

Incremental encoders

**Standard
optical, programmable**

Sendix K58I-PR (shaft / hollow shaft)

Push-pull / RS422



Highest performance and flexibility.

The new Sendix K58I Performance-Line encoder is particularly impressive due to the possibility of programming different parameters such as resolution, counting direction or zero pulse. The settings can be made before or after installation and enable a fast, direct response to changing or new requirements without having to replace the encoder with a new one.

Other optimized features include a higher temperature range and a resolution of up to 36,000 pulses per revolution.



Safety-Lock™



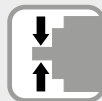
High rotational speed



Temperature range
-40° ... +110°C



High protection level
IP



High shaft load capacity



Shock / vibration resistant



Magnetic field proof



Short-circuit proof



Reverse polarity protection



Optical sensor

Features and benefits

- **Encoders can be customized quickly and easily at any time**

Individually configurable parameters:

- Pulse numbers up to 36,000 ppr
- HTL or TTL output
- Counting direction
- Zero pulse settings (length, position, links)

- **High accuracy and reliability**

State-of-the-art sensor technology with resolutions up to 36,000 ppr.

- **Prepared for the toughest operating conditions and a wide range of external influences**

- Temperature range from -40 °C up to +110 °C
- Protection class up to a maximum of IP67
- Optimized EMC shielding concept
- Advanced Safety Lock technology

- **Seamless integration into modern, digital networks**

Prepared for use with digital type plate and digital twin for monitoring and maintaining machines and for a wide range of documentation tasks.

Optimizing processes and increasing efficiency.

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Standard optical, programmable		Sendix K58I-PR (shaft / hollow shaft)						Push-pull / RS422															
Order code Shaft version		K58I	.	0	PR	XX	.	XXXXXX	.	2	XX	XX	XX	.	XX	X	X	X	.	XXXX	.	XX	X
		Type				a		b		c	d	e	f		g	h	i	k		l		m	
a Interface																							
PP = push-pull																							
RS = RS422																							
b Pulse rate (1 ... 36000 ppr)																							
XXXXX = 00001 ... 36000																							
c Supply voltage																							
2 = 5 ... 30 V DC																							
d Version																							
S1 = Shaft, with flat																							
(not in combination with shaft ø 11 mm i = 11)																							
S3 = Shaft, with feather keyway and enclosed feather key																							
(only in combination with shaft ø 11 mm i = 11)																							
e Flange																							
C5 = clamping flange																							
S5 = synchro flange																							
Q5 = square flange, □ 63.5 mm [2.5"]																							
E5 = Euro flange																							
V5 = servo flange																							
f Shaft (ø x L), with flat																							
(only in combination with version d = S1)																							
06 = ø 6 x 10 mm [0.24 x 0.39"]																							
08 = ø 8 x 15 mm [0.32 x 0.59"]																							
10 = ø 10 x 20 mm [0.39 x 0.79"]																							
12 = ø 12 x 20 mm [0.47 x 0.79"]																							
1A = ø 1/4 x 5/8" (6.35 x 15.875 mm)																							
1B = ø 1/4 x 7/8" (6.35 x 22.225 mm)																							
2A = ø 3/8 x 5/8" (9.525 x 15.875 mm)																							
2B = ø 3/8 x 7/8" (9.525 x 22.225 mm)																							
Shaft (ø x L), with feather keyway and enclosed feather key																							
(only in combination with version d = S3)																							
11 = ø 11 x 33 mm [0.43 x 1.30"]																							
g Type of protection																							
65 = IP65																							
6A = IP66/IP67																							
h Position connection																							
A = axial																							
R = radial																							
i Type of connection																							
1 = cable, PVC (open-ended oder with connector on the housing)																							
2 = cable, TPE (only open-ended)																							
3 = cable, PUR (only open-ended) – for variants with Ex 2/22																							
C = connector on the housing																							
k Cable / connector type																							
1 = cable, open ended																							
2 = M12 connector, 8-pin																							
3 = M12 connector, 5-pin																							
4 = M23 connector, 12-pin																							
l Cable length (in dm)																							
0010 = 1 m [3.28']																							
0020 = 2 m [6.56']																							
0030 = 3 m [9.84']																							
0050 = 5 m [13.12']																							
0100 = 10 m [32.80']																							
m Optional: special formats for output signals																							
XX = see page 8																							
Optional on request																							
- Ex 2/22																							
only for variants with PUR cable or with connector on the housing /																							
only for variants with type of protection IP66/IP67																							
- Surface protection salt spray tested																							
- Other cable lengths																							
Stock types:																							
K58I.OPRPP.01024.2S1C510.65RC2																							

