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	.	X	X	X	X	.	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

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

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

Order code Hollow shaft

8.5825	.	X	X	X	X	.	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

d *Type of connection*
1 = radial cable, 1 m [3.28'] PVC cable
2 = M23 connector, 12-pin, radial, without mating connector

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

1) Insertion depth ≤ 30 mm [1.18"]

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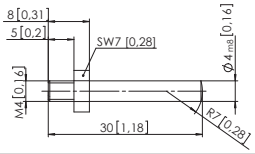
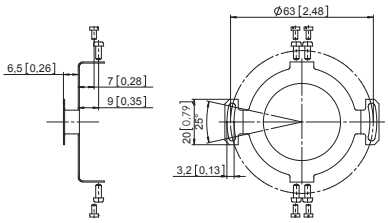
Mounting accessory for shaft encoders		Order No.
Coupling	Bellows coupling ø 19 mm [0.75"] for shaft 6 mm [0.24"]	**8.0000.1101.0606**
	Bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]	**8.0000.1101.1010**
Mounting accessory for hollow shaft encoders		
Cylindrical pin, long for torque stops	with fixing thread	**8.0010.4700.0000**
Stator coupling **ø 63 mm [2.48"]**		**8.0010.4D00.0000**
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	max. 12000 min^{-1}
	hollow shaft IP40	max. 12000 min^{-1}
	hollow shaft IP66 [1]	max. 6000 min^{-1}
Moment of intertia	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 ... +105°C [-4°F ... +221°F]
	hollow shaft IP66	-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 (±5 %) or 10...30 V DC	10 ... 30 V DC
Power consumption (no load)			
without inverted signal		–	typ. 90 mA / max. 135 mA
with inverted signal		typ. 70 mA / max. 120 mA	typ. 115 mA / max. 160 mA
Permissible load / channel		max. ±20 mA	max. ±30 mA
Pulse frequency		max. 800 kHz	max. 600 kHz
Signal level	HIGH	min. 2.5 V	min. +V - 2.5 V
	LOW	max. 0.5 V	max. 2.0 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 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

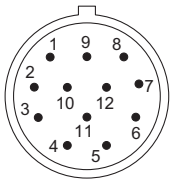
Output circuit	Type of connection	Cable (isolate unused wires individually before initial start-up)											
1, 2, 3, 4, 5, 6, 7	5805: 1, 2	Signal:	0 V	+V	0Vsens[2]	+Vsens[2]	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5825: 1	Cable colour:	WH 0.5 mm²	BN 0.5 mm²	WH	BN	GN	YE	GY	PK	BU	RD	shield

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	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	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 V_{sens} / +V_{sens}: Using the sensor outputs of the encoder, the voltage present can be measured and if necessary increased accordingly.
A, $\overline{A}$: Incremental output channel A
B, $\overline{B}$: Incremental output channel B
0, $\overline{0}$: Reference signal
PH ⏚: Plug connector housing (Shield)

Top view of mating side, male contact base



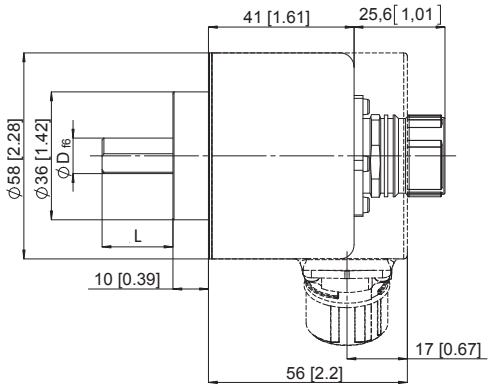
M23 connector, 12-pin

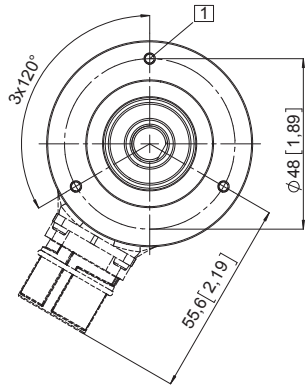
Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]
Flange type 1

1 3 x M3, 5 [0.2] deep

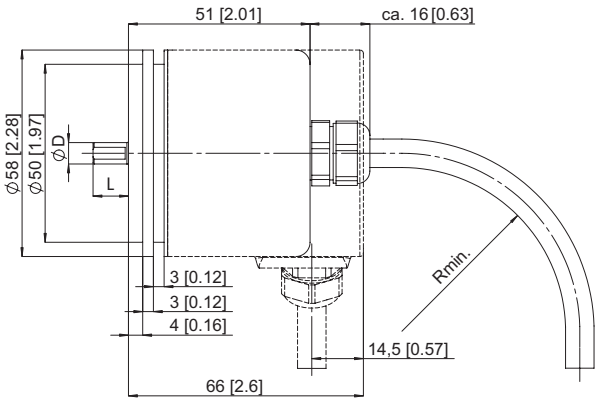


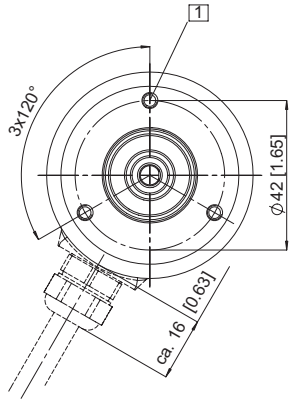


Synchro flange, ø 58 [2.28]
Flange type 2

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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Dimensions hollow shaft version

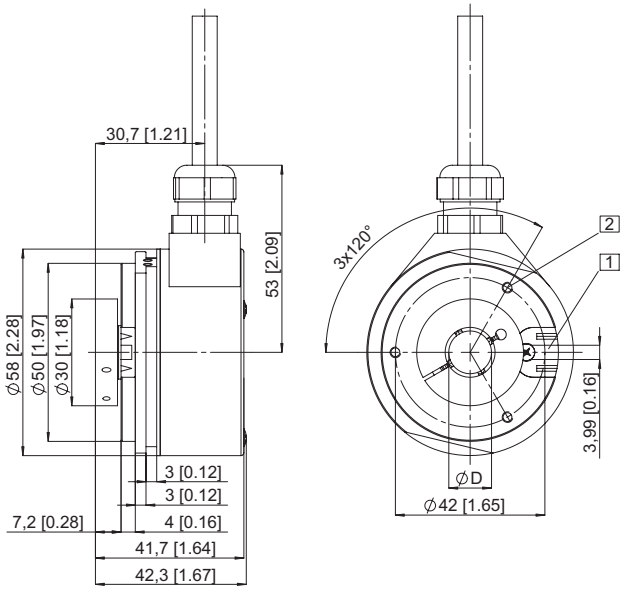
Dimensions in mm [inch]

Flange with spring element short
Flange type 1 and 2

1 Torque stop slot,
Recommendation:
Cylindrical pin DIN 7, ø 4 [0.16]

2 M3, 5 [0.2] deep

Recommended torque for the clamping ring 0.6 Nm



Flange with stator coupling, ø 65 [2.56]
Flange type 3 and 4

Recommended torque for the clamping ring 0.6 Nm

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