

Incremental Encoders

Standard
High resolution, optical

5805 / 5825 (Shaft / Hollow shaft)

Push-Pull / RS422



The incremental encoders type 5805 / 5825 offer resolutions up to max. 36000 PPR.

They are thus perfect for use in applications where a very high level of accuracy is required.



High rotational speed



Temperature range
-20°...+85°C



High protection level
IP



High shaft load capacity



Shock / vibration resistant



Magnetic field proof



Short-circuit proof



Optical sensor

High performance

- High shaft loading capability
- Maximum speed up to 12000 RPM
- High IP protection up to max. IP66

Many variants

- With RS422 or push-pull interface
- With cable or connector

Order code
Shaft version

8.5805 . **XXXXX** . **XXXXX**
Type a b c d e

a Flange

- 1 = clamping flange ø 58 mm [2.28"]
- 2 = synchro flange ø 58 mm [2.28"]

b Shaft (ø x L), with flat

- 1 = ø 6 x 10 mm [0.24 x 0.39"]
- 2 = ø 10 x 20 mm [0.39 x 0.79"]

c Output circuit / Power supply

- 4 = RS422 (with inverted signal) / 5 V DC
- 5 = RS422 (with inverted signal) / 10 ... 30 V DC
- 6 = Push-Pull (with inverted signal) / 10 ... 30 V DC
- 7 = Push-Pull (without inverted signal) / 10 ... 30 V DC

e Pulse rate

- 6000, 7200, 8000, 8192, 9000, 10000, 18000, 36000 (e.g. 18000 pulses => 18000) Other pulse rates on request

d Type of connection

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

Order code
Hollow shaft

8.5825 . **XXXXX** . **XXXXX**
Type a b c d e

a Flange

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

b Hollow shaft

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

c Output circuit / Power supply

- 1 = RS422 (with inverted signal) / 5 V DC
- 4 = RS422 (with inverted signal) / 10 ... 30 V DC
- 2 = Push-Pull (without inverted signal) / 10 ... 30 V DC
- 3 = Push-Pull (with inverted signal) / 10 ... 30 V DC

e Pulse rate

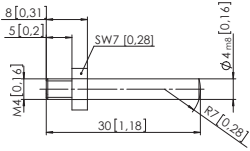
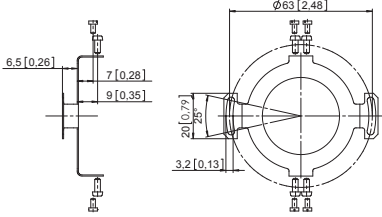
- 6000, 7200, 8000, 8192, 9000, 10000, 18000, 36000 (e.g. 18000 pulses => 18000) Other pulse rates on request

d Type of connection

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

1) Insertion depth ≤ 30 mm [1.18"]

