



## 2REX-A-SR with cable or removable end cap

- Shaft Encoder - Ø 68 mm to Ø 115 mm
- Shaft: Ø 10 mm, Ø 11 mm, Ø 5/8 inch
- Resolutions up to 10,000 ppr
- Delivered with cable or removable end cap option for on-site installation
- ATEX, IECEx, EAC Ex certified

### Electrical Specifications

<b>Code:</b>	Incremental
<b>Resolution:</b>	Up to 10,000 ppr (pulses per revolution)
<b>Supply Voltage:</b>	5 Vdc min. to 30 Vdc max. ** (45 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>	30 mA max. load per output channel **
<b>Frequency Response:</b>	300 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 Differential Line Driver ( <i>M and MP options</i> ) 26C31 Differential Line Driver 5V output (with 5V input)
<b>Electrical Protection:</b>	Output short circuit protected Reverse polarity protected
<b>Noise Immunity:</b>	EN61000-6-2: 2005 (industrial environments) Electromagnetic compatibility (EMC) 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: Stainless Steel AISI 303 (SR) Cap: Stainless Steel AISI 303 (SR) Shaft: Stainless Steel AISI 303 (SR)
<b>Weight:</b>	Encoder: Approx. 1325 gr (47.44 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>	3,000 rpm continuous (max.) IP 67
<b>Starting Torque:</b>	< 0.1 Nm (14.16 oz-in) at 25° C IP 67
<b>Mass Moment of Inertia:</b>	30 gcm <sup>2</sup> ( $4.25 \times 10^{-4}$ oz-in-sec <sup>2</sup> )
<b>Shaft Loads:</b>	Axial 50 N (11.25 lbs) max. Radial 100 N (22.50 lbs) max.

### Environmental Specifications

<b>Operating Temp.:</b>	-40° to +70° 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 64 / Nema 4 (approx.) option IP 65 / Nema 4 (approx.) option IP 66 / Nema 6 (approx.) IP 67 / Nema 6 (approx.) option

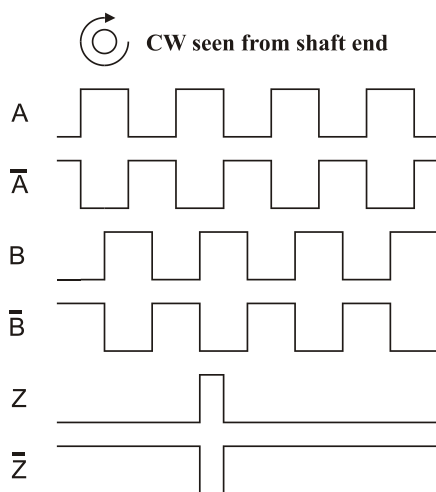
### Connection Options

<b>Cable:</b>	<b>MUD resistant (NEK 606) &amp; halogen free, shielded</b> 4x2x0,14 mm <sup>2</sup> , 26 AWG, 4 twisted pairs; <i>See Table 2</i>
<b>Terminal Blocks: (Removable End Cap)</b>	<i>See Table 3</i>

## Certifications

<b>ATEX:</b>	Certificate No.: ITS 09 ATEX 16847X II 2 G Ex db IIC T5 II 2 D Ex tb IIIC T100°C Db -40°C<Tamb<+70°C
<b>IECEX:</b>	Certificate No.: IECEX ITS 10.0015X Ex db IIC T5 Gb Ex tb IIIC T100°C Db -40°C < Tamb < +70°C
<b>EAC Ex:</b>	НАННО «ЦСВЭ» No. EAЭС RU C-DK.AA87.B.00266/19 IEx db IIC T5 Gb X, Ex tb IIIC T100°C Db X, -40°C<T.amb<+70°C

