Technisches Datenblatt
Drehgeber Serieninformation
Art.-Nr.: 90000110
EI30-M 058 CL

Abbildung kann abweichen

Inhalt

Serie	EI 058 CL
Grundprinzip	inkremental
Funktionsprinzip	magnetisch
Flanschdurchmesser	Ø 58 mm
Flanschtyp	Klemmflansch
Vollwelle/Hohlwelle	Hohlwelle
Wellendurchmesser	Ø 10 mm
	Ø 6 mm
	Ø 8 mm
	Ø 9,525 mm [Ø 3/8"]
Versorgungsspannung	4,75 ... 30 VDC
Ausgangsschaltung	HTL (TTL bei 5 VDC)
	HTL, inv. (TTL/RS422 kompatibel bei 5 VDC)
Impulszahl	1 … 16384 I/U

Technische Daten

Leuze

Encoder EI30 M 058 CL

Resolution

Pulses per revolution PPR	1 PPR up to 16384 PPR

Mechanical Data

Flange	clamping flange
Flange material	aluminum
Housing material	Stainless steel or die cast aluminum, powder coated (only M16 and M23 plugs)
Flange diameter	Ø 58 mm [Ø 2.283“
Cam mounting	pitch 69 mm [2.717 inches]

Shaft(s)

Shaft material	stainless steel
Starting torque	approx. 1 Ncm [1.416 in-ozf] at ambient temperature
Shaft	Ø 6 mm [Ø 0.236"]
	Attention: No option IP = full IP67 version
Shaft length	L: 12 mm [0.472"]
Max. Permissible shaft loading radial	125 N [12.746 kp]
Max. Permissible shaft loading axial	120 N [12.236 kp]
Shaft	Ø 8 mm [Ø 0.315"]
	Attention: No option IP = full IP67 version
Shaft length	L: 19 mm [0.748"]
Max. Permissible shaft loading radial	125 N [12.746 kp]
Max. Permissible shaft loading axial	120 N [12.236 kp]
Shaft	Ø 9.525 mm [Ø 3/8"] Order No: 4Z
	Attention: No option IP = full IP67 version
Shaft length	L: 20 mm [0.787"]
Max. Permissible shaft loading radial	220 N [22.433 kp]
Max. Permissible shaft loading axial	120 N [12.236 kp]
Shaft	Ø 10 mm [Ø 0.394"]
Shaft length	L: 20 mm [0.787"]
Max. Permissible shaft loading radial	220 N [22.433 kp]
Max. Permissible shaft loading axial	120 N [12.236 kp]

Bearings

Bearings type	2 precision ball bearings
Nominale 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	8000 rpm

Machinery Directive: basic data safety integrity level

$MTTF_d$	2200 a
Mission time (TM)	25 a
Nominale service life (L10h)	1 x 10'11 revs. at 20 % rated shaft load and 8000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4.75 VDC up to 30 VDC: typ. 40 mA
Operating principle	magnetic
Output circuit	HTL (TTL at 5 VDC) HTL, inv. (TTL/RS422 comp. at 5 VDC)
Pulse frequency	HTL up to 16384 ppr: max. 600 kHz TTL up to 16384 ppr: max. 1 MHz
Channels	B N and inverted signals
Load	max. 40 mA / channel
Circuit protection	yes

Accuracy

Phase offset	90° ± max. 7.5 % of the period duration
pulse-/pause-ratio	50 % ± max. 7 %

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)
Electrial Safety:	according DIN VDE 0160

