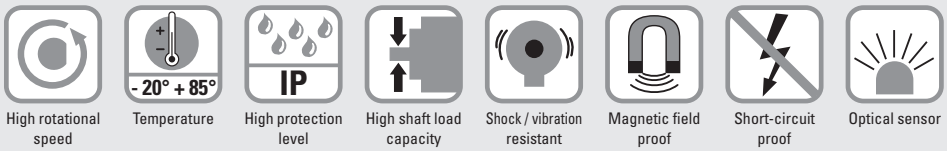
High resolution, optical | 5805 / 5825 (Shaft / Hollow shaft) | Push-Pull / RS422

The incremental encoders type 5805 / 5825 offer resolutions up to max. 36 000 PPR.

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



High rotational speed | Temperature | High protection level | 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 = synchro flange ø 58 mm

b *Shaft (ø x L), with flat*
1 = ø 6 x 10 mm
2 = ø 10 x 20 mm

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 TPE cable)
2 = radial cable (1 m TPE 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 through shaft
2 = with blind hollow shaft [1)]
3 = with through shaft and stator coupling
4 = with blind hollow shaft [1)] and stator coupling

b *Hollow shaft*
1 = ø 6 mm without seal
2 = ø 6 mm with seal
3 = ø 8 mm without seal
4 = ø 8 mm with seal
5 = ø 10 mm without seal
6 = ø 10 mm with seal
7 = ø 12 mm without seal
8 = ø 12 mm with seal

c *Output circuit / Power supply*
1 = RS422 (with inverted signal) / 5 V DC
2 = Push-Pull (without inverted signal) / 10 ... 30 V DC
3 = Push-Pull (with inverted signal) / 10 ... 30 V DC
4 = RS422 (with inverted signal) / 10 ... 30 V DC

d *Type of connection*
1 = radial cable (1 m TPE 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

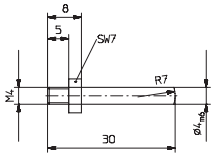
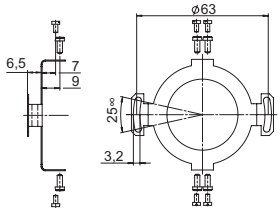
1) Insertion depth ≤ 30 mm

High resolution, optical	5805 / 5825 (Shaft / Hollow shaft)	Push-Pull / RS422

Mounting accessory for shaft encoders

Coupling		Bellows coupling ø 19 mm for shaft 6 mm	**8.0000.1101.0606**
		Bellows coupling ø 19 mm for shaft 10 mm	**8.0000.1101.1010**

Mounting accessory for hollow shaft encoders

Cylindrical pin, long for torque stops		With fixing thread	**8.0010.4700.0000**
Coupling			**8.0010.4D00.0000**

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
	with seal	-20°C ... +80°C
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

		RS422 (TTL compatible)	**Push-Pull**
Output circuit			
Power supply		5 V (±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. U_B - 2.5 V
	low	max. 0.5 V	max. 2.0 V
Rising edge time t_r		max. 200 ns	max. 1 µs
alling 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: yes	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) If supply voltage correctly applied
3) Only one channel allowed to be shorted-out
If U_B = 5 V, short-circuit to channel, 0 V, or +U_B is permitted.
If U_B = 5 - 30 V, short-circuit to channel or 0 V is permitted.

High resolution, optical | 5805 / 5825 (Shaft / Hollow shaft) | Push-Pull / RS422

Terminal assignment

Output circuit	Cable (for 5805 - shaft)											
1, 2	Signal:	0 V	0Vsens 2)	+V	+Vsens 2)	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	Cable colour:	WH 0,5 mm²	WH	BN 0,5 mm²	BN	GN	YE	GY	PK	BU	RD	

Output circuit	Cable (for 5825 - hollow shaft)											
1, 2	Signal:	0 V GND	0Vsens 2)	+V	+Vsens 2)	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	Cable colour:	WH	GY/PK	BN	BU/RD	GN	YE	GY	PK	BU	RD	

Output circuit	M23 connector, 12-pin											
1, 2	Signal:	0 V	0Vsens 2)	+V	+Vsens 2)	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	Pin:	10	11	12	2	5	6	8	1	3	4	PH 1)

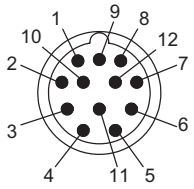
1) PH = Shield is attached to connector housing
2) The sensor cables are connected to the supply voltage internally. If long feeder cables are involved they can be used to adjust or control the voltage at the encoder.

