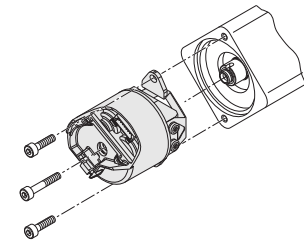


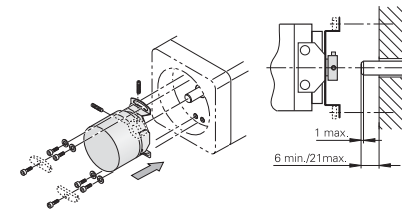
## ECN, EQN, ERN rotary encoders

With integral bearing and mounted stator coupling  
IP 40 degree of protection

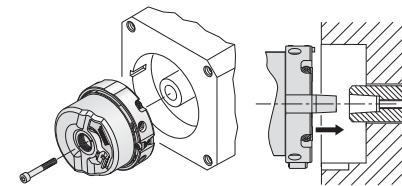
The **ECN, EQN** and **ERN** rotary encoders from HEIDENHAIN with IP 40 degree of protection are specially designed for integration in motors. Bearings and mounted stator coupling are integrated. Absolute rotary encoders and versions with commutation tracks are available for synchronous motors. The taper shaft or the blind hollow shaft is fastened directly to the shaft to be measured. This ensures an extremely stiff coupling that permits exceptionally high dynamic performance of the drive. The stator coupling is designed to be fastened in a location bore and permits fast, simple mounting while enabling a mechanical fine adjustment of the commutation.



ECN/EQN 1100



ERN 1123



ERN/ECN/EQN 1300

### ECN/EQN 1100 series

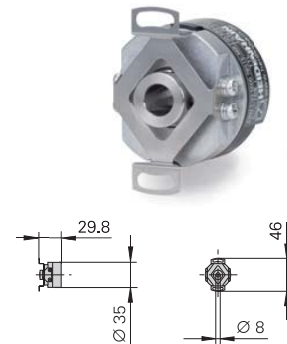
- **Miniaturized version**

- Blind hollow shaft  $\varnothing 6$  mm with positive fit element
- Housing outside diameter 35 mm
- Natural frequency of the encoder stator coupling:  $\geq 1000$  Hz
- Mechanically permissible speed  $12000 \text{ min}^{-1}$



### ERN 1123

- Blind hollow shaft  $\varnothing 8$  mm
- Housing outside diameter 35 mm
- Stator coupling with bolt-hole circle  $\varnothing 40$  mm
- Natural frequency of the stator coupling:  $\geq 1000$  Hz
- Mechanically permissible speed  $6000 \text{ min}^{-1}$



### ECN/EQN/ERN 1300 series

- **Compact dimensions**

- 1:10 taper shaft with 9.25 mm functional diameter for extremely stiff connection
- Housing outside diameter: 56 mm. The stator coupling is suited for location bores with 65 mm inside diameter
- Natural frequency of the encoder stator coupling:  $\geq 1800$  Hz
- Mechanically permissible speed  
**ERN/ECN:**  $15000 \text{ min}^{-1}$   
**EQN:**  $12000 \text{ min}^{-1}$
- IP 40 protection when mounted



	Absolute		Incremental		
	ECN 1113	EQN 1125	ECN 1123 <sup>2)</sup>	EQN 1135 <sup>2)</sup>	ERN 1123
<b>Interface</b>	EnDat 2.2 <sup>1)</sup> with $\sim 1 \text{ V}_{\text{PP}}$		EnDat 2.2 <sup>1)</sup>		$\square$ TTL
Position values/revolution	8192 (13 bits)		8388608 (23 bits)		–
Distinguishable revolutions	–	4096 (12 bits)	–	4096 (12 bits)	–
Line count	512		–		500 to 8192
<b>Commutation signals</b>	–				Block commutation <sup>3)</sup>
<b>Voltage supply</b>	3.6 to 14 V				5 V
<b>Operating temperature</b>	$\leq 115 \text{ }^\circ\text{C}$				$\leq 90 \text{ }^\circ\text{C}$

<sup>1)</sup> Includes EnDat 2.1 command set; PROFIBUS-DP via gateway

<sup>2)</sup> **Functional Safety** upon request

<sup>3)</sup> Three block commutation tracks with 90°, 120° or 180° mechanical phase shift

	Absolute				Incremental				
	ECN 1313	EQN 1325	ECN 1325 <sup>4)</sup>	EQN 1337 <sup>4)</sup>	ERN 1321	ERN 1326	ERN 1381	ERN 1387	
<b>Interface</b>	EnDat 2.2 <sup>1)</sup> with $\sim 1 \text{ V}_{\text{PP}}$		EnDat 2.2 <sup>1)</sup>		$\square$ TTL		$\sim 1 \text{ V}_{\text{PP}}$		
Position values/revolution	8192 (13 bits)		33554432 (25 bits)		–				
Distinguishable revolutions	–	4096 (12 bits)	–	4096 (12 bits)	–				
Line count	512 or 2048		–		1024	2048	4096	512 2048 4096	2048
<b>Commutation signals</b>	–				–	Block commutation <sup>2)</sup>	–	Z1 track <sup>3)</sup>	
<b>Voltage supply</b>	3.6 to 14 V				5 V				
<b>Operating temperature</b>	$\leq 115 \text{ }^\circ\text{C}$				$\leq 120 \text{ }^\circ\text{C}$ ; 4096 lines: $\leq 100 \text{ }^\circ\text{C}$				

<sup>1)</sup> Includes EnDat 2.1 command set; PROFIBUS-DP via Gateway

<sup>2)</sup> Three block commutation tracks with 90° or 120° mechanical phase shift

<sup>3)</sup> One sine and one cosine signal with one period per revolution of the encoder shaft

<sup>4)</sup> **Functional Safety** upon request