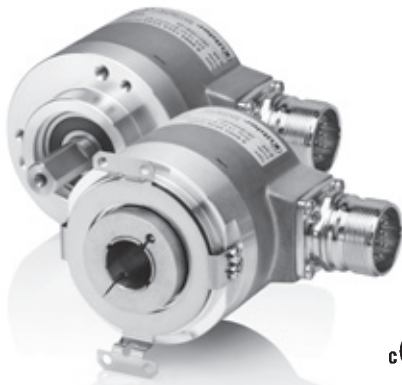


# Incremental Encoders

## Functional Safety, optical      Sendix 5814 SIL/5834 SIL (Shaft / Hollow shaft)      SinCos



The incremental encoders Sendix 5814 SIL and 5834 SIL are perfectly suited for use in safety-related applications up to SIL3 according to DIN EN ISO 61800-5-2 or PLe to DIN EN ISO 13849.

These encoders are particularly suited for applications in the field of safe drive engineering.



Incremental Encoders

Safety-Lock™	High rotational speed	Temperature -40° + 90°	High protection level	High shaft load capacity	Shock / vibration resistant	Magnetic field proof	Reverse polarity protection	SinCos	Seawater-resistant version on request

### Certified Safety

- Certified by the BGIA - Institute for Occupational Safety and Health
- Suitable for SIL3 applications acc. to DIN EN ISO 61800-5-2
- Suitable for PLe applications acc. to DIN EN ISO 13849
- With incremental SinCos tracks

### Flexible

- Shaft and Hollow shaft versions
- Cable and connector variants
- Various mounting options available

**Order code**      **8.5814SIL** . 1 XXXX . XXXX  
**Shaft version**      Type      a      b      c      d      e

If for each parameter of an encoder the underlined preferred option is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.



- |  |  |  |  |
|--|--|--|--|
| <p><b>a</b> Flange<br/><u>1 = clamping flange, ø 58 mm, IP65</u></p> <p><b>b</b> Shaft (ø x L)<br/><u>2 = 10 x 20 mm, with flat</u><br/>A = 10 x 20 mm, with feather key</p> | <p><b>c</b> Output circuit / Power supply<br/>1 = SinCos / 5 V DC<br/><u>2 = SinCos / 10 ... 30 V DC</u></p> | <p><b>d</b> Type of connection<br/>1 = axial cable (1 m PVC)<br/><u>2 = radial cable (1 m PVC)</u><br/>3 = M23 connector, 12 pin, axial<br/>4 = M23 connector, 12 pin, radial<br/>5 = M12 connector, 8 pin, axial<br/>6 = M12 connector, 8 pin, radial</p> | <p><b>e</b> Pulse rate<br/>1024, <u>2048</u></p> <p><i>optional on request</i><br/>- seawater-resistant<br/>- special cable length</p> |
|--|--|--|--|

**Order code**      **8.5834SIL** . X XXXX . XXXX  
**hollow shaft**      Type      a      b      c      d      e

If for each parameter of an encoder the underlined preferred option is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.



- |  |  |  |  |
|--|--|--|--|
| <p><b>a</b> Flange<br/>A = with torque stop set, IP65<br/><u>B = with stator coupling, IP65</u></p> <p><b>b</b> Hollow shaft<br/>3 = ø 10 mm<br/><u>4 = ø 12 mm</u><br/>5 = ø 14 mm<br/>K = ø 10 mm, tapered shaft</p> | <p><b>c</b> Output circuit / Power supply<br/>1 = SinCos / 5 V DC<br/><u>2 = SinCos / 10 ... 30 V DC</u></p> | <p><b>d</b> Type of connection<br/><u>2 = radial cable (1 m PVC)</u><br/>4 = M23 connector, 12 pin, radial<br/>6 = M12 connector, 8 pin, radial<br/>E = tangential cable outlet<br/>cable length 1 m (PVC cable)</p> | <p><b>e</b> Pulse rate<br/>1024, <u>2048</u></p> <p><i>optional on request</i><br/>- seawater-resistant<br/>- special cable length</p> |
|--|--|--|--|