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

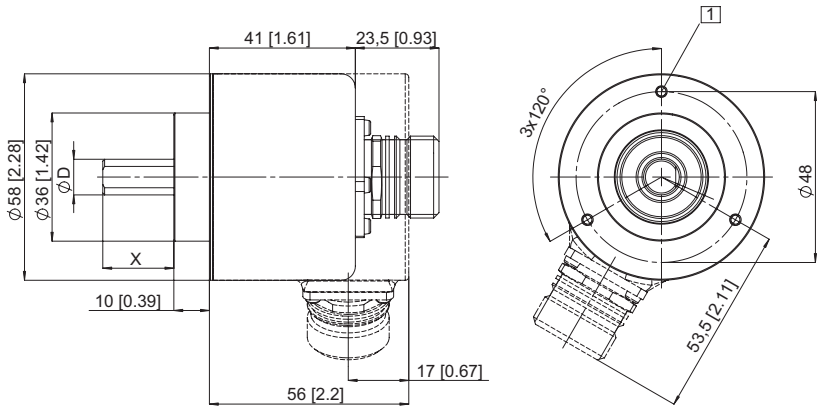


M23 connector, 12-pin

Dimensions shaft version

Clamping flange, ø 58
Flange type 1

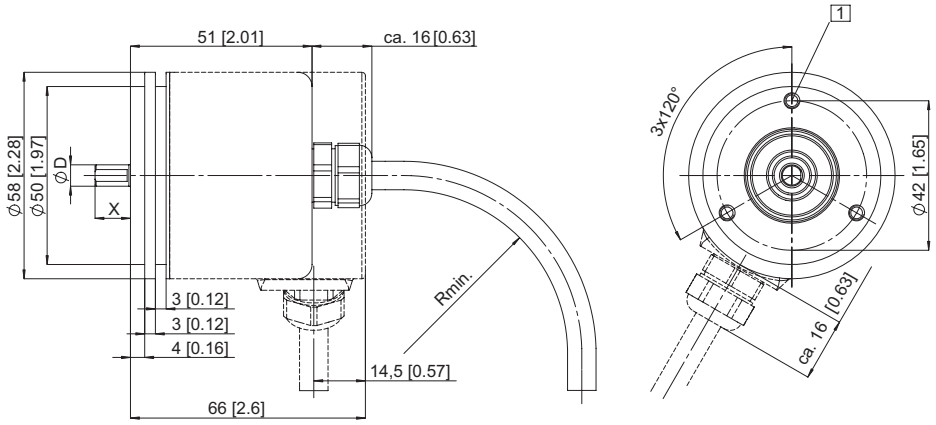
1 3 x M3, 5 [0.2] deep



Clamping flange, ø 58 mm
Flange type 2

1 3 x M3, 5 [0.2] deep

Rmin.:
- securely installed: 55 mm
- flexibly installed: 70 mm

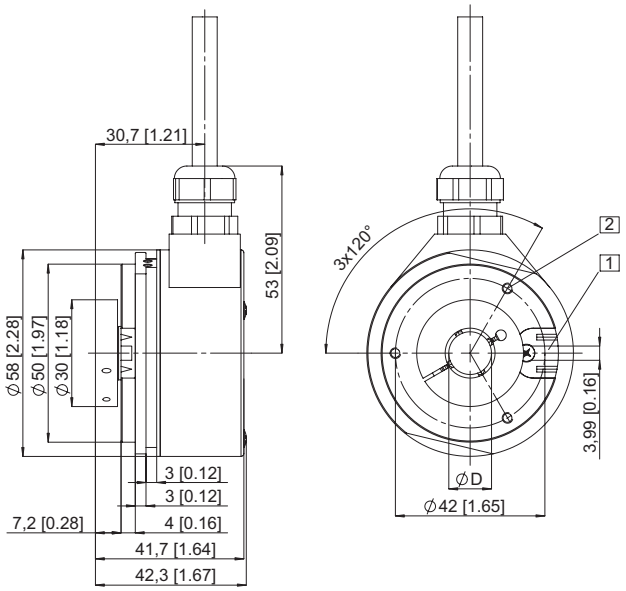


Dimensions hollow shaft version

Flange type 1 and 2

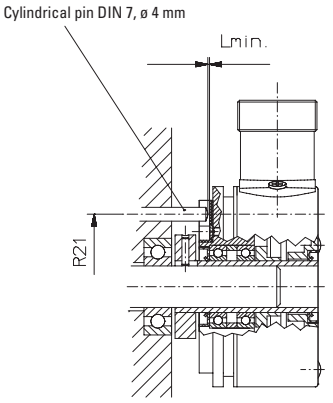
1 Torque stop slot,
Recommendation: Cylindrical pin DIN7, ø 4 mm

2 M3, 5 [0.2] deep

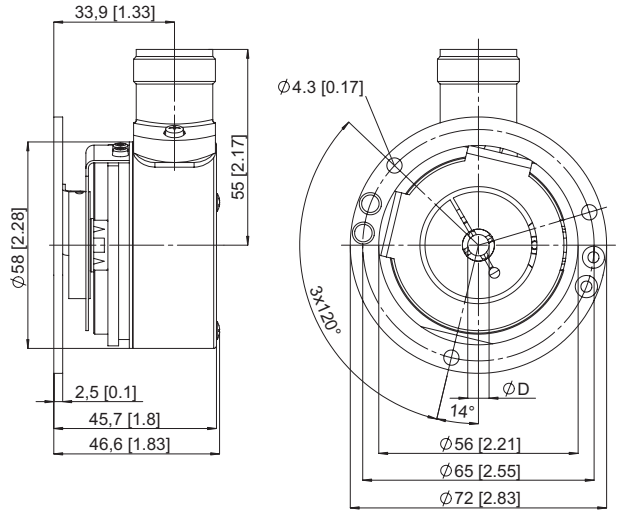


Mounting advice:

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 stop slot or a stator 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 x $D_{hollow\ shaft}$