

Technical data sheet

Rotary encoder Series Information

Part no.: 90000380

EI30-P 058 SF

Contents

- Technical data
- Part number code



For illustration purposes only

Encoder series	EI 058 SF
Encoder_Basic principle	incremental
Encoder_Operating principle	optically interpolated
Encoder_Flange diameter	Ø 58 mm
Encoder_Flange type	Screw
Encoder_Solid shaft/Hollow shaft	Hollow shaft
Encoder_Shaft diameter	Ø 10 mm
Encoder_Supply voltage	10 ... 30V DC
	4.75 ... 5.5 V DC
	5 – 30V DC
Encoder_Output circuit	1 Vss Sin/Cos
	HTL
	HTL, inv.
	TTL
	TTL, RS422 compatible, inv.
Encoder_Pulse count	10000 I/U
	10240 I/U
	12000 I/U
	12500 I/U
	1440 I/U
	15000 I/U
	16384 I/U
	20000 I/U
	20480 I/U
	25000 I/U
	2880 I/U
	3000 I/U
	3600 I/U
	4000 I/U
	5760 I/U
	6000 I/U
	7200 I/U
	7500 I/U
	8000 I/U
	9182 I/U

Technical data

Encoder EI30 P 058 SF

Resolution

Pulses per revolution PPR	up to 25000 PPR
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Mechanical Data

Flange	clamping flange
Flange material	stainless steel, V4A
Housing material	stainless steel, V4A
Flange diameter	Ø 58 mm [Ø 2.283"]

Shaft(s)

Shaft material	stainless steel, V4A
Starting torque	approx. 1 Ncm [1.416 in-ozf] at ambient temperature

Shaft	Ø 10 mm [Ø 0.394"]
Shaft length	L: 18 mm [0.709"]
Max. Permissible shaft loading radial	100 N [10.197 kp]
Max. Permissible shaft loading axial	100 N [10.197 kp]

Bearings

Bearings type	2 precision ball bearings
Nominal service life	1 x 10 ⁹ revs. at 100 % rated shaft load 1 x 10 ¹⁰ revs. at 40 % rated shaft load 1 x 10 ¹¹ revs. at 20 % rated shaft load
Max. operating speed	3600 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1 x 10 ¹¹ revs. at 20 % rated shaft load and 3600 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 70 mA (100 mA only C3, D3)
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 70 mA (100 mA only C2, C4, D4)
Operating principle	optical
Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv. 1 Vpp sin/cos
Pulse frequency	TTL ≤ 5000 ppr: max. 200 kHz HTL ≤ 5000 ppr: max. 200 kHz TTL more than 1200 ppr: max. 2 MHz HTL more than 1200 ppr: max. 600 kHz 1 Vpp sin/cos: max. 100 kHz
Channels	B N and inverted signals
Load	max. 40 mA / channel @ 1 Vpp sin/cos: min. 120 Ohm
Circuit protection	circuit type C4, C6, D4, D6 only

Accuracy

Phase offset	90° ± max. 7.5 % of the period duration
pulse-/pause-ratio	≤5000 ppr: 50 % ± max. 7 % Output circuits C2, C3, C4, D3, D4: 50 % ± max. 10 %

Environmental data

ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s ² (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s ² (6 ms)
Electrical Safety:	according DIN VDE 0160

Duty information

Customs tariff number:	90318020
Country of origin:	Germany

General Data

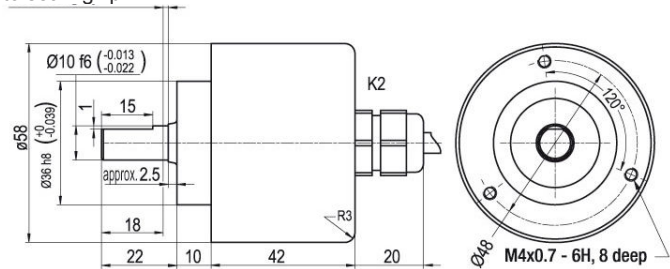
Weight	approx. 600 g [21.164 oz]
Connections	cable outlet (TPE)
Protection rating (EN 60529)	IP67+IP69K all around. Resistance to salt mist (IEC 60068-2-11) after 672 hours.
Operating temperature	-20 °C up to +80 °C [-4 °F up to +176 °F] 1 Vpp: -10 °C up to +70 °C [+14 °F up to +158 °F]
Storage temperature	-20 °C up to +80 °C [-4 °F up to +176 °F]

Technical data

Encoder EI30 P 058 SF

Cable connection A-N, A-C, axial, with 2 m cable

Minimum distance of 1.5
to sealing lip



All dimensions in mm

Description		N inv. poss.
A-N	axial, shield not connected	•
A-C	axial, shield connected to encoder housing	•

Assignments			
	A-N, A-C	A-N, A-C	A-C
Circuit	C3, C4, C5, C6, C7	C1, C2, D3, D4, D5, D6, D7	D8
GND	WH	WH	WH
(+) Vcc	BN	BN	BN
A	GN	GN	GN
B	YE	YE	GY
N	GY	GY	–
–	–	–	–
A inv.	–	RD	YE
B inv.	–	BU	PK
N inv.	–	VT	–
Shield	flex	flex	flex

	R-N, R-C	R-N, R-C	R-C
Circuit	C3, C4, C5, C6, C7	C1, C2, D3, D4, D5, D6, D7	D8
GND	WH	WH	WH
(+) Vcc	BN	BN	BN
A	GN	GN	GN
B	YE	YE	GY
N	GY	GY	–
–	–	–	–
A inv.	–	RD	YE
B inv.	–	BU	PK
N inv.	–	VT	–
Shield	flex	flex	flex