Duty information

Customs tariff number:	90318020
Country of origin:	Germany

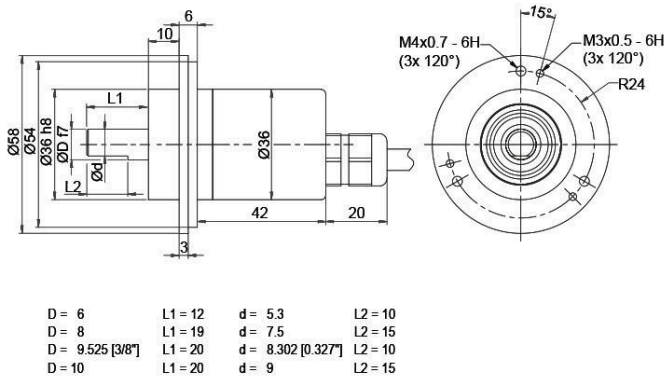
General Data

Weight	approx. 250 g [8.818 oz]
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65
Operating temperature	Connector: -40 °C up to +85 °C, Cable: -20 °C up to +80 °C (Option LT: -40 °C up to +85 °C). Connector: -40 °F up to +185 °F, Cable: -4 °F up to +176 °F, Option LT: -40 °F up to +185 °F
Storage temperature	Connector: -40 °C up to +85 °C, Cable: -30 °C up to +80 °C (Option LT: -40 °C up to +85 °C) Connector: -40 °F up to +185 °F, cable: -22 °F up to +176 °F, (Option LT: -40 °F up to +185 °F)

Technische Daten

Encoder EI30 M 058 CL

Cable connection A-C axial with 2 m cable



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

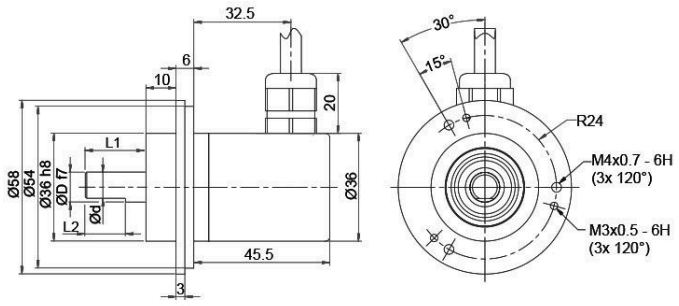
All dimensions in mm

Description		N inv. poss.
A-C	axial, shield connected to encoder housing	•

Assignments

	A-C	A-C
Circuit	D2	D1
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
–	–	–
A inv.	–	RD
B inv.	–	BK, (BU at LT)
N inv.	–	VT
Shield	flex	flex

Cable connection R-C radial with 2 m cable



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

All dimensions in mm

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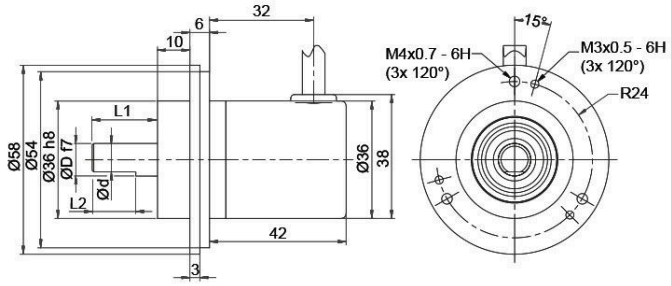
Description		N inv. poss.
R-C	radial, shield connected to encoder housing	•

Assignments

	R-C	R-C
Circuit	D2	D1
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
–	–	
A inv.	–	RD
B inv.	–	BK, (BU at LT)
N inv.	–	VT
Shield	flex	flex

Cable R-IP (IP40) radial with 2 m cable



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

All dimensions in mm

Description		N inv. poss.
R-IP	radial, shield not connected (IP40)	•

Assignments

	R-IP	R-IP
Circuit	D2	D1
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
–	–	
A inv.	–	RD
B inv.	–	BK

