



HEIDENHAIN



Product Information

ECN 413

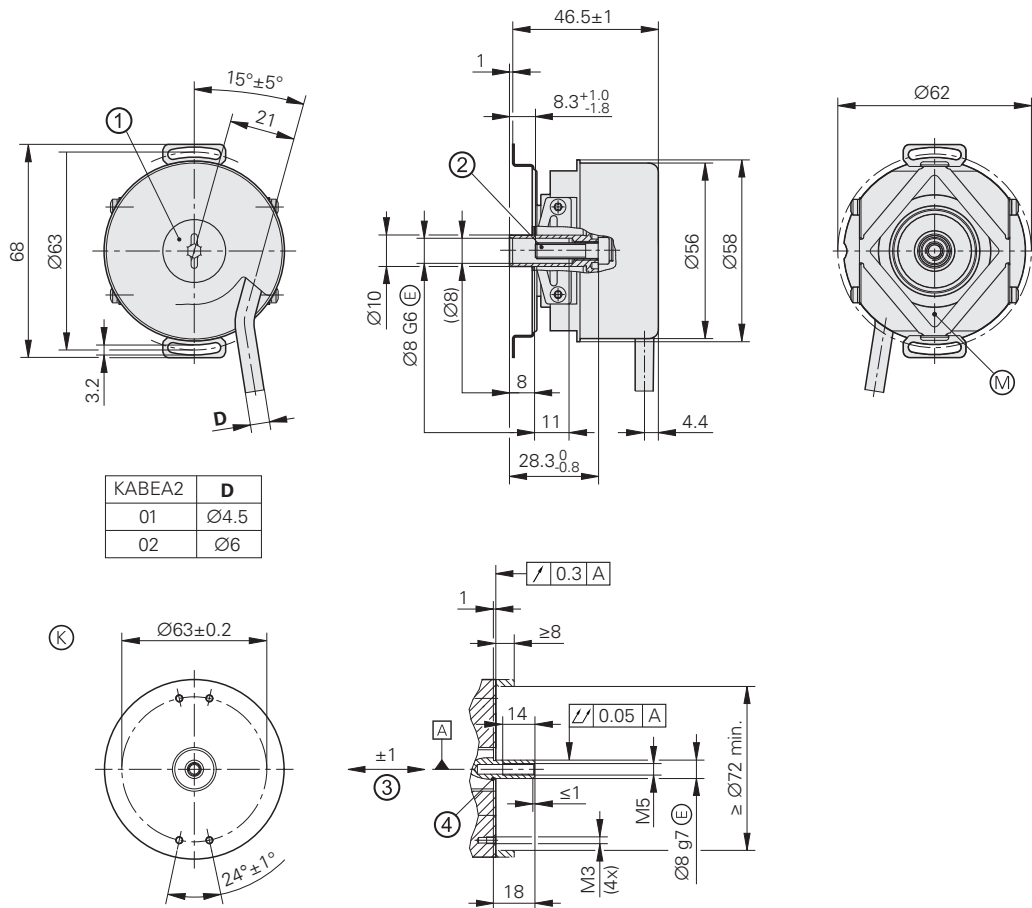
Absolute Rotary Encoders
with Integral Bearing

EnDat01

ECN 413 series

Absolute rotary encoders

- Stator coupling for plane surface
- Blind hollow shaft for axial clamping (Ø: 8 mm; depth: 19 mm)



KABEA2	D
01	Ø4.5
02	Ø6

mm
Tolerancing ISO 8015
ISO 2768:1989-mH
≤ 6 mm: ±0.2 mm

- ▢ = Bearing of mating shaft
- ⊗ = Required mating dimensions
- ⊙ = Measuring point for operating temperature
- 1 = Screw plug: width A/F 3 and 4
- 2 = Self-locking screw: DIN 6912 M5x20; width A/F 4
- 3 = Compensation of mounting tolerances and thermal expansion; no dynamic motion
- 4 = Undercut

Specifications	Singleturn ECN 413	
Interface	EnDat 2.2	
Ordering designation	EnDat01	
Positions/revolution	8192 (13 bits)	
Revolutions	–	
Code	Pure binary	
Elec. permissible speed Deviations ¹⁾	$\leq 1\,500\text{ rpm}/\pm 1\text{ LSB}$ $\leq 12\,000\text{ rpm}/\pm 50\text{ LSB}$	
Calculation time t_{cal} Clock frequency	$\leq 9\text{ }\mu\text{s}$ $\leq 2\text{ MHz}$	
Incremental signals	$\sim 1\text{ V}_{\text{PP}}^{2)}$	
Line count	2048	
Cutoff frequency –3 dB Output frequency	$\geq 400\text{ kHz}$ –	
System accuracy	$\pm 20''$	
Electrical connection*	Cable (4.0 m, PUR, Ø: 6 mm) with 15-pin 2-row D-sub connector (male); shield exposed twice	Cable (5.70 m, PUR, Ø 6 mm) with 15-pin 3-row D-sub connector (male); shield exposed twice; additional UL insulating tube (Ø 8.65 mm) with 300 V electrical strength; bending characteristics identical to PUR cable (Ø 6 mm)
Supply voltage	DC 3.6 V to 14 V	
Power consumption (maximum)	3.6 V: $\leq 0.6\text{ W}$ 14 V: $\leq 0.7\text{ W}$	
Current consumption (typical, without load)	5 V: 85 mA	
Shaft	Blind hollow shaft for axial clamping; Ø: 8 mm	
Mech. permissible speed ³⁾	$\leq 12\,000\text{ rpm}$	
Starting torque (typical) at 20 °C	0.01 Nm	
Moment of inertia of rotor	$\leq 2.4 \cdot 10^{-6}\text{ kgm}^2$	
Permiss. axial motion of measured shaft	$\pm 1\text{ mm}$	
Vibration: 55 Hz to 2000 Hz Shock: 6 ms	$\leq 300\text{ m/s}^2$ (EN 60068-2-6) $\leq 2000\text{ m/s}^2$ (EN 60068-2-27)	
Max. operating temp. ³⁾	100 °C	
Min. operating temp.	<i>Fixed cable:</i> –30 °C; <i>moving cable:</i> –10 °C	
Protection EN 60529	<i>At housing:</i> IP67 <i>At shaft inlet:</i> IP64	
Mass	$\approx 0.8\text{ kg}$	
ID number	1065932-66 1065932-61 (collective packaging)	1065932-81 1065932-91 (collective packaging)

* Please select when ordering

1) Speed-dependent deviations between absolute value and incremental signal

2) Limited tolerances: signal amplitude: 0.8 V_{PP} to 1.2 V_{PP}

3) For the relationship between the operating temperature and the shaft speed or supply voltage, see *General mechanical information* in the *Rotary Encoders* brochure

HEIDENHAIN

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This Product Information document supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information document edition valid when the order is placed.

 Further information:

Comply with the requirements described in the following documents to ensure correct and intended operation:

- Operating Instructions

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