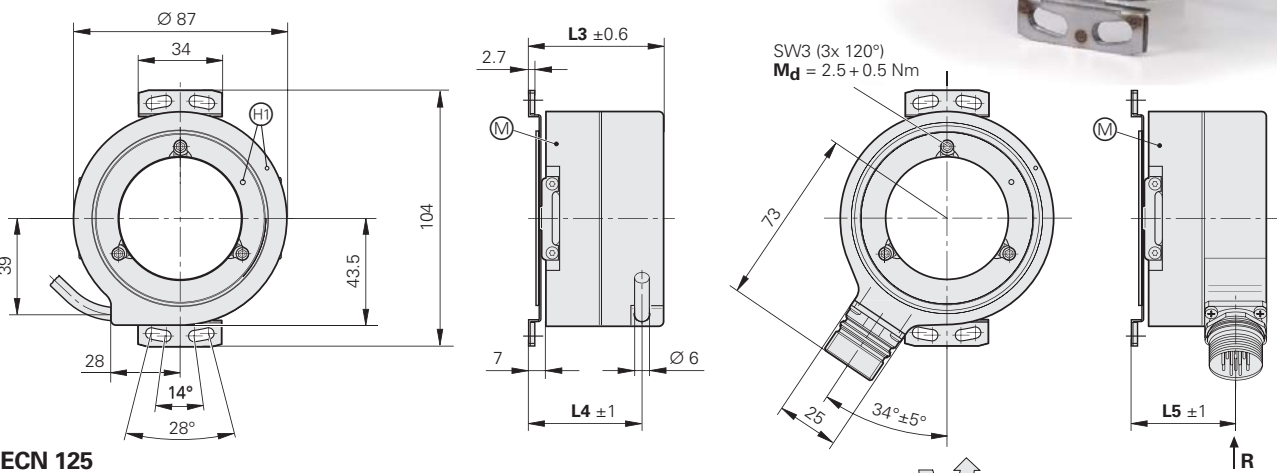


ECN/ERN 100 Series

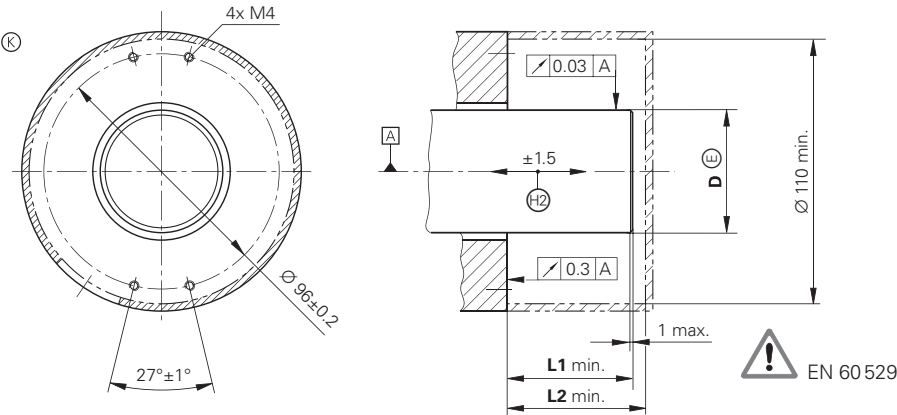
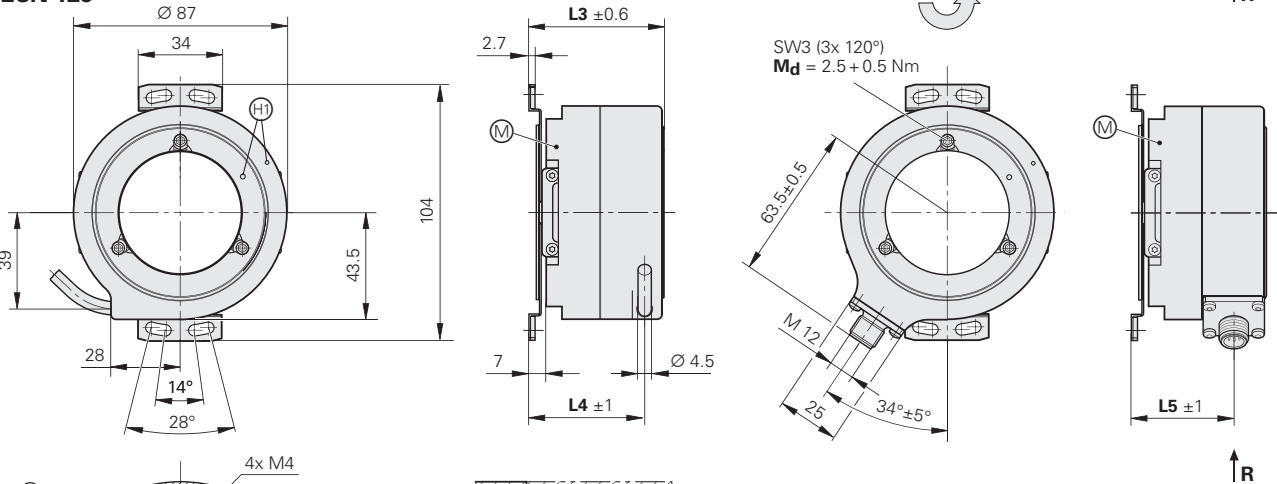
- Rotary encoders with mounted stator coupling
- Hollow through shaft up to Ø 50 mm