## Output waveform



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

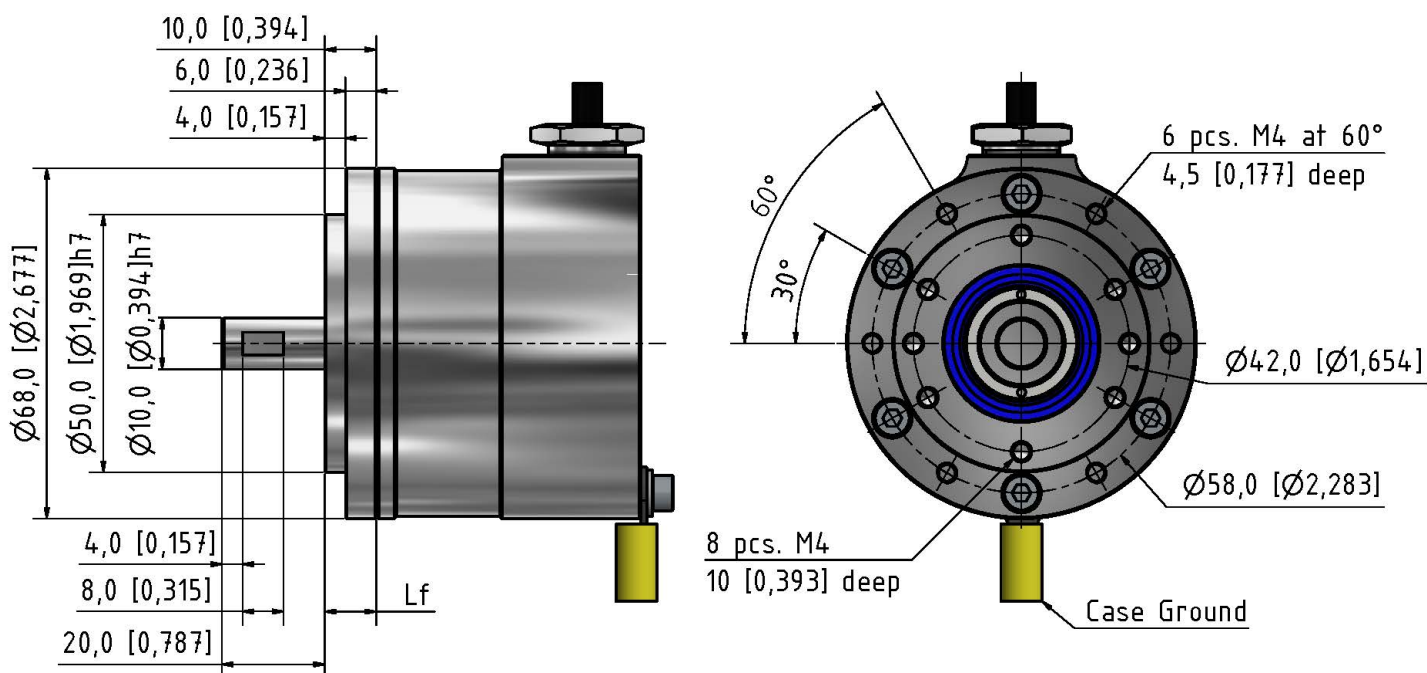
## Table 1. Disk Resolutions (pulses per revolution)