Incremental encoders

Standard optical, programmable		Sendix K58I-PR (shaft / hollow shaft)										Push-pull / RS422																			
Order code Hollow shaft		K58I		.0		PR		XX		.XXXXX		.2		XX		XX		XX		.XX		XX		XX		.XXXX		.XX			
		Type						a		b		c		d		e		f		g		h		i		k		l		m	
a		Interface																													
PP		= push-pull																													
RS		= RS422																													
b		Pulse rate (1 ... 36000 ppr)																													
XXXXX		= 00001 ... 36000																													
c		Supply voltage																													
2		= 5 ... 30 V DC																													
d		Version																													
H1		= through hollow shaft, clamping on flange side																													
H2		= through hollow shaft, clamping on flange side with pre-assembled Insulation / reduction insert (only for hollow shafts < ø 14 mm)																													
C1		= through hollow shaft, clamping on the cover side																													
C2		= through hollow shaft, clamping on the cover side with pre-assembled Insulation / reduction insert (only for hollow shafts < ø 14 mm)																													
e		Mounting type																													
15		= spring element, long R 35.5 ... 37,9 mm [1.40 ... 1.49"]																													
25		= stator coupling ø 63 mm [2.48"]																													
35		= stator coupling ø 65 mm [2.56"]																													
45		= torque stop R 40 ... 75 mm [1.57 ... 2.95"]																													
f		Through hollow shaft																													
06		= ø 6 mm [0.24"]																													
08		= ø 8 mm [0.32"]																													
10		= ø 10 mm [0.39"]																													
12		= ø 12 mm [0.47"]																													
14		= ø 14 mm [0.55"]																													
15		= ø 15 mm [0.59"]																													
1A		= ø 1/4" (6.35 mm)																													
2A		= ø 3/8" (9.525 mm)																													
3A		= ø 1/2" (12.7 mm)																													
g		Type of protection																													
65		= IP65																													
6A		= IP66/IP67																													
h		Position connection																													
R		= radial																													
T		= tangential – only for version d = H1 or H2 only with type of connection i = 1 (cable PVC) only with hollow shaft f ≤ 15 mm																													
i		Type of connection																													
1		= cable, PVC (open-ended oder with connector on the housing)																													
2		= cable, TPE (only open-ended)																													
3		= cable, PUR (only open-ended) – for variants with Ex 2/22																													
C		= connector on the housing																													
k		Cable / connector type																													
1		= cable, open-ended																													
2		= M12 connector, 8-pin																													
3		= M12 connector, 5-pin																													
4		= M23 connector, 12-pin																													
l		Cable length (in dm)																													
0010		= 1 m [3.28']																													
0020		= 2 m [6.56']																													
0030		= 3 m [9.84']																													
0050		= 5 m [13.12']																													
0100		= 10 m [32.80']																													
m		Optional: special formats for output signals																													
XX		= see page 8																													
		Optional on request																													
		- Ex 2/22																													
		only for variants with PUR cable or with connector on the housing only for variants with type of protection IP66/IP67																													
		- Surface protection salt spray tested																													
		- Other cable lengths																													
		Stock types:																													
		K58I.0PRPP.01024.2H12515.65RC2																													