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Mounting accessory for shaft encoders			Order No.
Coupling	Bellocs coupling \varnothing 19 mm [0.75"] for shaft 6 mm [0.24"]		8.0000.1101.0606
	Bellocs coupling \varnothing 19 mm [0.75"] for shaft 10 mm [0.39"]		8.0000.1101.1010
Mounting accessory for hollow shaft encoders			
Cylindrical pin, long for torque stops		with fixing thread	8.0010.4700.0000
			8.0010.4D00.0000
Stator coupling \varnothing 63 mm [2.48"]			
Connection technology			
Connector, self-assembly (straight)	M23 female connector with coupling nut		8.0000.5012.0000
Cordset, pre-assembled	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		
Speed	shaft IP65 hollow shaft IP40 hollow shaft IP66 ¹⁾	max. 12000 min ⁻¹ max. 12000 min ⁻¹ max. 6000 min ⁻¹
Moment of inertia	shaft hollow shaft	approx. 1.8 x 10 ⁻⁶ kgm ² approx. 6.0 x 10 ⁻⁶ kgm ²
Starting torque at 20°C [68°F]	shaft IP65 / hollow shaft IP40 hollow shaft IP66	< 0.01 Nm < 0.05 Nm
Load capacity of shaft	radial axial	80 N 40 N
Weight		approx. 0.4 kg [14.11 oz]
Protection acc. to EN 60529	shaft hollow shaft without seal hollow shaft with seal	IP65 IP40 IP66
Working temperature range	shaft IP65 / hollow shaft IP40 hollow shaft IP66	-20°C ... +105°C [-4°F ... +221°F] -20°C ... +90°C [-4°F ... +194°F]
Material	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	RS422 (TTL compatible)	Push-Pull
Power supply	5 V DC (\pm 5 %) or 10 ... 30 V DC	10 ... 30 V DC
Power consumption (no load)		
	without inverted signal with inverted signal	typ. 90 mA / max. 135 mA typ. 115 mA / max. 160 mA
Permissible load / channel	max. \pm 20 mA	max. \pm 30 mA
Pulse frequency	max. 800 kHz	max. 600 kHz
Signal level	HIGH LOW	min. 2.5 V max. 0.5 V
Rising edge time t_r	max. 200 ns	max. 1 μ s
Falling edge time t_f	max. 200 ns	max. 1 μ s
Short circuit proof outputs ²⁾	yes ³⁾	yes
Reverse polarity protection of the power supply	no; 10 ... 30 V DC: yes	yes
UL approval	File 224618	
CE compliant acc. to	EMC guideline 2004/108/EC	
RoHS compliant acc. to	guideline 2002/95/EC	

1) For continuous operation max. 3000 min⁻¹, ventilated
 2) If supply voltage 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 = 10 ... 30 V DC short circuit to channel or 0 V is permitted.

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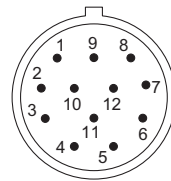
Terminal assignment

Output circuit	Type of connection	Cable (isolate unused wires individually before initial start-up)											
1, 2, 3, 4, 5, 6, 7	5805: 1, 2	Signal:	0 V	+V	0Vsens ²⁾	+Vsens ²⁾	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp
	5825: 1	Cable colour:	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, 3, 4, 5, 6, 7	5805: 3, 5	Signal:	0 V	+V	0Vsens ²⁾	+Vsens ²⁾	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp
	5825: 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} : Incremental output channel A
- B, \bar{B} : Incremental output channel B
- 0, $\bar{0}$: Reference signal
- PH \perp : Plug connector housing (Shield)

Top view of mating side, male contact base



M23 connector, 12-pin

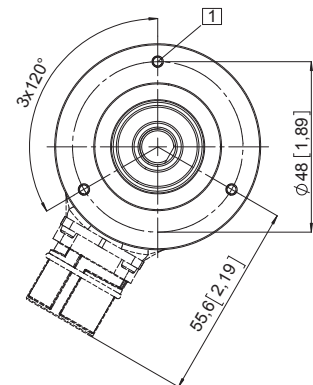
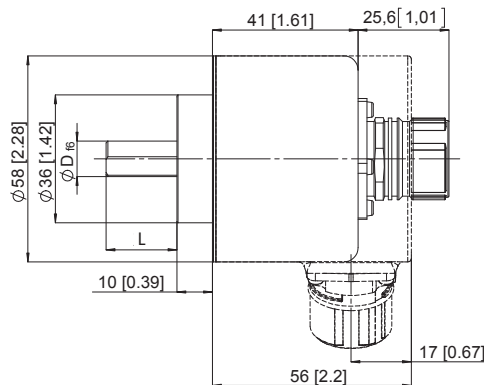
Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]

