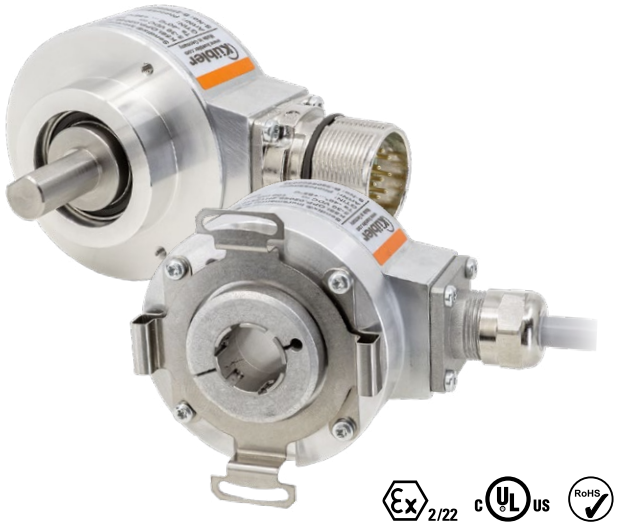
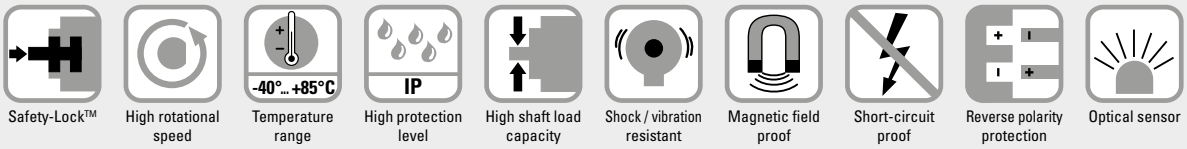
Standard optical | **Sendix K58 (shaft / hollow shaft)** | **Push-pull / RS422**



New generation of Sendix encoders - ready for the future.

The new Sendix encoders are based on state-of-the-art sensor and electronic components as well as a robust metal code disk, and the incremental Sendix K58 encoders achieve a resolution of up to 5,000 pulses per revolution with high reliability.

The new Sendix K58 series makes planning easier for the system designer and also sets new standards in the combination of small size for large applications, for example with the through hollow shaft up to 25.4 mm.



Features and benefits

- **High accuracy and reliability**
  State-of-the-art sensor technology with resolutions up to 5,000 ppr.
- **Prepared for the toughest operating conditions and a wide range of external influences**
  - Temperature range from -40 °C to +85 °C
  - Protection class up to a maximum of IP67
  - Optimized EMC shielding concept
  - Advanced Safety Lock technology
- **Standard size also for large shafts**
  For use even on large shafts with hollow shafts up to 25.4 mm in diameter with 58 mm encoder housing 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.

Standard optical	Sendix K58 (shaft / hollow shaft)	Push-pull / RS422

Order code Shaft version

K58	I	.	0	XX	.	XXXXX	.	X	XX	XX	XX	.	XX	X	X	X	.	XXXX
Type				ⓐ		ⓑ		ⓒ	ⓓ	ⓔ	ⓕ		ⓖ	ⓗ	ⓘ	ⓚ		ⓛ

ⓐ *Interface*
PP = push-pull (only with supply voltage 5 ... 30 V DC)
RS = RS422

ⓑ *Pulse rate (1 ... 5000 ppr)*
XXXXX = 00001 ... 05000

ⓒ *Supply voltage*
1 = 5 V DC
2 = 5 ... 30 V DC

ⓓ *Version*
S1 = Shaft, with flat
S3 = Shaft, with flat and with feather key shaft slot (only in combination with shaft ø 11 mm ⓕ = 11)

ⓔ *Flange*
C5 = clamping flange
S5 = synchro flange
Q5 = square flange, □ 63.5 mm [2.5“]
E5 = Euro flange
V5 = servo flange

ⓕ *Shaft (ø x L), with flat*
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)
11 = ø 11 x 33 mm [0.43 x 1.30“], with feather key shaft slot (only in combination with version ⓓ = S3)

