



HEIDENHAIN



Product Information

ERM 2410 Series

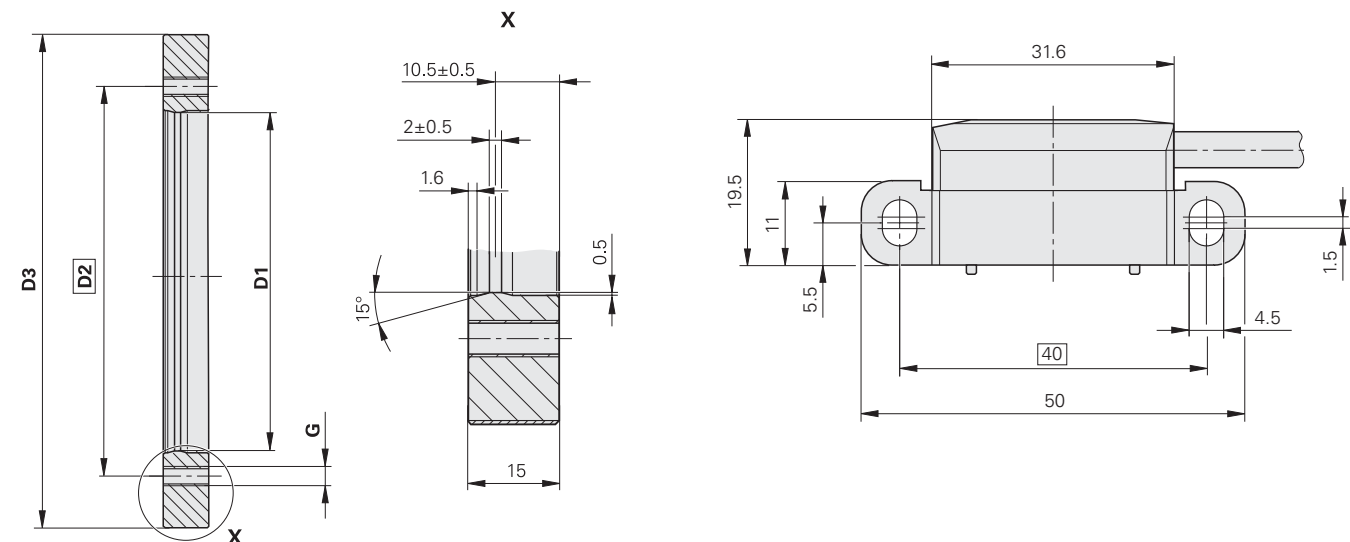
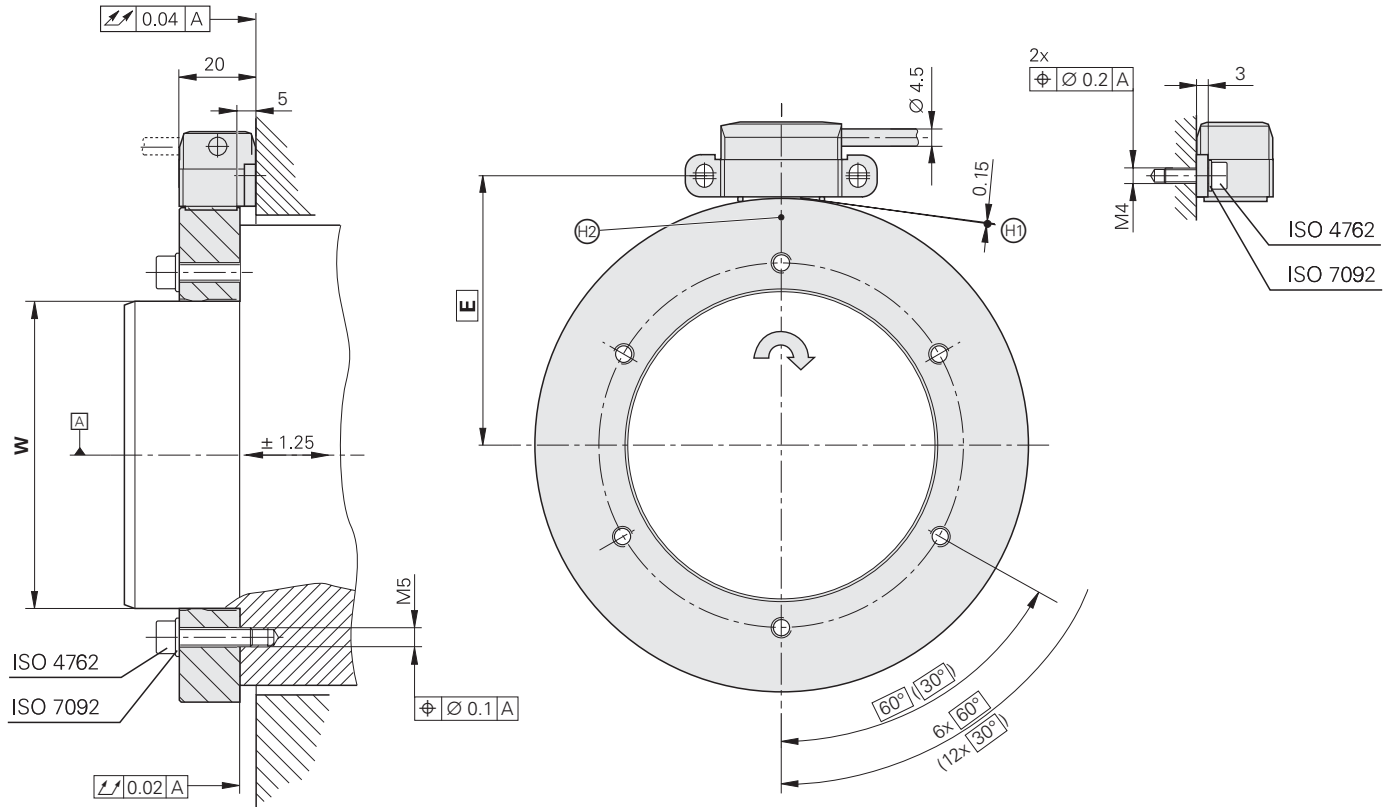
Magnetic Built-in Encoders
with Purely Serial
Position-Value Output

