



HEIDENHAIN



Product Information

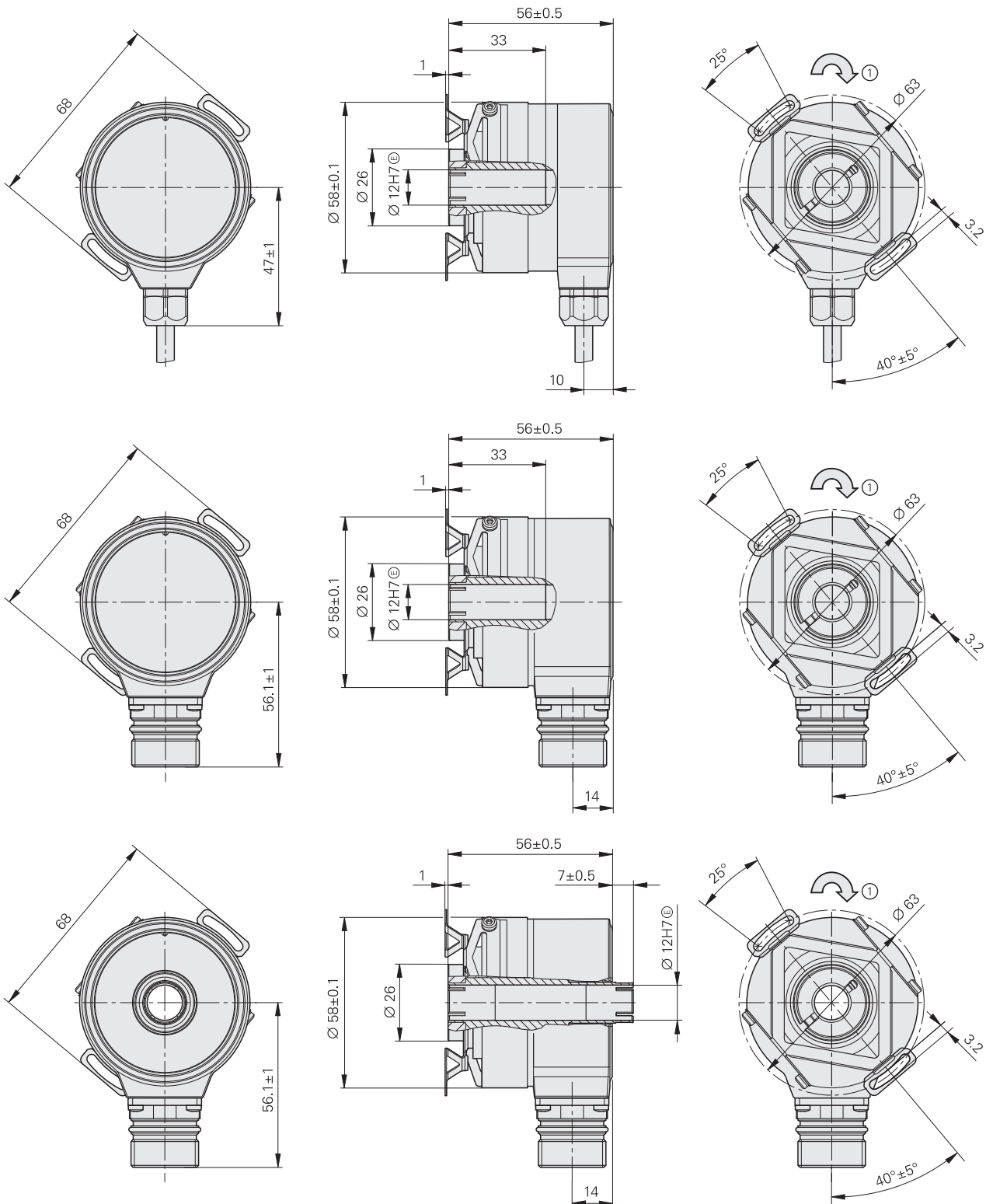
IQN 425

Absolute Rotary Encoder
with Inductive Scanning
Principle

October 2014

IQN 425

- Absolute rotary encoder
- Stator coupling for plane surface
- Blind hollow shaft (68H) or hollow through shaft (70F)



mm

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

1 = Direction of shaft rotation for output signals as per the interface description