Technische Daten

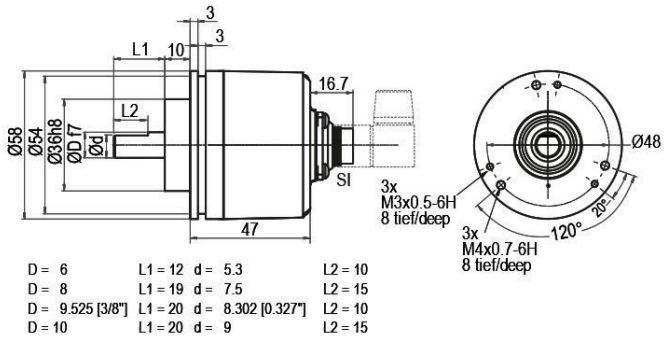
Leuze

Encoder EI30 M 058 CL

Assignments

N inv.	–	VT
Shield	flex	flex

Connector (M16x0.75) A, axial, 5-, 6-, 8-, 12-pin

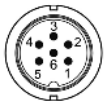
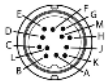
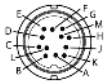


D = 6	L1 = 12	d = 5.3		L2 = 10	
D = 8	L1 = 19	d = 7.5		L2 = 15	
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]		L2 = 10	
D = 10	L1 = 20	d = 9		L2 = 15	

All dimensions in mm

Description		N inv. poss.
A5	axial, 5-pin, Connector connected to encoder housing	–
A6	axial, 6-pin, Connector connected to encoder housing	–
A8	axial, 8-pin, Connector connected to encoder housing	•
A12	axial, 12-pin, Connector connected to encoder housing	•

Assignments

	A5	A6	A8	A8	A12	A12
	5-pin	6-pin	8-pin	8-pin	12-pin	12-pin
						
Circuit	D2	D2	D2	D1	D2	D1
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
–	–	–	–	–	–	–
A inv.	–	–	–	6	–	F
B inv.	–	–	–	7	–	A
N inv.	–	–	–	8	–	D
n. c.	–	5	6, 7, 8	–	A, D, F, G, J	G, J
Shield	–	–	–	–	–	–

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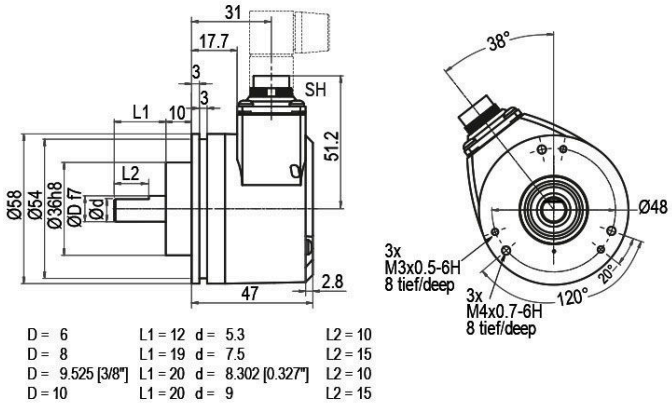
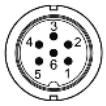
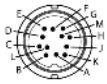
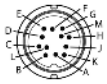
Connector (M16x0.75) R, radial, 5-, 6-, 8-, 12-pin



All dimensions in mm

Description		N inv. poss.
R5	radial, 5-pin, Connector connected to encoder housing	–
R6	radial, 6-pin, Connector connected to encoder housing	–
R8	radial, 8-pin, Connector connected to encoder housing	•
R12	radial, 12-pin, Connector connected to encoder housing	•

Assignments

	R5	R6	R8	R8	R12	R12
	5-pin	6-pin	8-pin	8-pin	12-pin	12-pin
						
Circuit	D2	D2	D2	D1	D2	D1
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
–	–	–	–	–	–	–
A inv.	–	–	–	6	–	F
B inv.	–	–	–	7	–	A
N inv.	–	–	–	8	–	D
n. c.	–	5	6, 7, 8	–	A, D, F, G, J	G, J
Shield	–	–	–	–	–	–

