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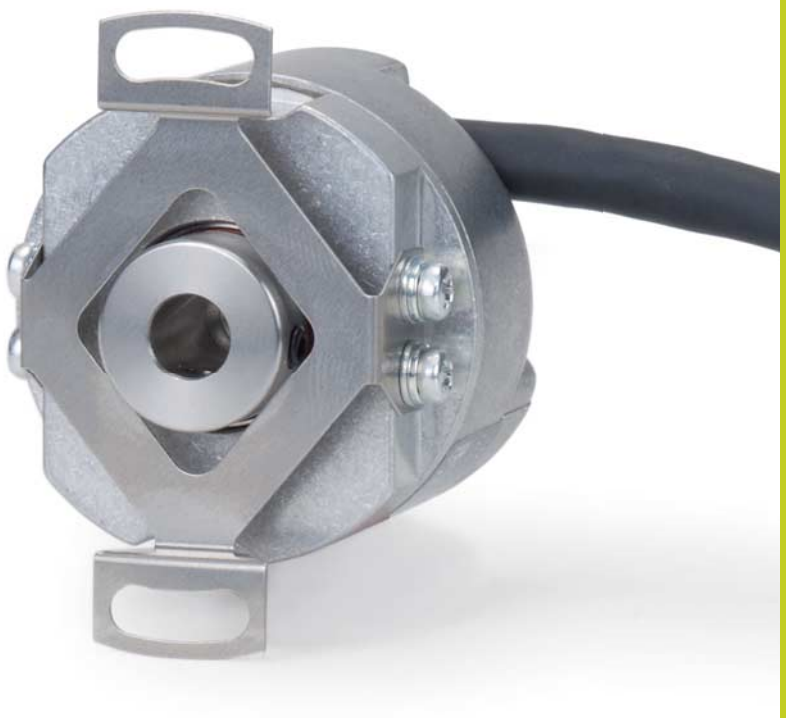


Product Information

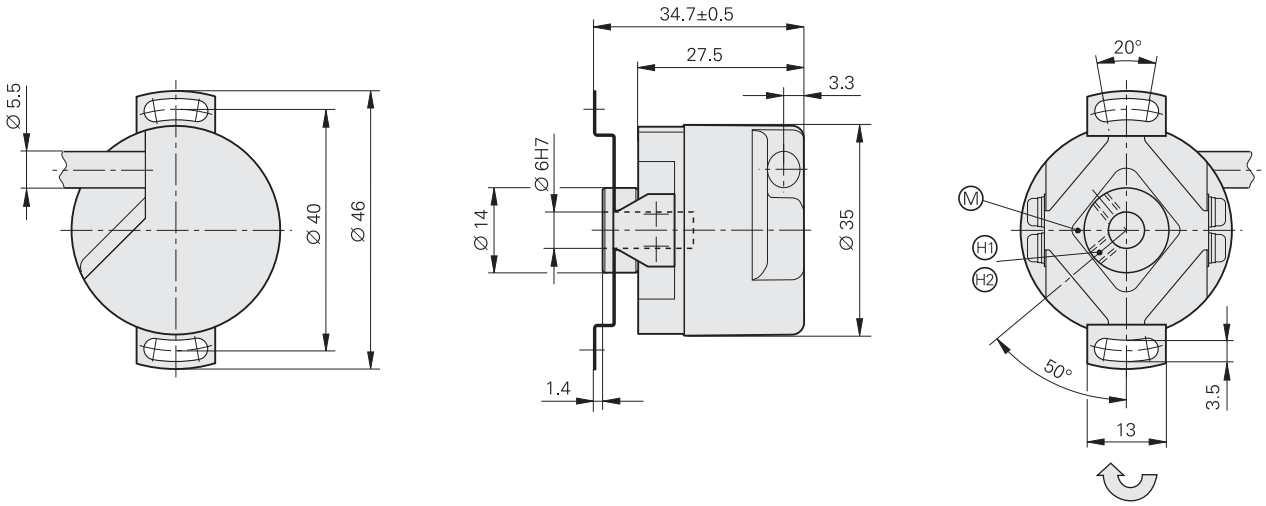
ERN 1023

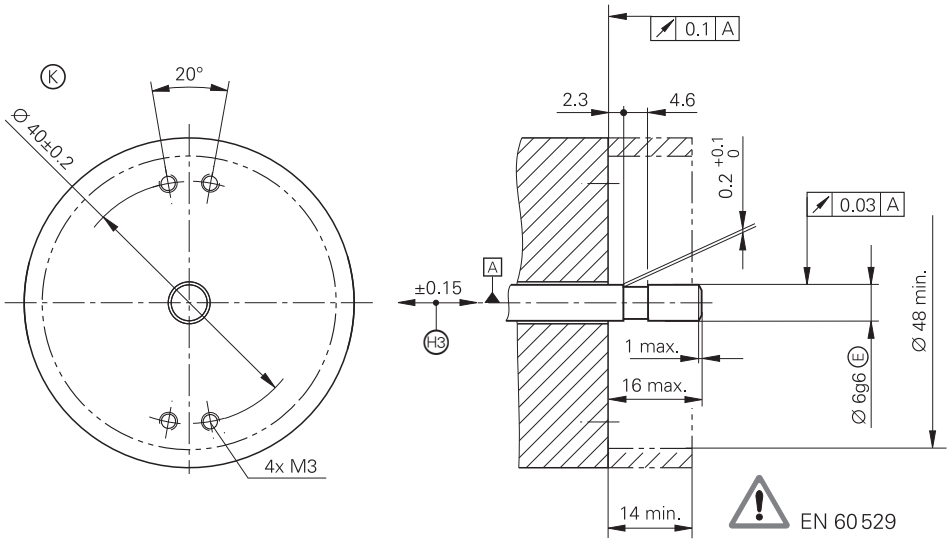
Incremental Rotary Encoder
with Block Commutation

