



## Type 2SUN-A

- Shaft Encoder -  $\varnothing$  24 mm
- Shaft:  $\varnothing$  6 mm
- Resolution up to 5000 ppr
- IP 67 Environmental Protection
- “Seawater-Proof” 22 micron Anodization

### Electrical Specifications

<b>Code:</b>	Incremental
<b>Resolution:</b>	1 to 5.000 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>	35 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)

### Mechanical Specifications

<b>Material:</b>	Housing: Aluminum Cap: Aluminum Shaft: Stainless Steel
<b>Weight:</b>	Encoder: ~ 37 gr (1,3 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>	9.000 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: 50 N (11,25 lbs) max. Radial: 50 N (11,25 lbs) max.

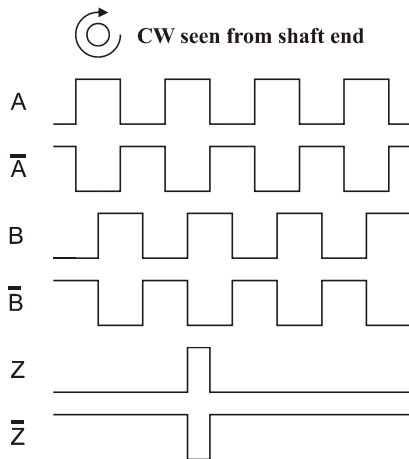
### Environmental Specifications

<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 67 / Nema 6 (approx.) 22 micron anodization

### 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
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## Output waveform

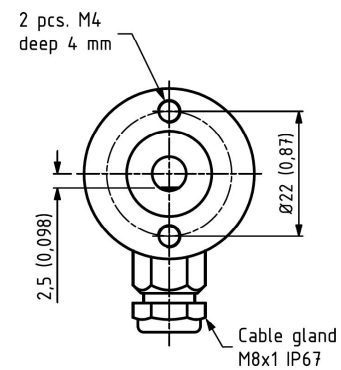
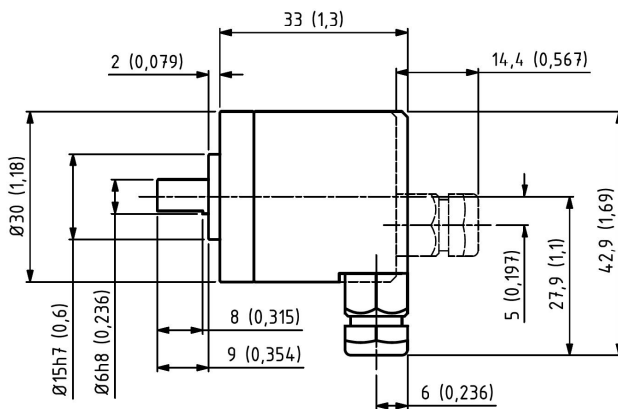


Channel tolerance       $180\text{ e}^\circ \pm 36\text{ e}^\circ$   
 Phase difference tolerance       $90\text{ e}^\circ \pm 18\text{ e}^\circ$   
 Z channel tolerance       $90\text{ e}^\circ \pm 18\text{ e}^\circ$

## Disk Resolutions (pulses per revolution)

1	36	150	512	2500
4	50	180	600	3000
10	60	200	1000	3600
11	64	250	1024	5000
12	75	256	1250	
15	90	300	1800	
20	100	360	2000	
25	125	400	2500	
30	128	500	2048	

## Mechanical Dimensions



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

mm (inches)

## Output Terminations

Channel	Standard Cable	
	Standard Output	Differential Output
	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

## Ordering Code

Example: 2SUN-A - 1024 - D - 06 - 09 - 67 - 01 - S

### Type

2SUN-A - [ ] - [ ] - [ ] - [ ] - 67 - [ ] - [ ]

Pulses per Revolution	Output	Shaft Dia.	Shaft Length	IP Rating	Cable Length	Cable Takeout
See table				IP 67 67		
Standard	N					
Differential	D					
26C31 Line Driver 5V only	L					Side (radial) S
OL 7272 Line Driver	M					Back (axial) B
		6 mm x 9 mm	06 - 09			
					<u>Standard Cable</u>	
					Standard is 1 meter	01
					Specify length	XX