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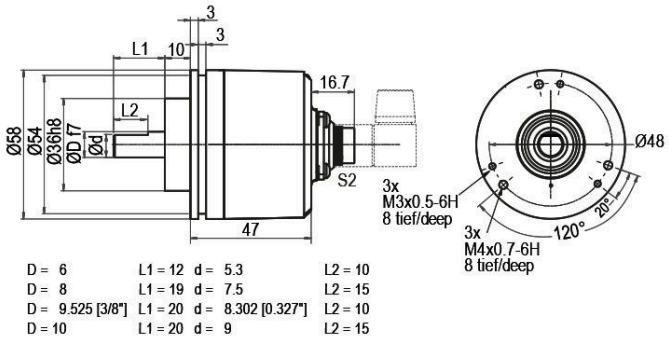
Connector (M16x0.75) A7, axial, 7-pin

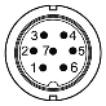


D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

All dimensions in mm

Description		N inv. poss.
A7	axial, 7-pin, Connector connected to encoder housing	–

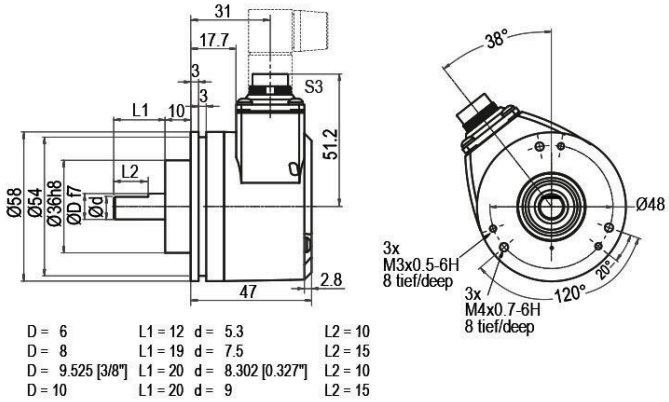
Assignments

	A7
	7-pin
	
Circuit	D2
GND	1
(+) Vcc	2
A	3
B	4
N	5
–	–
A inv.	–
B inv.	–
N inv.	–
n. c.	6, 7
Shield	–

Technische Daten

Encoder EI30 M 058 CL

Connector (M16x0.75) R7, radial, 7-pin

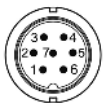


D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

All dimensions in mm

Description		N inv. poss.
R7	radial, 7-pin, Connector connected to encoder housing	–

Assignments

	R7
	7-pin
	
Circuit	D2
GND	1
(+) Vcc	2
A	3
B	4
N	5
–	–
A inv.	–
B inv.	–
N inv.	–
n. c.	6, 7
Shield	–

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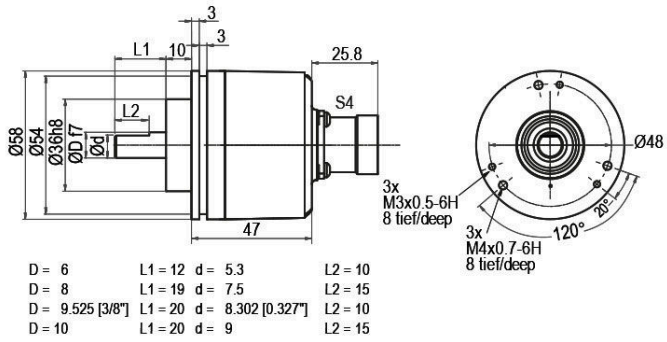
Encoder EI30 M 058 CL

Connector (M23) A12M, axial, 12-pin



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

All dimensions in mm

Description		N inv. poss.
A12M	axial, 12-pin, Connector connected to encoder housing	–