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

ⓗ *Position Connection*
A = axial
R = radial

ⓘ *Type of connection*
1 = cable, PVC (open ended or with connector)
C = connector on the housing

ⓚ *Cable / connector type*
1 = cable, open ended
2 = M12 connector, 8-pin
3 = M12 connector, 5-pin
4 = M23 connector, 12-pin

ⓛ *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 on request
- Ex 2/22 (only for variants with connector on the housing)
- Surface protection salt spray tested
- Other cable lengths

Stock types:
K58I.OPP.01024.2S1C510.65RC2

Standard optical | **Sendix K58 (shaft / hollow shaft)** | **Push-pull / RS422**

Order code Hollow shaft

K58	I	.	0	XX	.	XXXXX	.	X	XX	XX	XX	.	XX	X	X	X	.	XXXX
Type				ⓐ		ⓑ		ⓒ	ⓓ	ⓔ	ⓕ		ⓖ	ⓗ	ⓘ	ⓚ		ⓛ

ⓐ *Interface*
PP = push-pull (only with supply voltage 5 ... 30 V DC)
RS = RS422

ⓑ *Pulse rate (1 ... 5000 ppr)*
XXXXX = 00001 ... 05000

ⓒ *Supply voltage*
1 = 5 V DC
2 = 5 ... 30 V DC

ⓓ *Version*
H1 = through hollow shaft, clamping on flange side
H2 = through hollow shaft, clamping on flange side with pre-assembled isolation 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 isolation insert (only for hollow shafts < ø 14 mm)

ⓔ *Mounting type for hollow shafts ≤ 15 mm [0.59“]*
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“]

Mounting type for hollow shafts > 15 mm [0.59“]
55 = torque stop R 36.6 ... 49,9 mm [1.44 ... 1.96“]
65 = stator coupling ø 56.2 ... 70.4 mm [2.21 ... 2.77“]
75 = spring element, long R 40.2 ... 42.6 mm [1.58 ... 1.68“]

ⓕ *Through hollow shaft ≤ 15 mm [0.59“]*
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)

Through hollow shaft > 15 mm [0.59“]
16 = ø 16 mm [0.63“]
20 = ø 20 mm [0.79“]
22 = ø 22 mm [0.87“]
24 = ø 24 mm [0.94“] (only for version ⓓ = H1)
25 = ø 25 mm [0.98“] (only for version ⓓ = H1)
4A = ø 5/8“ (15.875 mm)
5A = ø 3/4“ (19.05 mm)
7A = ø 1“ (25.4 mm), only for version ⓓ = H1

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

ⓗ *Position Connection*
R = radial
T = tangential – only for version ⓓ = H1 or H2
only with type of connection ⓘ = 1 (cable)
only with hollow shaft ⓕ ≤ 15 mm

ⓘ *Type of connection*
1 = cable, PVC (open ended or with connector)
C = connector on the housing

ⓚ *Cable / connector type*
1 = cable, open-ended
2 = M12 connector, 8-pin
3 = M12 connector, 5-pin
4 = M23 connector, 12-pin

ⓛ *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 on request
- Ex 2/22 (only for variants with connector on the housing)
- Surface protection salt spray tested
- Other cable lengths

Stock types:
K58I.OPP.01024.2H1657A.65RC4

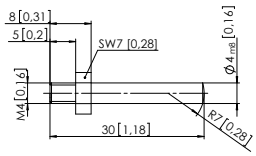
Standard optical	Sendix K58 (shaft / hollow shaft)	Push-pull / RS422

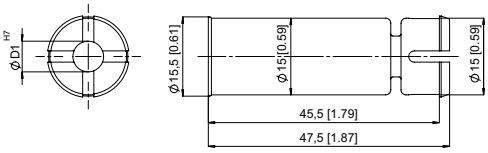
Mounting accessory for shaft encoders

		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

Dimensions in mm [inch]