Incremental encoders

Standard optical, programmable	Sendix K58I-PR (shaft / hollow shaft)	Push-pull / RS422
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Mounting accessory for shaft encoders		Order no.
Coupling	bellows coupling ø 19 mm [0.75"] for shaft 6 mm [0.24"]	8.0000.1102.0606
	bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]	8.0000.1102.1010


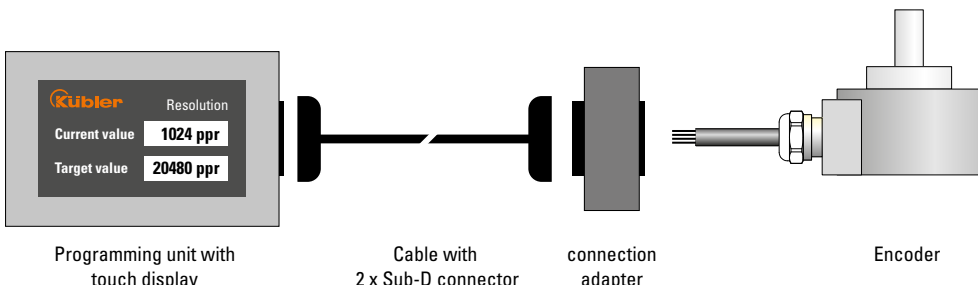
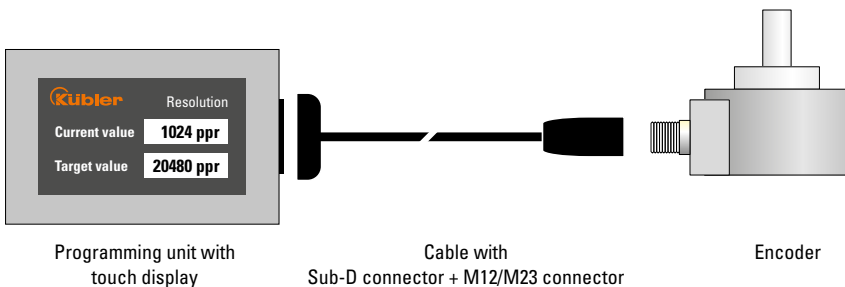
Mounting accessory for hollow shaft encoders		Order no.
Dimensions in mm [inch]		
Torque pin, ø 4 mm	with fixing thread	8.0010.4700.0000
for flange with spring element (mounting type P = 15 and 75)		

Insulation / reduction insert for hollow shaft encoders with \varnothing 15 mm I = 15		Thermal and electrical isolation of the encoders (Temperature range -40 °C ... +115 °C [-40 °F ... +239 °F])		Insulation insert		
		Insulation inserts prevent currents from passing through the encoder bearings. These currents can occur when using inverter controlled three-phase or AC vector motors and considerably shorten the service life of the encoder bearings. In addition the encoder is thermally isolated as the plastic does not transfer the heat to the encoder.				
				D1		
				6 mm	8.0010.4021.0000	
				8 mm	8.0010.4020.0000	
				10 mm	8.0010.4023.0000	
				12 mm	8.0010.4025.0000	
		1/4" (6.35 mm)	8.0010.4022.0000			
		3/8" (9.525 mm)	8.0010.4024.0000			
		1/2" (12.7 mm)	8.0010.4026.0000			
Also available pre-assembled as version I = H2 or C2						

Cables and connectors		Order no.
Preassembled cables	M23 female connector with coupling nut, 12-pin,cw single ended 2 m TPE Kabel	8.0000.6E01.0002
	M12 female connector with coupling nut, 5-pin, A coded, straight single ended 2 m [6.56"] PVC cable (only suitable up to max. +85°C)	05.00.6081.2211.002M
	M12 female connector with coupling nut,8-pin,A coded, straight single ended 2 m [6.56"] PVC cable (only suitable up to max. +85°C)	05.00.6041.8211.002M
Connectors	M12 female connector with coupling nut, 5-pin, A coded, straight (plastic)	05.B-8151-0/9
	M12 female connector with coupling nut,8-pin,A coded, straight (metal)	05.CMB 8181-0
	M23 female connector with coupling nut, 12-pin,cw	8.0000.5012.0000