October 2008

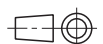
ERM 2410 Series

Built-in encoders consisting of an AK ERM 2410 scanning head and TTR ERM 200C scale drum

- Magnetic scanning
- Incremental measuring method with distance-coded reference marks
- Integrated counting function for absolute position-value output
- Absolute position value after traverse of two reference marks (see "Angle for absolute reference")



Dimensions in mm



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

Ⓐ = Bearing

⊕ = Mounting distance of 0.15 mm set with spacer foil

⊙ = Reference mark position

↻ = Direction of shaft rotation for output signals according to interface description

D1	W	D2	D3	E	G
∅ 40 -0.007	∅ 40 +0.009/+0.002	∅ 50	∅ 75.44	43.4	6x M6
∅ 70 -0.008	∅ 70 +0.010/+0.002	∅ 85	∅ 113.16	62.3	6x M6
∅ 80 -0.008	∅ 80 +0.010/+0.002	∅ 95	∅ 128.75	70.1	6x M6
∅ 120 -0.010	∅ 120 +0.013/+0.003	∅ 135	∅ 150.88	81.2	6x M6
∅ 130 -0.012	∅ 130 +0.015/+0.003	∅ 145	∅ 176.03	93.7	6x M6
∅ 180 -0.012	∅ 180 +0.015/+0.003	∅ 195	∅ 257.50	134.5	6x M6
∅ 220 -0.014	∅ 220 +0.018/+0.004	∅ 235	∅ 257.50	134.5	6x M6
∅ 295 -0.016	∅ 295 +0.020/+0.004	∅ 310	∅ 326.90	169.2	6x M6
∅ 410 -0.020	∅ 410 +0.025/+0.005	∅ 425	∅ 452.64	232.0	12x M6

