

Incremental Encoders

Sine wave outputs, 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.



High rotational speed	Temperature -20° + 85°	High protection level IP	High shaft load capacity	Shock / vibration resistant	Magnetic field proof	Short-circuit proof	Optical sensor

High performance

- High resolution up to 5000 PPR
- Maximum speed up to 12000 RPM
- High IP protection up to max. IP66

Adaptable

- Shaft or hollow shaft version
- With cable or connector

Order code	8.5804	.	XXXX	.	XXXX
Shaft version	Type		a b c d		e

- | | | |
|--|---|--|
| <p>a Flange</p> <p>1 = clamping flange \varnothing 58 mm</p> <p>2 = synchro flange \varnothing 58 mm</p>
<p>b Shaft ($\varnothing \times L$), with flat</p> <p>1 = \varnothing 6 x 10 mm</p> <p>2 = \varnothing 10 x 20 mm</p> | <p>c Output circuit / Power supply</p> <p>1 = SinCos, 1 Vss (inverted signal) / 5 V DC</p> <p>2 = SinCos, 1 Vss (inverted signal) / 10 ... 30 V DC</p>
<p>d Type of connection</p> <p>1 = axial cable (1 m TPE cable)</p> <p>2 = radial cable (1 m TPE cable)</p> <p>3 = M23 connector, 12-pin, axial, without mating connector</p> <p>5 = M23 connector, 12-pin, radial, without mating connector</p> | <p>e Pulse rate</p> <p>500, 512, 600, 720, 800, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000 (e.g. 500 pulses => 0500)</p> <p>Other pulse rates on request</p> |
|--|---|--|

Order code	8.5824	.	XXXX	.	XXXX
Hollow shaft	Type		a b c d		e

- | | | |
|--|--|--|
| <p>a Flange</p> <p>1 = with through shaft</p> <p>2 = with blind hollow shaft ¹⁾</p> <p>3 = with through shaft and stator coupling</p> <p>4 = with blind hollow shaft ¹⁾ and stator coupling</p>
<p>b Hollow shaft</p> <p>1 = \varnothing 6 mm without seal</p> <p>2 = \varnothing 6 mm with seal</p> <p>3 = \varnothing 8 mm without seal</p> <p>4 = \varnothing 8 mm with seal</p> <p>5 = \varnothing 10 mm without seal</p> <p>6 = \varnothing 10 mm with seal</p> <p>7 = \varnothing 12 mm without seal</p> <p>8 = \varnothing 12 mm with seal</p> | <p>c Output circuit / Power supply</p> <p>1 = SinCos, 1 Vss (inverted signal) / 5 V DC</p> <p>2 = SinCos, 1 Vss (inverted signal) / 10 ... 30 V DC</p>
<p>d Type of connection</p> <p>1 = radial cable (1 m TPE cable)</p> <p>2 = M23 connector, 12-pin, radial, without mating connector</p> | <p>e Pulse rate</p> <p>500, 512, 600, 720, 800, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000 (e.g. 500 pulses => 0500)</p> <p>Other pulse rates on request</p> |
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1) Insertion depth \leq 30 mm

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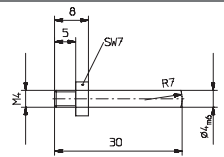
Mounting accessory for shaft encoders

Coupling	Bellows coupling \varnothing 19 mm for shaft 6 mm	8.0000.1101.0606
	Bellows coupling \varnothing 19 mm for shaft 10 mm	8.0000.1101.1010

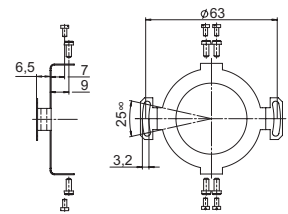
Mounting accessory for hollow shaft encoders

Cylindrical pin, long	With fixing thread	8.0010.4700.0000
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for torque stops



Stator coupling		8.0010.4D00.0000
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Connection Technology

Connector, self-assembly	M23	8.0000.5012.0000
Cordset, pre-assembled with 2 m PVC cable	M23	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.

