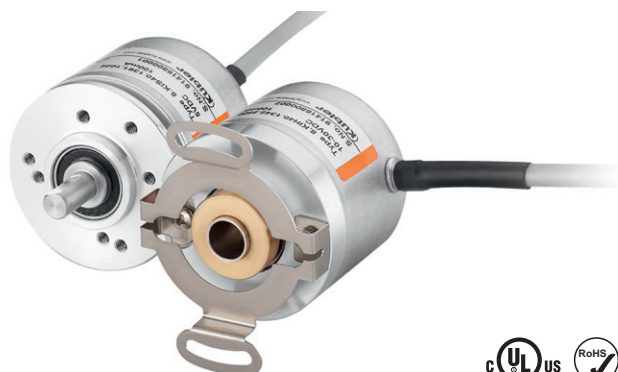


Incremental encoders

Compact optical

Sendix Base KIS40 / KIH40 (shaft / hollow shaft)

Push-pull / RS422 / Open collector



The incremental encoders type Sendix Base KIS40 / KIH40 with optical sensor technology have been designed for highest cost-effectiveness. They are available with a resolution of up to 2500 pulses per revolution.

They are particularly suitable for tight mounting spaces and small machines and appliances.



Safety-Lock™



High rotational speed



Temperature range
-20°C ... +70°C



Shock / vibration resistant



Short-circuit proof



Reverse polarity protection



Magnetic field proof



Optical sensor

Compact and robust

- Only 40 mm outer diameter.
- Ideally suited for use where space is tight.
- Sturdy bearing construction in Safety Lock™ design.
- Safe commissioning: reverse polarity protection and short-circuit proof.

Flexible

- Maximum resolution of 2500 pulses per revolution.
- Power supply 5 V DC, 10 ... 30 V DC or 5 ... 30 V DC.
- Push-pull, RS422 or open collector
- Radial or axial cable.

Order code Shaft version

8.KIS40	.	1	X	X	X	.	X	X	X	.	P	X	X	¹⁾
Type		a	b	c	d		e				f			

a Flange

1 = clamping-synchro flange, ø 40 mm [1.57"]

b Shaft (ø x L)

3 = ø 6 x 12.5 mm [0.24 x 0.49"], with flat
5 = ø 1/4" x 12.5 mm [1/4" x 0.49"], with flat
6 = ø 8 x 12.5 mm [0.32 x 0.49"], with flat

c Output circuit / power supply

3 = open collector NPN (with inverted signal) / 10 ... 30 V DC
4 = push-pull (with inverted signal) / 10 ... 30 V DC
6 = RS422 (with inverted signal) / 5 V DC
7 = open collector NPN (without inverted signal) / 10 ... 30 V DC
8 = push-pull (without inverted signal) / 10 ... 30 V DC
A = open collector NPN (with inverted signal) / 5 ... 30 V DC
B = push-pull (with inverted signal) / 5 ... 30 V DC
C = RS422 (with inverted signal) / 5 ... 30 V DC

d Type of connection

1 = axial cable, 2 m [6.56'] PVC
2 = radial cable, 2 m [6.56'] PVC
A = axial cable, special length PVC *)
B = radial cable, special length PVC *)

*) Available special lengths (connection types A, B):
3, 5, 8, 10, 15 m [9.84, 16.40, 26.25, 32.80, 49.21']
order code expansion .XXXX = length in dm
ex.: 8.KIS40.134A.1024.0050 (for cable length 5 m)

e Pulse rate

25, 50, 60, 100, 200, 360, 500, 512,
600, 1000, 1024, 2000, 2048, 2500
(e.g. 500 pulses => 0500)

f Special signal format

P03 = see page 62

Stock types

8.KIS40.1342.0360
8.KIS40.1342.0500
8.KIS40.1342.1000
8.KIS40.1342.1024
8.KIS40.1342.2048
8.KIS40.1342.2500
8.KIS40.1362.0500
8.KIS40.1362.1024
8.KIS40.1362.2048

Optional on request
- other pulse rates

¹⁾ Is only necessary when a special output signal format is required.

