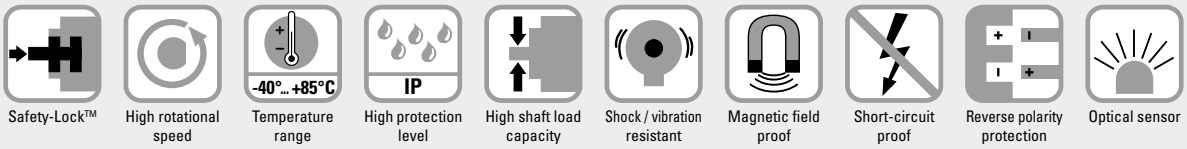
Standard optical, programmable | **Sendix K80I-PR (large hollow shaft)** | **Push-pull / RS422**



Highest performance and flexibility for large shafts.

The new Sendix K80I 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.

The Sendix K80I encoder for large shafts has the outstanding feature of combining a continuous hollow shaft of 42 mm with a reduced size of 80 mm.



Safety-Lock™ | High rotational speed | Temperature range | High protection level | 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, 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 bis +85 °C
  - Protection class up to a maximum of IP67
  - Optimized EMC shielding concept
  - Advanced Safety Lock technology
- **Reduced installation space even in large applications**
  Hollow shaft up to 42 mm diameter with 80 mm size.
- **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 K80I-PR (large hollow shaft)** | **Push-pull / RS422**

Order code Hollow shaft

K80I	.	0	PR	XX	.	XXXXX	.	X	XX	XX	XX	.	XX	R	X	X	.	XXXX	.	XX
Type				ⓐ		ⓑ		ⓒ	ⓓ	ⓔ	ⓕ		ⓖ	ⓗ	ⓘ	ⓚ		ⓛ		ⓜ

ⓐ *Interface*
PP = Push Pull (only with supply voltage 5 ... 30 V DC)
RS = RS422

ⓑ *Pulse rate (1 ... 36000 ppr)*
XXXXX = 00001 ... 36000

ⓒ *Supply voltage*
2 = 5 ... 30 V DC

ⓓ *Version*
H1 = through hollow shaft, clamping on flange side
for hollow shaft ⓕ = 28, 30, 35, 38, 40, 42, 1 1/8", 1 1/4"
H2 = through hollow shaft, clamping on flange side
with pre-assembled insulation / reduction insert
for hollow shaft ⓕ = 14, 15, 16, 18, 20, 25, 28, 30, 32, 38, 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4"

ⓔ *Mounting type*
18 = spring element, long R 48.8 ... 51.2 mm [1.92 ... 2.02"]
48 = torque stop, short R 72.2 ... 77.2 mm [2.84 ... 3.04"]
D8 = torque stop, long R 52 ... 103 mm [2.05 ... 4.06"]
58 = tether arm, flexible, 70 mm [2.76"] [1]
68 = tether arm, flexible, 100 mm [3.94"] [1]
78 = tether arm, flexible, 150 mm [5.91"] [1]

ⓕ *Through hollow shaft*
28 = ø 28 mm
30 = ø 30 mm
35 = ø 35 mm
38 = ø 38 mm
40 = ø 40 mm
42 = ø 42 mm
8A = ø 1 1/8" (28.575 mm)
9A = ø 1 1/4" (31.75 mm)

Through hollow shaft with insulation / reduction insert
14 = ø 14 mm
15 = ø 15 mm
16 = ø 16 mm
18 = ø 18 mm
20 = ø 20 mm
25 = ø 25 mm
28 = ø 28 mm
30 = ø 30 mm
32 = ø 32 mm
38 = ø 38mm
4A = ø 5/8" (15.875 mm)
5A = ø 3/4" (19.05 mm)
6A = ø 7/8" (22.225 mm)
7A = ø 1" (25.4 mm)
8A = ø 1 1/8" (28.575 mm)
9A = ø 1 1/4" (31.75 mm)

ⓖ *Type of protection*
65 = IP65
6A = IP66/IP67

ⓗ *Position connection*
R = radial

ⓘ *Type of connection*
1 = cable, PVC (open-ended or with connector)
3 = cable, PUR (only open-ended) – for variants with Ex 2/22
C = connector on the housing

