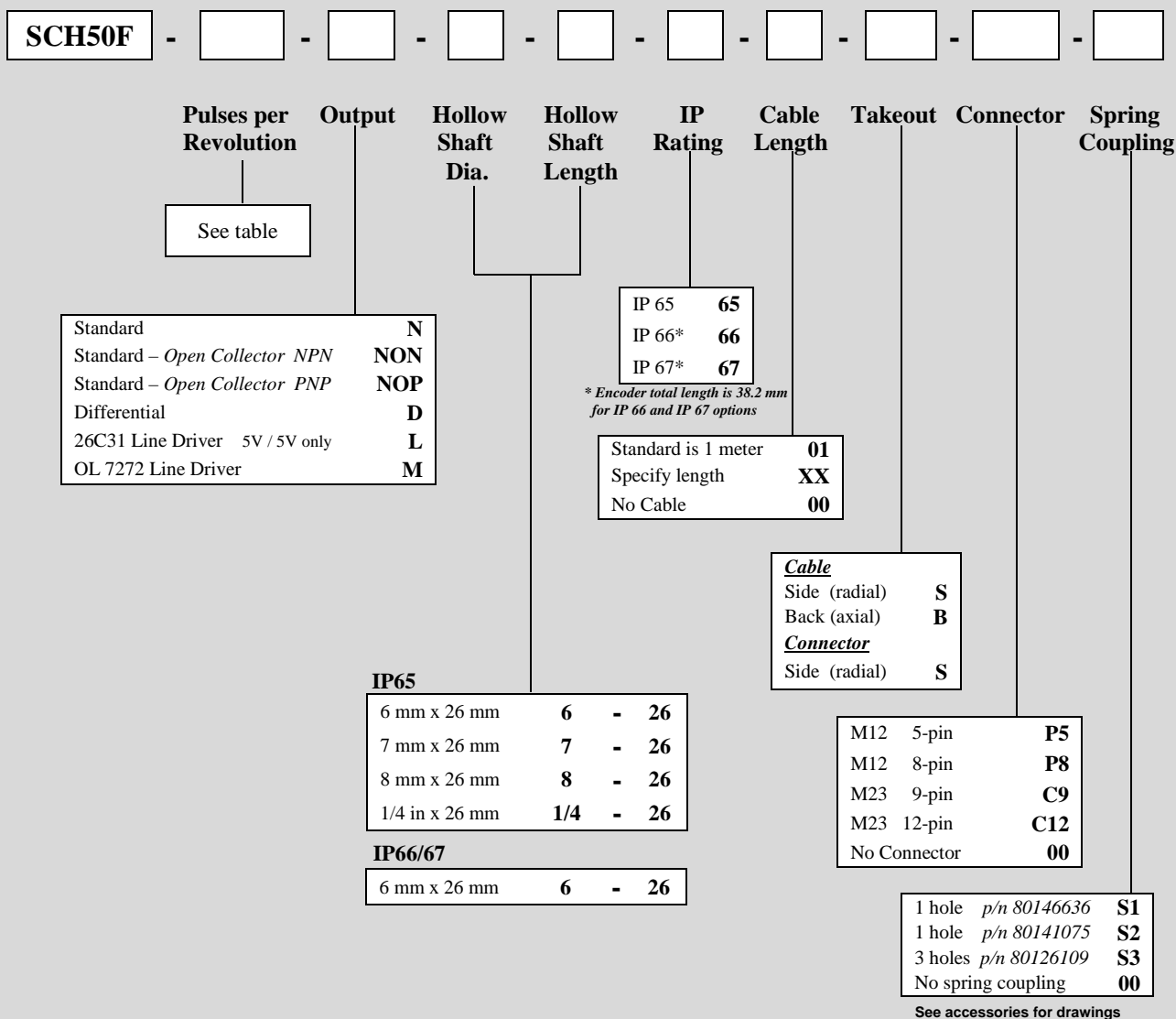
Pin	M12 5 - pin	M12 8 - pin	M23 9 - pin	M23 9 - pin	M23 12 - pin	M23 12 - pin
	Standard Output	Differential Output	Standard Output	Differential Output	Standard Output	Differential Output
	Channel	Channel	Channel	Channel	Channel	Channel
1	Vsup	A	A	A	GND	B -
2	B	Vsup	B	B	NC	NC
3	GND	A -	Z	Z	Z	Z
4	A	B	GND	A -	GND	Z -
5	Z	B -	GND	B -	A	A
6		Z	GND	Z -	GND	A -
7		GND	Vsup	Vsup	NC	NC
8		Z -	GND	GND	B	B
9			Shield	Shield	Shield	Shield
10					GND	GND
11					NC	NC
12					Vsup	Vsup

GND = Circuit Ground

Shield = Case Ground

Output Terminations

Example: SCH50F – 1024 – D – 08 – 26 – 65 – 01 – S – 00 – S1



Other options on request:
Please contact Scancon A/S