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

Other options on request  
Pulses per revolution,  
min. 1 – max. 10.000

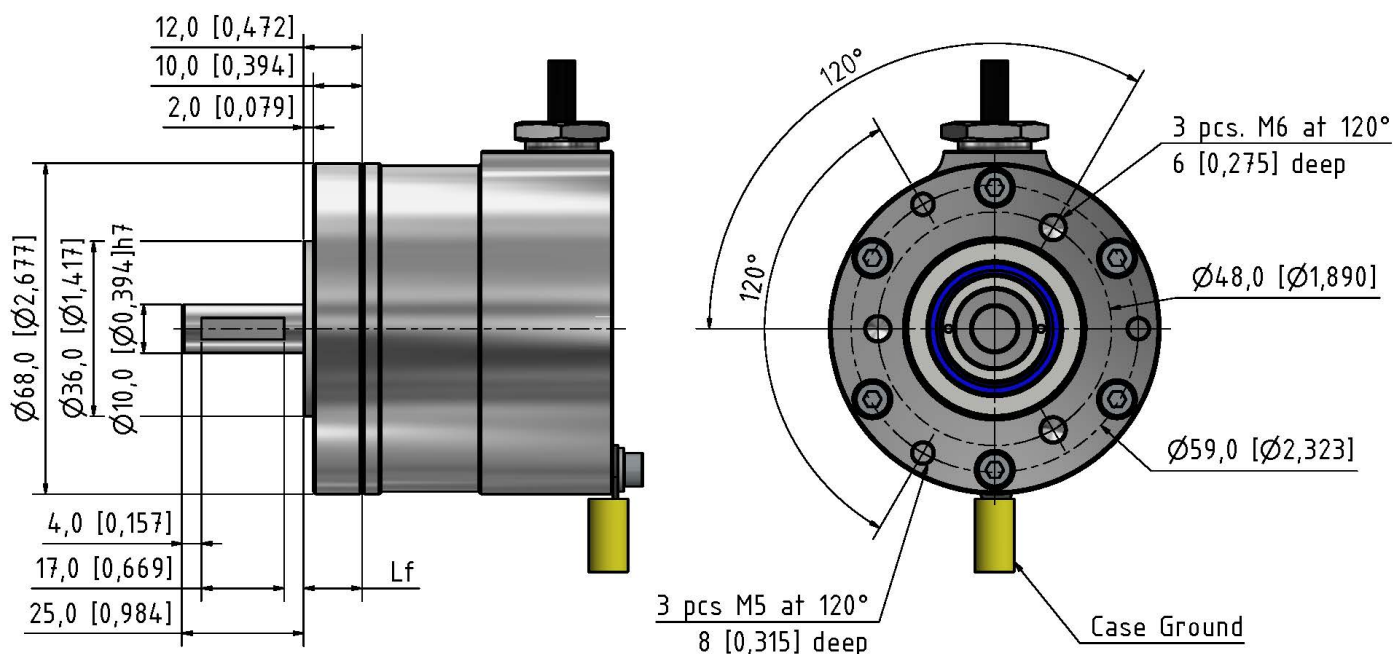
\* Operating temperature: -20° C to 50° C

