Type SCA50

- **Shaft Encoder - ø 50 mm**
- **Shaft: ø 6 mm to ø 12 mm**
- **Resolution up to 12.500 ppr**
- **IP 65 (IP 67 option)**
- ***Formerly named 2R or 2R-3L***

Electrical Specifications

Code:	Incremental
Resolution:	1 to 12.500 ppr (pulses per revolution)
Supply Voltage: **	4,5 Vdc min. to 30 Vdc max. (45 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 user not to combine max. Value for all 3 parameters

Mechanical Specifications

Material:	Housing: Aluminum Cap: Electroplated Aluminum Shaft: Stainless Steel
Weight:	Encoder: ~ 140 gr (4,94 oz) Cable: 60 gr / meter (2,12 oz / meter)
Bearing Life:	> 1,9 x 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:	2,0 gcm² (2,83 x 10^{-5} oz-in-sec²)
Shaft Loads:	Axial: 20 N (4.5 lbs) max. Radial: 20 N (4.5 lbs) max.

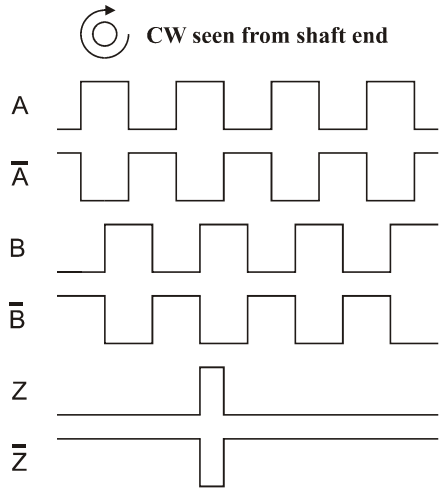
Environmental Specifications

Operating Temp.:	-40° to +100° C
Storage Temp.:	-40° to +100° 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
Enclosure Rating:	IP 65 / Nema 4 (approx.) IP 67 / Nema 6 (approx.) option

Connection Options

Cable:	8 leads (0,14 mm², 26 AWG) - Differential 5 leads (0,14 mm², 26 AWG) - Standard twisted pairs; shielded
Connector:	5-pin M12 - Standard 8-pin M12 - Differential 9-pin M23 - Standard 12-pin M23 - Differential

Output waveform



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

Disk Resolutions (Pulses per revolution)

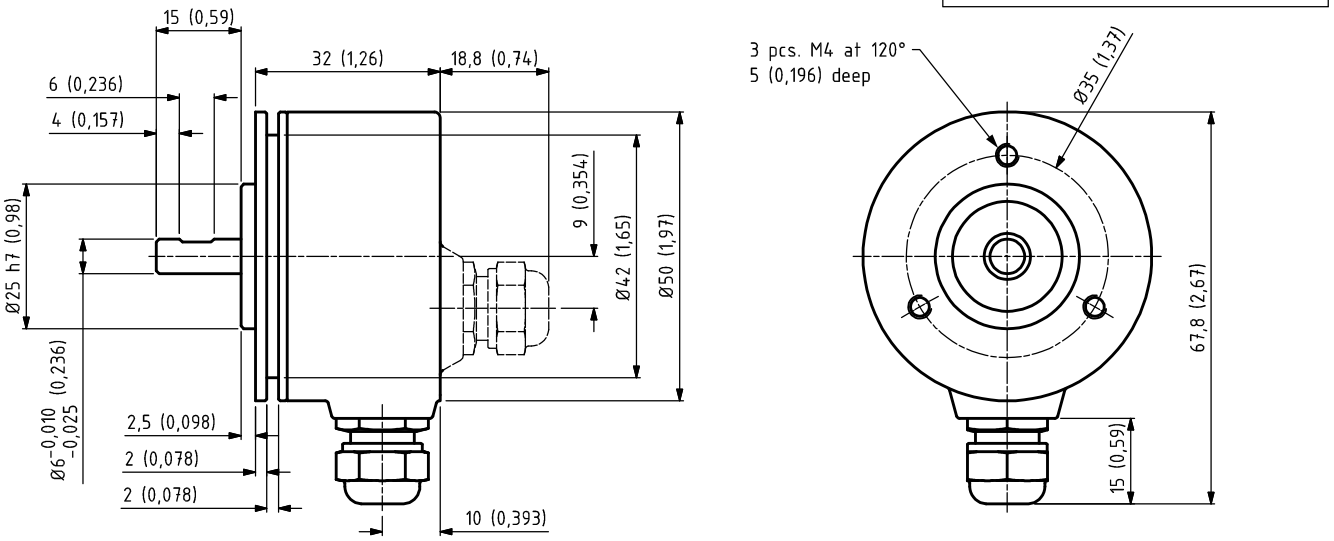
1	32	150	635	3000
2	36	180	720	3600
5	40	200	800	4000
6	47	250	1000	4096
8	50	256	1024	5000
10	60	300	1131	8192
15	64	360	1250	9000
16	75	400	1500	10000
18	80	455	2000	12500*
20	90	500	2048	
25	100	512	2400	
30	125	600	2500	

