

Incremental encoders

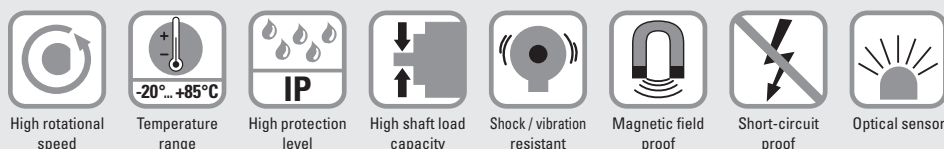
Standard sine wave output, with zero pulse, optical	5804 / 5824 (shaft / hollow shaft)	SinCos
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The incremental encoders type 5804 / 5824 offer a SinCos interface.

They are ideal for use in drive engineering.

These encoders are used preferably in applications for which a standard SinCos interface is sufficient.



High performance

- High resolution up to 5000 pulses per revolution.
- Maximum speed up to 12000 revolutions per minute.
- High IP protection up to max. IP66.

Adaptable

- Shaft or hollow shaft version.
- With cable or connector.

Order code Shaft version

8.5804	.	XXXX	.	XXXX
Type		a b c d		e

a Flange

- 1 = clamping flange $\varnothing$ 58 mm [2.28"]
- 2 = synchro flange $\varnothing$ 58 mm [2.28"]

b Shaft ($\varnothing \times L$), with flat

- 1 = $\varnothing$ 6 x 10 mm [0.24 x 0.39"]
- 2 = $\varnothing$ 10 x 20 mm [0.39 x 0.79"]

c Output circuit / power supply

- 1 = SinCos, 1 Vpp (with inverted signal) / 5 V DC
- 2 = SinCos, 1 Vpp (with inverted signal) / 10 ... 30 V DC

d Type of connection

- 1 = axial cable, 1 m [3.28'] TPE
- 2 = radial cable, 1 m [3.28'] TPE
- 3 = axial M23 connector, 12-pin, without mating connector
- 5 = radial M23 connector, 12-pin, without mating connector

e Pulse rate

- 512, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000 (e.g. 512 pulses => 0512)

Optional on request
- other pulse rates

Order code Hollow shaft

8.5824	.	XXXX	.	XXXX
Type		a b c d		e

a Flange

- 1 = with hollow shaft and spring element, short
- 2 = with blind hollow shaft and spring element, short
- 3 = with hollow shaft and stator coupling, $\varnothing$ 65 mm [2.56"]
- 4 = with blind hollow shaft and stator coupling, $\varnothing$ 65 mm [2.56"]

b Hollow shaft

(insertion depth blind hollow shaft with flange 2 and 4 max. 30 mm [1.18"])

- 1 = $\varnothing$ 6 mm [0.24"], IP40
- 2 = $\varnothing$ 6 mm [0.24"], IP66
- 3 = $\varnothing$ 8 mm [0.32"], IP40
- 4 = $\varnothing$ 8 mm [0.32"], IP66
- 5 = $\varnothing$ 10 mm [0.39"], IP40
- 6 = $\varnothing$ 10 mm [0.39"], IP66
- 7 = $\varnothing$ 12 mm [0.47"], IP40
- 8 = $\varnothing$ 12 mm [0.47"], IP66

c Output circuit / power supply

- 1 = SinCos, 1 Vpp (with inverted signal) / 5 V DC
- 2 = SinCos, 1 Vpp (with inverted signal) / 10 ... 30 V DC

d Type of connection

- 1 = radial cable, 1 m [3.28'] TPE
- 2 = radial M23 connector, 12-pin, without mating connector

e Pulse rate

- 512, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000 (e.g. 512 pulses => 0512)

Optional on request
- other pulse rates

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Standard sine wave output, with zero pulse, optical		5804 / 5824 (shaft / hollow shaft)	SinCos
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.
Cylindrical pin, long	with fixing thread		8.0010.4700.0000
for flange with spring element (flange type 1 + 2)			
Stator coupling, ø 63 mm [2.48"]			8.0010.4D00.0000
Connection technology			Order no.
Cordset, pre-assembled	M23 female connector with coupling nut, 12-pin 2 m [6.56'] PVC cable	8.0000.6E01.0002	
Connector, self-assembly (straight)	M23 female connector with coupling nut, 12-pin	8.0000.5012.0000	

