

# Absolute Encoders — Singleturn

Magnetic Absolute CANopen

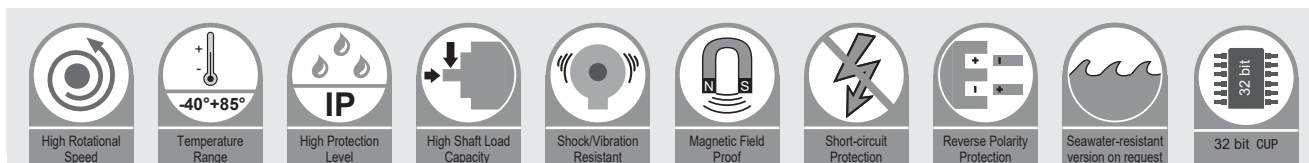
W5F-36SX / 36HN



- A new generation of high precision custom sensor chips with an accuracy of  $\pm 0.0878^\circ$
- 32-bit microprocessor, high speed signal processing
- Resolution up to 16 bits
- Protection level up to IP 69K
- 720 hour test by salt spray resistance



CANopen®



## Highlight:

- Shape 36 mm Compact, suitable for many industrial sites
- Wide operating temperature range up to  $-40^\circ\text{C}$  ...  $+85^\circ\text{C}$
- High-precision processor, fast data refresh
- Wiegand effect principle, the latest multi-turn counting method
- Bus communication CANopen interface

Mechanical characteristics				
Max. Speed	Industrial type: 12000 rpm; Heavy-duty and stainless steel type: 6000 rpm			
Starting torque	$\leq 3 \text{ Ncm}$ (at $20^\circ\text{C}$ )			
Moment of inertia	$\leq 30 \text{ gcm}^2$			
Shaft load capacity	Industrial type: Axial 40 N; Radial 110 N			
	Heavy-duty type: Axial 180 N; Radial 180 N			
	Stainless steel type: Axial 300 N; Radial 300 N			
Weight	approx. 0.105 kg			
Protection acc. to EN 60 529	IP 65, optional IP 69K			
Working temperature range	$-40^\circ\text{C}$ ... $+85^\circ\text{C}$ ; ( $-30^\circ\text{C}$ ... $+70^\circ\text{C}$ with cable outlet)			
Materials	Shaft: Stainless steel (V2A)			
	Flange: Aluminum or stainless steel			
	Housing: Steel or stainless steel			
Shock resistance acc. to EN 60068-2-27	Industrial type: $\leq 1000 \text{ m/s}^2$ (6 ms)			
	Heavy-duty and stainless steel type: $\leq 3000 \text{ m/s}^2$ (6 ms)			
Vibration resistance acc. to EN 60068-2-6	Industrial type: $\leq 100 \text{ m/s}^2$ (10 Hz ... 1000Hz)			
	HD and stainless steel type: $\leq 300 \text{ m/s}^2$ (10 Hz ... 1000Hz)			
Mechanical lifetime ( $10^8$ revolutions with Fa/Fr)	20/40	40/60	40/80	40/110
	550	195	135	85

Interface characteristics CANopen	
Interface	CANopen
Output driver	Fieldbus communication interface, Galvanically Isolated by Opto-Couplers
Baud rate	$\leq 1 \text{ M bit/s}$ (Software configurable) Factory default 125 kBaud
Interface Cycle Time	$> 1 \text{ ms}$
Code	Binary
Singleturn resolution	65536 (16 bits)
Profil	CANopen Profile DS 406
Node address	1 ... 127, default address 32 (Software configurable)
Terminal resistance	Default off (Software configurable)
Electrical lifetime	$> 10^5 \text{ h}$

Electrical characteristics	
Power supply	9 ... 30 VDC
Current consumption	100 mA
Output driver	RS 485
Start-up time	$< 250 \text{ ms}$
Short circuit protection	yes
Reverse polarity protection	yes
UL approval	E468583
CE compliant acc. to	EN 61000-6-4; EN61000-6-2

CANopen interface acc. to profile DS406

Programmable parameters:

- Count direction
- Resolution
- Preset
- 2 limit switches and 8 CAMs
- Baud rate and node address
- Terminal resistance
- Transmission mode: polled, cyclic, synchronous

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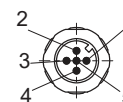
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## Terminal assignment

Signal	Ub	GND	CAN_high	CAN_low	CAN_GND
Cable (Colour)	RD	YE	WH	BN	GN
M12 connector, 5-pin	2	3	4	5	1

Top view of connector



M12 connector, 5-pin

Order Code Shaft version	W5F-36SX-X X X X-B XX 00 X									
	Type	h	a	b	c	d	e	f	g	
<b>a</b> Flange 3 = 36 mm, Synchro flange 5 = 58 mm, Synchro flange 7 = 58 mm, Clamping flange										
<b>b</b> Shaft 2 = Ø 6 x 11,5 mm 5 = Ø 10 x 20 mm										
<b>c</b> Interface / Power supply 4 = CANopen / 10 ... 30 VDC										
<b>d</b> Type of connection 1 = Axial cable, 1m 2 = Radial cable, 1m 3 = M12 connector, axial (without mating connector) 5 = M12 connector, radial (without mating connector)										
<b>e</b> Code B = Binary										
<b>f</b> Singleturn resolution 12 = 12 bit 13 = 13 bit 16 = 16 bit										
<b>g</b> Function 1 = No additional function 2 = LED indicator*										

\* LED indicator on cable or connector

\*\* Optional only for flanges of 3

\*\*\* When the type is S, the flange mode can only be A and 7, the shaft diameter mode is 5, and the protection class is IP69K

Order Code Hollow Shaft	W5F-36HN-X X X X-B XX 00 X									
	Type	a	b	c	d	e	f	g		
<b>a</b> Flange 3 = With short single arm spring 4 = With long single arm spring 8 = With D-wing spring coupling										
<b>b</b> Hollow shaft (blind hollow shaft) 2 = Ø 6 mm 4 = Ø 8 mm 5 = Ø 10 mm 6 = Ø 12 mm										
<b>c</b> Interface / Power supply 4 = CANopen / 10 ... 30 VDC										
<b>d</b> Type of connection 1 = Axial cable, 1m 2 = Radial cable, 1m 3 = M12 connector, axial (without mating connector) 5 = M12 connector, radial (without mating connector)										
<b>e</b> Code B = Binary										
<b>f</b> Singleturn resolution 12 = 12 bit 13 = 13 bit 16 = 16 bit										
<b>g</b> Function 1 = No additional function 2 = LED indicator*										

\* LED indicator on cable or connector

Abs. Encoder - ST

## Technology Introduction

### Absolute magnetoelectric single coil technology

After years of technological development, the performance of magneto-electric encoders has reached the same level as optical encoders. This technology leap is based on a new generation of sensor systems. Products use custom Hall sensors And a powerful 32-bit microprocessor that can perform complex signal processing in a matter of microseconds. The application of these two technologies greatly improves the resolution, accuracy and data response time of the product.

- Product resolution up to 16 bit
- Accuracy up to  $\pm 0.0878^\circ$
- Internal data refresh time < 50  $\mu$ s



Hall-IC



CPU

# Absolute Encoders — Singleturn

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## Accessories

Cable connector:

Matching connector

M12 self-assembling plug

E1-1205-0001

Matching connector

M12 cable connector with 1 meter cable

E2-CSF05-2/C

Shaft type encoder mounting accessories:

Coupling

Stainless steel bellows coupling  $\varnothing$  25mm,  
Shaft diameter is  $\varnothing$  6mm

T1-1000-2520-0606

Hollow shaft type encoder mounting accessories:

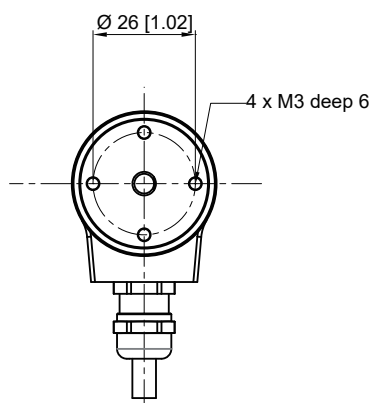
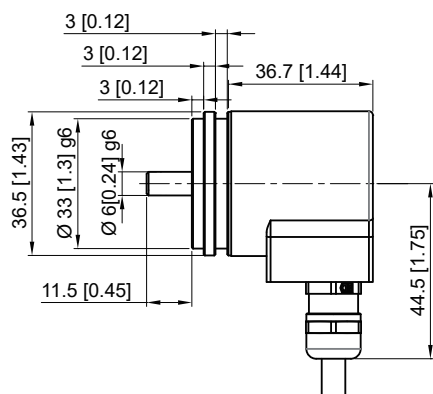
Spring

Further accessories and exact order code,  
please refer to the accessories section.

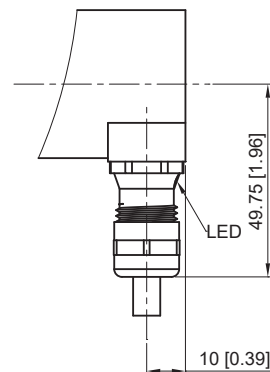
## Dimensions

Shaft encoder:

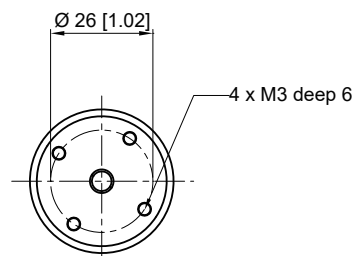
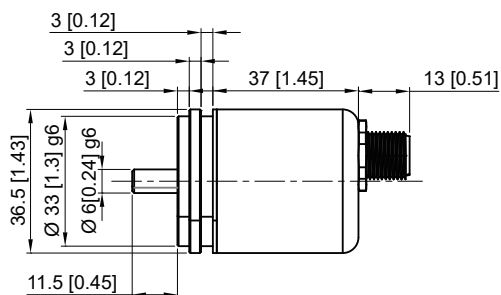
type of flange3 , type of shaft 2, type of connection 2



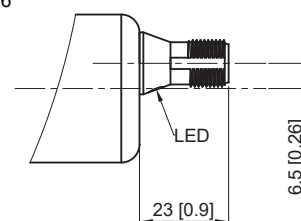
With LED indicator



type of flange3 , type of shaft 2, type of connection 3



With LED indicator



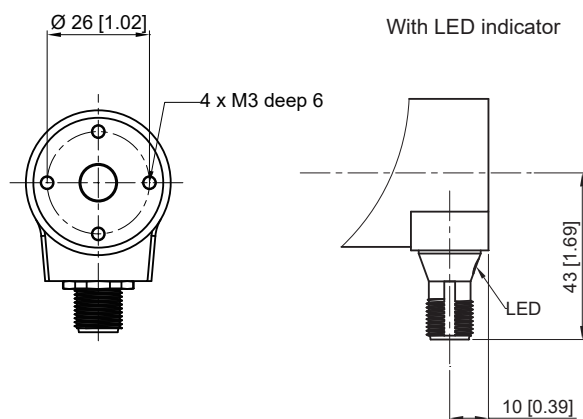
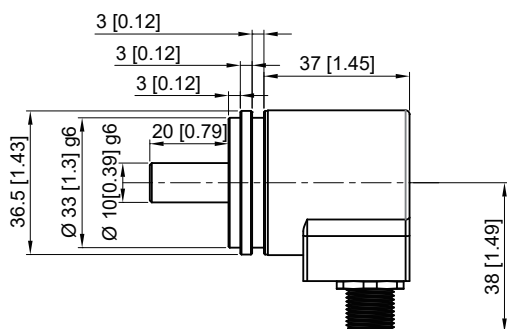
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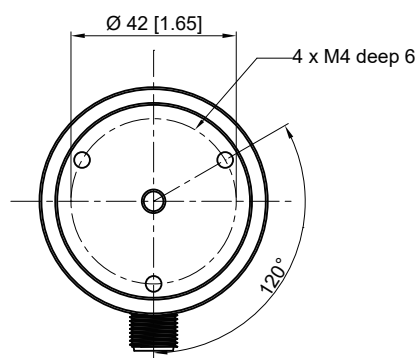
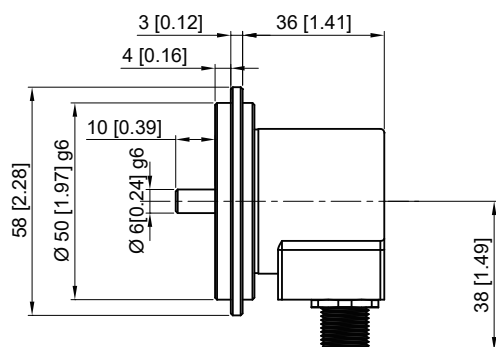
## Dimensions