Other options on request
Pulses per revolution,
min. 1 – max. 12.500

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

Mechanical Dimensions

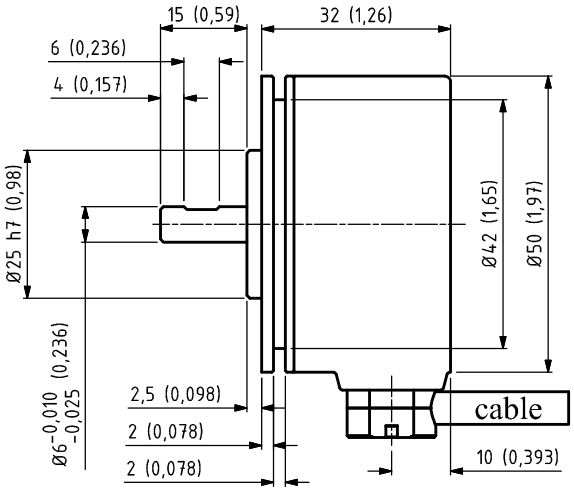
Tolerances according to ISO 2768 f

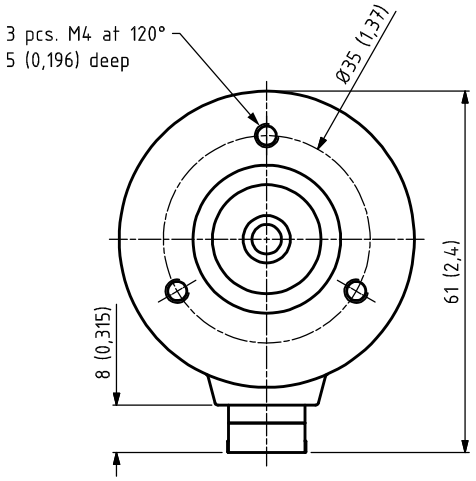


Standard Cable Gland
Side (S) or Back (B)

mm (inches)

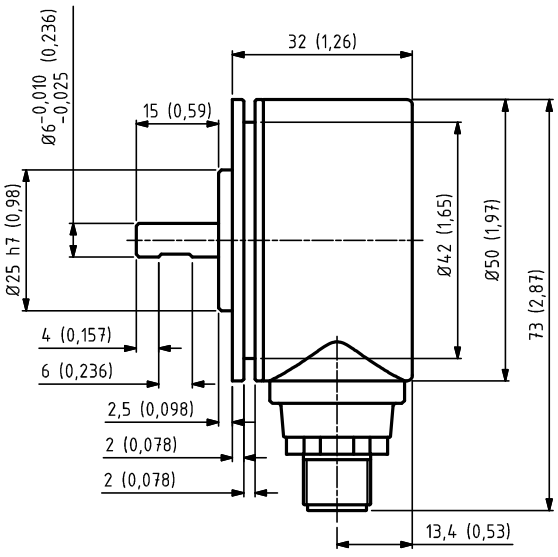
Tolerances according to ISO 2768 f

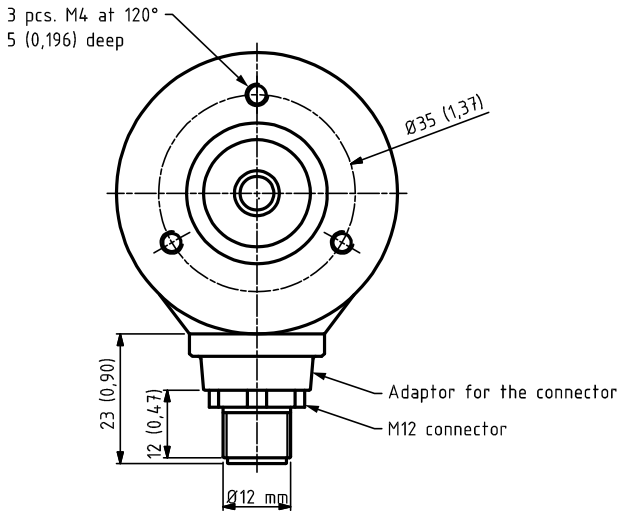




Tangential Cable Gland mm (inches)