ⓚ *Cable / connector type*
1 = cable, open ended
2 = M12 connector, 8-pin
5 = M12 connector, 8-pin
(special assignment, see p. 6, not with type of connection ⓘ = 1, 3)
3 = M12 connector, 5-pin
6 = M12 connector, 5-pin
(special assignment, see p. 6, not with type of connection ⓘ = 1, 3)
4 = M23 connector, 12-pin
D = MIL connector, 7-pin
(not with type of connection cable ⓘ = 1, 3)
E = MIL connector, 10-pin
(not with type of connection cable ⓘ = 1, 3)
J = MIL connector, 10-pin
(special assignment, see p. 6, not with type of connection ⓘ = 1, 3)

ⓛ *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']

ⓜ *Optional: special formats for output signals*
XX = see page 7

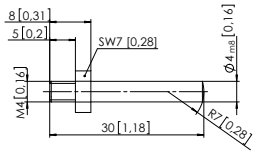
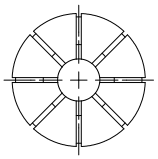
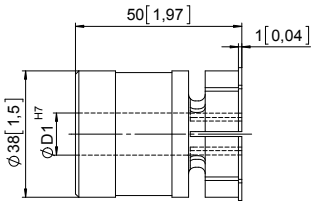
Optional on request
- Ex 2/22
only for variants with PUR cable or with connector on the housing / only for variants with type of protection IP65
- Surface protection salt spray tested
- Other cable lengths

Stock types:
K80I.OPRPP.02048.2H11838.65RC4

1) Not suitable for EX2/22.

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Standard optical, programmable | **Sendix K80I-PR (large hollow shaft)** | **Push-pull / RS422**

Mounting accessory for hollow shaft encoders Dimensions in mm [inch]		Order no.
Torque pin, ø 4 mm for flange with spring element (mounting type ⓔ = 18)	with fixing thread 	**8.0010.4700.0000**
Tapered shaft mounting kit for K80I with hollow shaft, ø 38 mm [1.50“]	For use in upgrading for tapered shaft mounting. Tapered shafts are used for high-precision direct coupling. An insulation insert is also included in the mounting kit; this reliably protects the encoder from shaft currents. Included in the set: • Insert for cone blind hole, cone 1:10, 17 mm [0.67“] length • Insulation / reduction insert • Allen screw for central fixing	**8.0010.4028.0000**
Insulation / reduction insert for hollow shaft ø 38 mm [1.50“] Temperature range -40 °C ... +115 °C [-40 °F ... +239 °F]	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. For more details please call our technical hotline (+49 7720 3903 849) or send us an email (info@kuebler.com)    Also available pre-assembled as version ⓓ = H2	ø D1: 12 mm 14 mm 15 mm 16 mm 18 mm 20 mm 25 mm 28 mm 30 mm 32 mm 1/2“ (12.7 mm) 5/8“ (15.875 mm) 3/4“ (19.05 mm) 7/8“ (22.225 mm) 1“ (25.4 mm) 1 1/8“ (28.575 mm) 1 1/4“ (31.75 mm)	 **8.0010.4091.0000** **8.0010.4027.0000** **8.0010.4038.0000** **8.0010.4019.0000** **8.0010.4080.0000** **8.0010.4011.0000** **8.0010.4012.0000** **8.0010.4061.0000** **8.0010.4016.0000** **8.0010.4015.0000** **8.0010.4013.0000** **8.0010.4070.0000** **8.0010.4090.0000** **8.0010.4018.0000** **8.0010.4050.0000** **8.0010.4014.0000** **8.0010.4060.0000**
Insulation / reduction insert for hollow shaft ø 42 mm [1.65“]	external diameter 42 mm [1.65“] / internal diameter 38 mm [1.50“] external diameter 42 mm [1.65“] / internal diameter 12 mm [0.47“]	**8.0010.4017.0000** **8.0010.4029.0000**

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Standard optical, programmable	Sendix K80I-PR (large hollow shaft)	Push-pull / RS422

Cables and connectors		Order no.
Preassembled cables	M12 female connector with coupling nut, 5-pin, A coded, straight single ended 2 m [6.56'] PVC cable	**05.00.6081.2211.002M**
	M12 female connector with coupling nut, 8-pin.A coded, straight single ended 2 m [6.56'] PVC cable	**05.00.6041.8211.002M**
	M23 female connector with coupling nut, 12-pin,cw single ended 2 m [6.56'] PVC cable	**8.0000.6901.0002**
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