Incremental encoders

Compact optical	Sendix Base KIS40 / KIH40 (shaft / hollow shaft)	Push-pull / RS422 / Open collector
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Order code	8.KIH40	.XXXXX	.XXXX	.PXX¹⁾
Hollow shaft	Type	a b c d	e	f
<p>a Flange 2 = with spring element, long 5 = with stator coupling, ø 46 mm [1.81"]</p> <p>b Blind hollow shaft (insertion depth max. 18 mm [0.71"]) 2 = ø 6 mm [0.24"] 4 = ø 8 mm [0.32"] 3 = ø 1/4"</p> <p>c Output circuit / power supply 3 = open collector NPN (with inverted signal) / 10 ... 30 V DC 4 = push-pull (with inverted signal) / 10 ... 30 V DC 6 = RS422 (with inverted signal) / 5 V DC 7 = open collector NPN (without inverted signal) / 10 ... 30 V DC 8 = push-pull (without inverted signal) / 10 ... 30 V DC A = open collector NPN (with inverted signal) / 5 ... 30 V DC B = push-pull (with inverted signal) / 5 ... 30 V DC C = RS422 (with inverted signal) / 5 ... 30 V DC</p> <p>d Type of connection 1 = axial cable, 2 m [6.56'] PVC 2 = radial cable, 2 m [6.56'] PVC A = axial cable, special length PVC *) B = radial cable, special length PVC *) *) Available special lengths (connection types A, B): 3, 5, 8, 10, 15 m [9.84, 16.40, 26.25, 32.80, 49.21'] order code expansion .XXXX = length in dm ex.: 8.KIH40.544A.1024.0050 (for cable length 5 m)</p> <p>e Pulse rate 25, 50, 60, 100, 200, 360, 500, 512, 600, 1000, 1024, 2000, 2048, 2500 (e.g. 500 pulses => 0500)</p> <p>f Special signal format P03 = see page 62</p> <p>Stock types 8.KIH40.2442.1024 8.KIH40.2462.1000 8.KIH40.2462.1024 8.KIH40.5442.0360 8.KIH40.5442.0500 8.KIH40.5442.1024 8.KIH40.5442.2048 8.KIH40.5442.2500 8.KIH40.5462.0500 8.KIH40.5462.2048</p> <p>Optional on request - other pulse rates</p>				

Mounting accessory for shaft encoders		Order no.
Coupling	bellows coupling ø 15 mm [0.59"] for shaft 6 mm [0.24"]	8.0000.1202.0606
Connection technology		Order no.
Connector, self-assembly (straight)	M12 female connector with coupling nut, 8-pin	05.CMBS 8181-0

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

Technical data

Mechanical characteristics	
Maximum speed	4500 min ⁻¹
Mass moment of inertia	approx. 0.2 x 10 ⁻⁶ kgm ²
Starting torque – at 20°C [68°F]	< 0.05 Nm
Shaft load capacity	radial 40 N axial 20 N
Weight	ca. 0.17 kg [6.00 oz]
Protection acc. to EN 60529	IP64

Working temperature range	
	-20°C ... +70° [-4°F ... +158°F]

Materials	
shaft	stainless steel
flange	aluminum
housing	aluminum
cable	PVC

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 , 55 ... 2000 Hz

Electrical characteristics			
Output circuit	RS422 (TTL comp.)	Push-pull ²⁾ (7272 comp.)	Open collector NPN (7273)
Power supply	5 V DC (±5 %) / 5 ... 30 V DC	10 ... 30 V DC / 5 ... 30 V DC	10 ... 30 V DC / 5 ... 30 V DC
Power consumption with inverted signal (no load)	typ. 40 mA max. 90 mA / max. 165 mA	typ. 50 mA max. 100 mA	100 mA
Permissible load / channel	max. +/- 20 mA	max. +/- 20 mA	20 mA sink at 30 V DC
Pulse frequency	max. 250 kHz	max. 250 kHz	max. 250 kHz
Signal level	HIGH min. 2.5 V LOW max. 0.5 V	min. +V - 2.0 V max. 0.5 V	
Rising edge time t_r	max. 200 ns	max. 1 µs	
Falling edge time t_f	max. 200 ns	max. 1 µs	
Short circuit proof outputs³⁾	yes ⁴⁾	yes	yes
Reverse polarity protection of the power supply	no/yes	yes	yes
UL approval	file no. E224618		
CE compliant acc. to	EMC guideline 2014/30/EU – RoHS guideline 2011/65/EU		

1) Is only necessary when a special output signal format is required.
2) Max. recommended cable length 30 m [98.43'].
3) If power supply 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.

Incremental encoders

Compact optical	Sendix Base KIS40 / KIH40 (shaft / hollow shaft)	Push-pull / RS422 / Open collector
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Terminal assignment





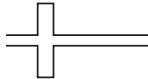

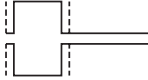

Output circuit	Type of connection	Cable (isolate unused cores individually before initial start-up)								
3, 4, 6, A, B, C with inv. signal	1, 2	Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	0	$\bar{0}$
		Core color:	WH	BN	GN	YE	GY	PK	BU	RD

Output circuit	Type of connection	Cable (isolate unused cores individually before initial start-up)								
7, 8 without inv. signal	1, 2	Signal:	0 V	+V	A	–	B	–	0	–
		Core color:	WH	BN	GN	–	GY	–	BU	–

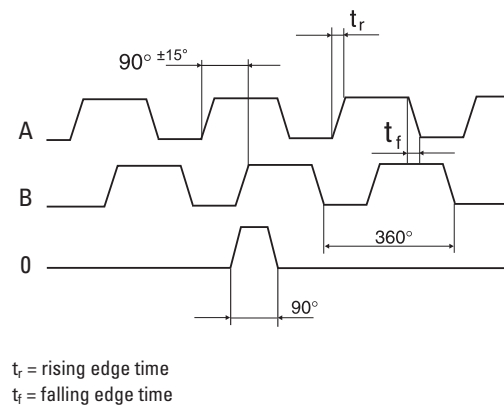
+V: Encoder power supply +V DC
 0 V: Encoder power supply ground GND (0 V)
 A, \bar{A} : Incremental output channel A
 B, \bar{B} : Incremental output channel B
 0, $\bar{0}$: Reference signal

Output signal formats

All Kübler encoders come standard with six channels where A leads B in the clockwise direction and the standard index is gated with A & B. The tolerance of the wave form affects the control and, in some cases, may affect the smoothness of system operation.