		Order no.
Torque pin, ø 4 mm for flange with spring element (mounting type ⓔ = 15)	with fixing thread 	**8.0010.4700.0000**

			Order no.
Isolation / adapter inserts for hollow shaft encoders with ø 15 mm ⓕ = 15 	**Thermal and electrical isolation of the encoders (Temperature range -40 °C ... +115 °C [-40 °F ... +239 °F])** Isolation 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.  Also available pre-assembled as version ⓓ = H2 or C2	D1 6 mm 8 mm 10 mm 12 mm 1/4“ (6.35 mm) 3/8“ (9.525 mm) 1/2“ (12.7 mm)	Isolation insert **8.0010.4021.0000** **8.0010.4020.0000** **8.0010.4023.0000** **8.0010.4025.0000** **8.0010.4022.0000** **8.0010.4024.0000** **8.0010.4026.0000**

			Order no.
Isolation / adapter inserts for hollow shaft encoders with ø 1“ ⓕ = 7A		D1 1/2“ (12.7 mm)	Isolation insert **8.0010.4069.0000**

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

Standard optical | **Sendix K58 (shaft / hollow shaft)** | **Push-pull / RS422**

Technical data

Mechanical characteristics

Maximum speed	IP65	12000 min^{-1} 6000 min^{-1} (continuous)
	IP66/IP67	6000 min^{-1} 3000 min^{-1} (continuous)
Mass moment of inertia		
	shaft	approx. 4.0 ... 4.3 x 10^{-6} kgm^2 (depending on shaft version)
	hollow shaft ≤ ø 15 mm	approx. 4.3 ... 5.8 x 10^{-6} kgm^2 (depending on hollow shaft version)
	hollow shaft > ø 15 mm	approx. 26.6 ... 35.6 x 10^{-6} kgm^2 (depending on hollow shaft version)
Starting torque at 20 °C [68 °F]		
for shaft and hollow shaft ≤ ø 15 mm		< 0.01 Nm with IP65 < 0.02 Nm with IP66/IP67
for hollow shaft > ø 15 mm		< 0.02 Nm with IP65 < 0.06 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
Working temperature range		-40 °C [1] ... +85 °C [-40 °F [1] ... +185 °F]
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

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)	**RS422** (TTL compatible)	**Push-pull** (HTL/TTL universal, 7272 compatible)
Order code ⓐ	**RS**	**RS**	**PP**
Supply voltage	5 ... 30 V DC	5 V DC (±5 %)	5 ... 30 V DC
Power consumption (no load)	typ. 40 mA / max. 90 mA	typ. 40 mA / max. 90 mA	typ. 40 mA / max. 90 mA
Permissible load / channel	max. +/- 20 mA	max. +/- 20 mA	max. +/- 20 mA
Pulse frequency	max. 300 kHz	max. 300 kHz	max. 300 kHz [2]
Signal level HIGH	min. 2.5 V	min. 2.5 V	min. 2.5 V (+V -1 V)
Signal level LOW	max. 0.5 V	max. 0.5 V	max. 0.5 V
Rising edge time t_r	max. 200 ns	max. 200 ns	max. 200 ns
Falling edge time t_f	max. 200 ns	max. 200 ns	max. 200 ns
Short circuit proof outputs [3]	yes [4]	yes [4]	yes [4]
Reverse polarity protection of the supply voltage	yes	no	yes

1) With connector: -40 °C [-40 °F], cable fixed: -30 °C [-22 °F], cable moved: -20 °C [-4 °F].
2) Max. recommended cable length 30 m [98.43'].
3) If supply voltage correctly applied.
4) 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.

