

技術データシート

エンコーダ シリーズ情報

製品番号: 90000430

EI30-P 058 BB

目次

- 仕様書
- 製品キー



写真と異なる場合があります

エンコーダ_シリーズ	EI 058 BB
エンコーダ_基本原理	インクリメンタル
エンコーダ_動作原理	光学的に補間された
エンコーダ_フランジ直径	Ø 58mm
エンコーダ_フランジタイプ	ブラインドホール
エンコーダ_中実シャフト/中空シャフト	中空シャフト
エンコーダ_シャフト直径	Ø 10 mm
	Ø 12 mm
	Ø 15 mm
	Ø 6 mm
	Ø 7 mm
	Ø 8 mm
エンコーダ_供給電圧	10 ... 30 V DC
	4.75 ... 5.5 V DC
	5 ... 30V DC
エンコーダ_出力スイッチ	1 Vss Sin/Cos
	HTL
	HTL、inv.
	TTL
	TTL、RS422 互換性、inv.
エンコーダ_インパルス数	1000 I/U
	10000 I/U
	10240 I/U
	12500 I/U
	16384 I/U
	2000 I/U
	20000 I/U
	20480 I/U
	2500 I/U
	25000 I/U
	4000 I/U
	4096 I/U
	5000 I/U
	8000 I/U
	8192 I/U

仕様書

Encoder EI30 P 058 BB

Resolution

Pulses per revolution ppr	up to 25000 PPR
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Mechanical Data

Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing material	die cast aluminum, powder coated
Torque supports	incl. 1 torque support
- 1. Spring plate compensation	axial: ± 0.8 mm [0.0315"], radial: ± 0.2 mm [0.0079"]
- Max. operating speed	6000 rpm up to max. protection rating +60 °C
- 2. Cylinder pin 4 mm	needs accessories
- Compensation	axial: ± 0.5 mm [0.0197"], radial: ± 1.5 mm [0.0591"], Max. operating speed: 3000 rpm
Flange diameter	$\varnothing$ 58 mm [$\varnothing$ 2.283"]

Shaft(s)

Shaft material	stainless steel
Starting torque	approx. 1.6 Ncm [2.266 in-ozf] at ambient temperature
Fixing	permanently attached clamping ring

Shaft	$\varnothing$ 6 mm [$\varnothing$ 0.236"]
Advice	with adapter sleeve
Shaft length	L: 35 mm [1.378"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

Shaft	$\varnothing$ 6.35 mm [$\varnothing$ 1/4"] Order No: 2Z
Advice	with adapter sleeve
Shaft length	L: 35 mm [1.378"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

Shaft	$\varnothing$ 7 mm [$\varnothing$ 0.276"]
Advice	with adapter sleeve
Shaft length	L: 35 mm [1.378"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

Shaft	$\varnothing$ 8 mm [$\varnothing$ 0.315"]
Shaft length	L: 35 mm [1.378"]

Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

Shaft	$\varnothing$ 9.525 mm [$\varnothing$ 3/8"] Order No: 4Z
Advice	with adapter sleeve
Shaft length	L: 35 mm [1.378"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

Shaft	$\varnothing$ 10 mm [$\varnothing$ 0.394"]
Shaft length	L: 35 mm [1.378"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

Shaft	$\varnothing$ 12 mm [$\varnothing$ 0.472"]
Shaft length	L: 35 mm [1.378"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

Shaft	$\varnothing$ 12.7 mm [$\varnothing$ 1/2"] Order No: 3Z
Advice	with adapter sleeve
Shaft length	L: 35 mm [1.378"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

Shaft	$\varnothing$ 15 mm [$\varnothing$ 0.591"]
Shaft length	L: 35 mm [1.378"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	39 mm [1.535"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	60 N [6.118 kp]

仕様書

Encoder EI30 P 058 BB

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	6000 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 6000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4.75 VDC up to 30 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

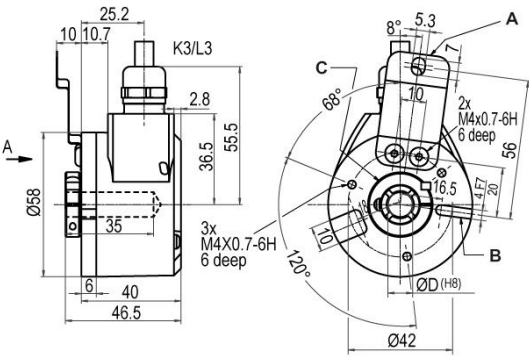
General Data

Weight	approx. 220 g [7.76 oz]
Connections	cable or connector, radial
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 ACA: -40 °C up to +85 °C). Connector: -40 °F up to +185 °F, Cable: -4 °F up to +176 °F, Option ACA: -40 °F up to +185 °F 1 Vpp: -10 °C up to +70 °C [+14 °F up to +158 °F]
Storage temperature	Connector: -40 °C up to +85 °C, Cable: -30 °C up to +80 °C (Option ACA: -40 °C up to +85 °C) Connector: -40 °F up to +185 °F, cable: -22 °F up to +176 °F, (Option ACA: -40 °F up to +185 °F)

