

HEIDENHAIN

Preliminary Product Information

Specifications

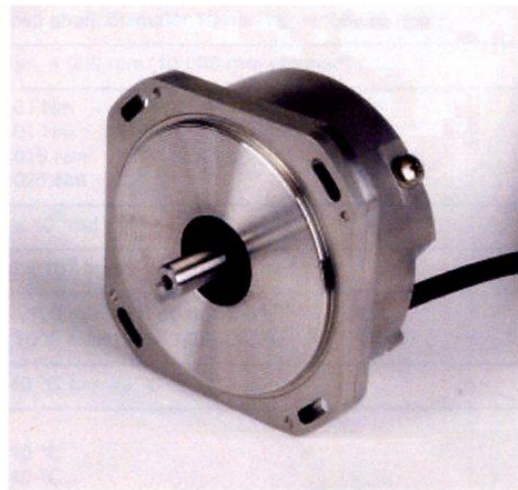
Dimensions

Mounting

Accessories

ROC 226

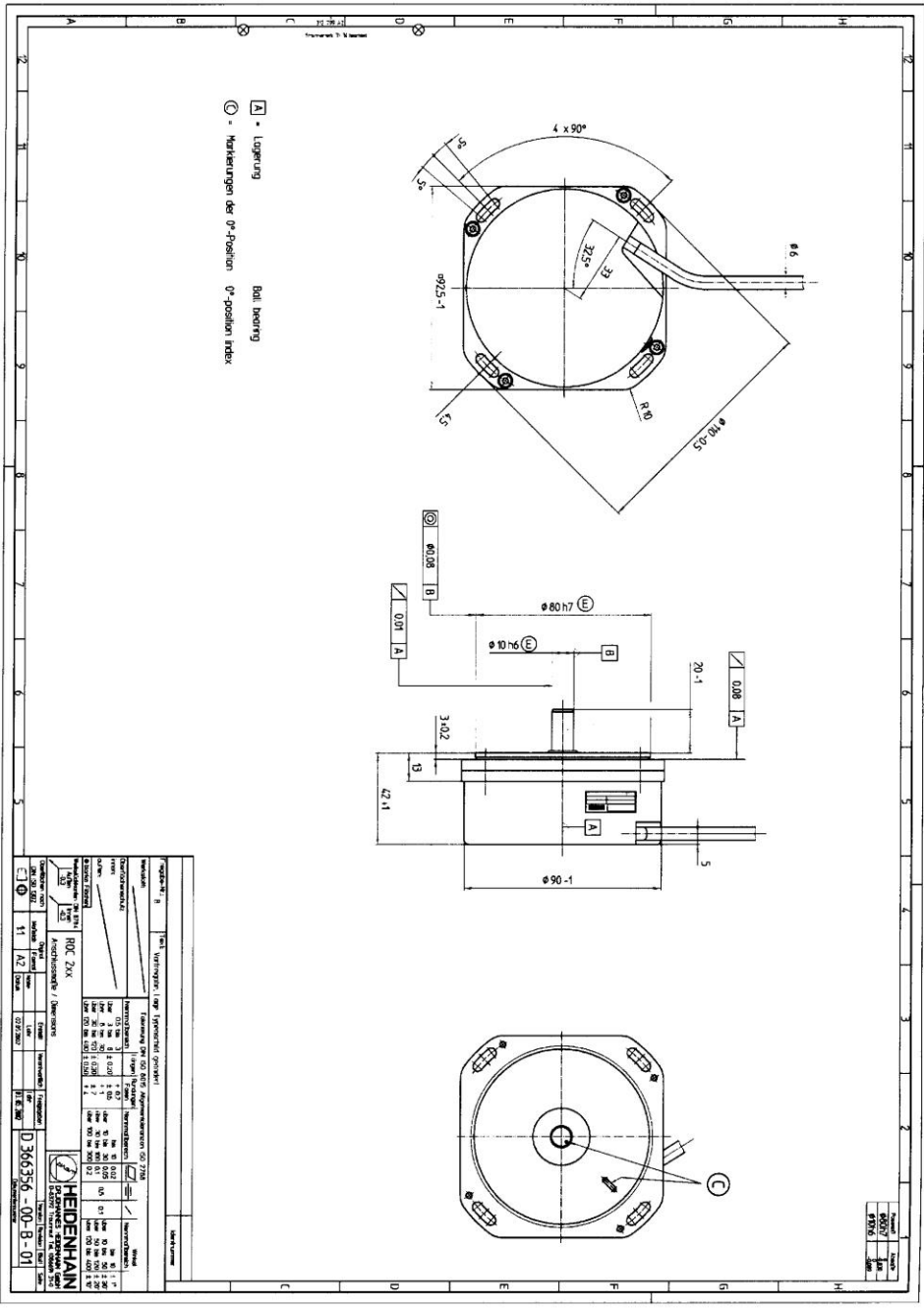
Absolute angle encoder for outdoor applications