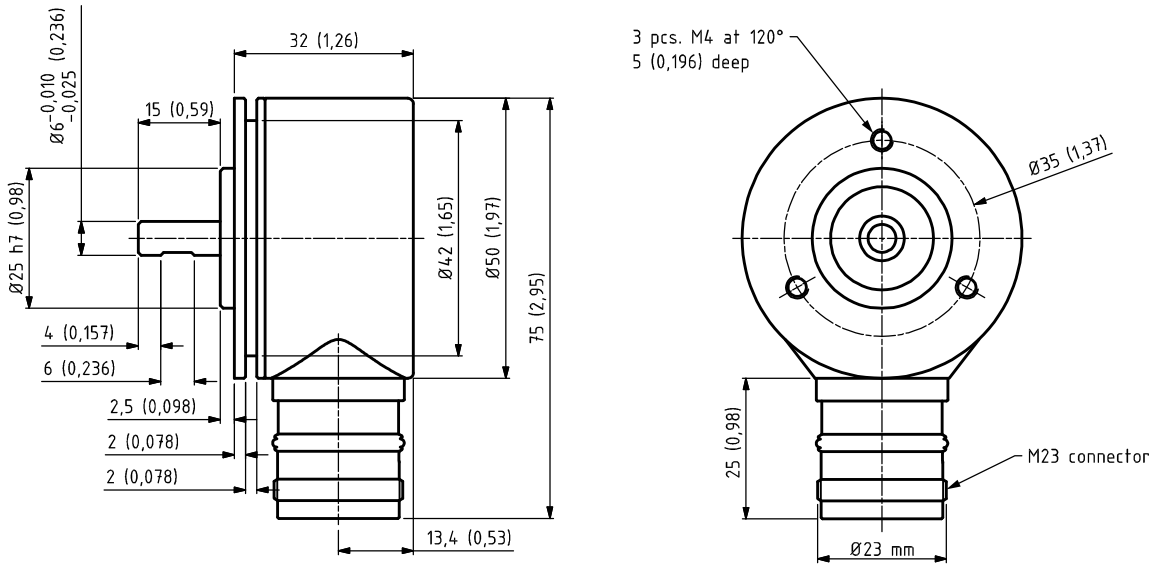
Tolerances according to ISO 2768 f





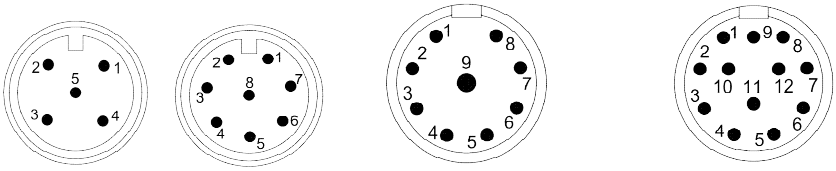
M12 Connector mm (inches)

Tolerances according to ISO 2768 f



M23 Connector mm (inches)

Output Terminations



	Standard Cable	
	Standard Output	Differential Output
Channel	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*

	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
Pin	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

Ordering Code

Example: SCA50 – 1024 – D – 06 – 15 – 65 – 01 – S – 00

Type

SCA50	-		-		-		-		-		-		-		-	

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

Pulses per Revolution

See table

Output

Standard	**N**
Standard - *Open Collector NPN*	**NON**
Standard - *Open Collector PNP*	**NOP**
Differential	**D**
26C31 Line Driver *5V input / 5V output*	**L**
26C31 Line Driver *9 to 30V input / 5V output*	**5L**
OL 7272 Line Driver	**M**

Shaft Dia. / Shaft Length

6 mm x 15 mm	**06 - 15**
6 mm x 30 mm	**06 - 30**
8 mm x 15 mm	**08 - 15**
10 mm x 15 mm	**10 - 15**
10 mm x 27 mm	**10 - 27**
10 mm x 40 mm	**10 - 40**
12 mm x 15 mm	**12 - 15**
1/4 inch x 15 mm	**1/4 - 15**
3/8 inch x 15 mm	**3/8 - 15**

IP Rating

IP 65	**65**
IP 67	**67**

Cable Length

Standard is 1 meter	**01**
Specify length	**XX**
No cable (*connector option*)	**00**

Takeout

Side (radial)	**S**
Back (axial)	**B**
Tangential	**T**

Connector

M12 5-pin	**P5**
M12 8-pin	**P8**
M23 9-pin	**C9**
M23 12-pin	**C12**
No connector	**00**

See Accessories for drawings

Other options on request:
Please contact Scancon A/S