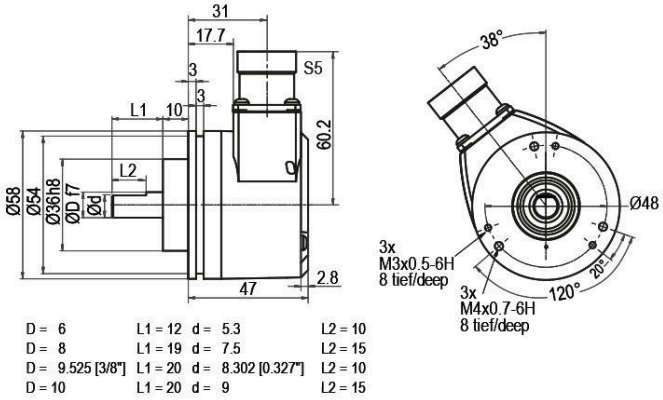
Assignments

	A12M 12-pin	A12M 12-pin
		
Circuit	D2	D1
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
–	–	–
A inv.	–	6
B inv.	–	1
N inv.	–	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	–	–

Technische Daten

Encoder EI30 M 058 CL

Connector (M23) R12M, radial, 12-pin



D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

All dimensions in mm

Description		N inv. poss.
R12M	radial, 12-pin, Connector connected to encoder housing	•

Assignments

	R12M 12-pin	R12M 12-pin
		
Circuit	D2	D1
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
–	–	–
A inv.	–	6
B inv.	–	1
N inv.	–	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	–	–

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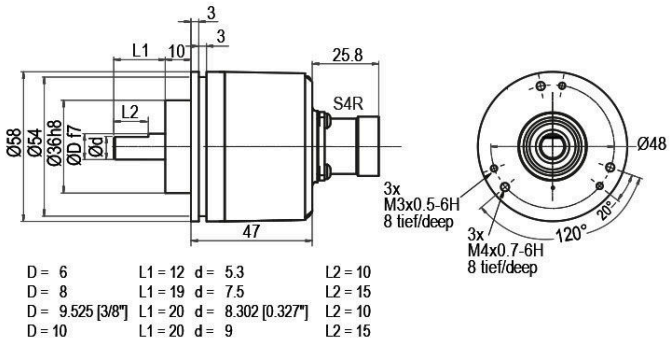
Connector (M23) AC12, axial, 12-pin (clockwise)

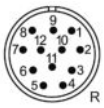
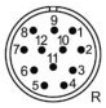


D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

All dimensions in mm

Description		N inv. poss.
AC12	axial, 12-pin, Connector connected to encoder housing	•

Assignments

	AC12 12-pin	AC12 12-pin
		
Circuit	D2	D1
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
–	–	–
A inv.	–	6
B inv.	–	1
N inv.	–	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	–	–

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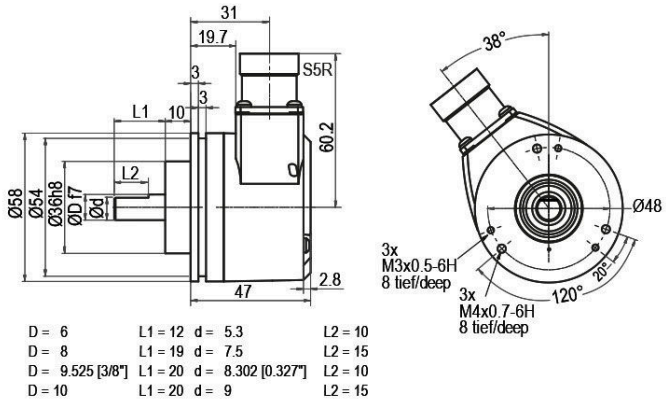
Encoder EI30 M 058 CL

Connector (M23) RC12, radial, 12-pin (clockwise)

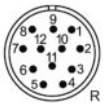
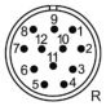


D = 6 L1 = 12 d = 5.3 L2 = 10
D = 8 L1 = 19 d = 7.5 L2 = 15
D = 9.525 [3/8"] L1 = 20 d = 8.302 [0.327"] L2 = 10
D = 10 L1 = 20 d = 9 L2 = 15