Design	High-grade steel housing Outside diameter 110 mm Solid shaft Ø 10 mm
Output signals	67 108 864 positions per revolution EnDat interface or SSI interface
Line count / accuracy	16 384 lines 1 V _{PP} interface
Special features	Well-suited for outdoor applications due to high-grade steel housing, special design of interior and temperature range from -40 to + 80 °C

Absolute position values	67 108 864 (26 bits) $\hat{=} 0.000\ 0054^\circ \approx 0.02''$								
Interface	EnDat or SSI 25								
Electrically permissible speed for absolute position value	1 500 rpm								
Incremental signals A, B	$\sim 1 V_{PP}$								
Line count / accuracy (40°C)	16 384 / $\pm 5''$								
Cutoff frequency (-3 dB)	≥ 180 kHz								
Power supply	5 V $\pm 5\%$								
Current consumption	Max. 300 mA (w/o load)								
Electrical connection	Cable 1 m, radially and axially usable; with or without coupling, male 17-pin								
Max. cable length	150 m								
Shaft	Solid shaft, diameter 10 mm h6, length 20 mm								
Mech. permissible speed	Max. 4 000 rpm (10 000 rpm planned)								
Starting torque	<table border="0"> <tr> <td>at 20°C</td> <td>0.01 Nm</td> </tr> <tr> <td>at - 20 °C</td> <td>0.01 Nm</td> </tr> <tr> <td>at - 40 °C</td> <td>0.015 Nm</td> </tr> <tr> <td>at - 50 °C</td> <td>0.025 Nm</td> </tr> </table>	at 20°C	0.01 Nm	at - 20 °C	0.01 Nm	at - 40 °C	0.015 Nm	at - 50 °C	0.025 Nm
at 20°C	0.01 Nm								
at - 20 °C	0.01 Nm								
at - 40 °C	0.015 Nm								
at - 50 °C	0.025 Nm								
Angular acceleration	1×10^5 rad / s ²								
Moment of inertia of rotor	20×10^{-6} kgm ²								
Vibration (55 to 2000 Hz)	≤ 100 m/s ² (EN 60 068-2-6)								
Shock (6 ms)	≤ 1000 m/s ² (EN 60 068-2-27)								
Max. operating temperature	- 40 °C to + 80 °C								
Min. operating temp.	<table border="0"> <tr> <td>Flexible cable config.</td> <td>- 10 °C</td> </tr> <tr> <td>Rigid cable config.</td> <td>- 40 °C</td> </tr> </table>	Flexible cable config.	- 10 °C	Rigid cable config.	- 40 °C				
Flexible cable config.	- 10 °C								
Rigid cable config.	- 40 °C								
Permissible relative humidity	85 % (dew not permissible), short-time 95 %								
Degree of protection (EN 60 529)	IP 64								
Weight	Approx. 1 kg								

Dimensions:

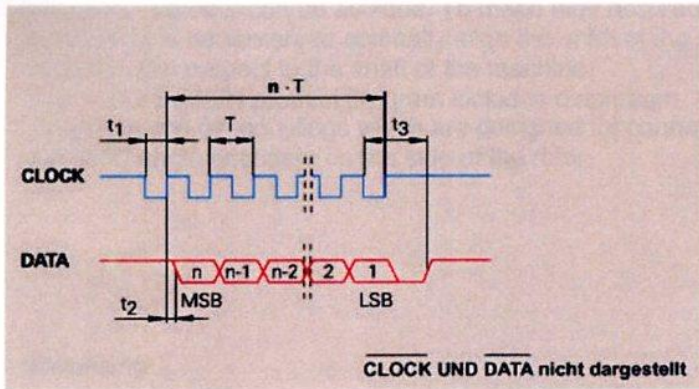


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Interface:

EnDat: See "Angle Encoders" catalog

SI 25:

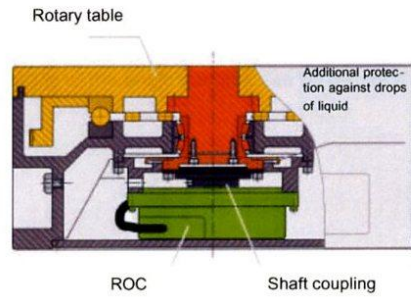


$$8 \mu\text{s} \leq t_1 \leq 11 \mu\text{s}$$

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Mounting:

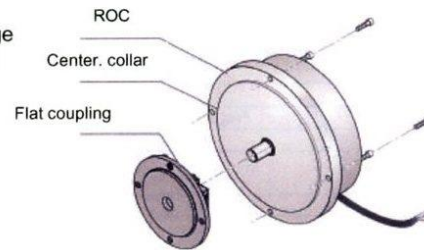
ROC angle encoders require a separate shaft coupling for connection on the side of the rotor. The shaft coupling compensates axial movement and misalignment between the shafts so that an excessive load on the bearing of the angle encoder can be avoided. To make high accuracies possible, it is necessary to optimally align the shaft of the angle encoder with respect to the shaft of the machine. The HEIDENHAIN product program includes diaphragm couplings and flat couplings which are designed for connecting the ROC angle encoders on the side of the rotor.



Mounting

The ROC angle encoders feature an integral mounting flange with centering collar. The shaft is connected to the machine shaft using a diaphragm coupling or a flat coupling.

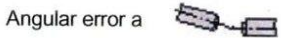
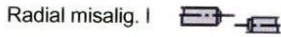
Mounting example



Accessories:

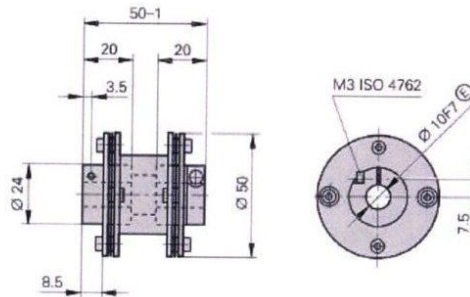
Shaft couplings

The shaft coupling compensates axial movement and misalignment between the shaft of the angle encoder and the shaft to be measured so that an excessive load on the bearing of the angle encoder can be avoided.

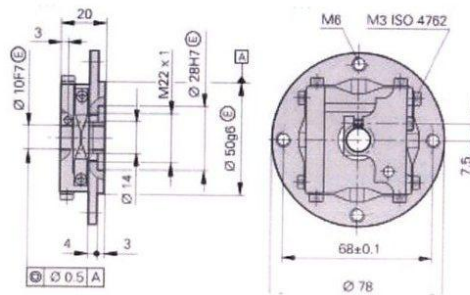


Shaft coupling	ROD 200 series K 03 Diaphragm coupling	K 18 Flat coupling
Hub holes	10 mm	
Kinematic transfer error	$\pm 2''$ where $\lambda \leq 0.1 \text{ mm}$ and $\alpha \leq 0.09^\circ$	$\pm 3''$
Torsional rigidity	1 500 Nm/rad	1 200 Nm/rad
Permissible torque	0.2 Nm	0.5 Nm
Permissible radial misalignment λ	$\leq 0.3 \text{ mm}$	
Permissible angular error α	$\leq 0,5^\circ$	
Permissible axial misalignment δ	$\leq 0,2 \text{ mm}$	
Moment of inertia (approx.)	$20 \times 10^{-6} \text{ kgm}^2$	$75 \times 10^{-6} \text{ kgm}^2$
Permissible speed	$10\,000 \text{ min}^{-1}$	1 000 rpm
Tightening torque of clamping screws (approx.)	1.2 Nm	
Weight	100 g	117 g

Diaphragm coupling K 03
Id. Nr. 200 313-04

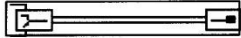
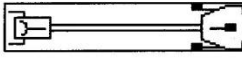

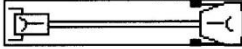





Flat coupling K 18
Id. Nr. 202 227-01







Connection:

Connecting cable PUR Ø 8 mm Complete with connector (female) and coupling (male) 	$[(4 \times 0.15 \text{ mm}^2) + 4(2 \times 0.14 \text{ mm}^2) + (4 \times 0.5 \text{ mm}^2)]$ 323 897-xx	Complete with connector (female) and D-sub connector (male) for IK 115 	324 544-xx
With one connector (female) 	309 778-xx	Complete with connector (female) and D-sub connector (female) for IK 220 	332 115-xx

17-pin HEIDENHAIN coupling or flange socket 		15	16	12	13	14-	17	8	9	7	10	11-
		A		B		DATA	DATA	CLOCK	CLOCK	U _P	0 V (U _N)	Internal shield
		+	-	+	-	Gray	Pink	Violet	Yellow	Brown/ Green	White/ Green	/

EN 50178

	1	4	3	2	5	6
	U _P Sensor	0 V Sensor	Vacant	Vacant	Vacant	Vacant
	Blue	White	Red	Black	Green	Brown

U_P = Power supply.
 Shield on housing.
 Non-used pins or wires must not be assigned.

HEIDENHAIN

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