## Face Mounts



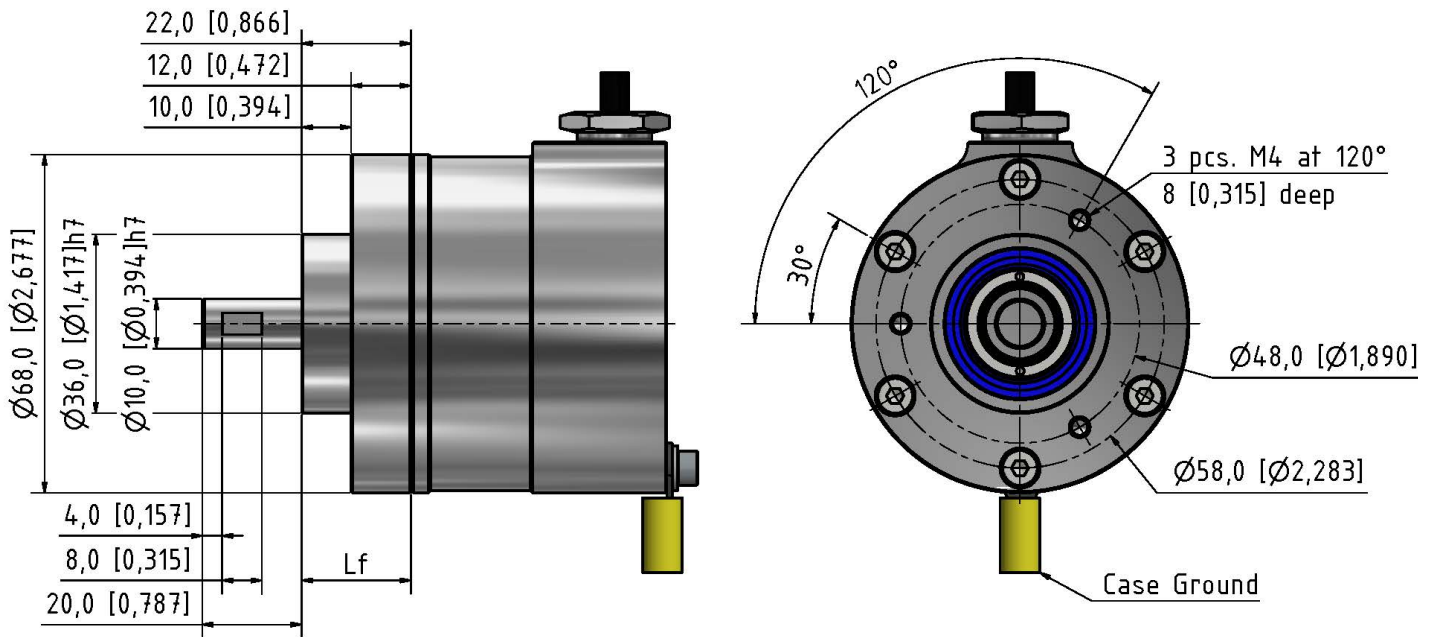
Face Mount A

mm (inches)



