Standard optical	Sendix Base KIS50 / KIH50 (shaft / hollow shaft)	Push-Pull / RS422 / open collector

The encoders Sendix Base KIS50 / KIH50 offer a protection level up to IP65 and can be used with temperatures from -20°C up to +70°C. They are ideal for use in standard applications and in simple machines.

The Sendix Base KIS50 / KIH50 family also features our well proven safety lock system, allowing higher tolerance of possible installation errors and increasing the overall performance of this encoder.

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

Robust

- Resistant die-cast housing and protection up to IP65.
- Wide temperature range, -20°C ... +70°C.
- Elimination of machine downtime thanks to sturdy bearing construction in "Safety-Lock™ Design".

Flexible

- Suitable connection variant for every specific case: cable connection, M12 and M23 connector.
- Various mounting options.
- Up to 5000 pulses per revolution.

Order code Shaft version

8.KIS50	.	X	X	X	X	.	XXXX
Type		a	b	c	d		e

a *Flange*
8 = clamping flange, IP65 ø 58 mm [2.28"]
B = synchro flange, IP65 ø 58 mm [2.28"]

b *Shaft (ø x L), with flat*
1 = ø 6 x 10 mm [0.24 x 0.39"]
6 = ø 8 x 15 mm [0.32 x 0.59"]
3 = ø 10 x 20 mm [0.39 x 0.79"]
5 = ø 12 x 20 mm [0.47 x 0.79"]

c *Output circuit / power supply*
4 = RS422 (with inverted signal) / 5 V DC
1 = RS422 (with inverted signal) / 5 ... 30 V DC
2 = Push-Pull (7272 compatible with inverted signal) / 5 ... 30 V DC
5 = Push-Pull (with inverted signal) / 10 ... 30 V DC
3 = Open collector (with inverted signal) / 5 ... 30 V DC

d *Type of connection*
1 = axial cable, 1 m [3.28'] PVC
2 = radial cable, 1 m [3.28'] PVC
3 = axial M12 connector, 8-pin
4 = radial M12 connector, 8-pin
7 = axial M23 connector, 12-pin
8 = radial M23 connector, 12-pin

e *Pulse rate*
100, 200, 250, 256, 360, 500, 512, 600, 1000, 1024, 2000, 2048, 2500, 3600, 4096, 5000
(e.g. 100 pulses => 0100)

Order code Hollow shaft

8.KIH50	.	X	X	X	X	.	XXXX
Type		a	b	c	d		e

a *Flange*
2 = with spring element, long, IP65
4 = with fastening arm, long, IP65
D = with stator coupling, IP65, ø 63 mm [2.48"]

b *Hollow shaft*
9 = ø 8 mm [0.32"]
3 = ø 10 mm [0.39"]
5 = ø 12 mm [0.47"]
A = ø 14 mm [0.55"]
8 = ø 15 mm [0.59"]

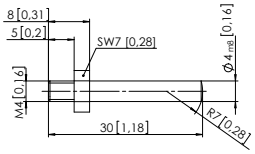
c *Output circuit / power supply*
4 = RS422 (with inverted signal) / 5 V DC
1 = RS422 (with inverted signal) / 5 ... 30 V DC
2 = Push-Pull (7272 compatible with inverted signal) / 5 ... 30 V DC
5 = Push-Pull (with inverted signal) / 10 ... 30 V DC
3 = Open collector (with inverted signal) / 5 ... 30 V DC

d *Type of connection*
1 = radial cable, 1 m [3.28'] PVC
2 = radial M12 connector, 8-pin
4 = radial M23 connector, 12-pin
E = tangential cable, 1 m [3.28'] PVC

e *Pulse rate*
100, 200, 250, 256, 360, 500, 512, 600, 1000, 1024, 2000, 2048, 2500, 3600, 4096, 5000
(e.g. 100 pulses => 0100)

Standard optical	Sendix Base KIS50 / KIH50 (shaft / hollow shaft)	Push-Pull / RS422 / open collector

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.
Cylindrical pin, long for torque stops	 with fixing thread	**8.0010.4700.0000**

Connection technology		Order no.
Connector, self-assembly (straight)	M12 female connector with coupling nut	**05.CMB 8181-0**
	M23 female connector with coupling nut	**8.0000.5012.0000**
Cordset, pre-assembled	M12 female connector with coupling nut, 2 m [6.56‘] PVC cable	**05.00.6041.8211.002M**
	M23 female connector with coupling nut, 2 m [6.56‘] PVC cable	**8.0000.6901.0002**

Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology.