Mechanical characteristics		
Speed	shaft	max. 12000 min ⁻¹
	hollow shaft without shaft seal	max. 12000 min ⁻¹
	hollow shaft with shaft seal ¹⁾	max. 6000 min ⁻¹
Rotor moment of inertia	shaft	approx. 1.8 x 10 ⁻⁶ kgm ²
	hollow shaft	approx. 6.0 x 10 ⁻⁶ kgm ²
Starting torque	without seal	< 0.01 Nm
	with seal	< 0.05 Nm
Load capacity of shaft	radial	80 N
	axial	40 N
Weight		approx. 0.4 kg
Protection acc. to EN 60 529	shaft	IP65
	hollow shaft without seal	IP40
	hollow shaft with seal	IP66
Working temperature range	without seal	-20°C ... +85°C ²⁾
	with seal	-20°C ... +80°C ²⁾
Materials	shaft	stainless steel H7
Shock resistance acc. EN 60068-2-27		1000 m/s ² , 6 ms
Vibration resistance acc. EN 60068-2-6		100 m/s ² , 10 ... 2000 Hz

Electrical characteristics		
Output circuit	SinCos, U = 1 V _{SS}	SinCos, U = 1 V _{SS}
Power supply	5 V (±5%)	10 ... 30 V DC
Power consumption with inverted signal (no load)	typ. 65 mA / max. 110 mA	typ. 65 mA / max. 110 mA
-3 dB frequency	≤ 180 kHz	≤ 180 kHz
Signal level		
	channels A/B	1 V _{SS} (±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	EN 61000-6-2, EN 61000-6-4 and EN 61000-6-3	
RoHS compliant acc. to	EU guideline 2002/95/EG	

1) For continuous operation max. 3000 min⁻¹, ventilated
 2) 70°C for cable version
 3) If supply voltage correctly applied.

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Terminal assignment

Output circuit	Cable	0 V	0Vsens ²⁾	+V	+Vsens ²⁾	A	Ā	B	B̄	0	0̄	⊥
1, 2	Signal:	0 V	0Vsens ²⁾	+V	+Vsens ²⁾	A	Ā	B	B̄	0	0̄	⊥
	Cable colour:	WH 0,5 mm ²	WH	BN 0,5 mm ²	BN	GN	YE	GY	PK	BU	RD	

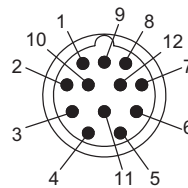
Output circuit	M23 connector, 12 pin	0 V	0Vsens ²⁾	+V	+Vsens ²⁾	A	Ā	B	B̄	0	0̄	⊥
1, 2	Signal:	0 V	0Vsens ²⁾	+V	+Vsens ²⁾	A	Ā	B	B̄	0	0̄	⊥
	Pin:	10	11	12	2	5	6	8	1	3	4	PH ¹⁾

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

If the circuits are not being used, then they should be individually isolated and not connected.
 Using RS 422 outputs and long cable distances, a wave impedance has to be applied at each cable end.

Isolate unused outputs before initial start-up.