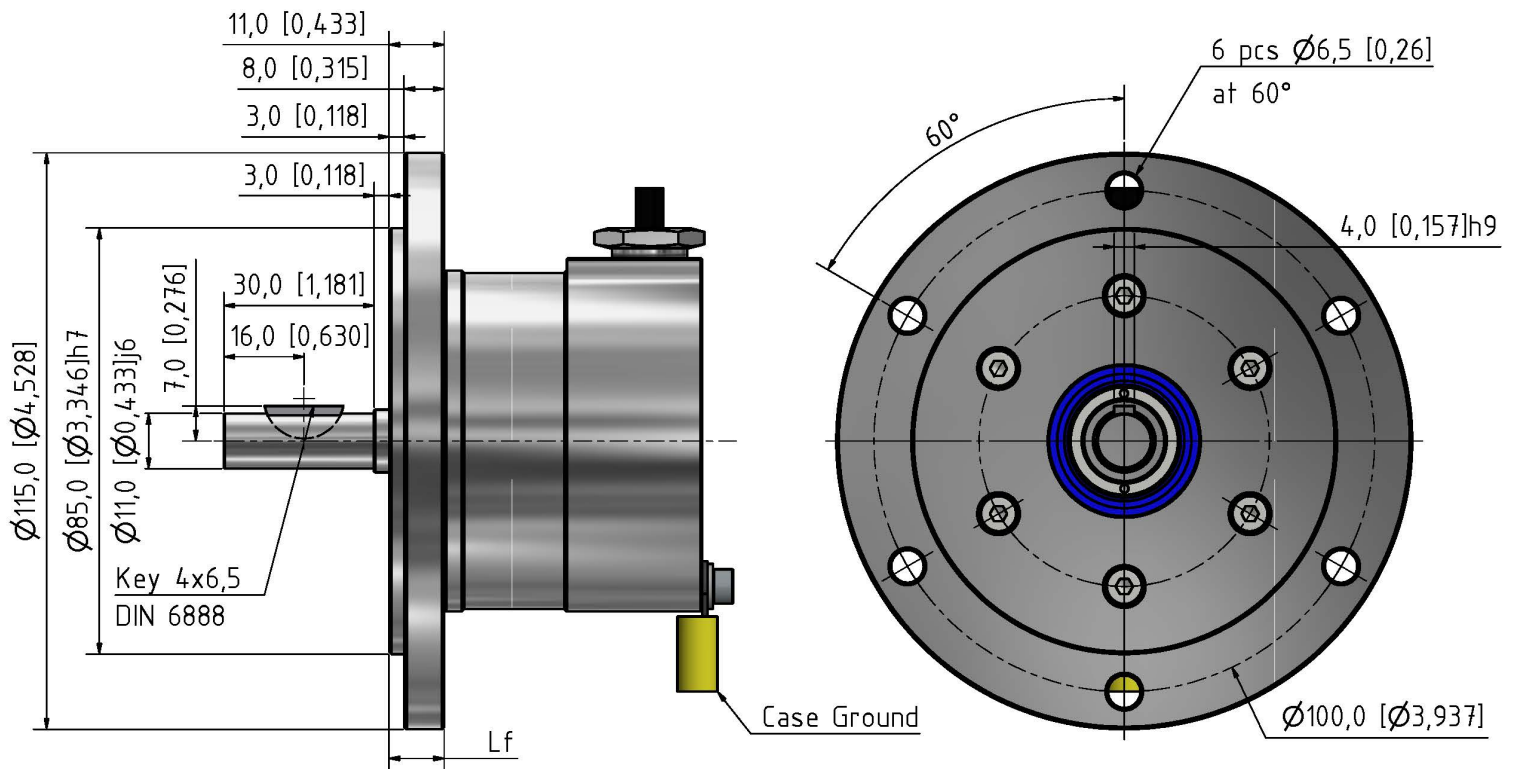
Face Mount B

mm (inches)



**Face Mount K**

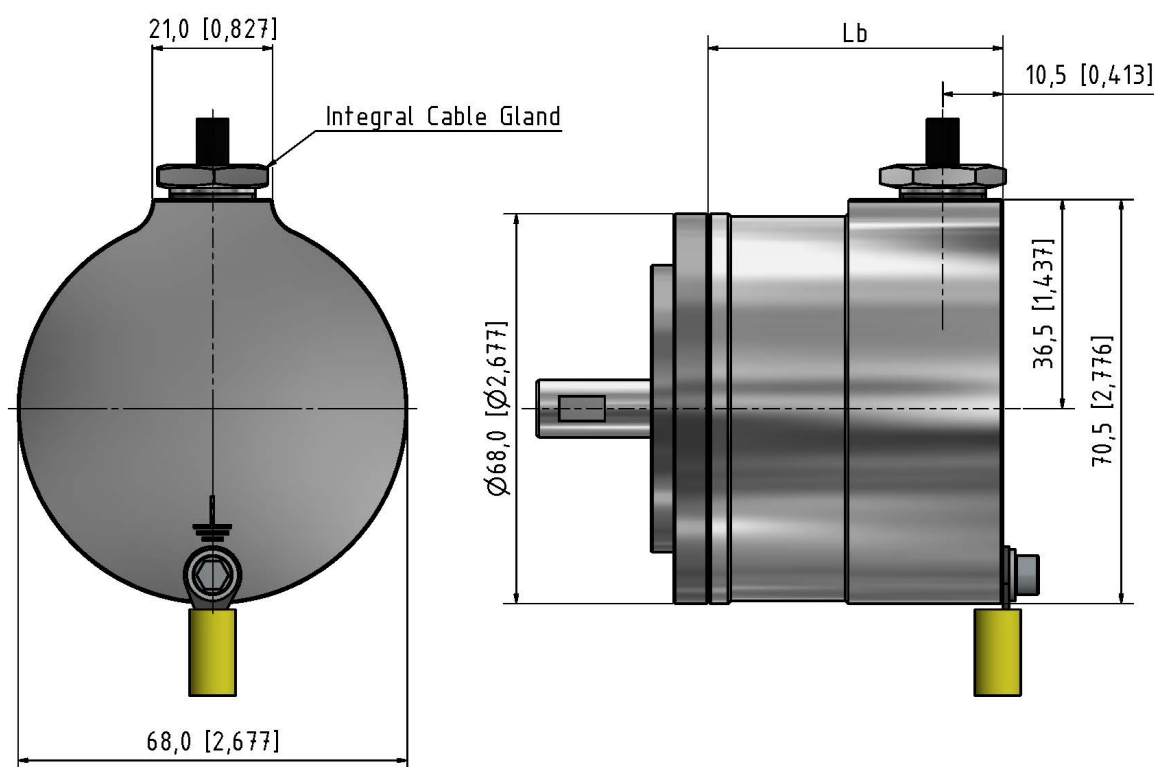
mm (inches)