Technical data

Encoder EI30 P 058 SF

Options

Cable length	Order key
The encoder EI30 P 058 SF can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency. Please extend the standard order code with a three figure number, specifying the cable length in decimetres. Example: 5 m cable = 050	XXX = Decimeter

Technical data

Encoder EI30 P 058 SF

Example Order No. Type

EI30 P 058 SF	EI30 P 058 SF	EI30 P 058 SF
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Pulses per revolution PPR:

5000	2, 5, 10, 15, 20, 25, 30, 36, 40, 48, 50, 60, 64, 72, 90, 100, 120, 125, 128, 150, 160, 180, 200, 216, 240, 250, 254, 256, 300, 314, 320, 360, 400, 500, 512, 571, 600, 720, 750, 768, 800, 900, 1000, 1024, 1200, 1250, 1270, 1440, 1500, 1800, 2000, 2048, 2400, 2500, 2880, 3000, 3600, 4000, 4096, 4685, 5000, 5760, 6000, 7200, 7500, 8000, 8192, 10000, 10240, 12000, 12500, 15000, 16384, 20000, 20480, 25000 1 Vpp Sin/Cos only 1024, 2048 Other PPRs on request
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Channels:

N	B, N (SIN: B)
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Output circuit

	Resolution PPR	Power supply VDC	Output circuit	-	Order key
C6	up to 2500	5 - 30	HTL (TTL at 5 VDC)	–	C7
		5 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	–	D7
	up to 5000	4.75 - 5.5	TTL	–	C5
		4.75 - 5.5	TTL, RS422 comp., inverted	–	D5
		10 - 30	HTL	–	C6
		10 - 30	HTL inverted	–	D6
		10 - 30	TTL, RS422 comp., inverted	–	C1
		10 - 30	TTL, RS422 comp., inverted	–	D3
	(higher frequency) 1200 up to 25000	4.75 - 5.5	TTL	–	C3
		4.75 - 5.5	TTL, RS422 comp., inverted	–	D3
		10 - 30	HTL	–	C4
		10 - 30	HTL inverted	–	D4
		10 - 30	TTL, RS422 comp., inverted	–	C2
	1024, 2048	4.75 - 5.5	1 Vpp sin/cos	–	D8

Electrical connections

	Description	N inv. poss.	Order key
A-N	Cable: length (2 m standard)		
	axial, shield not connected	•	A-N
	axial, shield connected to encoder housing	•	A-C
	radial, shield not connected	•	R-N
	radial, shield connected to encoder housing	•	R-C

Options

	Description	Order key
	Without option	Empty
	Cable length	XXX = Decimeter

Example Order No.:	EI30P058SF	10	5000	N	C6	A-N	EI30P058SF	Your encoder
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Part number code

Part designation: **EABB CCCDDEE FFFFFFF GHJJKK LLMNOPPP RR**

A	Rotary encoder type I: Incremental S: Absolute, singleturn M: Absolute, multiturn
BB	Series 10: Entry 30: Basic 50: Extended 70: Advanced
CCC	Flange diameter 024: 24 mm 036: 36 mm 058: 58 mm 063: 63 mm 067: 67 mm 070: 70 mm 080: 80 mm 100: 100 mm 115: 115 mm
DD	Flange type BB: Hollow shaft with blind hole CC: Clamping flange (compact design) CF: Clamping flange (food and beverages) CH: Clamping flange (heavy-duty version) CL: Clamping flange HI: Hollow shaft (insulated) HO: Hollow shaft HT: Hollow shaft (special torque support) RC: Round flange (36/40 clamping flange, 58 with 6 mm shaft) RE: Round flange (expanded boreholes) RN: Round flange SC: Stator coupling SF: Screw flange (53 clamping flange, 58 food and beverages) SI: Servo flange (increased shaft load and IP protection) SQ: Square flange SR: Screw flange (36/40 clamping flange, 58 corrosion-resistant) SY: Synchro (incremental), Servo (36), Synchro (58) (absolute) TM: Speedometer (115 with 1 mm shaft, 58 motor feedback) TS: Speedometer (10 mm shaft)
EE	Shaft / bore hole diameter 06: 6 mm 07: 7 mm 08: 8 mm 08: 8 mm 10: 10 mm 11: 11 mm 12: 12 mm 14: 14 mm 15: 15 mm 06-72: Hollow bore / blind holes (6 – 72 mm)
FFFFFF	Signal / resolution Axxxx: A Bxxxx: AB Nxxxx: ABN P16384: Programmable xx: Singleturn, 1 – 16 bit xx: Multiturn, 0 – 43 bit (00 for singleturn)
G	Galvanic isolation (absolute only) 0: without 1: with
HH	Voltage supply (absolute only) 0: 10 – 32 V DC/with galvanic isolation 1: 4.75 – 5.5 V DC 2: 18 – 30 V DC
J	Operating principle M: magnetic O: optical P: optically interpolated

Part number code

KK	Interface 01: RS485 07: SSI binary 08: SSI Gray 35: CANopen 38: EtherCAT 48: PROFINET 58: EtherNet/IP
LL	Electrical connection M08: M8 connector M12: M12 connector M16: M16 connector M23: M23 connector M12BC: Bus cover connector
M	Cable outlet A: Axial R: Radial T: Tangential
NN	No. of pins xx: Number of pins
O	Shield connection (2 cable) (optional) C: connected N: not connected
PPP	Cable length xxx: Cable length (in dm)

Note

	A list with all available device types can be found on the Leuze website at www.leuze.com.
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