Flange type 1

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

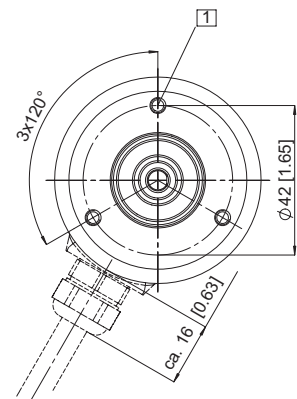
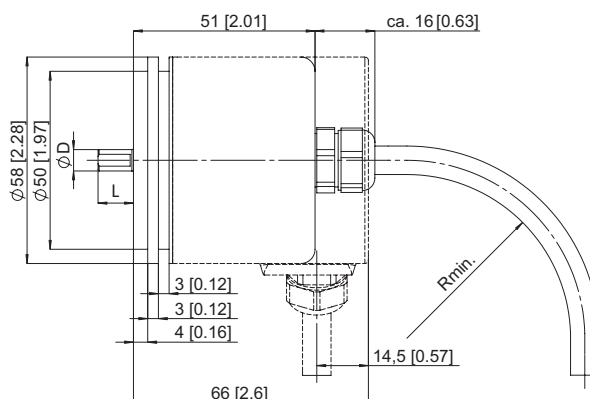


Synchro flange, ø 58 [2.28]

Flange type 2

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

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



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.

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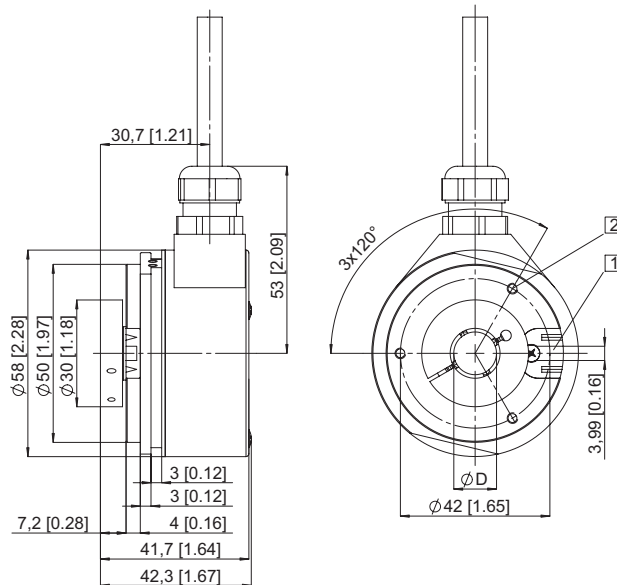
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Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element short Flange type 1 and 2

- 1 Torque stop slot,
Recommendation:
Cylindrical pin DIN 7, $\varnothing 4$ [0.16]
- 2 M3, 5 [0.2] deep
Recommended torque for the clamping ring 0.6 Nm

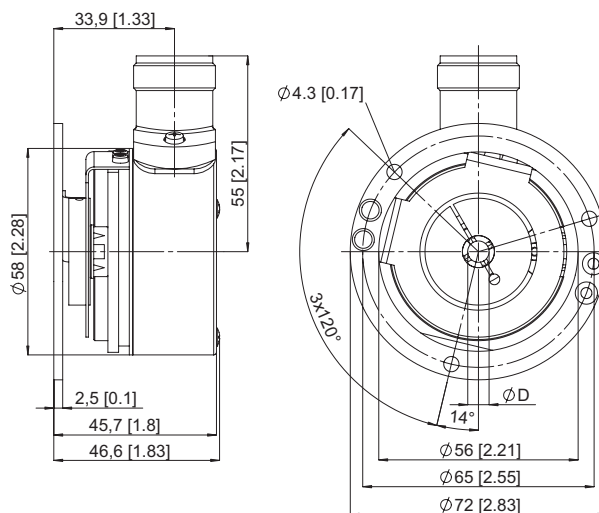


Flange with stator coupling, $\varnothing 65$ [2.56] Flange type 3 and 4

Recommended torque for the clamping ring 0.6 Nm

Note:

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



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