**Face Mount U**

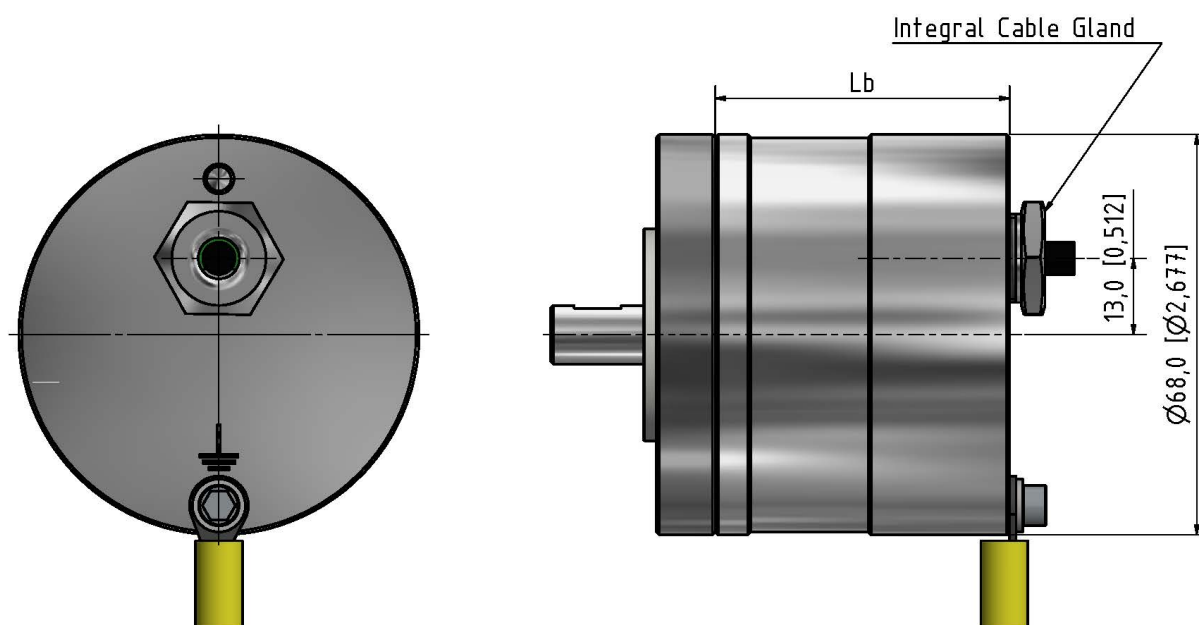
mm (inches)

## Caps with cable and Removable End Cap



**Side Standard Cable Gland Cap (SS)**

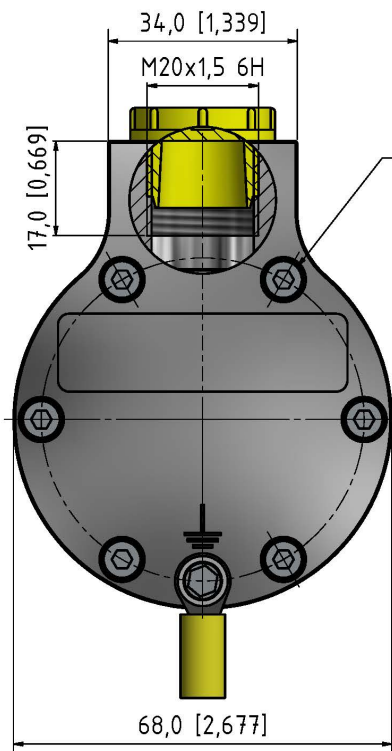
mm (inches)