All dimensions in mm

Description		N inv. poss.
RC12	radial, 12-pin, Connector connected to encoder housing	•

Assignments

	RC12 12-pin	RC12 12-pin
		
Circuit	D2	D1
GND	10	10
(+) Vcc	12	12
A	5	5
B	8	8
N	3	3
–	–	–
A inv.	–	6
B inv.	–	1
N inv.	–	4
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11
Shield	–	–

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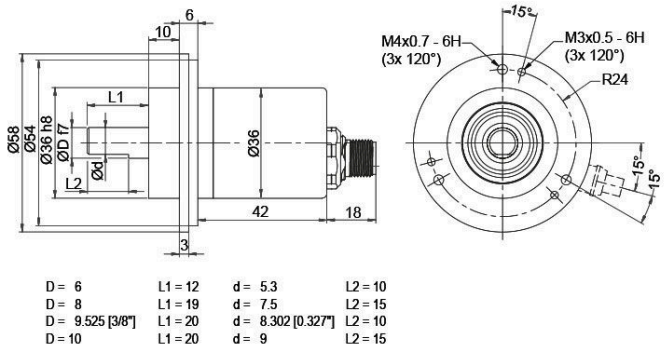
Encoder EI30 M 058 CL

Sensor-connector (M12x1) AS axial, 5-, 8-pin

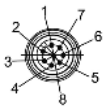


D = 6 L1 = 12 d = 5.3 L2 = 10
D = 8 L1 = 19 d = 7.5 L2 = 15
D = 9.525 [3/8"] L1 = 20 d = 8.302 [0.327"] L2 = 10
D = 10 L1 = 20 d = 9 L2 = 15

All dimensions in mm

Description		N inv. poss.
AS5	axial, 5-pin, Connector connected to encoder housing	–
AS8	axial, 8-pin, Connector connected to encoder housing	•

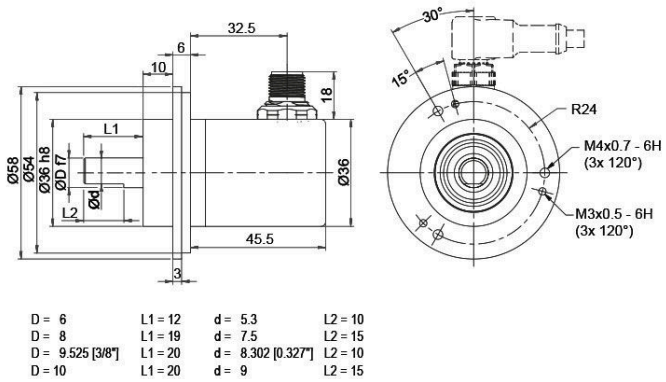
Assignments

	RS5	RS8
	5-pin	8-pin
		
Circuit	D2	D1
GND	3	1
(+) Vcc	1	2
A	4	3
B	2	4
N	5	5
–	–	
A inv.	–	6
B inv.	–	7
N inv.	–	8
n. c.	–	–
Shield	–	–

Technische Daten

Encoder EI30 M 058 CL

Sensor-connector (M12x1) RS radial, 5-, 8-pin

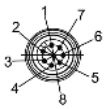


D = 6	L1 = 12	d = 5.3	L2 = 10
D = 8	L1 = 19	d = 7.5	L2 = 15
D = 9.525 [3/8"]	L1 = 20	d = 8.302 [0.327"]	L2 = 10
D = 10	L1 = 20	d = 9	L2 = 15

All dimensions in mm

Description		N inv. poss.
RS5	radial, 5-pin, Connector connected to encoder housing	–
RS8	radial, 8-pin, Connector connected to encoder housing	•

