



Type SCA50

- Shaft Encoder - $\varnothing$ 50 mm
- Shaft: $\varnothing$ 6 mm to $\varnothing$ 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:	> $1,9 \times 10^{10}$ 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:	2,0 gcm ² ($2,83 \times 10^{-5}$ oz-in-sec ²)
Shaft Loads:	Axial: 20 N (4.5 lbs) max. Radial: 20 N (4.5 lbs) max.

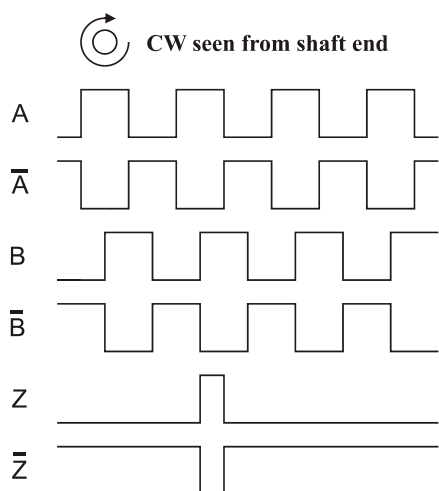
Environmental Specifications

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
Enclosure Rating:	IP 65 / Nema 4 (approx.) IP 67 / Nema 6 (approx.) option

Connection Options

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

Output waveform



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

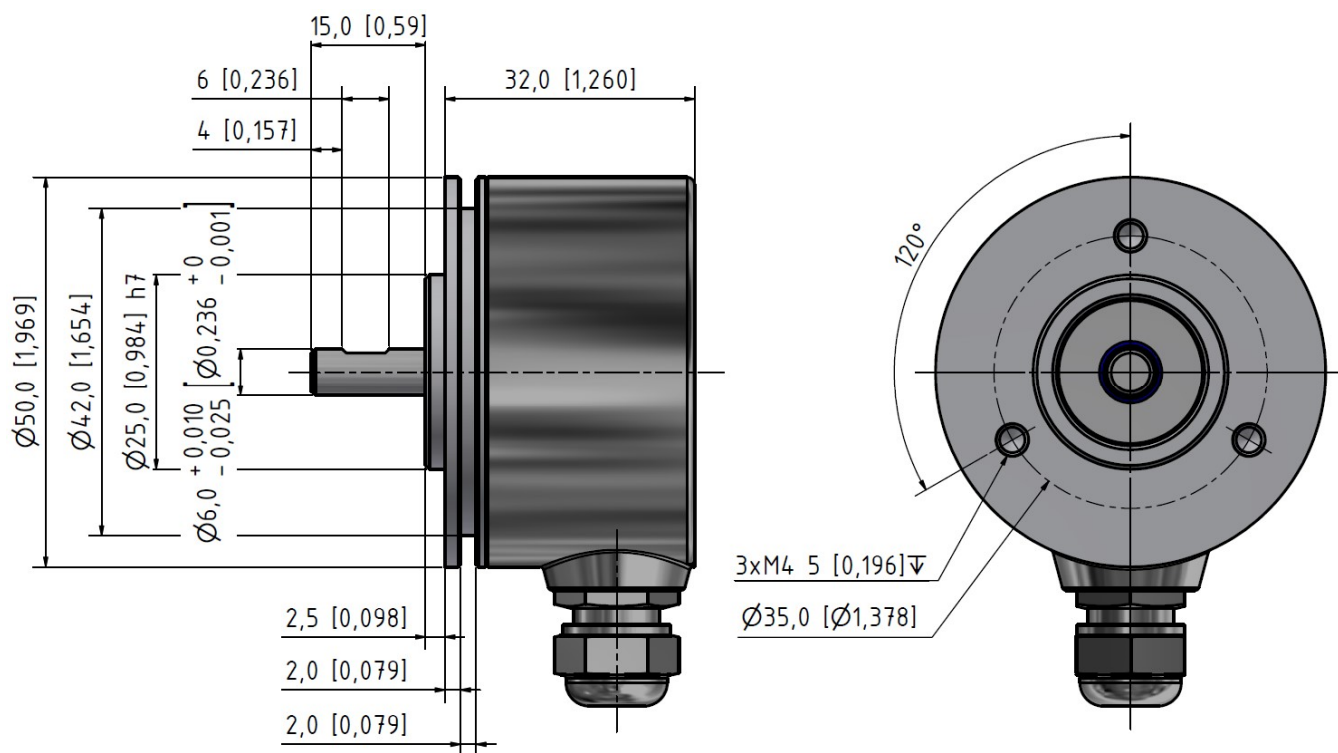
Disk Resolutions (Pulses per revolution)