A leads B when the shaft is rotated in the clockwise direction viewing the shaft or collet end. This is the Kübler standard. This format applies to the pin key codes listed below.		A  \bar{A}  B  \bar{B} 
Order code		
standard	0 gated with A & B. This is the Kübler standard. 0 is 90° wide.	0  $\bar{0}$ 
P03	0 ungated. 0 is 330° to 360° wide.	0  $\bar{0}$ 

Signal tolerances



Incremental encoders

Compact optical

Sendix Base KIS40 / KIH40 (shaft / hollow shaft)

Push-pull / RS422 / Open collector

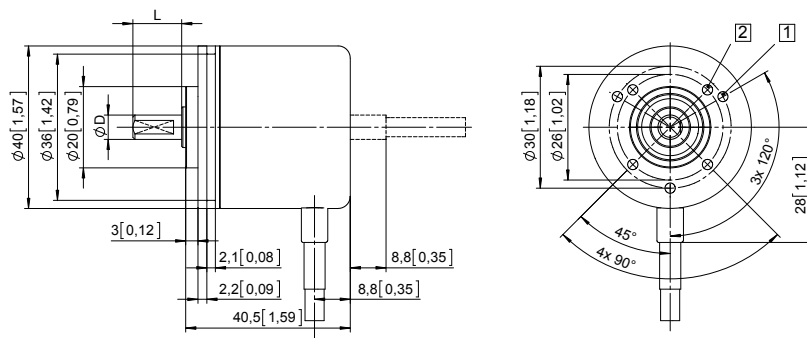
Dimensions shaft version

Dimensions in mm [inch]

Clamping-synchro flange, $\varnothing 40$ [1.57]

Flange type 1

- 1 3 x M3, 4 [0.16] deep
- 2 4 x M3, 4 [0.16] deep



D	Fit	L
6 [0.24]	h7	12.5 [0.49]
1/4"	h7	12.5 [0.49]
8 [0.32]	h7	12.5 [0.49]

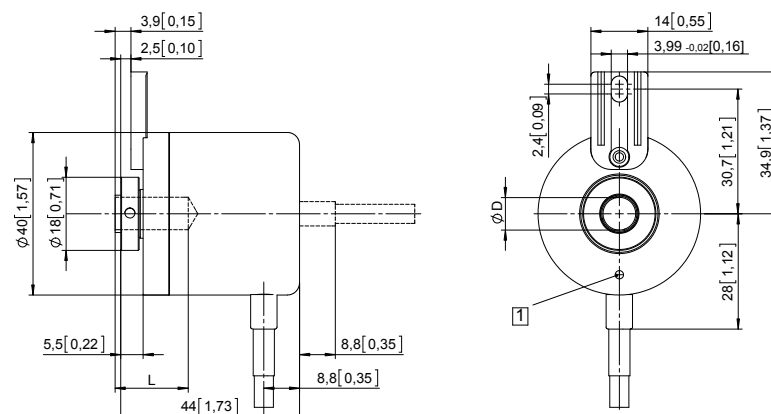
Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, long

Flange type 2

- 1 M2,5, 4 [0.16] deep

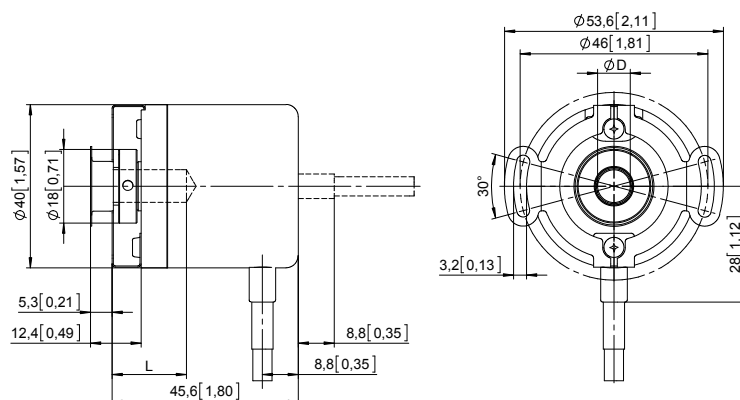


D	Fit	L
6 [0.24]	H7	18 [0.71]
8 [0.32]	H7	18 [0.71]
1/4"	H7	18 [0.71]

L = insertion depth max. blind hollow shaft
insertion depth min. = 15 mm [0.59]

Flange with stator coupling, $\varnothing 46$ [1.81]

Flange type 5



D	Fit	L
6 [0.24]	H7	18 [0.71]
8 [0.32]	H7	18 [0.71]
1/4"	H7	18 [0.71]

L = insertion depth max. blind hollow shaft
insertion depth min. = 15 mm [0.59]