	Absolute	
	Multiturn	
	IQN 425	
Interface*	EnDat 2.1	SSI
Ordering designation*	EnDat 01	SSI 41r1
Position values/revolution	8192 (13 bits)	
Revolutions	4096 (12 bits)	
Code	Pure binary	Gray
Elec. permissible speed Deviations ¹⁾	$\leq 4000/12000 \text{ min}^{-1}$ $\pm 4 \text{ LSB}/\pm 8 \text{ LSB}$	
Calculation time t_{cal} Clock frequency	$\leq 9 \mu\text{s}$ $\leq 2 \text{ MHz}$	$\leq 6 \mu\text{s}$ $\leq 2 \text{ MHz}$
Incremental signals	$\sim 1 V_{\text{PP}}$	
Line counts	32	
Cutoff frequency -3 dB	$\geq 6 \text{ kHz}$	
System accuracy	$\pm 100''$	
Voltage supply	3.6 V to 14 V DC	10 V to 30 V DC
Power consumption (max.)	3.6 V: $\leq 710 \text{ mW}$ 14 V: $\leq 780 \text{ mW}$	10 V: $\leq 750 \text{ mW}$ 30 V: $\leq 930 \text{ mW}$
Current consumption (typical, without load)	5 V: 102 mA	24 V: 25 mA
Electrical connection*	<ul style="list-style-type: none"> • M23 flange socket (male), radial • Cable 1 m, radial, without coupling 	
Shaft*	Blind hollow shaft (68H) or hollow through shaft (70F) $\varnothing = 12 \text{ mm}$	
Mechanically permissible speed n	$\leq 12000 \text{ min}^{-1}$	
Starting torque At 20 °C	<i>Blind hollow shaft:</i> $\leq 0.01 \text{ Nm}$ <i>Hollow through shaft:</i> $\leq 0.025 \text{ Nm}$	
Moment of inertia of rotor	$8.2 \cdot 10^{-6} \text{ kgm}^2$	
Shaft load	<i>Axial:</i> $\leq 100 \text{ N}$ <i>Radial:</i> $\leq 140 \text{ N}$ at shaft end (see also <i>Mechanical design types and mounting</i> in the <i>Rotary Encoders</i> catalog)	
Vibration 55 Hz to 2 000 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. ²⁾	100 °C (80 °C for cable version)	80 °C
Min. operating temp.	<i>Flange socket or fixed cable:</i> -40 °C; <i>Moving cable:</i> -10 °C	
Protection EN 60 529	IP 67 at housing; IP 66 at shaft inlet	
Weight	$\approx 0.32 \text{ kg}$	

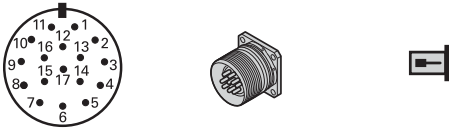


* Please select when ordering

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

²⁾ For the correlation between the operating temperature and the shaft speed or supply voltage, see *General mechanical information* in the *Rotary Encoders* catalog

Electrical connection

Pin layout






17-pin coupling, M23															
															
	Voltage supply					Incremental signals				Absolute position values				Other signals	
	7	1	10	4	11	15	16	12	13	14	17	8	9	2	5
	U _P	Sensor U _P	0V	Sensor 0V	Internal shield	A+	A-	B+	B-	DATA	DATA	CLOCK	CLOCK	Direction of rotation ¹⁾	Zero reset ¹⁾
	Brown/ Green	Blue	White/ Green	White	/	Green/ Black	Yellow/ Black	Blue/ Black	Red/ Black	Gray	Pink	Violet	Yellow	Black	Green








Shield on housing; **U_P** = power supply voltage

Sensor: With a 5 V supply voltage, the sensor line is connected in the encoder with the corresponding power line.

¹⁾ Only for versions with SSI interface

PUR connecting cables

$[(4 \times 0.14 \text{ mm}^2) + 4(2 \times 0.14 \text{ mm}^2) + (4 \times 0.5 \text{ mm}^2)] \quad \text{Ø 8 mm; } A_P = 0.5 \text{ mm}^2$			17-pin M23
Complete with connector (female) and coupling (male)			323897-xx
Complete with connector (female) and D-sub connector (female), for IK 220			332115-xx
Complete with connector (female) and D-sub connector (male), for IK 115/IK 215			350376-xx
With one connector (female)			309778-xx
Cable without connectors, Ø 8 mm			266306-01

Mating element on connecting cable to connector on encoder cable	Connector (female) 	Connector (male) 	for cable Ø 8 mm	291697-26
Connector on connecting cable for connection to subsequent electronics	Connector (male) 	Connector (female) 	for cable Ø 8 mm	291697-27
Coupling on connecting cable	Coupling (male) 	Coupling (female) 	for cable Ø 4.5 mm Ø 6 mm Ø 8 mm	291698-25 291698-26 291698-27
Flange socket for mounting on subsequent electronics	Flange socket (female) 			315892-10

A_P: Cross section of power supply lines

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

Further Information

- Catalog: *Rotary Encoders*
- Catalog: *Interfaces of HEIDENHAIN Encoders*