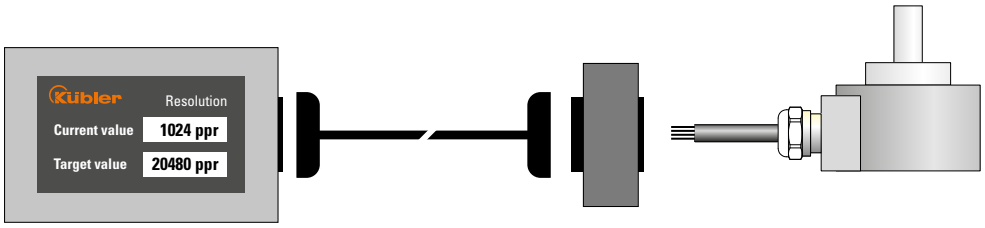
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Standard optical, programmable | Sendix K80I-PR (large hollow shaft) | Push-pull / RS422

Programming unit

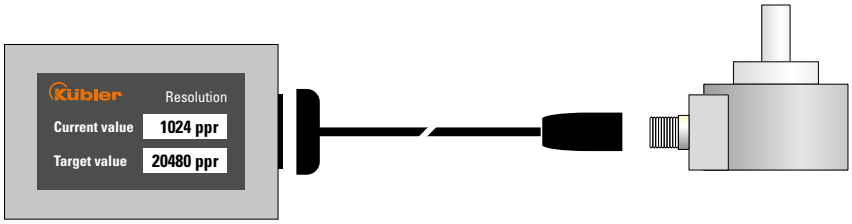
		Order no.
Programming unit with touch display EP1000 	Programming device for PC-independent use, even in the field Dimensions 136 x 84 x 38 mm Connection Sub-D female connector Scope of delivery Programming unit, plug-in power supply unit	**8.0010.9000.1000** [1]

Accessories for programming - for encoders with cable connection



		Order no.
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.
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** [1]
	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

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Standard optical, programmable | **Sendix K80I-PR (large hollow shaft)** | **Push-pull / RS422**

Technical data

Mechanical characteristics

Maximum speed	IP65	5000 min^{-1} 2500 min^{-1} (continuous)
	IP66/IP67	2400 min^{-1} 1200 min^{-1} (continuous)
	variants with Ex 2/22 (IP65)	2500 min^{-1}
Mass moment of inertia		approx. 91.3 ...158.6 x 10^{-6} kgm^2 (dep. on the hollow shaft version)
Starting torque with seal at 20 °C [68 °F]		< 0.12 Nm
Shaft load capacity	radial	200 N
	axial	100 N
Weight		approx. 0.8 kg [28.22 oz]
Protection acc. to EN 60529		IP65 IP66/IP67
Shock resistance acc. to EN 60068-2-27		2000 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	150 m/s^2

Working temperature range with connector on the housing	
	-40 °C ... +85 °C [-40 °F ... +185 °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 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
ATEX Directive	2014/34/EU (for Ex 2/22 variants)

Electrical characteristics

Output circuit	**RS422** (TTL compatible)	**Push-pull** (HTL/TTL universal, 7272 compatible)
Order code ⓐ	**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	min. 2.5 V
Signal level LOW	max. 0.5 V	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 ... 30 V DC, short-circuit to channel or 0 V is permitted.

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Standard optical, programmable | Sendix K80I-PR (large hollow shaft) | Push-pull / RS422

Terminal assignment

Interface	Cable / connector type	Cable (isolate unused cores individually before initial start-up)										
PP, RS	1	Signal:	0 V	+V	0 Vsens	+Vsens	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
		Core color:	WH	BN	GY/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	⏚
		Pin:	1	2	3	4	5	PH

Interface	Cable / connector type	M12 connector, 5-pin (special assignment)						
PP, RS	6	Signal:	0 V	+V	A	B	0	⏚
		Pin:	3	1	4	2	5	PH

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

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

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

Interface	Cable / connector type	MIL connector, 10-pin									
PP, RS	E	Signal:	0 V	+V	+Vsens	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
		Pin:	F	D	E	A	G	B	H	C	I	J

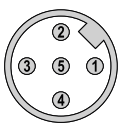
Interface	Cable / connector type	MIL connector, 10-pin (special assignment)									
PP, RS, SC	J	Signal:	0 V	+V	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
		Pin:	F	D	A	H	B	I	C	J	G

Interface	Cable / connector type	MIL connector, 7-pin							
PP, RS	D	Signal:	0 V	+V	+Vsens	A	B	0	⏚
		Pin:	F	D	E	A	B	C	PH

+V : Supply voltage encoder +V DC
0 V : Supply voltage encoder ground GND (0 V)
0 Vsens / +Vsens : Using the sensor outputs of the encoder, the voltage present can be measured and if necessary increased accordingly..