Technical data

Mechanical characteristics

Maximum speed		6000 min^{-1} 3000 min^{-1} (continuous)
Mass moment of inertia	shaft version	approx. 1.8 x 10^{-6} kgm^2
	hollow shaft version	approx. 6 x 10^{-6} kgm^2
Starting torque at 20°C [68°F]		< 0.01 Nm
Shaft load capacity	radial	80 N
	axial	40 N

Weight		approx. 0.4 kg [14.11 oz]
Protection acc. to EN 60529		IP65
Working temperature range		-20°C ... +70°C [-4°F ... +158°F]
Material	shaft	stainless steel
Shock resistance acc. to EN 60068-2-27		1000 m/s^2, 6 ms
Vibration resistance acc. to EN 60068-2-6		100 m/s^2, 10 ... 2000 Hz

Electrical characteristics

Output circuit Ordercode		**RS422** (TTL compatible) **1**	**RS422** (TTL compatible) **4**	**Push-Pull** **5**	**Push-Pull** (7272 compatible) **2**	**Open collector** (7273) **3**
Power supply		5 ... 30 V DC	5 V DC (±5 %)	10 ... 30 V DC	5 ... 30 V DC	5 ... 30 V DC
Power consumption (no load)		typ. 40 mA max. 90 mA	typ. 40 mA max. 90 mA	typ. 50 mA max. 100 mA	typ. 50 mA max. 100 mA	100 mA
Permissible load / channel		max. +/- 20 mA	max. +/- 20 mA	max. +/- 20 mA	max. +/- 20 mA	+/- 20 mA sink at 30 V DC
Pulse frequency		max. 300 kHz	max. 300 kHz	max. 300 kHz	max. 300 kHz [1]	max. 300 kHz
Signal level	HIGH	min. 2.5 V	min. 2.5 V	min +V - 1.0 V	min. +V - 2.0 V	
	LOW	max. 0.5 V	max. 0.5 V	max. 0.5 V	max. 0.5 V	
Rising edge time t_r		max. 200 ns	max. 200 ns	max. 1 µs	max. 1 µs	
Falling edge time t_f		max. 200 ns	max. 200 ns	max. 1 µs	max. 1 µs	
Short circuit proof outputs [2]		yes [3]	yes [3]	yes	yes	yes
Reverse polarity protection of the power supply		yes	no	yes	no	no
CE compliant acc. to		EMC guideline 2014/30/EU RoHS guideline 2011/65/EU				

1) Max. recommended cable length 30 m [98.43‘].
2) If power supply 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.

Standard optical | **Sendix Base KIS50 / KIH50 (shaft / hollow shaft)** | **Push-Pull / RS422 / open collector**

Terminal assignment

Output circuit	Type of connection	Cable (isolate unused wires individually before initial start-up)											
1, 2, 3, 4, 5	KIS50: 1, 2	Signal:	0 V	+V	0 Vsens	+Vsens	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	KIH50: 1, E	Cable colour:	WH	BN	GY PK	RD BU	GN	YE	GY	PK	BU	RD	shield

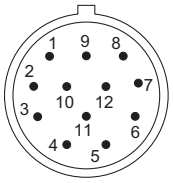
Output circuit	Type of connection	M12 connector, 8-pin											
1, 2, 3, 4, 5	KIS50: 3, 4	Signal:	0 V	+V	0 Vsens	+Vsens	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	KIH50: 2	Pin:	1	2			3	4	5	6	7	8	PH [1]

Output circuit	Type of connection	M23 connector, 12-pin											
1, 2, 3, 4, 5	KIS50: 7, 8	Signal:	0 V	+V	0 Vsens	+Vsens	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	KIH50: 4	Pin:	10	12	11	2	5	6	8	1	3	4	PH [1]

+V: Encoder power supply +V DC
0 V: Encoder power supply 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 ⏚: Plug connector housing (shield)

Top view of mating side, male contact base

M12 connector, 8-pin



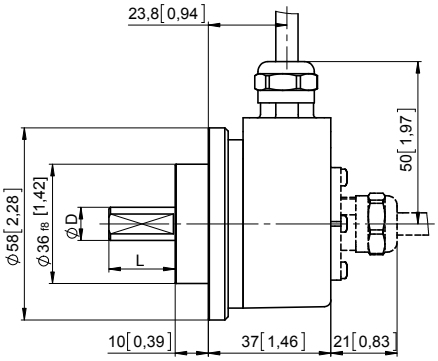
M23 connector, 12-pin

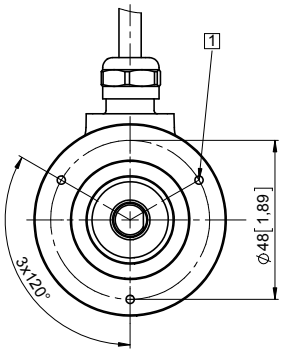
Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]
Flange type 8