仕様書

Encoder EI30 P 058 BB

Cable connection R-N, R-C, radial with 2 m cable



- A Spring plate as torque support
- B Groove for cylinder pin as torque support DIN7-D4mm
- B Clamping ring

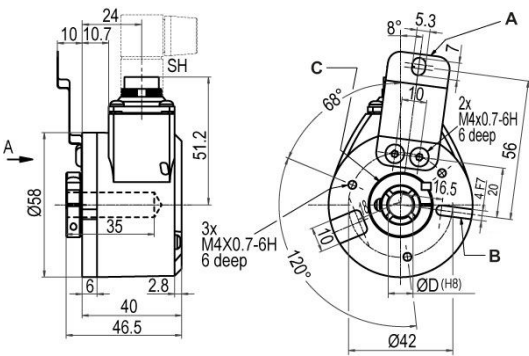
All dimensions in mm

Description		N inv. poss.
R-N	radial, shield not connected	•
R-C	radial, shield connected to encoder housing	•

Assignments

	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.	–	BK, (BU at LT)	PK
N inv.	–	VT	–
Shield	flex	flex	flex

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



- A Spring plate as torque support
- B Groove for cylinder pin as torque support DIN7-D4mm
- B Clamping ring

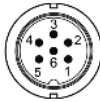
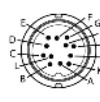
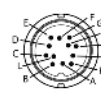
All dimensions in mm

仕様書

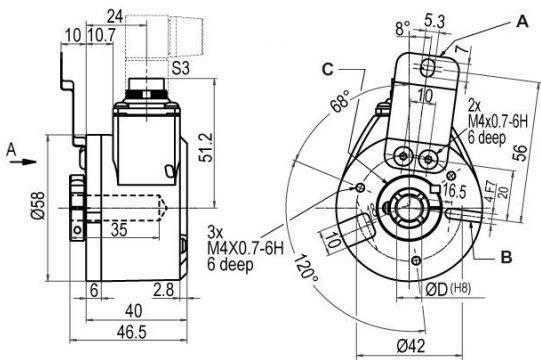
Encoder EI30 P 058 BB

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	C3, C4, C5, C6, C7	C3, C4, C5, C6, C7	C1, C2, D3, D4, D5, D6, D7	D8	C1, C2, D3, D4, D5, D6, D7	D8
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	—	C	—
—	—	—	—	—	—	—
A inv.	—	—	6	6	F	F
B inv.	—	—	7	7	A	A
N inv.	—	—	8	—	D	—
n. c.	—	5	—	5, 8	G, J	D, G, J
Shield	—	—	—	—	—	—

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



All dimensions in mm

- A Spring plate as torque support
- B Groove for cylinder pin as torque support DIN7-D4mm
- B Clamping ring

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

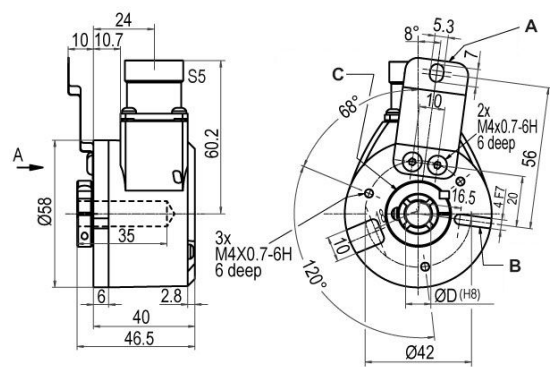
仕様書

Encoder EI30 P 058 BB

Assignments

R7	
7-pin	
	
Circuit	C3, C4, C5, C6, C7
GND	1
(+) Vcc	2
A	3
B	4
N	5
—	—
A inv.	—
B inv.	—
N inv.	—
n. c.	6, 7
Shield	—

Connector (M23) R12M, radial, 12-pin



All dimensions in mm

- A Spring plate as torque support
- B Groove for cylinder pin as torque support DIN7-D4mm
- B Clamping ring

Description

N inv. poss.