Connection Technology		
<b>Connector, self-assembly (straight)</b>	M12	<b>05.CMB-8181-0</b>
	M23	<b>8.0000.5012.0000</b>
<b>Cordset, pre-assembled with 2 m PVC cable</b>	M12	<b>05.00.6041.8211.002M</b>
	M23	<b>8.0000.6901.0002</b>

Further accessories can be found in the Accessories section or in the Accessories area of our website at: [www.kuebler.com/accessories](http://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](http://www.kuebler.com/connection_technology).  
**You will find an overview of our systems and components for Functional Safety under [www.kuebler.com/safety](http://www.kuebler.com/safety)**

# Incremental Encoders

## Functional Safety, optical      Sendix 5814 SIL / 5834 SIL (Shaft / Hollow shaft)      SinCos

**Notes regarding "Functional Safety"**  
 These encoders are suitable for use in safety-related systems up to SIL3 to DIN EN ISO 61800-5-2 and PLe to DIN EN ISO 13849 in conjunction with controllers or evaluation units, which possess the necessary functionality. Additional functions can be found in the operating manual.

Electrical characteristics		
Supply voltage	5 V DC ± 5%	10 ... 30 V DC
Current consumption (no load)	max. 70 mA	max. 45 mA
Reverse polarity protection of the power supply (U <sub>B</sub> )	yes	
UL approval	File 224618	
Conforms to CE requirements acc. to	EN 61000-6-2, EN 61000-6-4, EN 61000-6-3	
RoHS compliant acc. to	EU guideline 2002/95/EG	

Output SinCos (A / B)	
Max. frequency -3dB	400 kHz
Signal level	1 V <sub>pp</sub> (± 20%)
Short circuit proof	yes <sup>2)</sup>

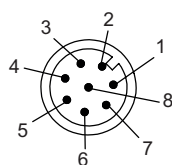
Mechanical characteristics		
<b>Max. speed, shaft version</b>	without shaft seal (IP65) up to 70°C	12 000 min <sup>-1</sup> , 10 000 min <sup>-1</sup> (continuous)
	without shaft seal (IP65) up to T <sub>max</sub>	8 000 min <sup>-1</sup> , 5 000 min <sup>-1</sup> (continuous)
	with shaft seal (IP67) up to 70°C	11 000 min <sup>-1</sup> , 9 000 min <sup>-1</sup> (continuous)
	with shaft seal (IP67) up to T <sub>max</sub>	8 000 min <sup>-1</sup> , 5 000 min <sup>-1</sup> (continuous)
<b>Max. speed, hollow shaft version</b>	without shaft seal (IP65) up to 70°C	9 000 min <sup>-1</sup> , 6 000 min <sup>-1</sup> (continuous)
	without shaft seal (IP65) up to T <sub>max</sub>	6 000 min <sup>-1</sup> , 3 000 min <sup>-1</sup> (continuous)
	with shaft seal (IP67) up to 70°C	8 000 min <sup>-1</sup> , 4 000 min <sup>-1</sup> (continuous)
	with shaft seal (IP67) up to T <sub>max</sub>	4 000 min <sup>-1</sup> , 2 000 min <sup>-1</sup> (continuous)
<b>Starting torque, shaft version</b>	without shaft seal (IP65)	< 0.01 Nm
	with shaft seal (IP67)	< 0.05 Nm
<b>Starting torque, hollow shaft version</b>	without shaft seal (IP65)	< 0.03 Nm
<b>Moment of inertia</b>	Shaft version	4.0 x 10 <sup>-6</sup> kgm <sup>2</sup>
	Hollow shaft version	7.0 x 10 <sup>-6</sup> kgm <sup>2</sup>
<b>Load capacity of shaft</b>	radial / axial	80 N / 40 N
<b>Weight</b>		approx. 0.45 kg
<b>Protection EN 60 529</b>	housing side	IP67
	shaft side	IP65, opt. IP67
<b>Working temperature range</b>		-40°C ... +90°C <sup>1)</sup>
<b>Materials</b>	shaft / hollow shaft	stainless steel
	flange	aluminium
	housing	zinc die-cast housing
	cable	PVC
<b>Shock resistance</b> acc. EN 60068-2-27		2500 m/s <sup>2</sup> , 6 ms
<b>Vibration resistance</b> acc. EN 60068-2-6		100 m/s <sup>2</sup> , 55 ... 2000 Hz