1 M3, 6 [0.24] deep

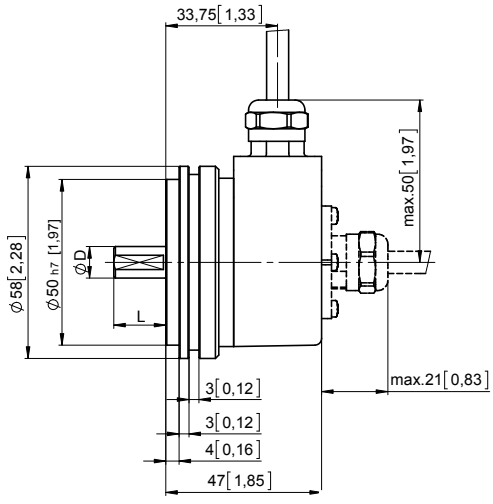


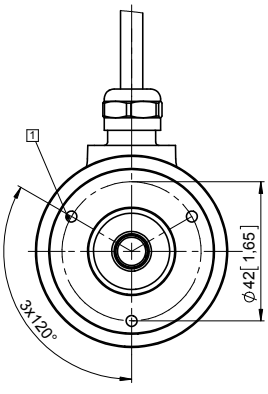


D = ø 6 h7 [0.24]
ø 8 h7 [0.32]
ø 10 f7 [0.39]
ø 12 h7 [0.47]

Synchro flange, ø 58 [2.28]
Flange type B

1 M4, 6 [0.24] deep





D = ø 6 h7 [0.24]
ø 8 h7 [0.32]
ø 10 f7 [0.39]
ø 12 h7 [0.47]

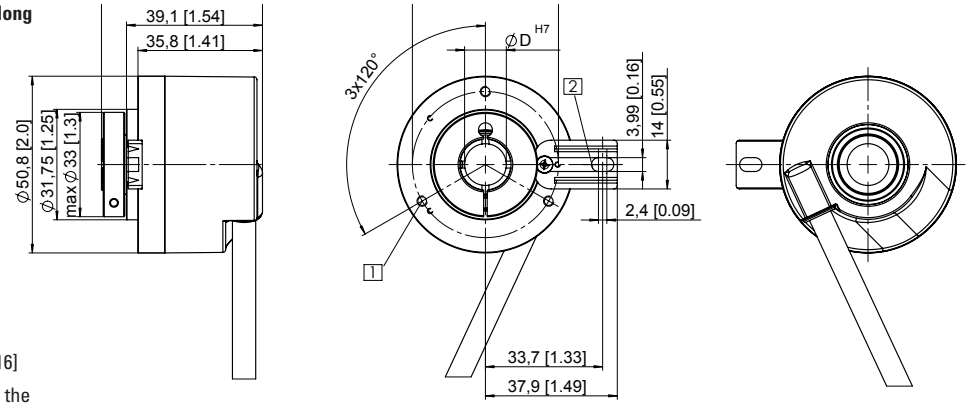
1) PH = shield is attached to connector housing.

Standard optical | **Sendix Base KIS50 / KIH50 (shaft / hollow shaft)** | **Push-Pull / RS422 / open collector**

Dimensions hollow shaft version

Dimensions in mm [inch]

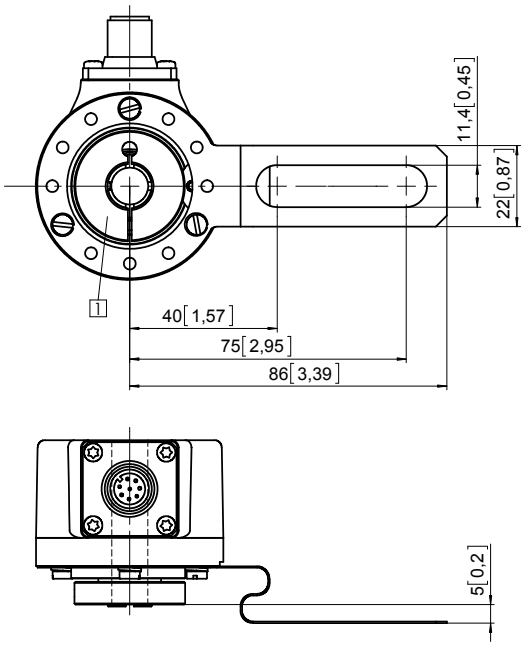
Flange with spring element, long
Flange type 2



1 M3, 6 [0.24] deep
2 Torque stop slot, recommendation: cylindrical pin DIN7, 4 [0.16]
3 Recommended torque for the clamping ring 0.6 Nm

Flange with fastening arm, long
Flange type 4

1 Recommended torque for the clamping ring 0.6 Nm



Flange with stator coupling, ø 63 [2.48]
Flange type D

1 Recommended torque for the clamping ring 0.6 Nm