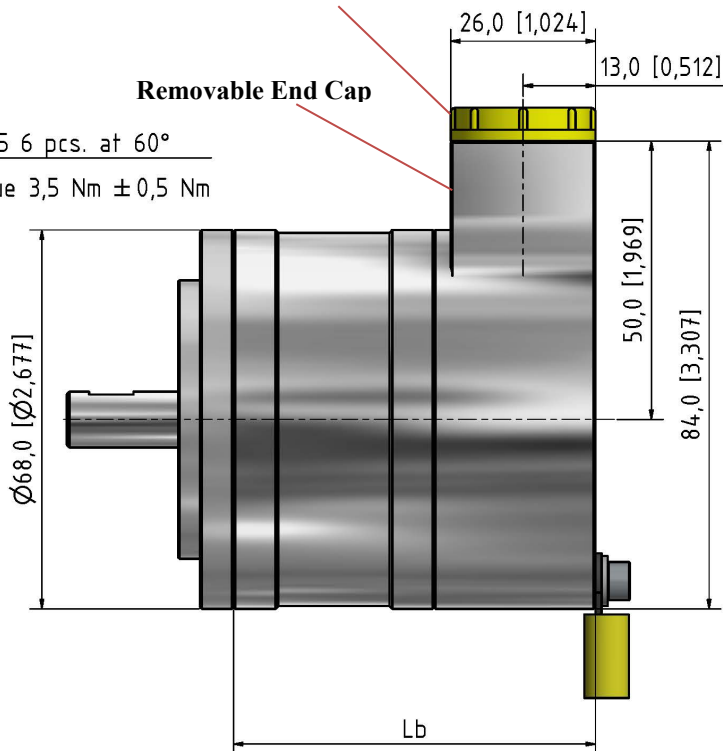
**Back Standard Cable Gland Cap (BS)**

mm (inches)

Plastic screw plug is for cable outlet protection during shipping and storage.  
 Plug must be replaced by a suitably certified cable gland prior to use.



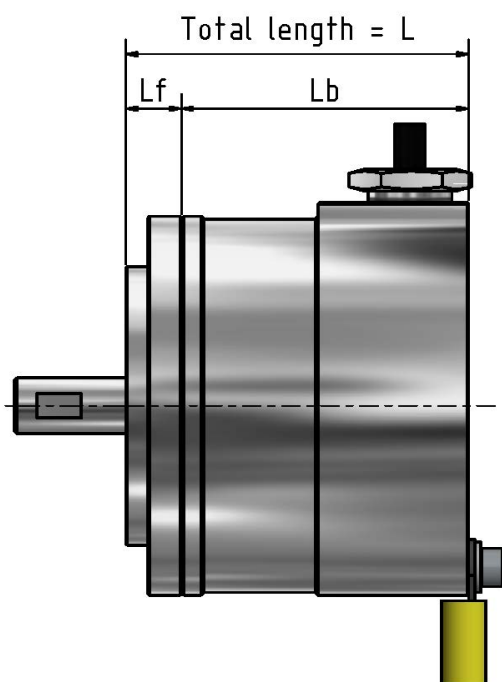
M4x35 6 pcs. at 60°  
 Torque 3,5 Nm ± 0,5 Nm



Removable End Cap Side Standard (EC01)

mm [inches]

## Encoder Length



**Total Encoder Length  $L = L_b + L_f$**

Cap	Face mount A	Face mount B	Face mount K	Face mount U
SS	61,5 mm (2,42 in)	63,7 mm (2,51 in)	73,5 mm (2,89 in)	62,5 mm (2,46 in)
BS	60,0 mm (2,36 in)	62,2 mm (2,45 in)	72,0 mm (2,83 in)	61,5 mm (2,40 in)
EC01	75,0 mm (2,95 in)	77,2 mm (3,04 in)	87 mm (3,43 in)	76,0 mm (2,99 in)

Cap + Face Mount = Total Encoder Length

**Table 2. Output Terminations**

Channel	Standard Cable	
	Standard Output	Differential Output
Channel	Wire Color	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

\* Gray, Yellow, and Brown are internally connected to Circuit Ground

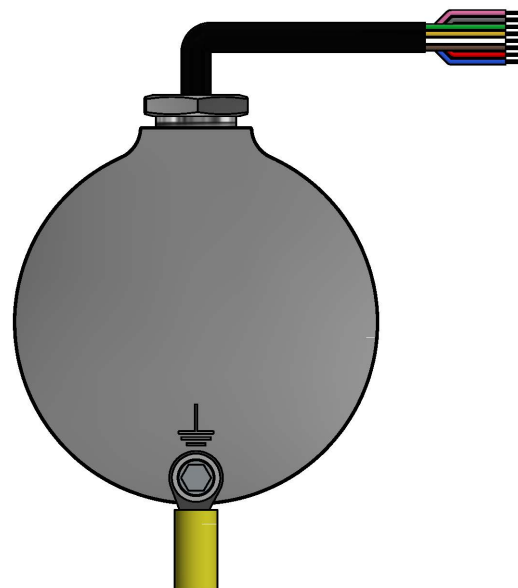
GND = Circuit Ground

Shield connected to Case Ground

Cable: MUD resistant (NEK 606) & halogen free, shielded

4x2x0,14 mm<sup>2</sup>, 26 AWG, 4 twisted pairs;