Top view of mating side, male contact base

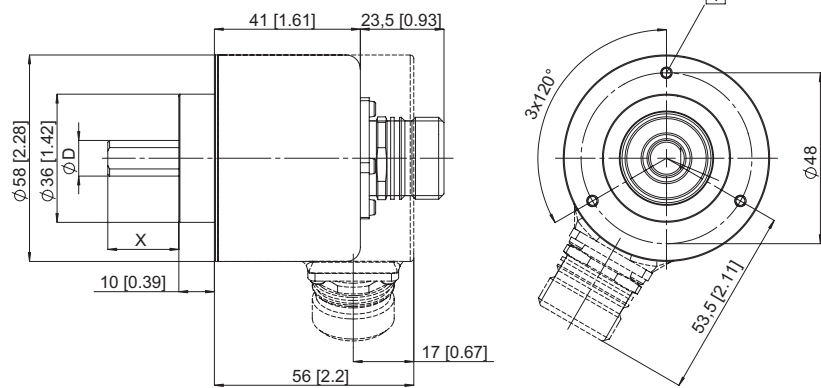


M23 connector, 12 pin

Dimensions shaft version

Clamping flange, ø 58 mm Flange type 1

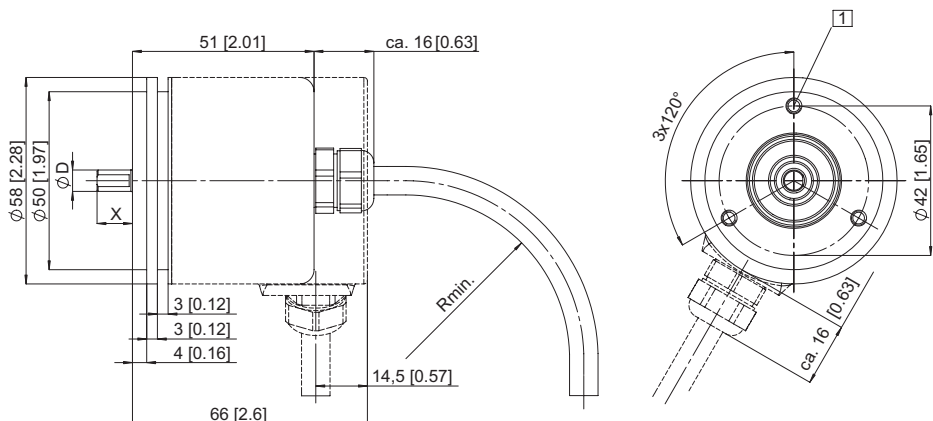
1 3 x M3, 5 [0.2] deep



Clamping flange, ø 58 mm Flange type 2

1 3 x M3, 5 [0.2] deep

R_{min}:
 - securely installed: 55 mm
 - flexibly installed: 70 mm



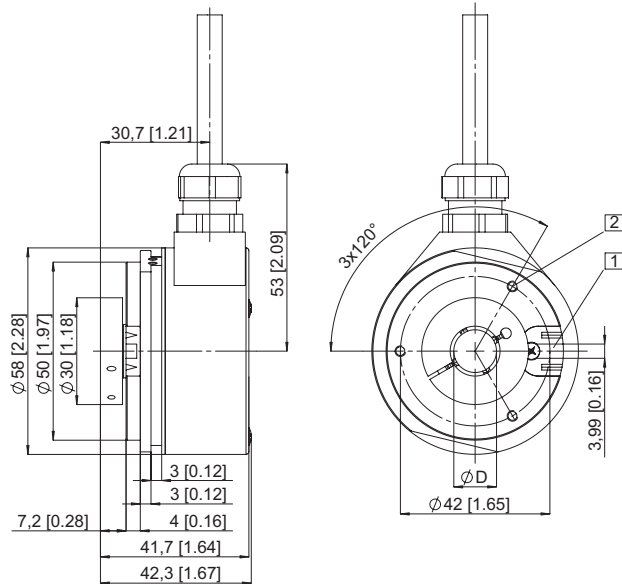
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Dimensions hollow shaft version

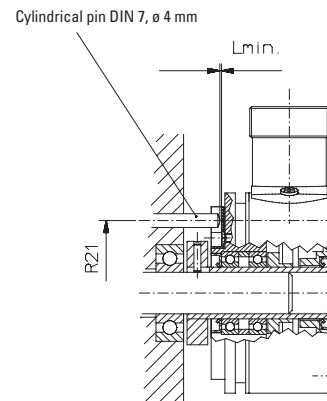
Flange type 1 and 2

- 1 Torque stop slot,
Recommendation: Cylindrical pin DIN7, \varnothing 4 mm
- 2 M3, 5 [0.2] deep

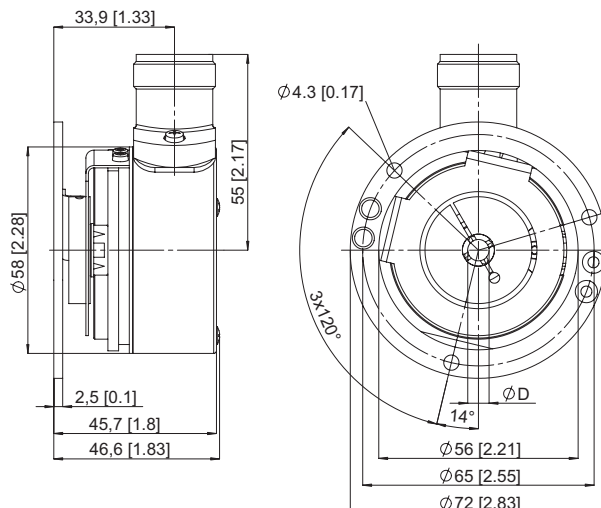


Mounting advice:

- 1) The flanges and shafts of the encoder and drive should not both be rigidly coupled together at the same time.
- 2) When mounting a hollow shaft encoder, we recommend using a torque stop pin that fits into the torque coupling.
- 3) When mounting the encoder ensure the dimension $L_{min.}$ is greater than the axial maximum play of the drive. Otherwise there is a danger that the device could mechanically seize up.



Flange type 3 and 4



Note:
Minimum insertion depth $1.5 \times D_{\text{hollow shaft}}$