R12M radial, 12-pin, Connector connected to encoder housing

Assignments

R12M			
12-pin			
			
Circuit	C3, C4, C5, C6, C7	C1, C2, D3, D4, D5, D6, D7	D8
GND	10	10	10
(+) Vcc	12	12	12

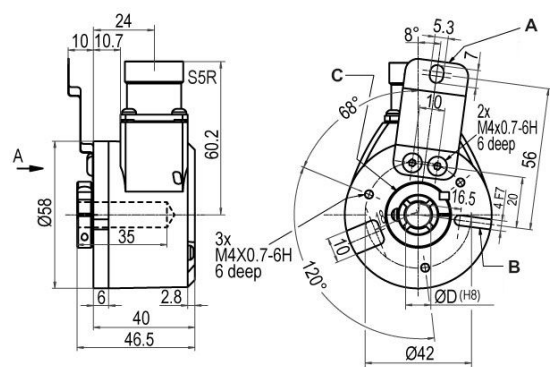
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Encoder EI30 P 058 BB

Assignments

A	5	5	5
B	8	8	8
N	3	3	—
—	—	—	—
A inv.	—	6	6
B inv.	—	1	1
N inv.	—	4	—
n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 3, 4, 7, 9, 11
Shield	—	—	—

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



All dimensions in mm

- A Spring plate as torque support
- B Groove for cylinder pin as torque support DIN7-D4mm
- B Clamping ring

Description

N inv. poss.

RC12 radial, 12-pin, Connector connected to encoder housing

Assignments

	RC12 12-pin	RC12 12-pin	RC12 12-pin
Circuit	C3, C4, C5, C6, C7	C1, C2, D3, D4, D5, D6, D7	D8
GND	10	10	10
(+) Vcc	12	12	12
A	5	5	5
B	8	8	8
N	3	3	—
—	—	—	—
A inv.	—	6	6
B inv.	—	1	1
N inv.	—	4	—

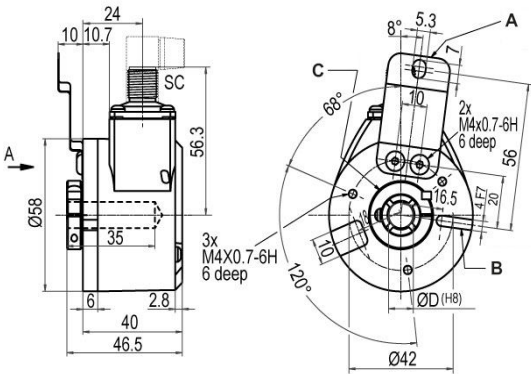
仕様書

Encoder EI30 P 058 BB

Assignments

n. c.	1, 2, 4, 6, 7, 9, 11	2, 7, 9, 11	2, 3, 4, 7, 9, 11
Shield	-	-	-

Sensor-connector (M12x1) RS, radial, 4-, 5-, 8-, 12-pin



- A Spring plate as torque support
- B Groove for cylinder pin as torque support DIN7-D4mm
- B Clamping ring

All dimensions in mm

Description

N inv. poss.

RS4	radial, 4-pin, Connector connected to encoder housing	-
RS5	radial, 5-pin, Connector connected to encoder housing	-
RS8	radial, 8-pin, Connector connected to encoder housing	•
RS12	radial, 12-pin, Connector connected to encoder housing	•

Assignments

	RS4 4-pin	RS5 5-pin	RS8 8-pin	RS8 8-pin	RS12 12-pin
Circuit	C3, C4, C5, C6, C7	C3, C4, C5, C6, C7	C1, C2, D3, D4, D5, D6, D7	D8	C1, C2, D3, D4, D5, D6, D7
GND	3	3	1	1	3
(+) Vcc	1	1	2	2	1
A	2	4	3	3	4
B	4	2	4	5	6
N	-	5	5	-	8
-	-	-	-	-	-
A inv.	-	-	6	4	9
B inv.	-	-	7	6	7
N inv.	-	-	8	-	10
n. c.	-	-	-	7, 8	2, 5, 11, 12
Shield	-	-	-	-	-

仕様書

Encoder EI30 P 058 BB

Options

Low-friction bearings	Order key
The encoder EI30 P 058 BB is also available as a particularly smooth- running low-friction encoder. The starting torque is thereby changed to approx. ≤ 0.6 Ncm [0.85 in-ozf] at ambient temperature and the protection class at the shaft input to IP50.	LB
Low temperature	Order key
The encoder EI30 P 058 BB with the output circuit types C1, C2, C3, C4, C5, C6, D3, D4, D5, D6 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 P 058 BB 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 P 058 BB 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