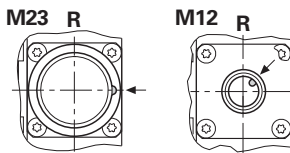
ERN 1x0/ECN 113



ECN 125



Connector coding
R = radial



Dimensions in mm



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

Cable radial, also usable axially

▢ = Bearing

⊙ = Required mating dimensions

⊙ = Measuring point for operating temperature

⊙ = ERN: reference-mark position ± 15°; ECN: zero position ± 15°

⊙ = Compensation of mounting tolerances and thermal expansion, no dynamic motion

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

D	L1	L2	L3	L4	L5
Ø 20h7	41	43.5	40	32	26.5
Ø 25h7	41	43.5	40	32	26.5
Ø 38h7	56	58.5	55	47	41.5
Ø 50h7	56	58.5	55	47	41.5

	Absolute Singleturn			Incremental		
	ECN 125	ECN 113	ECN 113	ERN 120	ERN 130	ERN 180
Absolute position values*	EnDat 2.2	EnDat 2.2	SSI	–		
Ordering designation	EnDat 22	EnDat 01	39n1			
Positions per revolution	33554432 (25 bits)	8192 (13 bits)		–		
Code	Pure binary		Gray	–		
Elec. permissible speed Deviations ¹⁾	n _{max} for continuous position value	≤ 600 min ^{–1} /n _{max} ± 1 LSB/± 50 LSB		–		
Calculation time t _{cal}	≤ 5 μs	≤ 0.25 μs	≤ 0.5 μs	–		
Incremental signals	None	~ 1 V _{PP} ²⁾		 TTL	 HTL	~ 1 V _{PP} ²⁾
Line counts*	–	2048		1000 1024 2048 2500 3600 5000		
Cutoff frequency –3 dB	–	Typically ≥ 200 kHz		–		Typ. ≥ 180 kHz
Scanning frequency	–	–		≤ 300 kHz		–
Edge separation a	–	–		≥ 0.39 μs		–
System accuracy	± 20"			1/20 of grating period		
Power supply	3.6 to 5.25 V	5 V ± 5 %	5 V ± 5 % ³⁾	5 V ± 10 %	10 to 30 V	5 V ± 10 %
Current consumption without load	≤ 200 mA	≤ 180 mA	≤ 180 mA	≤ 120 mA	≤ 150 mA	≤ 120 mA
Electrical connection*	• Flange socket M12, radial • Cable 1 m/5m, with M12 coupling	• Flange socket M23, radial • Cable 1 m/5 m, with or without coupling M23		• Flange socket M23, radial • Cable 1 m/5 m, with or without coupling M23		
Shaft*	Hollow through shaft D = 20 mm, 25 mm , 38 mm, 50 mm			Hollow through shaft D = 20 mm, 25 mm , 38 mm, 50 mm		
Mech. permissible speed n ⁴⁾	D > 30 mm: ≤ 4000 min ^{–1} D ≤ 30 mm: ≤ 6000 min ^{–1}			D > 30 mm: ≤ 4000 min ^{–1} D ≤ 30 mm: ≤ 6000 min ^{–1}		
Starting torque at 20 °C	D > 30 mm: ≤ 0.2 Nm D ≤ 30 mm: ≤ 0.15 Nm			D > 30 mm: ≤ 0.2 Nm D ≤ 30 mm: ≤ 0.15 Nm		
Moment of inertia of rotor	D = 50 mm 220 · 10 ^{–6} kgm ² D = 38 mm 350 · 10 ^{–6} kgm ² D = 25 mm 96 · 10 ^{–6} kgm ² D = 20 mm 100 · 10 ^{–6} kgm ²			D = 50 mm 220 · 10 ^{–6} kgm ² D = 38 mm 350 · 10 ^{–6} kgm ² D = 25 mm 95 · 10 ^{–6} kgm ² D = 20 mm 100 · 10 ^{–6} kgm ²		
Permissible axial motion of measured shaft	± 1.5 mm			± 1.5 mm		
Vibration 55 to 2000 Hz Shock 6 ms	≤ 200 m/s ^{2 5)} (EN 60068-2-6) ≤ 1000 m/s ² (EN 60068-2-27)			≤ 200 m/s ^{2 5)} (EN 60068-2-6) ≤ 1000 m/s ² (EN 60068-2-27)		
Max. operating temp. ⁴⁾	100 °C			100 °C	85 °C (100 °C at U _P < 15 V)	100 °C
Min. operating temp.	Flange socket or fixed cable: –40 °C For frequent flexing: –10 °C			Flange socket or fixed cable: –40 °C For frequent flexing: –10 °C		
Protection ⁴⁾ EN 60529	IP 64			IP 64		
Weight	0.6 kg to 0.9 kg depending on the hollow shaft version			0.6 kg to 0.9 kg depending on the hollow shaft version		

Bold: These preferred versions are available on short notice
 * Please select when ordering
 1) Velocity-dependent deviations between the absolute value and incremental signal
 2) Restricted tolerances: Signal amplitude 0.8 to 1.2 V_{PP}
 3) 10 to 30 V via connecting cable with voltage converter
 4) For the correlation between the protection class, shaft speed and operating temperature, see *General Mechanical Information*
 5) 100 m/s² with flange socket version