Further Kübler accessories can be found at: kuebler.com/accessories
 Further Kübler cables and connectors can be found at: kuebler.com/connection-technology

Incremental encoders

Standard optical, programmable		Sendix K58I-PR (shaft / hollow shaft)	Push-pull / RS422	
Programming unit			Order no.	
Programming unit with touch display EP1000 	Programming device for PC-independent use, even in the field		8.0010.9000.1000 ¹⁾	
	Dimensions	136 x 84 x 38 mm		
	Connection	Sub-D female connector		
	Scope of delivery	Programming unit, plug-in power supply unit		
Accessories for programming - for encoders with cable connection			Order no.	
				
	Programming unit with touch display	Cable with 2 x Sub-D connector	connection adapter	Encoder
Connection cable	For connecting programming unit with the connection adapter Sub-D male connector, 15-pin Sub-D female connector, 15-pin 2 m [6.56'] PVC cable		05.00.60J1.L7L8.002M	
Connection adapter	For connecting the encoder Sub-D male connector, 15-pin Spring terminal, 3-pin		8.0010.9000.0100	
Accessories for programming - for encoders with connector			Order no.	
				
	Programming unit with touch display	Cable with Sub-D connector + M12/M23 connector	Encoder	
Connection cable	For encoders with M12 connector, 8-pin Sub-D male connector, 15-pin M12 female connector with coupling nut, 8-pin, A coded, straight 2 m [6.56'] PVC cable		8.0000.6000.0002.0112	
	For encoders with M12 connector, 5-pin Sub-D male connector, 15-pin M12 female connector with coupling nut, 5-pin, A coded, straight 2 m [6.56'] PVC cable		8.0000.6000.0002.0113	
	For encoders with M23 connector, 12-pin Sub-D male connector, 15-pin M23 female connector with coupling nut, 12-pin, straight 2 m [6.56'] PVC cable		8.0000.6000.0002.0114	

1) Stock types

Incremental encoders

Standard optical, programmable	Sendix K58I-PR (shaft / hollow shaft)	Push-pull / RS422
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Technical data

Mechanical characteristics		
Maximum speed	IP65	12000 min ⁻¹
		6000 min ⁻¹ (continuous)
	IP66/IP67	6000 min ⁻¹
		3000 min ⁻¹ (continuous)
	variants with Ex 2/22 (IP66/IP67)	3000 min ⁻¹
Mass moment of inertia	shaft	approx. 4.0 ... 4.3 x 10 ⁻⁶ kgm ²
		(depending on shaft version)
	hollow shaft	approx. 4.3 ... 5.8 x 10 ⁻⁶ kgm ²
		(depending on hollow shaft version)
Starting torque at 20 °C [68 °F]		
	IP65	< 0.01 Nm with IP65
	IP66/IP67	< 0.02 Nm with IP66/IP67
Shaft load capacity	radial	100 N
	axial	50 N
Weight		
		approx. 0.4 kg [14.11 oz]
Protection acc. to EN 60529		
	without shaft seal	IP65
	with shaft seal	IP66/IP67
Material		
	shaft	stainless steel
Shock resistance acc. to EN 60068-2-27		
		3000 m/s ² , 6 ms
Vibration resistance acc. to EN 60068-2-6		
	5 ... 8.7 Hz	±0.35 mm
	8.7 ... 200 Hz	30 m/s ²
	200 ... 2000 Hz	300 m/s ²