Assignments

	RS5	RS8
	5-pin	8-pin
		
Circuit	D2	D1
GND	3	1
(+) Vcc	1	2
A	4	3
B	2	4
N	5	5
–	–	
A inv.	–	6
B inv.	–	7
N inv.	–	8
n. c.	–	–
Shield	–	–

Technische Daten

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Encoder EI30 M 058 CL

Options

Low-friction bearings	Order key
The encoder EI30 M 058 CL is also available as a particularly smooth- running low-friction encoder. The starting torque is thereby changed to ≤ 0.5 Ncm [0.708 in-ozf] and the protection class at the shaft input to IP50.	LB

Shafts sealed to IP67, only with 10 mm [0.394"] shaft	Order key
The encoder EI30 M 058 CL can be supplied in a IP67 version. (full IP67 only connection AS, RS, A-C or R-C version; not cable connection R-IP = IP40).	IP
Max. RPM: 3500 min^{-1}	
Permitted Shaft-Loading: axial 100 N [10.197 kp]; radial 110 N [11.216 kp]	
Starting-torque: approx. 4 Ncm [5.664 in-ozf] at ambient temperature	

Low temperature	Order key
The encoder EI30 M 058 CL with the output circuit types D2, D1 is also available with the extended temperature range -40 °C up to +85 °C [-40 °F up to +185 °F] (measured at the flange).	LT

Pressure equalising membrane	Order key
The EI30 M 058 CL shaft encoder is also optionally available with a pressure equalising membrane. This prevents water from penetrating into the encoder housing in the case of high air humidity. The IP67 protection level, temperature range and salt spray resistance are maintained. Resistant to chemicals and solvents in accordance with DIN EN ISO 2812-1.	PE

Cable length	Order key
The encoder EI30 M 058 CL 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

Technische Daten

Leuze

Encoder EI30 M 058 CL

Example Order No.	Type	
EI30 M 058 CL	EI30 M 058 CL	EI30 M 058 CL

	Shaft
10	06; 08; 4Z; 10

	Pulses per revolution PPR:
16384	1-16384 Other PPRs on request

	Channels:
N	B, N

Output circuit

	Resolution PPR	Power supply VDC	Output circuit	–	Order key
D1	1-16384	4.75 - 30	HTL (TTL at 5 VDC)	–	D2
		4.75 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	–	D1

Technische Daten

Leuze

Encoder EI30 M 058 CL

Electrical connections

	Description	N inv. poss.	Order key
A-C	**Cable: length (2 m standard)**		
	radial, shield not connected (IP40)	•	R-IP
	axial, shield connected to encoder housing	•	A-C
	radial, shield connected to encoder housing	•	R-C
	Connector: (shield connected to encoder housing)		
	connector, M16x0.75, 5-pin, axial	–	A5
	connector, M16x0.75, 5-pin, radial	–	R5
	connector, M16x0.75, 6-pin, axial	–	A6
	connector, M16x0.75, 6-pin, radial	–	R6
	connector, M16x0.75, 8-pin, axial	•	A8
	connector, M16x0.75, 8-pin, radial	•	R8
	connector, M16x0.75, 12-pin, axial	•	A12
	connector, M16x0.75, 12-pin, radial	•	R12
	connector, M16x0.75, 7-pin, axial	–	A7
	connector, M16x0.75, 7-pin, radial	–	R7
	connector, M23, 12-pin, axial	•	A12M
	connector, M23, 12-pin, radial	•	R12M
	connector, clockwise pin count, M23, 12-pin, axial	•	AC12
	connector, clockwise pin count, M23, 12-pin, radial	•	RC12
	sensor-connector, M12x1, 5-pin, axial	–	AS5
	sensor-connector, M12x1, 5-pin, radial	–	RS5
	sensor-connector, M12x1, 8-pin, axial	•	AS8
	sensor-connector, M12x1, 8-pin, radial	•	RS8

