ENX 13 EASY INT Encoder ⌀13 mm,
1...1024 CPT / 4096 steps, Single Turn
Sterilizable, integrated into motor

Key Data		EASY Incremental Differential	EASY Absolute
Number of channels		3	
Max. counts per turn		1024	
Steps per turn			4096
Resolution (bit single turn)			12
Encoder length L	mm	0 (integrated into motor)	0 (integrated into motor)
Ambient temperature	°C	-40...100	-40...100
Weight	g	<5	<5

Selection criteria	EASY Incremental Differential	EASY Absolute
Speed and rotation direction detection	■	■
Speed and position control	■	■
Compact and robust design	■	■
High resolution	■	■
Cost effective	■	■

■ suitable   ▲ suitable to a limited extent   ● not suitable

Specifications		EASY Incremental Differential	EASY Absolute
Supply voltage Vcc	V	5 ± 0.5	5 ± 0.5
Typical current draw	mA	22	22
Max. operating frequency	kHz	4000	
Max. Speed	rpm	200 000	200 000
Connector[2]		10-pin 2.54 mm multipoint connector (IEC/EN 60603-13 / DIN41651) cable AWG 28	without connector

EASY Incremental Differential:

Pin	1		Not connected
Pin	2	(black)	V_{CC}
Pin	3	(brown)	GND
Pin	4		Not connected
Pin	5	(red)	Channel $\overline{A}$
Pin	6	(orange)	Channel A
Pin	7	(yellow)	Channel $\overline{B}$
Pin	8	(green)	Channel B
Pin	9	(blue)	Channel $\overline{I}$
Pin	10	(violet)	Channel I

Output signal: EIA-Standard RS 422
Output current per channel: ± 20 mA

EASY Absolute:
cable AWG 28

green	Data
black	V_{CC}
brown	GND
yellow	CLK

Output signal: CMOS compatible
Output current per channel: + 20 mA

Configuration		EASY Incremental Differential	EASY Absolute
Counts per turn[1]		1...1024	
Signal protocol			BiSS-C, SSI
Cable length	mm	200, 500	200, 500
Electric connection			cable length/pin connection/connector

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maxon EC motor	
ECX SPEED 13 M	187–190
ECX SPEED 13 L	191–194

Sterilization information

135°C

Typically 1000 autoclave cycles

Sterilization with steam
Temperature	+134 ± 4°C
Compression pressure up to	2.3 bar
Rel. humidity	100%
Cycle length	18 minutes

The connector is not sterilizable and needs to be removed first.

Notes

[1] maxon controllers require a resolution of at least 16 counts per turn and commutation signals.
[2] H1, index and angle zero are aligned with angle commutation zero (see p. 56).

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