1	32	125	720	3072
2	36	150	800	3600
5	40	180	1000	4000
6	45	200	1024	4096
7	47	250	1131	5000
8	50	256	1200	8192
10	60	300	1250	9000*
12	64	360	1270	10000*
15	70	400	1500	12500*
16	75	455	2000	
18	80	500	2048	
20	90	512	2400	
25	100	600	2500	
30	120	635	3000	

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

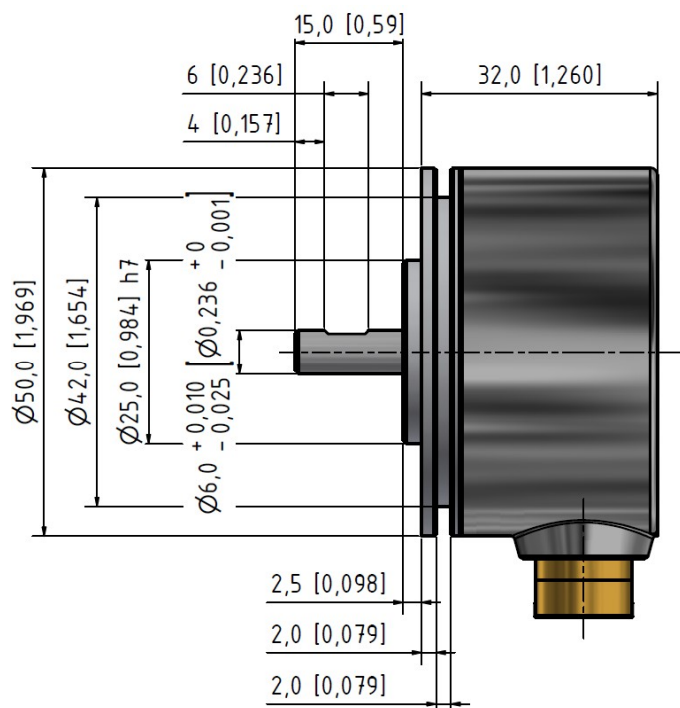
* Operating temperature: -20°C to 50°C

Mechanical Dimensions

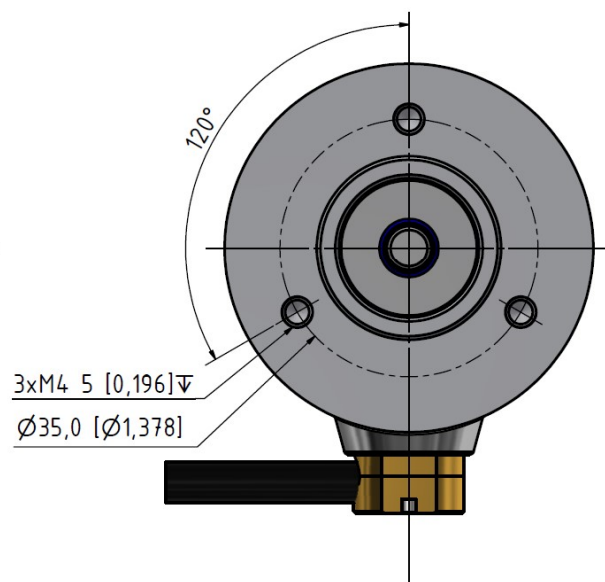


Standard Cable Gland (side or back outlet)