Standard optical | Sendix K58 (shaft / 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

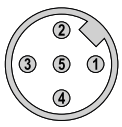
Interface	Cable / connector type	M12 connector, 5-pin						
PP, RS	3	Signal:	0 V	+V	A	B	0	⏚
		Pin:	1	2	3	4	5	PH

Interface	Cable / connector type	M12 connector, 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	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

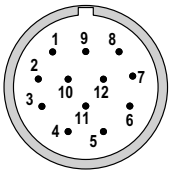
+V : Supply voltage encoder +V DC
0 V : Supply voltage encoder ground GND (0 V)
0 Vsens / +Vsens : Using the sensor outputs of the encoder, the voltage present can be measured and if necessary increased accordingly..
A, $\overline{A}$: Incremental output channel A
B, $\overline{B}$: Incremental output 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

Standard optical | **Sendix K58 (shaft / hollow shaft)** | **Push-pull / RS422**

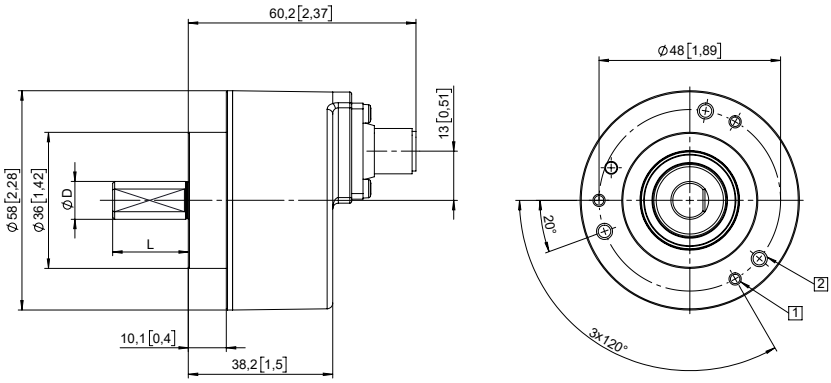
Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28] flange type ⓔ = C5

Connection, axial — position connection ⓗ = A
Connector on the housing — type of connection ⓘ = C
M12 connector, 5- or 8-pin — connector type ⓚ = 2 or 3

1 3 x M3, 6 [0.24] deep
2 3 x M4, 6 [0.24] deep

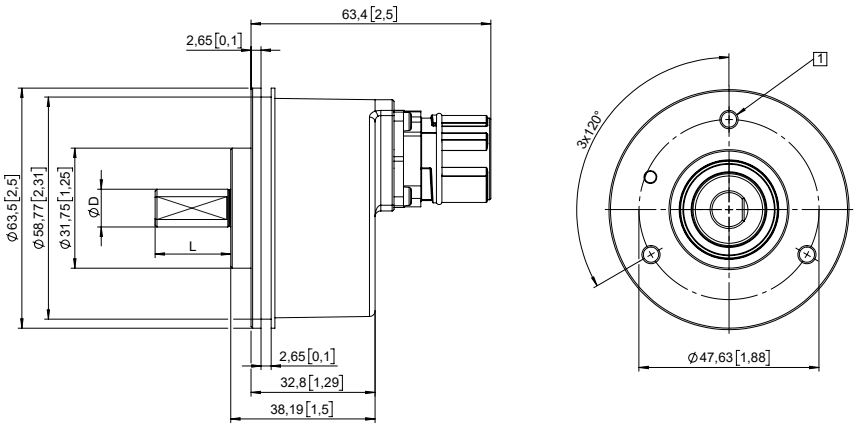


D	Fit	L
6 [0.24]	f7	10 [0.39]
8 [0.32]	f7	15 [0.59]
10 [0.39]	f7	20 [0.79]
12 [0.47]	f7	20 [0.79]
1/4"	f7	5/8"
3/8"	f7	5/8"
1/4"	f7	7/8"
3/8"	f7	7/8"

Servo flange, ø 58 [2.28] flange type ⓔ = V5

Connection, axial — position connection ⓗ = A
Connector on the housing — type of connection ⓘ = C
M23 connector, 12-pin — connector type ⓚ = 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"