### Terminal assignment

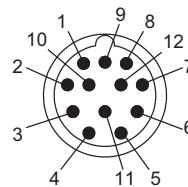
output circuit	Type of connection	Kabel							
1, 2	1, 2, E	Signal:	0 V	+V	A	$\bar{A}$	B	$\bar{B}$	$\perp$
		Kabelfarbe:	WH	BN	GN	YE	GY	PK	shield
output circuit	Type of connection	M23 connector							
1, 2	3, 4	Signal:	0 V	+V	A	$\bar{A}$	B	$\bar{B}$	$\perp$
		Pin:	10	12	5	6	8	1	PH <sup>3)</sup>
output circuit	Type of connection	M12 connector							
1, 2	5, 6	Signal:	0 V	+V	A	$\bar{A}$	B	$\bar{B}$	$\perp$
		Pin:	1	2	3	4	5	6	PH <sup>3)</sup>

- +V: Encoder Power Supply +V DC
- GND: Encoder Power Supply Ground (0V)
- PE: Protective earth
- PH: Plug connector housing (Shield)
- A,  $\bar{A}$ : Sine output
- B,  $\bar{B}$ : Cosine output

### Top view of mating side, male contact base



M12 connector, 8-pin



M23 connector, 12-pin

1) Cable version: -30°C ... +90°C fixed installation  
 2) Short circuit to 0V or to output, one channel at a time, supply voltage correctly applied  
 3) PH = Shield is attached to connector housing

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**Functional Safety, optical**      **Sendix 5814 SIL/5834 SIL (Shaft / Hollow shaft)**      **SinCos**

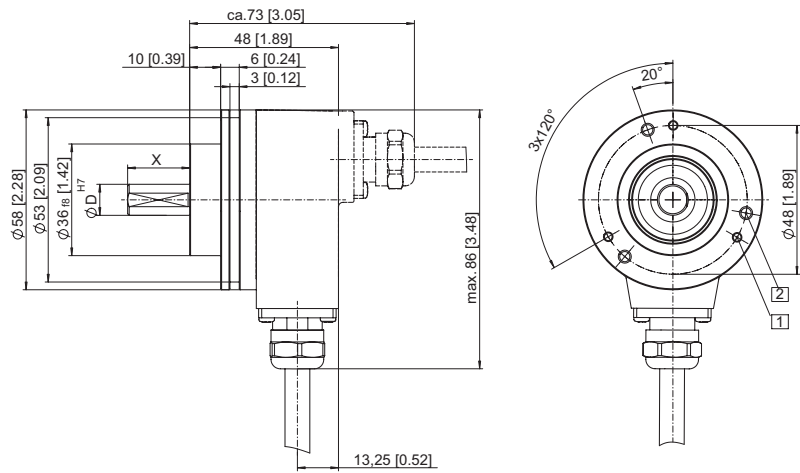
### Dimensions shaft version

#### Clamping flange

#### Flange type 1 with shaft type 2

(Drawing with cable)

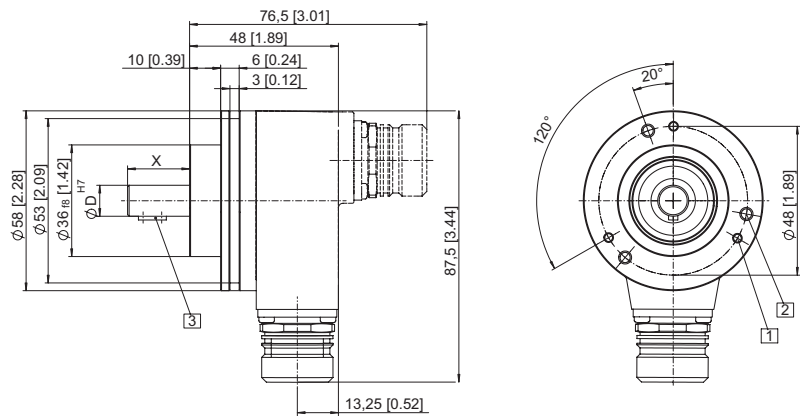
- 1 3 x M3, 6 [0.24] deep
- 2 3 x M4, 8 [0.32] deep