type of flange3 , type of shaft 5, type of connection 5

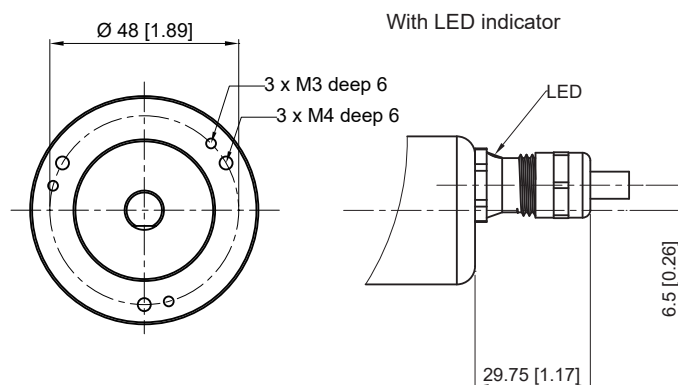
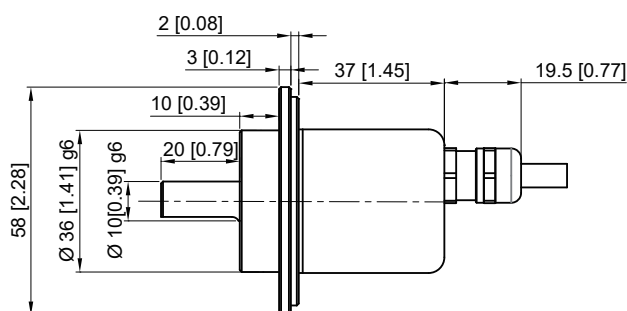


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type of flange5 , type of shaft 2, type of connection 5



type of flange7 , type of shaft 5, type of connection 1



Other mounting types and accessories on your request,  
please send us an email: [info@heinlanz.com](mailto:info@heinlanz.com)

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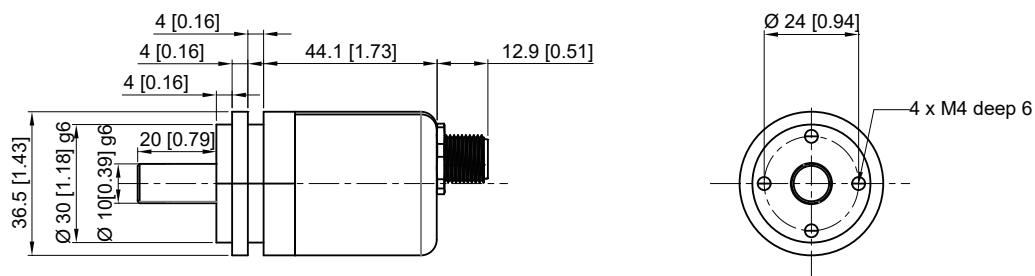
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## Dimensions