Standard optical | **Sendix K58 (shaft / hollow shaft)** | **Push-pull / RS422**

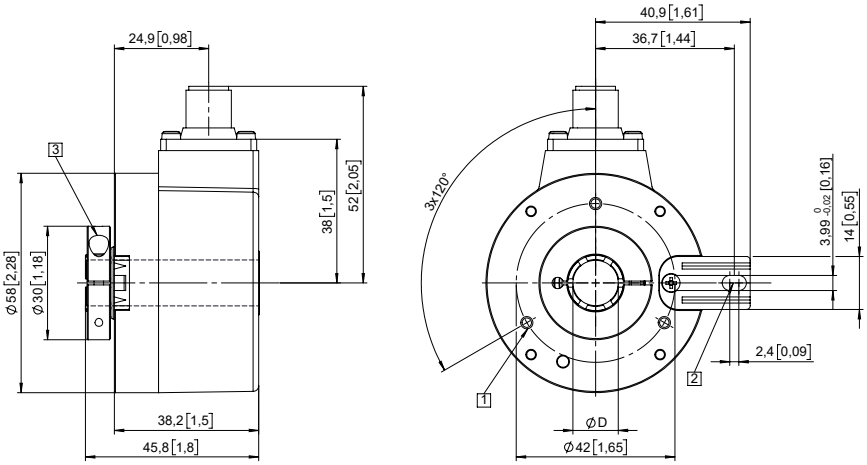
Dimensions hollow shaft version

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 ⓔ = 15
position connection ⓗ = R
type of connection ⓘ = C
connector type ⓚ = 2 or 3

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

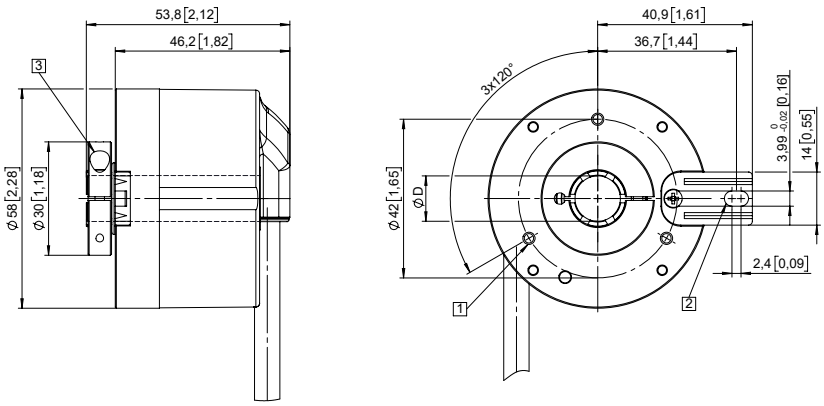


D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4“	H7
3/8“	H7
1/2“	H7
Recommended fit for shaft on customer side is g6.	

Spring element, long
R 35.5 ... 37,9 [1.40 ... 1.49]
Connection, tangential
Cable connection
Open-ended cable

mounting type ⓔ = 15
position connection ⓗ = T
type of connection ⓘ = 1
connector type ⓚ = 1

1 3 x M3, 6 [0.24] deep
2 Slot spring element, recommendation: torque pin DIN 7, ø 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.	

Standard optical | **Sendix K58 (shaft / hollow shaft)** | **Push-pull / RS422**

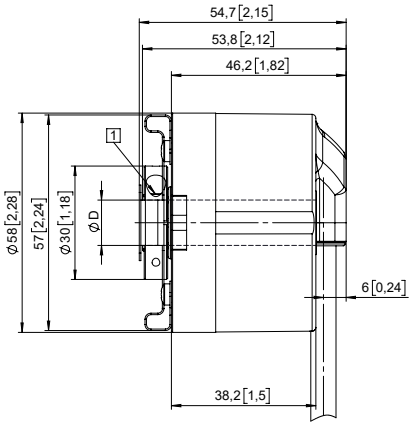
Dimensions hollow shaft version

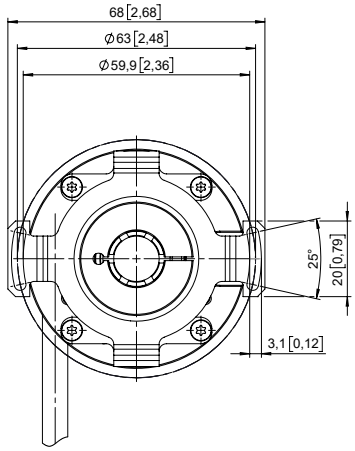
Dimensions in mm [inch]