仕様書

Encoder EI30 P 058 BB

Example Order No.	Type				
EI30 P 058 BB	EI30 P 058 BB				
	EI30 P 058 BB				
Shaft					
10	06; 2Z; 07; 08; 4Z; 10; 12; 3Z; 15				
Pulses per revolution ppr:					
1024	4, 6, 25, 36, 50, 60, 64, 70, 88, 100, 120, 125, 150, 180, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 720, 750, 768, 800, 900, 1000, 1024, 1200, 1250, 1270, 1500, 1800, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000, 8000, 8192, 10000, 10240, 12500, 16384, 20000, 20480, 25000 1 Vpp Sin/Cos only 1024, 2048 Other pprs on request				
Channels:					
N	B, N (SIN: B)				
Output circuit					
C6	Resoluti- on ppr	Power sup- ply VDC	Output circuit	—	Order key
	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
	(higher fre- quency) 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

仕様書

Encoder EI30 P 058 BB

Electrical connections

Description		N inv. poss.	Order key
R-N	Cable: length (2 m standard)		
	radial, shield not connected	•	R-N
	radial, shield connected to encoder housing	•	R-C
	Connector: (shield connected to encoder housing)		
	connector, M16x0.75, 5-pin, radial	–	R5
	connector, M16x0.75, 6-pin, radial	–	R6
	connector, M16x0.75, 8-pin, radial	•	R8
	connector, M16x0.75, 12-pin, radial	•	R12
	connector, M16x0.75, 7-pin, radial	–	R7
	connector, M23, 12-pin, radial	•	R12M
	connector, clockwise pin count, M23, 12-pin, radial	•	RC12
	sensor-connector, M12x1, 4-pin, radial	–	RS4
	sensor-connector, M12x1, 5-pin, radial	–	RS5
	sensor-connector, M12x1, 8-pin, radial	•	RS8
	sensor-connector, M12x1, 12-pin, radial	•	RS12

Options

Description	Order key
Low-friction bearings	LB
Low temperature	LT
IP55	PE
Without option	Empty
Cable length	XXX = Decimeter

Example Order No.:	EI30 P 058 BB	10	1024	N	C6	R-N	EI30 P 058 BB	Your enco- der
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製品キー

製品名：EABB CCCDDEE FFFFFFF GHJJKK LLMNNOPPP RR

A	回転エンコーダのタイプ I：インクリメンタル S：絶対的、シングルターン M：絶対、マルチターン
BB	シリーズ 10：入力 30：ベーシック 50：拡張済み 70：先進的
CCC	フランジ直径 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	フランジタイプ BB：ブラインドホール付きの中空シャフト CC：(コンパクトな形態) CF：クランプフランジ (食品と飲料) CH：クランプフランジ (重荷重仕様) CL：クランプフランジ HI：中空シャフト (絶縁された) HO：中空シャフト HT：中空シャフト (特別なトルク支持) RC：丸形フランジ (36/40 クランプフランジ、58 6-mm-シャフト付き) RE：丸形フランジ (拡張穴) RN：丸形フランジ SC：ステータカップリング SF：ネジフランジ (53 クランプフランジ、58 食品と飲料水) SI：サーボフランジ (拡張シャフト負荷とIP保護) SQ：スクエアフランジ SR：ネジフランジ (36/40 クランプフランジ、58 耐食性) SY：シンクロ (インクリメンタル)、サーボ (36)、シンクロ (58) (絶対的) TM：タコ (115 1-mm-シャフト付き、58 モーターフィードバック) TS：タコ (10-mm-シャフト)
EE	シャフト-/穴の直径 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：中空-/ブラインドホール (6 ... 72 mm)
FFFFFF	信号/分解能 Axxxxx：A Bxxxxx：AB Nxxxxx：ABN P16384：プログラム可能 xx：シングルターン、1 ... 16 Bit xx：マルチターン、0 ... 43 Bit (00 シングルターンの場合)
G	直流電流切断 (絶対のみ) 0：なし 1：と一緒に
HH	電力供給 (絶対のみ) 0：10 ... 32 V DC/ 直流電流分離付き 1：4.75 ... 5.5 V DC 2：18 ... 30 V DC
J	動作原理 M：磁力の O：光学的 P：光学的に補間された

製品キー

KK	インターフェース 01 : RS485 07 : SSI バイナリ 08 : SSI Gray 35 : CANopen 38 : EtherCAT 48 : PROFINET 58 : EtherNet/IP
LL	電氣的接続 M08 : 丸形プラグ M8 M12 : 丸形プラグ M12 M16 : 丸形プラグ M16 M23 : 丸形プラグ M23 M12BC : バスキャッププラグ
M	ケーブルアウトレット A : 軸方向 R : 半径方向 T : 正接の
NN	極数 xx : 極数
O	シールド接続 (2-m-ケーブル) (オプション) C : 接続済み N : 不接続
PPP	ケーブル長さ xxx : ケーブル長 (dm)

注意

	利用可能なすべてのデバイスタイプのリストは、Leuzeのウェブサイト www.leuze.com にあります。
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