Working temperature range with connector on the housing	
	-40 °C ... +110 °C [-40 °F ... +230 °F]
Working temperature range with PVC cable	
fixed cable installation	-30 °C ... +80 °C [-22 °F ... +176 °F]
flexible cable use	-5 °C ... +80 °C [+23 °F ... +176 °F]
Working temperature range with TPE cable	
fixed cable installation	-40 °C ... +110 °C [-40 °F ... +230 °F]
flexible cable use	-25 °C ... +110 °C [-13 °F ... +230 °F]
Working temperature range with PUR cable	
fixed cable installation	-40 °C ... +80 °C [-40 °F ... +176 °F]
flexible cable use	-20 °C ... +80 °C [-4 °F ... +176 °F]

Approvals	
UL compliant in accordance with	File no. E224618
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

Electrical characteristics		
Output circuit	RS422 (TTL compatible)	Push-pull (HTL/TTL universal)
	Order code a RS	PP
Supply voltage	5 ... 30 V DC	5 ... 30 V DC
Power consumption (no load)	typ. 40 mA / max. 90 mA	typ. 40 mA / max. 90 mA
Permissible load / channel	max. +/- 20 mA	max. +/- 20 mA
Pulse frequency	max. 300 kHz	max. 300 kHz ¹⁾
Signal level	HIGH	min. 2.5 V
	LOW	max. 0.5 V
Rising edge time t _r	max. 200 ns	max. 200 ns
Falling edge time t _f	max. 200 ns	max. 200 ns
Short circuit proof outputs ²⁾	yes ³⁾	yes ³⁾
Reverse polarity protection of the supply voltage	yes	yes

1) Max. recommended cable length 30 m [98.43'].

2) If supply voltage correctly applied.

3) Only one channel allowed to be shorted-out:
at +V= 5 V DC, short-circuit to channel, 0 V, or +V is permitted.
at +V= 5 ... 30 V DC, short-circuit to channel or 0 V is permitted.

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Terminal assignment

Interface	Cable / connector type	Cable (isolate unused cores individually before initial start-up)											
PP, RS	1	Signal:	0 V	+V	0 V _{sens}	+V _{sens}	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp
		Core color:	WH	BN	QY/PK	RD/BU	GN	YE	GY	PK	BU	RD	shield

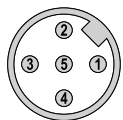
Interface	Cable / connector type	M12 connector, 5-pin						
PP, RS	3	Signal:	0 V	+V	A	B	0	\perp
		Pin:	1	2	3	4	5	PH

Interface	Cable / connector type	M12 connector, 8-pin										
PP, RS	2	Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp	
		Pin:	1	2	3	4	5	6	7	8	PH	

Interface	Cable / connector type	M23 connector, 12-pin											
PP, RS	4	Signal:	0 V	+V	0 V _{sens}	+V _{sens}	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp
		Pin:	10	12	11	2	5	6	8	1	3	4	PH

+V : Supply voltage encoder +V DC
 0 V : Supply voltage encoder ground GND (0 V)
 0 V_{sens} / +V_{sens} : Using the sensor outputs of the encoder, the voltage present can be measured and if necessary increased accordingly..
 A, \bar{A} : Incremental output channel A
 B, \bar{B} : Incremental output channel B
 0, $\bar{0}$: Reference signal
 PH \perp : Shield is connected to the connector housing

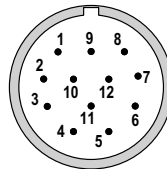
Top view of mating side, male contact base



M12 connector, 5-pin



M12 connector, 8-pin



M23 connector, 12-pin

Incremental encoders

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Sendix K58I-PR (shaft / hollow shaft)

Push-pull / RS422

Special formats for output signals

A leading B when the shaft is rotated clockwise with the flange side facing you.		
Order code		
Standard No specification in the order code	Z at A / B = 1 / 1 Z is 90° wide	
A1	Z at A / B = 1 / 0 Z is 90° wide	
A2	Z at A / B = 0 / 1 Z is 90° wide	
A3	Z at A / B = 0 / 0 Z is 90° wide	
A4	Z at A = 1 Z is 180° wide	
A5	Z at A = 0 Z is 180° wide	
A6	Z at B = 1 Z is 180° wide	
A7	Z at B = 0 Z is 180° wide	
A8	Z at A Z is 360° wide	
A9	Z at B Z is 360° wide	