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	shaft IP65	12000 min ⁻¹	
	hollow shaft IP40	12000 min ⁻¹	
	hollow shaft IP66 ¹⁾	6000 min ⁻¹	
Mass moment of inertia	shaft	approx. 1.8 x 10 ⁻⁶ kgm ²	
	hollow shaft	approx. 6.0 x 10 ⁻⁶ kgm ²	
Starting torque – at 20°C [68°F]			
	shaft IP65 / hollow shaft IP40	< 0.01 Nm	
	hollow shaft IP66	< 0.05 Nm	
Load capacity of shaft	radial	80 N	
	axial	40 N	
Weight		approx. 0.4 kg [14.11 oz]	
Protection acc. to EN 60529			
	shaft	IP65	
	hollow shaft without seal	IP40	
	hollow shaft with seal	IP66	
Working temperature range			
	shaft IP65 / hollow shaft IP40	-20°C ... +85°C [-4°F ... +185°F] ²⁾	
	hollow shaft IP66	-20°C ... +80°C [-4°F ... +176°F] ²⁾	
Material	shaft	stainless steel H7	
Shock resistance acc. 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	SinCos, U = 1 V _{pp}	SinCos, U = 1 V _{pp}	
Power supply	5 V DC (±5 %)	10 ... 30 V DC	
Power consumption with inverted signal (no load)	typ. 65 mA	typ. 65 mA	
	max. 110 mA	max. 110 mA	
-3 dB frequency	≤ 180 kHz	≤ 180 kHz	
Signal level			
channels A/B	1 V _{pp} (±20 %)	1 V _{pp} (±20 %)	
	channel 0	0.1 ... 1.2 V	
Short circuit proof outputs ³⁾	yes	yes	
Reverse polarity protection of the power supply	no	yes	
UL approval	file 224618		
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU		

1) For continuous operation max. 3000 min⁻¹, ventilated.

2) 70°C [158°F] for cable version.

3) If power supply correctly applied.

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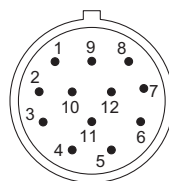
Terminal assignment

Output circuit	Type of connection	Cable (isolate unused wires individually before initial start-up)											
1, 2	5804: 1, 2	Signal:	0 V	+V	0Vsens ²⁾	+Vsens ²⁾	A	$\bar{A}$	B	$\bar{B}$	0	$\bar{0}$	$\perp$
	5824: 1	Cable color:	WH 0.5 mm ²	BN 0.5 mm ²	WH	BN	GN	YE	GY	PK	BU	RD	shield
Output circuit	Type of connection	M23 connector, 12-pin											
1, 2	5804: 3, 5	Signal:	0 V	+V	0Vsens ²⁾	+Vsens ²⁾	A	$\bar{A}$	B	$\bar{B}$	0	$\bar{0}$	$\perp$
	5824: 2	Pin:	10	12	11	2	5	6	8	1	3	4	PH ¹⁾

Using RS422 outputs and long cable distances, a wave impedance has to be applied at each cable end.

- +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, $\bar{A}$: Cosine signal
 B, $\bar{B}$: Sine signal
 0, $\bar{0}$: Reference signal
 PH $\perp$: Plug connector housing (shield)

Top view of mating side, male contact base



M23 connector, 12-pin

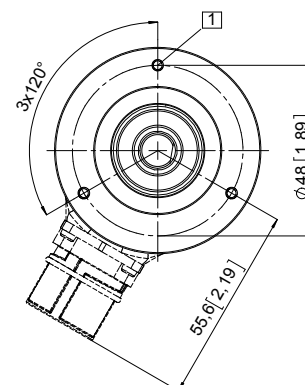
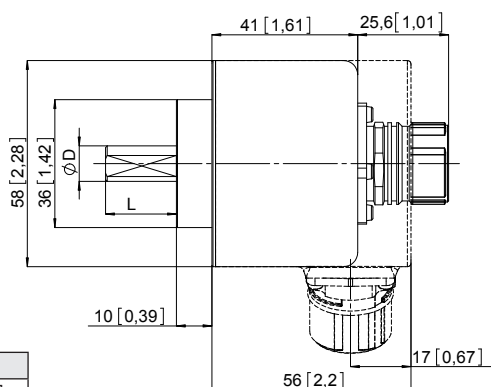
Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]