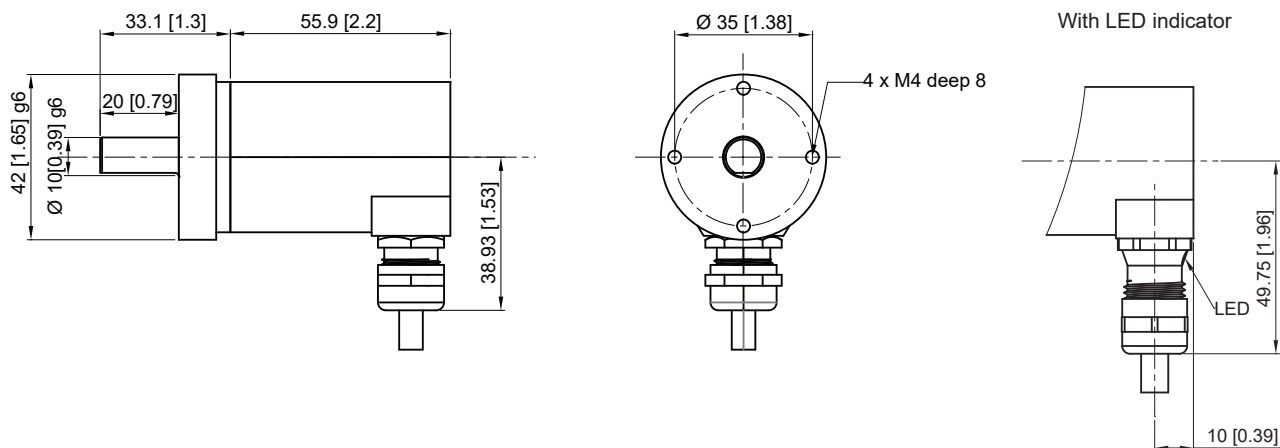
Heavy duty shaft encoder:

type of flange3 , type of shaft 5, type of connection 3



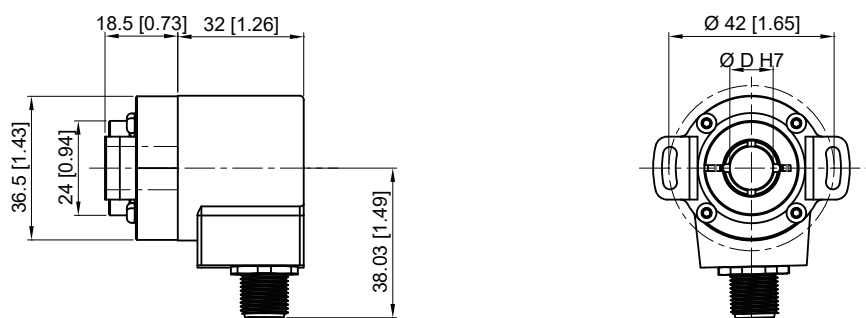
Stainless steel encoder:

type of flangeA , type of shaft 5, type of connection 2



Hollow shaft encoder:

type of flange 8 , type of connection 5



Blind hole depth: 15~18 mm

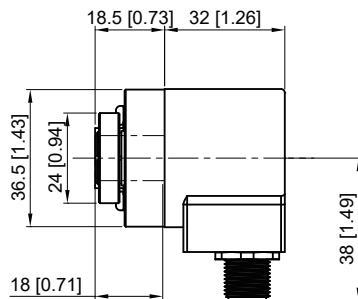
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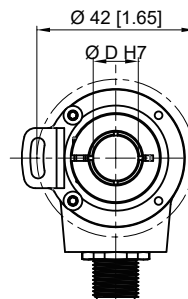
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## Dimensions

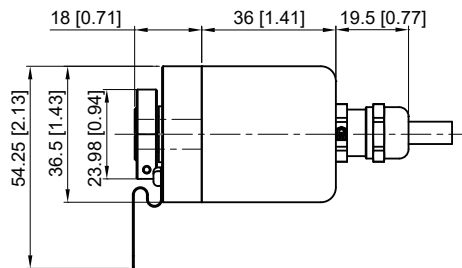
type of flange3 , type of connection 5



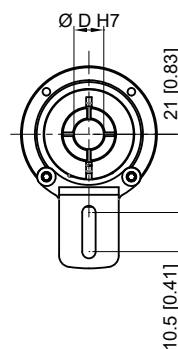
Blind hole depth: 15~18 mm



type of flange4 , type of connection1



Blind hole depth: 15~18 mm



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