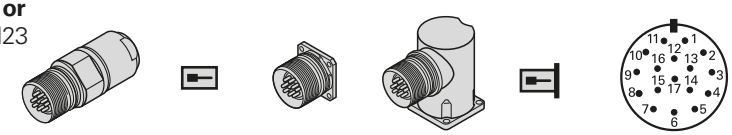
	Absolute		*Incremental*
	ECN 1325	**ECN 1313**	**ERN 1387**
Part number	683643-xx	768295-xx	749146-xx
Interface[1]	EnDat 2.2		~ 1 V_{PP}
Ordering designation	EnDat22	EnDat01	–
Position values/revolution	33554432 (25 bits)	8192 (13 bits)	Z1 track[3]
Electrically permissible speed/error[2]	≤ 15000 rpm (for continuous position value)	≤ 1500 rpm/±1 LSB ≤ 12000 rpm/±50 LSB	–
Calculation time t_{cal} Clock frequency	≤ 7 µs ≤ 16 MHz	≤ 9 µs ≤ 2 MHz	– –
Incremental signals[1]	–	~ 1 V_{PP}	~ 1 V_{PP}
Line count/system accuracy	2048/±20"		
Reference mark	–		One
Cutoff frequency –3 dB	–	≥ 400 kHz	≥ 210 kHz
Electrical connection Via PCB connector	*Rotary encoder:* 12-pin *Temperature sensor*[4]: 4-pin	12-pin	14-pin
Voltage supply	DC 3.6 V to 14 V		DC 5 V ±0.25 V
Power consumption[1] (maximum)	*3.6 V:* ≤ 600 mW *14 V:* ≤ 700 mW		–
Current consumption	*5 V:* 85 mA (typical, without load)		≤ 130 mA (without load)
Stator coupling	Plane-surface coupling		
Shaft	Taper shaft ∅ 9.25 mm; taper 1:10		
Mech. permiss. speed n	≤ 2000 rpm		
Starting torque	≤ 0.01 Nm (at 20 °C)		
Moment of inertia of rotor	$2.6 \cdot 10^{-6}$ kgm^2		
Permissible axial motion of measured shaft[5]	±1.5 mm		
Radial runout of the measured shaft	0.13 mm		
Vibration 55 Hz to 2000 Hz **Shock** 6 ms	≤ 300 m/s^2 [6] (EN 60068-2-6) ≤ 2000 m/s^2 (EN 60068-2-27)		
Operating temperature	–40 °C to +115 °C		–40 °C to +120 °C
Protection EN 60529	IP40 when mounted		
Mass	≈ 0.25 kg		

[1] See *Interfaces of HEIDENHAIN Encoders* brochure
[2] Velocity-dependent deviations between the absolute value and incremental signals
[3] One sine and one cosine signal per revolution
[4] Evaluation optimized for KTY 84-130
[5] Compensation of mounting tolerances and thermal expansion, not dynamic motion
[6] As per standard for room temperature; for operating temperature Up to +100 °C: ≤ 300 m/s^2
Up to +115 °C or +120 °C: ≤ 150 m/s^2

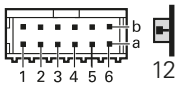
Electrical connection
Pin layouts

ECN 1313 pin layout

17-pin coupling or flange socket M23



12-pin PCB connector



	Power supply					Incremental signals[1]				Serial data transfer			
	7	**1**	**10**	**4**	**11**	**15**	**16**	**12**	**13**	**14**	**17**	**8**	**9**
12	**1b**	**6a**	**4b**	**3a**	**/**	**2a**	**5b**	**4a**	**3b**	**6b**	**1a**	**2b**	**5a**
	U_P	**Sensor** U_P	**0 V**	**Sensor** 0 V	**Internal shield**	**A+**	**A–**	**B+**	**B–**	**DATA**	**$\overline{\text{DATA}}$**	**CLOCK**	**$\overline{\text{CLOCK}}$**
	Brown/ Green	Blue	White/ Green	White	/	Green/ Black	Yellow/ Black	Blue/ Black	Red/ Black	Gray	Pink	Violet	Yellow

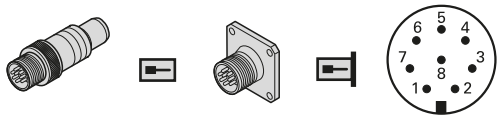
	Other signals	
	5	**6**
	/	**/**
12	**/**	**/**
	Brown[2]	White[2]

Cable shield connected to housing; **U_P** = Power supply voltage; **T** = Temperature
Sensor: The sensor line is connected in the encoder with the corresponding power line.
Vacant pins or wires must not be used.

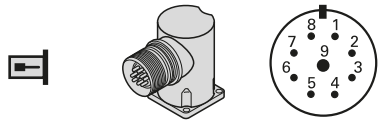
[1] Only with ordering designations EnDat 01 and EnDat 02
[2] Only for cables inside the motor housing

ECN 1325 pin layout

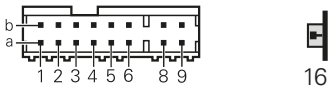
8-pin coupling or flange socket, M12



9-pin flange socket, M23



16-pin PCB connector



	Voltage supply				Serial data transfer				Other signals	
M12	**8**	**2**	**5**	**1**	**3**	**4**	**7**	**6**	**/**	**/**
M23	**3**	**7**	**4**	**8**	**5**	**6**	**1**	**2**	**/**	**/**
16	**1b**	**6a**	**4b**	**3a**	**6b**	**1a**	**2b**	**5a**	**8a**	**8b**
	U_P	**Sensor** U_P	**0 V**	**Sensor** 0 V	**DATA**	**$\overline{\text{DATA}}$**	**CLOCK**	**$\overline{\text{CLOCK}}$**	**T+**	**T–**
	Brown/ Green	Blue	White/ Green	White	Gray	Pink	Violet	Yellow	Brown	Green

Cable shield connected to housing
U_P = Power supply; **T** = Temperature
Sensor: The sensor line is connected in the encoder with the corresponding power line.
Vacant pins or wires must not be used.