#### Flange type 1 with shaft type A

(Drawing with M23 connector)

- 1 3 x M3, 6 [0.24] deep
- 2 3 x M4, 8 [0.32] deep
- 3 Feather key DIN 6885 - A - 3x3x6



Incremental Encoders

# Incremental Encoders

Functional Safety, optical

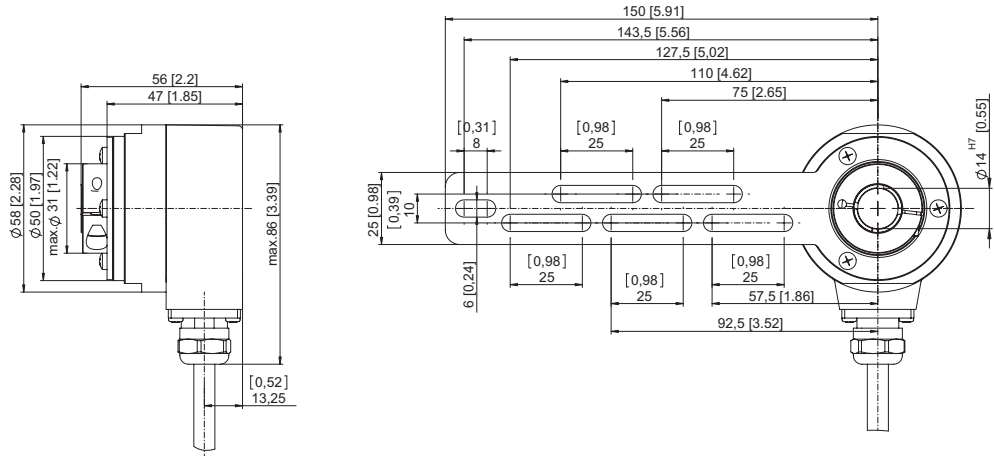
Sendix 5814 SIL / 5834 SIL (Shaft / Hollow shaft)

SinCos

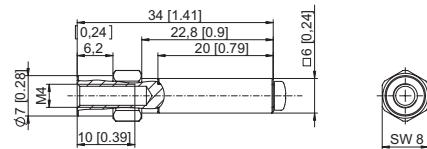
## Dimensions hollow shaft version

With torque stop set  
flange type A

(Drawing with cable)



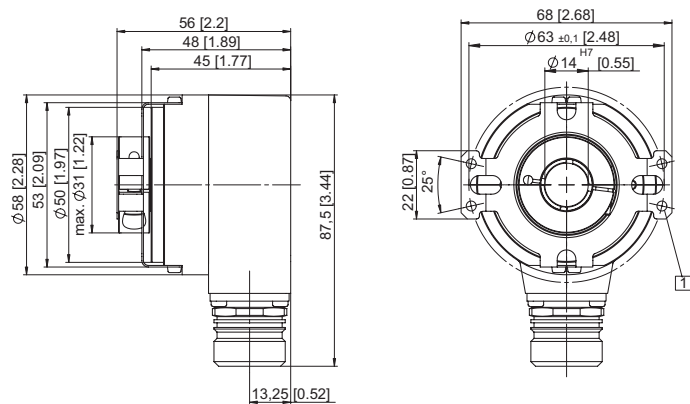
Torque pin with rectangular sleeve  
with M4 thread, 10 deep



Flange with stator coupling and hollow shaft  
Flange type B

(Drawing with M23 connector)

1 for (4x) M3 screw



Flange with stator coupling and tapered shaft  
Flange type B

(Drawing with tangential cable outlet)

1 for (4x) M3 screw