A, $\overline{A}$: Incremental output channel A
B, $\overline{B}$: Incremental output channel B
0, $\overline{0}$: Reference signal
PH ⏚ : Shield is connected to the connector housing

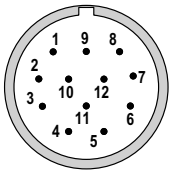
Top view of mating side, male contact base



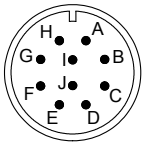
M12 connector, 5-pin



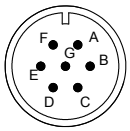
M12 connector, 8-pin



M23 connector, 12-pin



MIL connector, 10-pin



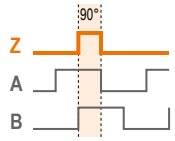
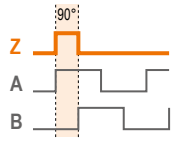
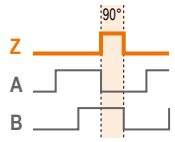
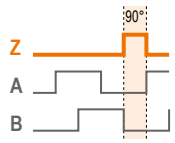
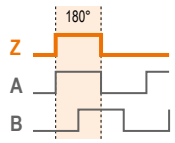
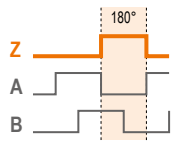
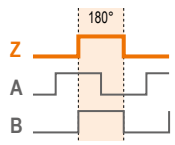
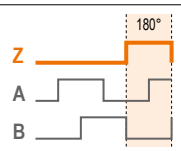
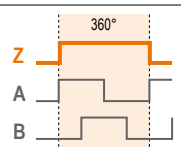
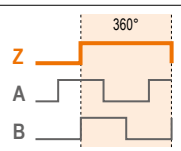
MIL connector, 7-pin

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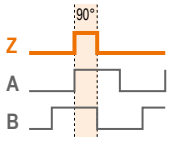
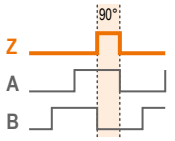
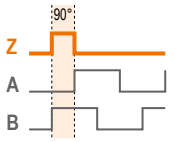
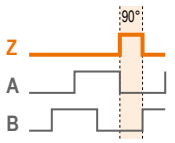
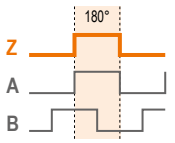
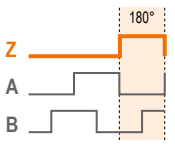
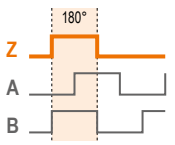
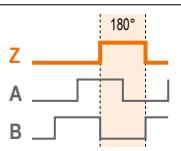
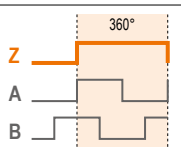
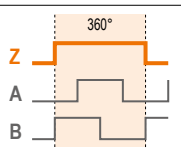
Standard optical, programmable | **Sendix K80I-PR (large hollow shaft)** | **Push-pull / RS422**

Special formats for output signals

A leading B
when the shaft is rotated clockwise with the flange side facing you.

Order code m		
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 m		
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	

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Standard optical | **Sendix K80I (large hollow shaft)** | **Push-pull / RS422 / SinCos**