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



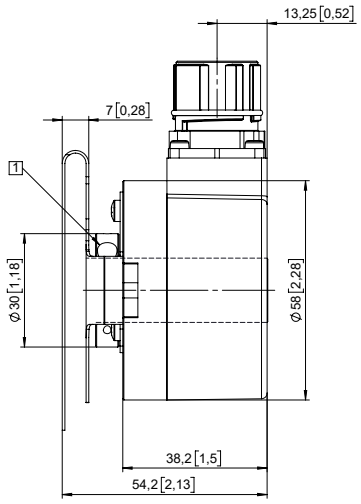


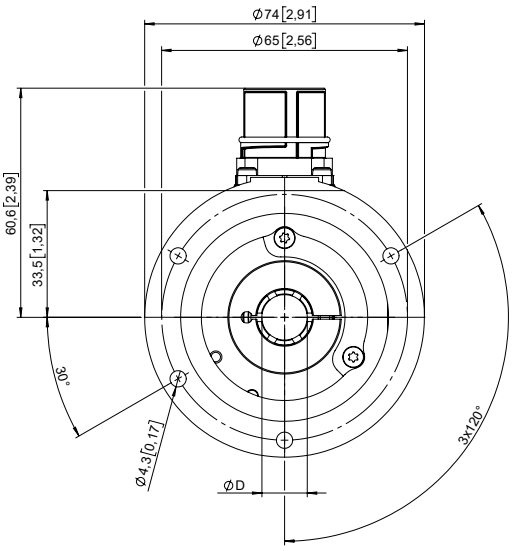
D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7
14 [0.55]	H7
15 [0.59]	H7
1/4“	H7
3/8“	H7
1/2“	H7
Recommended fit for shaft on customer side is g6.	

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.	

Standard optical | **Sendix K58 (shaft / hollow shaft)** | **Push-pull / RS422**

Dimensions hollow shaft version

Dimensions in mm [inch]

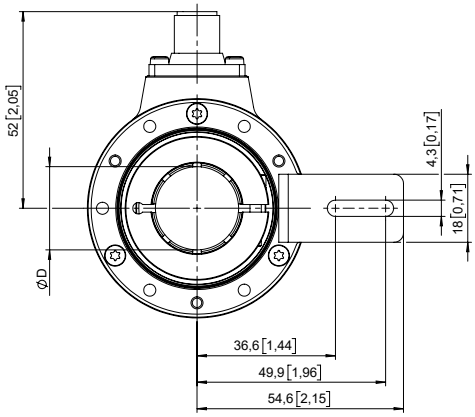
Torque stop

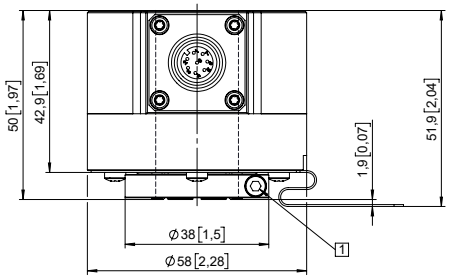
R 36.6 ... 49,9 [1.44 ... 1.96]

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

mounting type ⓔ = 55
position connection ⓗ = R
type of connection ⓘ = C
connector type ⓚ = 2 or 3

1 Recommended torque for the clamping ring 1 Nm





D	Fit
16 [0.63]	H7
20 [0.79]	H7
22 [0.87]	H7
24 [0,94]	H7
25 [0,98]	H7
5/8"	H7
3/4"	H7
1"	H7
Recommended fit for shaft on customer side is g6.	