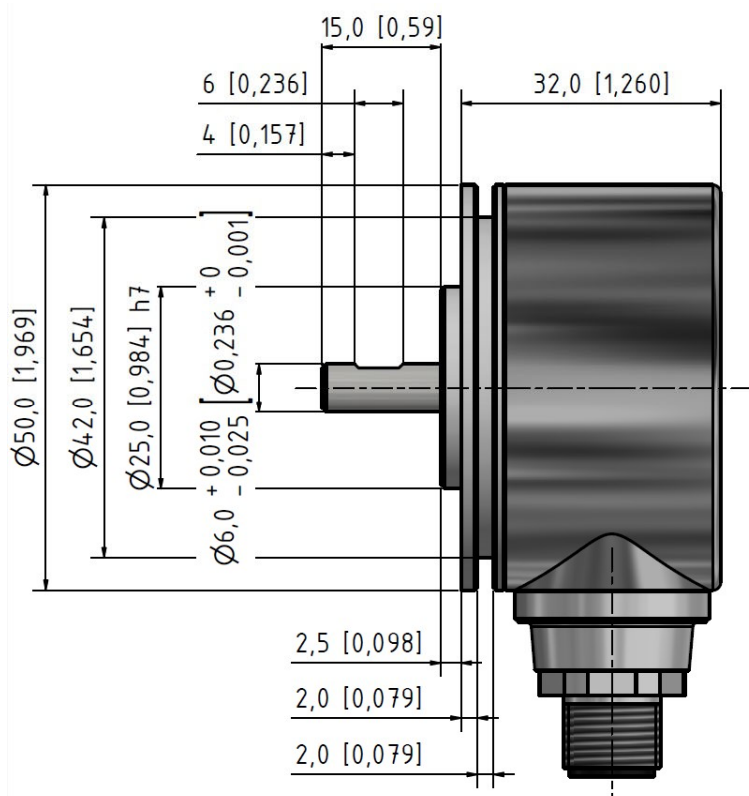
mm [inch]



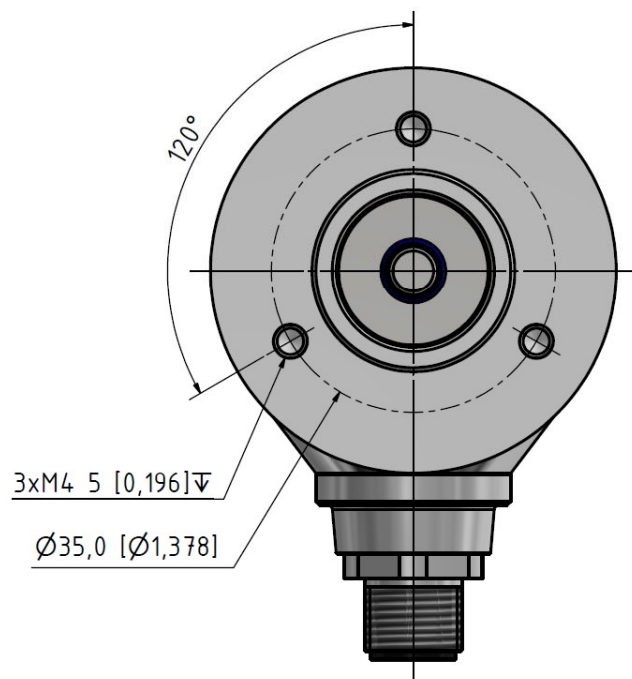
Tangential Cable Gland



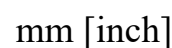
mm [inch]



M12 Connector



mm [inch]


$$Shield = Case\ Ground$$

Ordering Code

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

SCA50	-		-		-		-		-		-		-		-	
		1		2		3		4		5		6		7		8

1. Pulses per revolution

See table on page 2

2. Output

Standard **N**
 Standard (*Open collector NPN*) **NON**
 Standard (*Open collector PNP*) **NOP**
 Differential **D**
 26C31 Line Driver (*5V IN/OUT*) **L**
 26C31 Line Driver (*9-30V IN / 5V OUT*) **L**
 OL 7272 Line Driver **M**

3 & 4. Hollow Shaft diameter

3.

4.

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

5. IP Rating

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

6. Cable Length

Standard cable is 1m **01**
 Specify length **XX**
 No cable **00**

7. Cable & Connector Takeout

Side radial **S**
 Back axial **B***
 Tangential **T**
 *Only encoders with cable

8. Connector

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