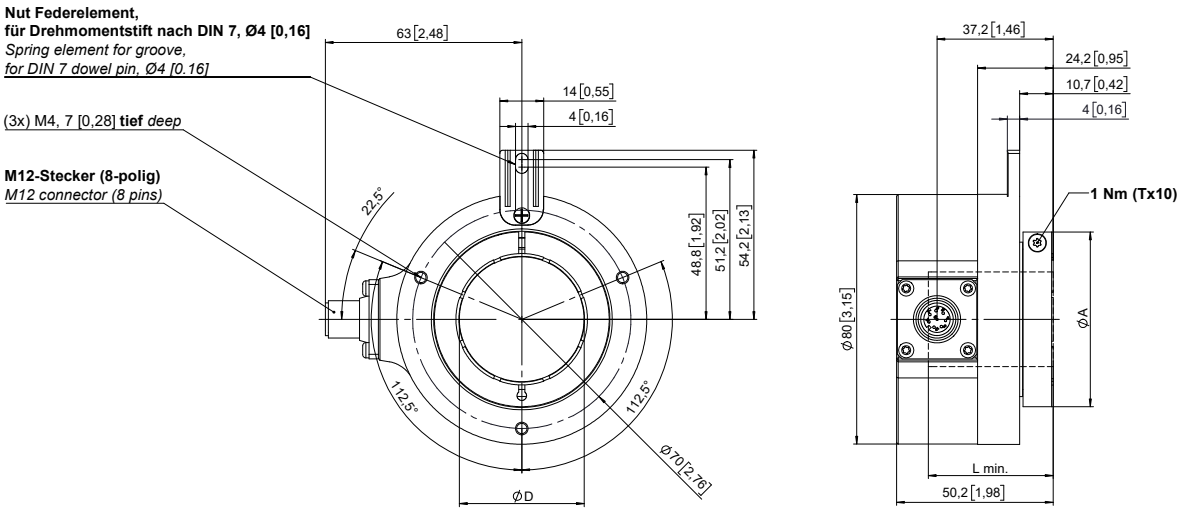
Dimensions hollow shaft version

Dimensions in mm [inch]

Spring element, long
R 48.8 ... 51.2 mm

	mounting type ⓔ = 18
Connection, radial	position connection ⓗ = R
Connector on the housing	type of connection ⓘ = C
M12 connector, 5- or 8-pin	connector type ⓚ = 2 or 3

ØD	ØA
28 [1,1]	46 [1,81]
30 [1,18]	
35 [1,38]	51 [2,01]
38 [1,5]	56 [2,2]
40 [1,57]	
42 [1,65]	58 [2,28]
1 1/8"	46 [1,81]
1 1/4"	51 [2,01]
Passung für D: H7 *fit for D: H7*	
Empfohlene Passung für Welle auf Kundenseite: g6 *Recommended fit for customer shaft: g6*	
Mindesteinstecktiefe L min.: 41 [1,61] *Minimum insertion depth L min.: 41 [1,61]*	



Standard
optisch, programmierbar | **Sendix K80I-PR (große Hohlwelle)** | **Gegentakt / RS422**

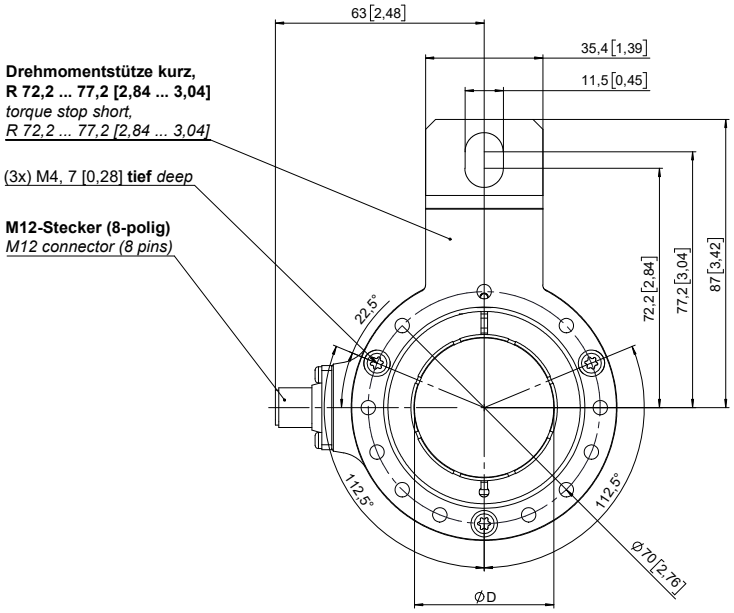
Dimensions hollow shaft version

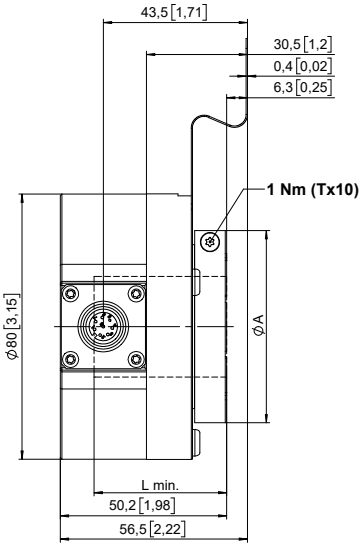
Dimensions in mm [inch]