B leading A when the shaft is rotated clockwise with the flange side facing you.		
Order code		
B0	Z at A / B = 1 / 1 Z is 90° wide	
B1	Z at A / B = 1 / 0 Z is 90° wide	
B2	Z at A / B = 0 / 1 Z is 90° wide	
B3	Z at A / B = 0 / 0 Z is 90° wide	
B4	Z at A = 1 Z is 180° wide	
B5	Z at A = 0 Z is 180° wide	
B6	Z at B = 1 Z is 180° wide	
B7	Z at B = 0 Z is 180° wide	
B8	Z at A Z is 360° wide	
B9	Z at B Z is 360° wide	

Incremental encoders

Standard optical, programmable	Sendix K58I-PR (shaft / hollow shaft)	Push-pull / RS422
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Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]

Connection, axial
Connector on the housing
M12 connector, 5- or 8-pin

flange type **e** = C5

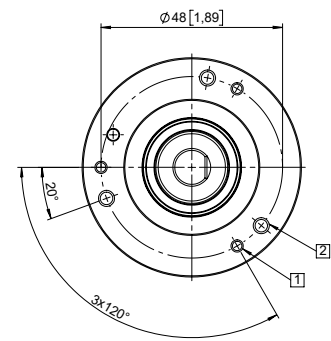
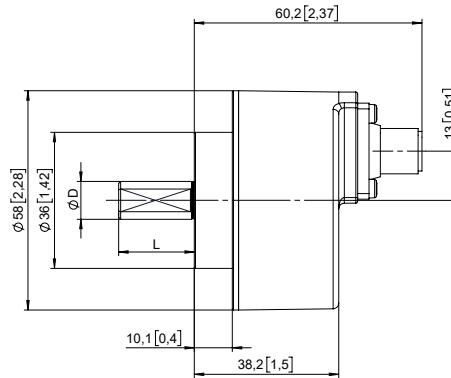
position connection **h** = A

type of connection **i** = C

connector type **k** = 2 or 3

1 3 x M3, 6 [0.24] deep

2 3 x M4, 6 [0.24] deep



D	Fit	L
6 [0.24]	f7	10 [0.39]
8 [0.32]	f7	15 [0.59]
10 [0.39]	f7	20 [0.79]
12 [0.47]	f7	20 [0.79]
1/4"	f7	5/8"
3/8"	f7	5/8"
1/4"	f7	7/8"
3/8"	f7	7/8"

Servo flange, ø 58 [2.28]

Connection, axial
Connector on the housing
M23 connector, 12-pin

flange type **e** = V5

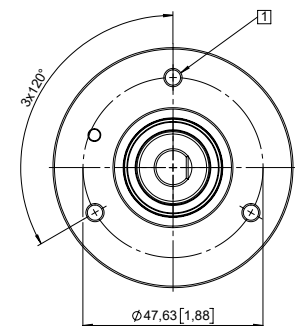
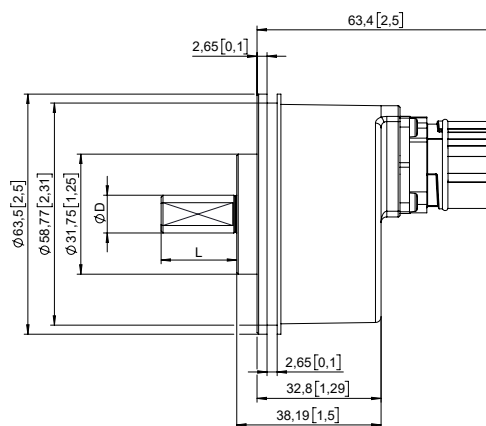
position connection **h** = A

type of connection **i** = C

connector type **k** = 4

1 3 x M3, 6 [0.24] deep

2 3 x M4, 6 [0.24] deep



D	Fit	L
6 [0.24]	f7	10 [0.39]
8 [0.32]	f7	15 [0.59]
10 [0.39]	f7	20 [0.79]
12 [0.47]	f7	20 [0.79]
1/4"	f7	5/8"
3/8"	f7	5/8"
1/4"	f7	7/8"
3/8"	f7	7/8"