Yellow cable shoe: AWG 12-10


**Table 3. Terminal Block Outputs (Removable End Cap)**

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

GND = Circuit Ground

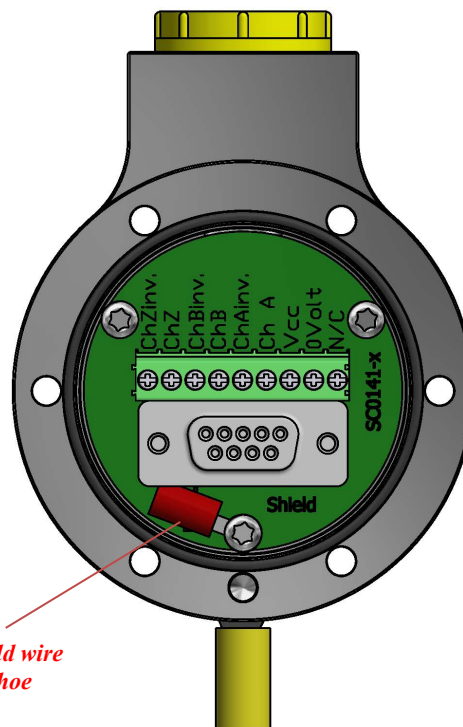
Shield = Case Ground

*Connect shield wire to the cable shoe*

Wire conductor size: AWG 26 to 16  
0.14 mm<sup>2</sup> to 1.5 mm<sup>2</sup>

Red cable shoe: AWG 22-16

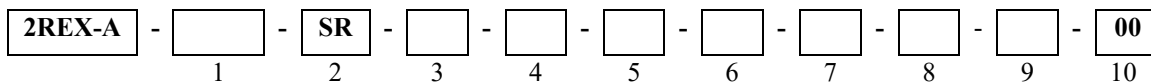
Yellow cable shoe: AWG 12-10



*Connect shield wire to the cable shoe*

## Ordering Code

**Example: 2REX-A – 1024 – SR – D – 10 – 20 – 67 – 01 – SS – A – 00**



### 1. Pulse per revolutions

See Table 1.

### 2. Material

Stainless Steel\* ..... SR

\*AISI 303

### 3. Output

Standard..... N  
 Standard – open Collector NPN..... NON  
 Standard – open Collector PNP..... NOP  
 Differential..... D  
 26C31 Line Driver 5V only..... L  
 OL 7272 Line Driver..... M

### 4 & 5 Shaft dimensions

	4.	x	5.
10 mm x 20 mm (Flanges A, K)	10	x	20
10 mm x 27 mm (Flange A)	10	x	27
10 mm x 30 mm (Flange A)	10	x	30
11 mm x 27 mm (Flange A)	11	x	27
5/8 inch x 20 mm (Flange A)	5/8	x	20
10 mm x 16 mm (Flange B)	10	x	16
10 mm x 25 mm (Flange B)	10	x	25
10 mm x 15 mm (Flange U)	10	x	15
10 mm x 19 mm (Flange U)	10	x	19
10 mm x 24 mm (Flange U)	10	x	24
10 mm x 26 mm (Flange U)	10	x	26
10 mm x 29 mm (Flange U)	10	x	29
11 mm x 30 mm (Flange U)	11	x	30

### 6. IP Rating

IP 64.....	64
IP 65.....	65
IP 66.....	66
IP 67.....	67

### 7. Cable Length

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

### 8. Cable Takeout

Side (Standard)..... SS  
 Back (Standard)..... BS  
 Side Removable End Cap..... EC01

### 9. Flange

Flange A .....A  
 Flange B .....B  
 Flange K .....K  
 Flange U .....U

### 10. Accessory

No accessory..... 00