Torque stop, short
R 72.2 ... 77.2 mm — mounting type ⓔ = 48

Connection, radial — position connection ⓗ = R
Connector on the housing — type of connection ⓘ = C
M23 connector, 12-pin — connector type ⓚ = 4

ØD	ØA
28 [1,1]	46 [1,81]
30 [1,18]	
35 [1,38]	51 [2,01]
38 [1,5]	56 [2,2]
40 [1,57]	
42 [1,65]	58 [2,28]
1 1/8"	46 [1,81]
1 1/4"	51 [2,01]
Passung für D: H7 *fit for D: H7*	
Empfohlene Passung für Welle auf Kundenseite: g6 *Recommended fit for customer shaft: g6*	
Mindesteinstecktiefe L min.: 41 [1,61] *Minimum insertion depth L min.: 41 [1,61]*	





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Standard optical	Sendix K80I (large hollow shaft)	Push-pull / RS422 / SinCos

Dimensions hollow shaft version

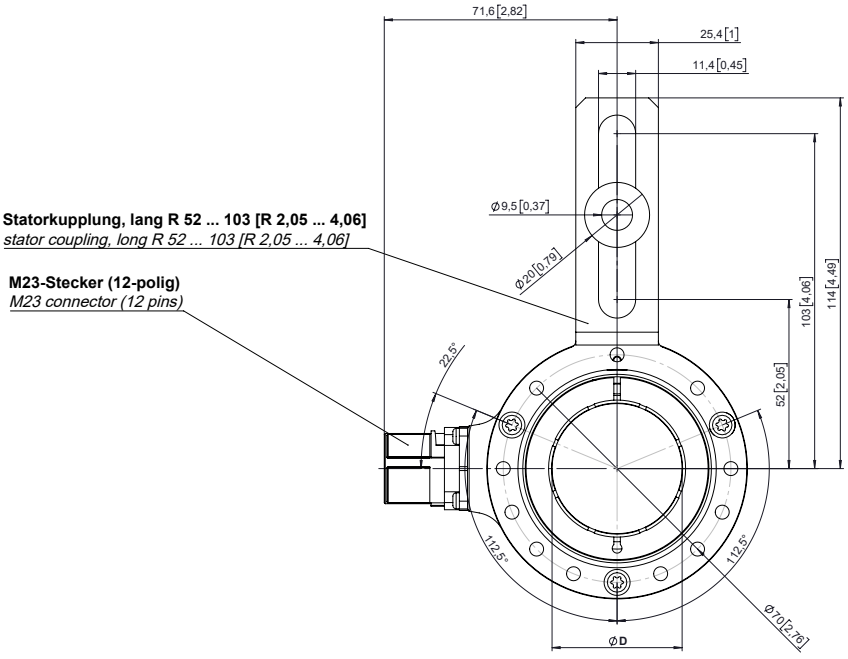
Dimensions in mm [inch]

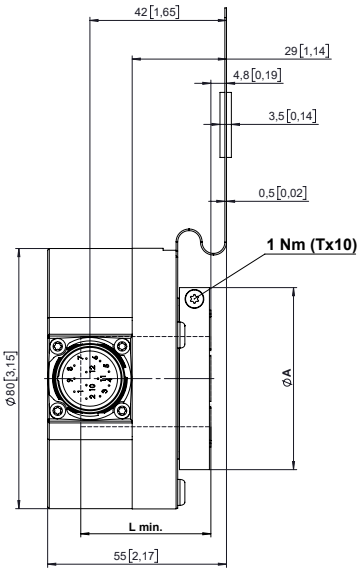
Torque stop, long

R 52 ... 103 mm	mounting type ⓔ = D8
Connection, radial	position connection ⓗ = R
Connector on the housing	type of connection ⓘ = C
M23 connector, 12-pin	connector type ⓚ = 4

K80I.OXX.XXXXX.XH1D8XX.XXRC4

ØD	ØA
28 [1,1]	46 [1,81]
30 [1,18]	
35 [1,38]	51 [2,01]
38 [1,5]	56 [2,2]
40 [1,57]	
42 [1,65]	58 [2,28]
1 1/8"	46 [1,81]
1 1/4"	51 [2,01]
Passung für D: H7 *fit for D: H7*	
Empfohlene Passung für Welle auf Kundenseite: g6 *Recommended fit for customer shaft: g6*	
Mindesteinstecktiefe L min.: 41 [1,61] *Minimum insertion depth L min.: 41 [1,61]*	





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