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Dimensions hollow shaft version

Dimensions in mm [inch]

Spring element, long

R 35.5 ... 37,9 [1.40 ... 1.49]

Connection, radial

Connector on the housing

M12 connector, 5- or 8-pin

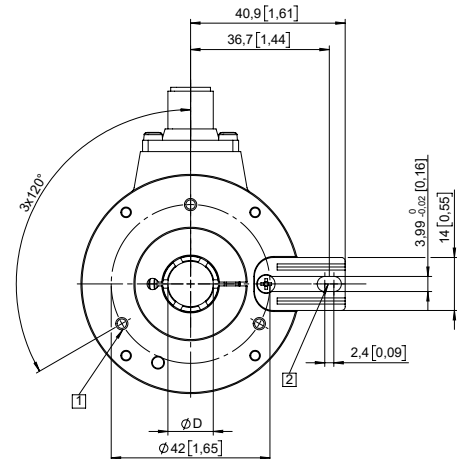
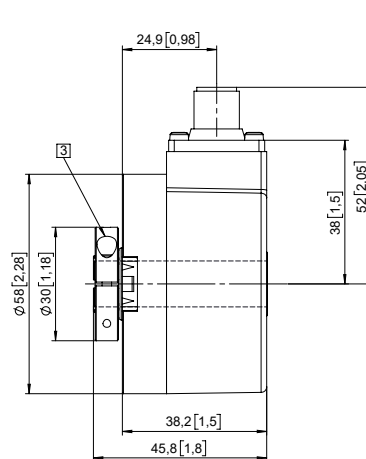
mounting type **e** = 15

position connection **h** = R

type of connection **i** = C

connector type **k** = 2 or 3

- 1 3 x M3, 6 [0.24] deep
- 2 Slot spring element, recommendation: torque pin DIN 7, ϕ 4 [0.16]
- 3 Recommended torque for the clamping ring 0.6 Nm



D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4"	H7
3/8"	H7
1/2"	H7

Recommended fit for shaft on customer side is g6.

Spring element, long

R 35.5 ... 37,9 [1.40 ... 1.49]

Connection, tangential

Cable connection

Open-ended cable

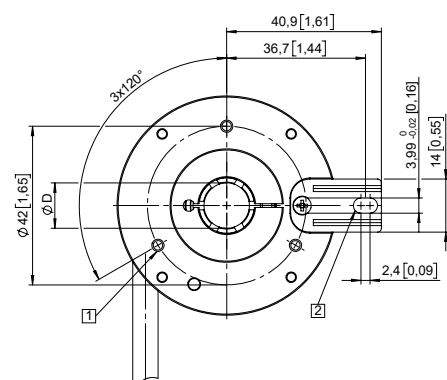
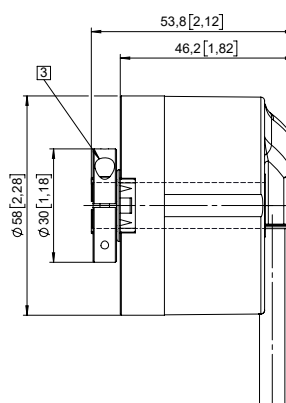
mounting type **e** = 15

position connection **h** = T

type of connection **i** = 1

connector type **k** = 1

- 1 3 x M3, 6 [0.24] deep
- 2 Slot spring element, recommendation: torque pin DIN 7, ϕ 4 [0.16]
- 3 Recommended torque for the clamping ring 0.6 Nm



D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4"	H7
3/8"	H7
1/2"	H7

Recommended fit for shaft on customer side is g6.