October 2010

ERN 1023

Incremental rotary encoders with mounted stator coupling
- **Outside diameter 35 mm**
- **Length 34.7 mm**
- **Blind hollow shaft diameter 6 mm**
- **Block commutation signals**





mm

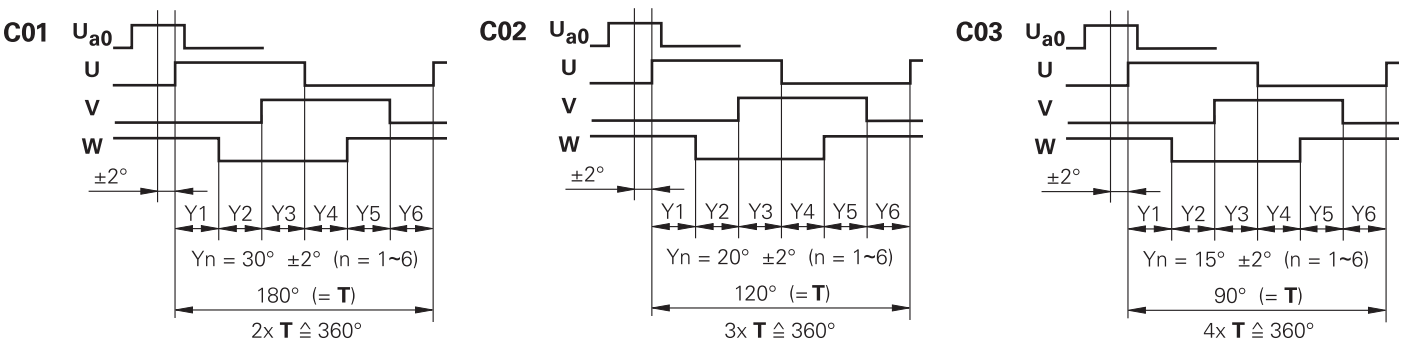
Tolerancing ISO 8015
ISO 2768 - m H
< 6 mm: ±0.2 mm

Ⓐ = Bearing of mating shaft
Ⓜ = Measuring point for operating temperature
Ⓚ = Required mating dimensions
Ⓗ1 = 2 screws in clamping ring. Tightening torque: 0.6±0.1 Nm, width A/F: 1.5
Ⓗ2 = Reference mark position ± 10°
Ⓗ3 = Compensation of mounting tolerances and thermal expansion, no dynamic motion permitted
Direction of shaft rotation for output signals as per the interface description

	ERN 1023	
Incremental signals	⊓⊔ TTL	
Signal periods per rev.*	**500** **512** 600	**1000** **1024** 1250 **2000** **2048** **2500** 4096 5000 8192
Reference mark	one	
Scanning frequency Edge separation *a*	≤ 300 kHz ≥ 0.41 µs	
System accuracy	± 260″	± 130″
Absolute position values	⊓⊔ TTL (3 commutation signals U, V, W)	
Commutation signals*	2 x 180° (C01); 3 x 120° (C02); **4 x 90° (C03)**	
Power supply	5 V ± 10 %	
Current consumption without load	≤ 70 mA	
Electrical connection*	Cable **1 m,** 5 m without coupling	
Shaft	Blind hollow shaft D = 6 mm	
Mech. permissible speed *n*	≤ 6000 min^{-1}	
Starting torque at 20 °C	≤ 0.005 Nm	
Moment of inertia of rotor	0.5 · 10^{-6} kgm^2	
Permissible axial motion of measured shaft	± 0.15 mm	
Vibration 25 to 2000 Hz **Shock** 6 ms	≤ 100 m/s^2 (EN 60 068-2-6) ≤ 1000 m/s^2 (EN 60 068-2-27)	
Max. operating temp.	90 °C	
Min. operating temp.	*For rigid configuration:* –20 °C *For frequent flexing:* –10 °C	
Protection EN 60 529	IP 64	
Weight	Approx. 0.07 kg (without cable)	

Bold: preferred versions
* Please select when ordering

Commutation Signals
(Values in mechanical degrees)



Electrical Connection

Pin Layout

	Power supply		Incremental signals						Other signals					
	U_P	0 V	U_{a1}	$\overline{U_{a1}}$	U_{a2}	$\overline{U_{a2}}$	U_{a0}	$\overline{U_{a0}}$	U	$\overline{U}$	V	$\overline{V}$	W	$\overline{W}$
	White	Black	Red	Pink	Olive	Blue	Yellow	Orange	Beige	Brown	Green	Gray	Light Blue	Violet

Cable shield connected to housing
U_P = power supply

Connecting Cable

Cable design
This encoder's connecting cable has a polyvinyl chloride sheathing **(PVC),** seven twisted wire pairs (each wire has a cross-section of 0.1 mm^2 (7 x 2 x 0.1 mm^2)), and an outside diameter of 5.5 mm.

Durability
PVC cables are resistant to oil and comply with UL safety directives. The **UL certification AWM E64638 STYLE20789 105C VW-1SC NIKKO** is documented on the cable.

Temperature range
The PVC cable can be used for
- rigid configuration –20 °C to 90 °C
- frequent flexing –10 °C to 90 °C

Bend radius R
The PVC cable can be used for
- rigid configuration R ≥ 10 mm
- frequent flexing R ≥ 50 mm

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