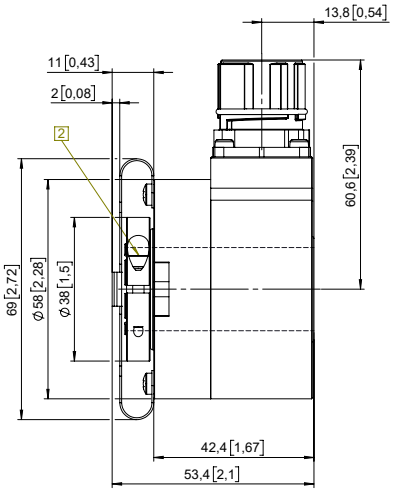
Stator coupling

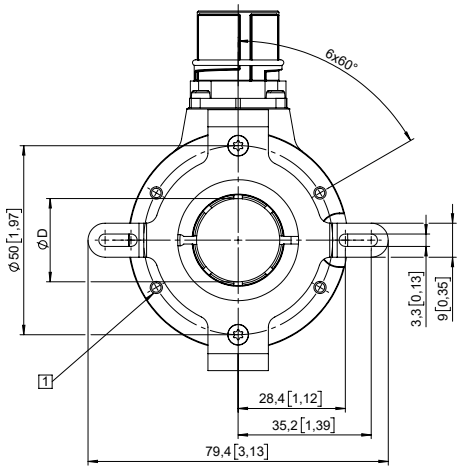
ø 56.2 ... 70.4 [2.21 ... 2.77]

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

mounting type ⓔ = 65
position connection ⓗ = R
type of connection ⓘ = C
connector type ⓚ = 4

1 6 x M3, 6 [0.24] deep
2 Recommended torque for the clamping ring 1 Nm





D	Fit
16 [0.63]	H7
20 [0.79]	H7
22 [0.87]	H7
24 [0,94]	H7
25 [0,98]	H7
5/8"	H7
3/4"	H7
1"	H7
Recommended fit for shaft on customer side is g6.	

Standard optical | **Sendix K58 (shaft / hollow shaft)** | **Push-pull / RS422**

Dimensions hollow shaft version

Dimensions in mm [inch]

Spring element, long
R 40.2 ... 42.6 [1.58 ... 1.68]

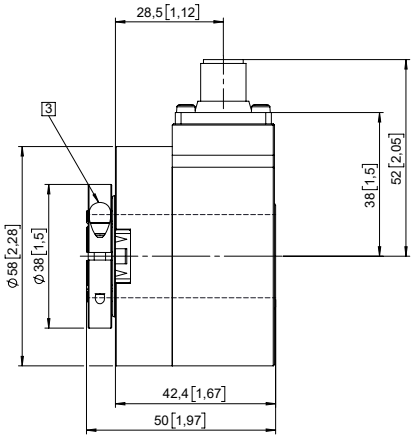
Connection, radial
Connector on the housing
M12 connector, 5- or 8-pin

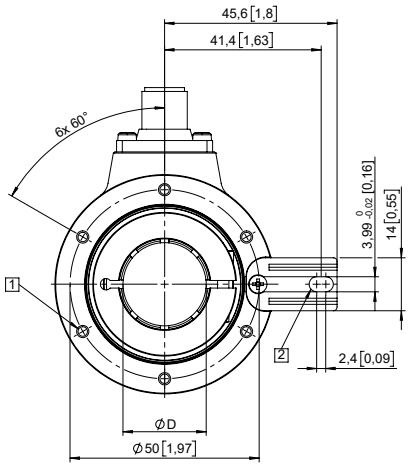
mounting type ⓔ = 75
position connection ⓗ = R
type of connection ⓘ = C
connector type ⓚ = 2 or 3

1 3 x M3, 6 [0.24] deep

2 Slot spring element, recommendation: torque pin DIN 7, ø 4 [0.16]

3 Recommended torque for the clamping ring 0.6 Nm





D	Fit
16 [0.63]	H7
20 [0.79]	H7
22 [0.87]	H7
24 [0,94]	H7
25 [0,98]	H7
5/8"	H7
3/4"	H7
1"	H7
Recommended fit for shaft on customer side is g6.	