Incremental encoders

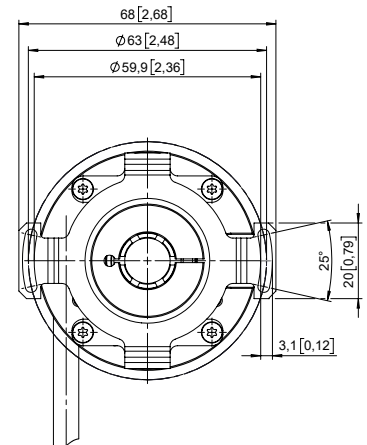
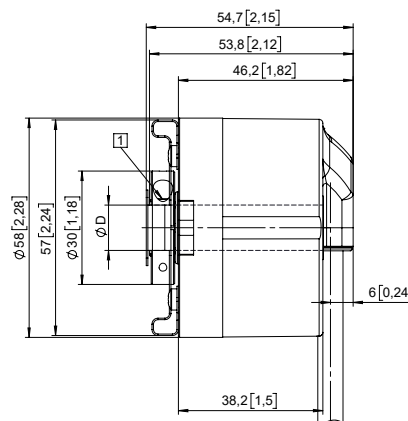
Standard optical, programmable	Sendix K58I-PR (shaft / hollow shaft)	Push-pull / RS422
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Dimensions hollow shaft version

Dimensions in mm [inch]

Stator coupling ø 63 [2.48] mounting type **Ⓔ** = 25
 Connection, tangential position connection **Ⓛ** = T
 Cable connection type of connection **Ⓢ** = 1
 Open-ended cable connector type **Ⓚ** = 1

1 Recommended torque for the clamping ring 0.6 Nm

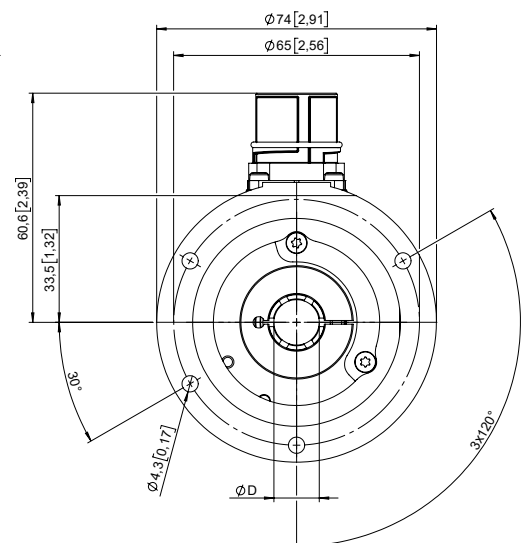
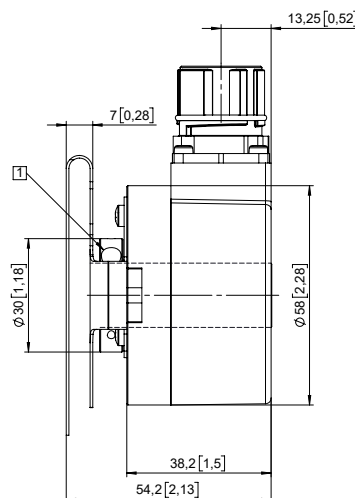


D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4"	H7
3/8"	H7
1/2"	H7

Recommended fit for shaft on customer side is g6.

Stator coupling, ø 65 [2.56] mounting type **Ⓔ** = 35
 Connection, radial position connection **Ⓛ** = R
 Connector on the housing type of connection **Ⓢ** = C
 M23 connector, 12-pin connector type **Ⓚ** = 4

1 Recommended torque for the clamping ring 0.6 Nm



D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4"	H7
3/8"	H7
1/2"	H7

Recommended fit for shaft on customer side is g6.