Flange type 1

- 1) 3 x M3, 5 [0.2] deep



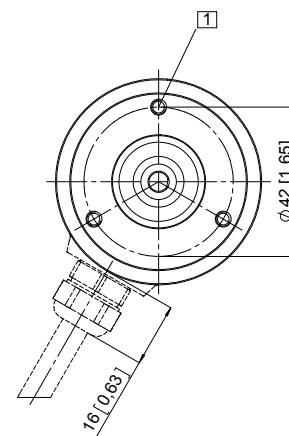
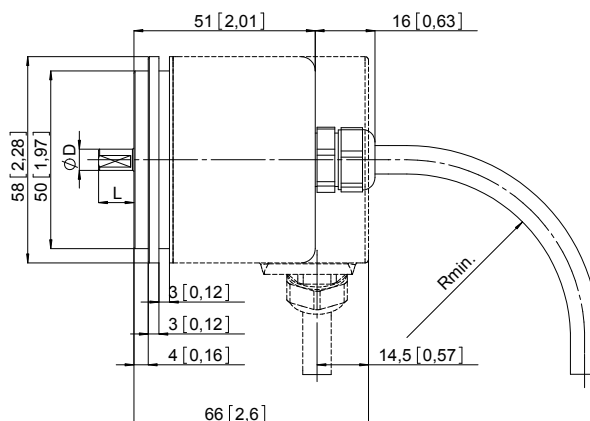
D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]

Synchro flange, ø 58 [2.28]

Flange type 2

- 1) 3 x M4, 5 [0.2] deep

- R_{min}:
 - securely installed: 55 [2.17]
 - flexibly installed: 70 [2.76]



D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]

- 1) PH = shield is attached to connector housing.
 2) The sensor cables are connected to the power supply internally. If long feeder cables are involved they can be used to adjust or control the voltage at the encoder.

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sine wave output, with zero pulse, optical

5804 / 5824 (shaft / hollow shaft)

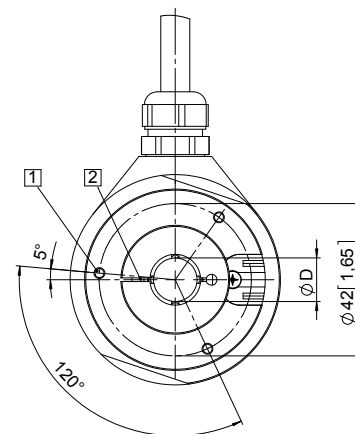
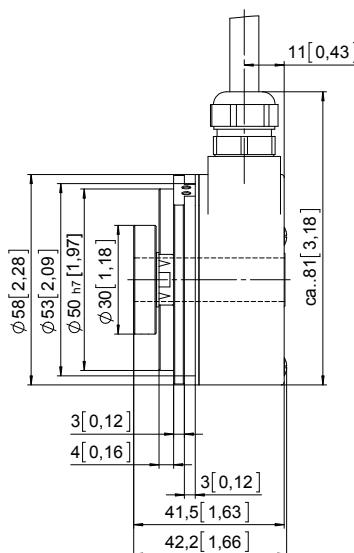
SinCos

Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, short Flange type 1 and 2

- 1 3 x M3, 5 [0.2] deep
- 2 Recommended torque for the clamping ring 0.6 Nm

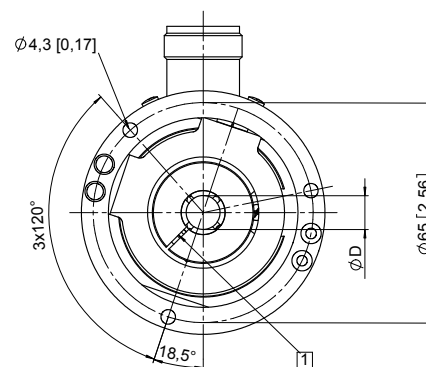
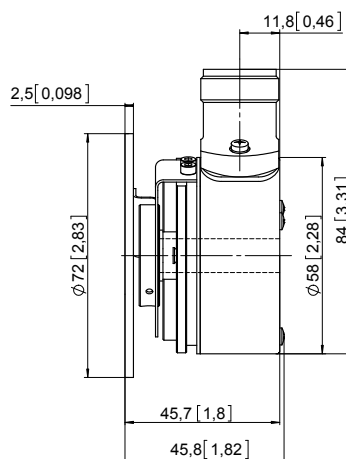


D	Fit
6 [0.24]	H7
8 [0.32]	H7
10 [0.39]	H7
12 [0.47]	H7

Insertion depth blind hollow shaft with flange 2:
max. 30 mm [1.18"]

Flange with stator coupling, Ø 65 [2.56] Flange type 3 and 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

Min. insertion depth = 1.5 x D
Insertion depth blind hollow shaft with flange 4:
max. 30 mm [1.18"]