Options

Description	Order key
Low-friction bearings	LB
Shafts sealed to IP67, only with 10 mm [0.394"] shaft	IP
Low temperature	LT
Pressure equalising membrane	PE
Without option	Empty
Cable length	XXX = Decimeter

Example Order No.:	EI30 M 058 CL	10	16384	N	D1	A-C	EI30 M 058 CL		**Your encoder**

Artikelschlüssel

Leuze

Artikelbezeichnung: **EABB CCCDDEE FFFFFF GHHJKK LLMNNOPPP RR**

A	**Drehgebertyp** I: Inkremental S: Absolut, Singleturn M: Absolut, Multiturn
BB	**Serie** 10: Entry 30: Basic 50: Extended 70: Advanced
CCC	**Flanschdurchmesser** 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	**Flanschtyp** BB: Hohlwelle mit Sacklochbohrung CA: Klemmflansch (zusätzlich 1,25") CC: Klemmflansch (kompakte Bauform) CF: Klemmflansch (Lebensmittel und Getränke) CH: Klemmflansch (Schwerlastausführung) CL: Klemmflansch HI: Hohlwelle (isoliert) HO: Hohlwelle HT: Hohlwelle (spezielle Drehmomentstütze) RC: Rundflansch (36/40 Klemmflansch, 58 mit 6-mm-Welle) RE: Rundflansch (erweiterte Bohrungen) RN: Rundflansch SC: Statorkupplung SF: Schraubflansch (53 Klemmflansch, 58 Lebensmittel und Getränke) SI: Servoflansch (erweiterte Wellenbelastung und IP-Schutz) SQ: Quadratflansch SR: Schraubflansch (36/40 Klemmflansch, 58 korrosionsbeständig) SY: Synchro (inkremental), Servo (36), Synchro (58) (absolut) TM: Tacho (115 mit 1-mm-Welle, 58 Motorfeedback) TS: Tacho (10-mm-Welle)
EE	**Wellen-/Bohrungsdurchmesser** 06: 6 mm 07: 7 mm 08: 8 mm 08: 8 mm 10": 1/10-Konus, 9,25 mm (3/8") 10: 10 mm 11: 11 mm 12: 12 mm 14: 14 mm 15: 15 mm 06-72: Hohl-/Sacklochbohrung (6 ... 72 mm) 2Z: 6,35 mm (1/4") 4Z: 9,525 mm (3/8")
FFFFFF	**Signal/Auflösung** Axxxxx: A Bxxxxx: AB Nxxxxx: ABN P16384: Programmierbar xx: Singleturn, 1 ... 16 Bit xx: Multiturn, 0 ... 43 Bit (00 bei Singleturn)
G	**Galvanische Trennung (nur Absolut)** 0: ohne 1: mit
HH	**Spannungsversorgung (nur Absolut)** 0": 4,75 ... 32 V DC 0: 10 ... 32 V DC/mit galvanischer Trennung 1: 4,75 ... 5,5 V DC 2: 18 ... 30 V DC
J	**Funktionsprinzip** M: magnetisch O: optisch P: optisch interpoliert

Artikelschlüssel

KK	**Schnittstelle** 01: RS485 07: SSI binär 08: SSI Gray 35: CANopen 38: EtherCAT 48: PROFINET 58: EtherNet/IP
LL	**Elektrischer Anschluss** M08: Rundstecker M8 M12: Rundstecker M12 M16: Rundstecker M16 M23: Rundstecker M23 M12BC: Bushaubenstecker
M	**Kabelabgang** A: Axial R: Radial T: Tangential
NN	**Polzahl** xx: Polzahl
O	**Schirmanschluss (2-m-Kabel) (optional)** C: angeschlossen N: nicht angeschlossen
PPP	**Kabellänge** xxx: Kabellänge (in dm)

Hinweis

Eine Liste mit allen verfügbaren Gerätetypen finden Sie auf der Webseite von Leuze unter www.leuze.com.

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