Scanning head	AK ERM 2410
Interface	EnDat 2.2
Ordering designation	EnDat 22
Integrated interpolation	16384-fold (14 bits)
Clock frequency	≤ 8 MHz
Calculation time t_{cal}	≤ 5 μ s
Power supply	3.6 to 14 V
Power consumption	< 300 mA (without load)
Electrical connection	Cable, 1 m, with M12 coupling (8-pin)
Cable length	≤ 150 m (with HEIDENHAIN cable)
Vibration 55 to 2000 Hz Shock 6 ms	≤ 300 m/s ² ≤ 1000 m/s ²
Operating temperature	-10 °C to 100 °C
Protection EN 60529	IP 67
Weight Scanning head	approx. 0.050 kg (without cable)


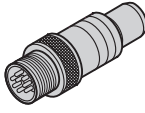



Scale drum	TTR ERM 200C									
Measuring standard	MAGNODUR scale									
Drum inside diameter*	40 mm	70 mm	80 mm	120 mm	130 mm	180 mm	220 mm	295 mm	410 mm	
Drum outside diameter*	75.44 mm	113.16 mm	128.75 mm	150.88 mm	176.03 mm	257.50 mm	2570.50 mm	326.90 mm	452.64 mm	
Line count	600	900	1024	1200	1400	2048	2048	2600	3600	
System accuracy¹⁾	± 36"	± 25"	± 22"	± 20"	± 18"	± 12"	± 12"	± 10"	± 9"	
Accuracy of graduation	± 14"	± 10"	± 9"	± 8"	± 7"	± 5"	± 5"	± 4"	± 4"	
Reference marks	Distance-coded									
Angle for absolute reference	≤ 36°	≤ 24°	≤ 22.5°	≤ 24°	≤ 18°	≤ 22.5°	≤ 22.5°	≤ 14°	≤ 12°	
Shaft speed	≤ 19000 min ⁻¹	≤ 14500 min ⁻¹	≤ 13000 min ⁻¹	≤ 10500 min ⁻¹	≤ 9000 min ⁻¹	≤ 6000 min ⁻¹	≤ 6000 min ⁻¹	≤ 4500 min ⁻¹	≤ 3000 min ⁻¹	
Moment of inertia of rotor	0.34 · 10 ⁻³ kgm ²	1.6 · 10 ⁻³ kgm ²	2.7 · 10 ⁻³ kgm ²	3.5 · 10 ⁻³ kgm ²	7.7 · 10 ⁻³ kgm ²	38 · 10 ⁻³ kgm ²	23 · 10 ⁻³ kgm ²	44 · 10 ⁻³ kgm ²	156 · 10 ⁻³ kgm ²	
Perm. axial movement	± 1.25 mm									
Weight (approx.) Scale drum	0.35 kg	0.69 kg	0.89 kg	0.72 kg	1.2 kg	3.0 kg	1.6 kg	1.7 kg	3.2 kg	

* Please indicate when ordering

¹⁾ Before installation. Additional errors caused by mounting inaccuracy and inaccuracy from the bearing of the drive shaft are not included.

Electrical Connection

Pin layout

8-pin M12 coupling								
								
	Power supply				Absolute position values			
	2	8	1	5	3	4	7	6
	$U_P^{1)}$	U_P	$0V^{1)}$	$0V$	DATA	\overline{DATA}	CLOCK	\overline{CLOCK}
	Blue	Brown/Green	White	White/Green	Gray	Pink	Violet	Yellow




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

Vacant pins or wires must not be used!

¹⁾ For parallel supply lines

Connecting cables

EnDat without incremental signals

PUR connecting cables	8-pin: [(4 × 0.14 mm ²) + (4 × 0.34 mm ²)]	Ø 6 mm
Complete with M12 connector (female) and M12 coupling (male), 8 pins each		368330-xx
Complete with 8-pin M12 connector (female) and 15-pin D-sub connector (male) for IK 215		524599-xx
With one M12 connector (female)		559346-xx

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Further information

See the *ERM 200 Series Product Information sheet*

