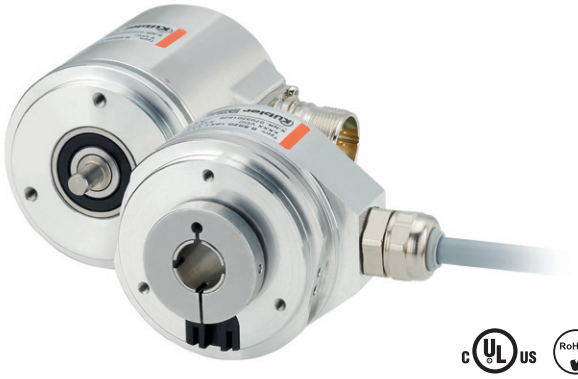
Standard
high temperature, optical

5803 / 5823 (shaft / hollow shaft)

Push-pull / RS422



The incremental encoders of the high temperature series 5803 / 5823 can be used at up to max. 110 °C.

The high heat resistance – at the same time as high speed – make these encoders the ideal solution for all applications in a high temperature environment.



High rotational speed | Temperature range | High protection level | High shaft load capacity | Shock / vibration resistant | Magnetic field proof | Short-circuit proof | Reverse polarity protection | Optical sensor

Powerful

- Can be used at temperatures of up to max. 110 °C.
- High resolution up to 5000 pulses per revolution.
- Maximum speed of 12000 revolutions per minute.

Flexible

- Various connection types for different application purposes.
- Shaft or hollow shaft version.
- With push-pull or RS422 interface.

Order code Shaft version

8.5803	.	X	X	X	X	.	XXXX
Type		a	b	c	d		e

a *Flange*
1 = clamping flange ø 58 mm [2.28"]
2 = synchro flange ø 58 mm [2.28"]
P = synchro flange ø 63.5 mm [2.5"]
M = square flange □ 63.5 mm [2.5"]

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"]
P = ø 3/8'' x 7/8" [1)]

c *Output circuit / supply voltage*
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'] TPE
A = axial cable, special length TPE *)
2 = radial cable, 1 m [3.28'] TPE
B = radial cable, special length TPE *)
3 = axial M23 connector, 12-pin
5 = radial M23 connector, 12-pin
W = radial MIL connector, 7-pin [2)]
Y = radial MIL connector, 10-pin

*) Available special lengths (connection types A, B):
2, 3, 5, 8, 10, 15 m [5.56, 9.84, 16.40, 26.25, 32.80, 49.21']
order code expansion .XXXX = length in dm
ex.: 8.5803.114A.0100.0030 (for cable length 3 m)

e *Pulse rate*
25, 50, 60, 100, 125, 200, 250, 256, 300, 360, 500, 512, 600, 720, 800, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000
(e.g. 100 pulses => 0100)

Optional on request
- other pulse rates

1) Only in conjunction with flange M or P.
2) Only with output circuit 7.

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Standard high temperature, optical	5803 / 5823 (shaft / hollow shaft)	Push-pull / RS422

Order code Hollow shaft

8.5823	.	X	X	X	X	.	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, ø 65 mm [2.56“]
4 = with blind hollow shaft and stator coupling, ø 65 mm [2.56“]

b *Hollow shaft*
(insertion depth blind hollow shaft with flange 2 and 4 max. 30 mm [1.18“])
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 / supply voltage*
1 = RS422 (with inverted signal) / 5 V DC
4 = RS422 (with inverted signal) / 10 ... 30 V DC
3 = push-pull (with inverted signal) / 10 ... 30 V DC
2 = push-pull (without inverted signal) / 10 ... 30 V DC

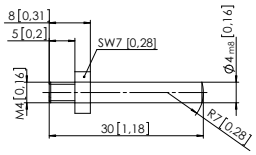
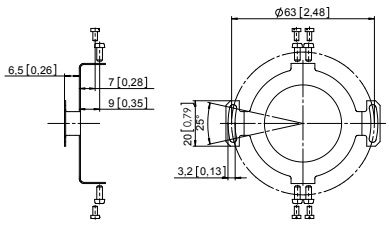
d *Type of connection*
1 = radial cable, 1 m [3.28‘] TPE
A = radial cable, special length TPE *)
2 = radial M23 connector, 12-pin

*) Available special lengths (connection types A):
2, 3, 5, 8, 10, 15 m [5.56, 9.84, 16.40, 26.25, 32.80, 49.21‘]
order code expansion .XXXX = length in dm
ex.: 8.5823.114A.0100.0030 (for cable length 3 m)

e *Pulse rate*
25, 50, 60, 100, 125, 200, 250, 256, 300, 360, 500, 512, 600, 720, 800, 1000, 1024, 1200, 1250, 1500, 2000, 2048, 2500, 3000, 3600, 4000, 4096, 5000
(e.g. 100 pulses => 0100)

Optional on request
- other pulse rates

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.
Torque pin, ø 4 mm for flange with spring element (flange type 1 + 2)	with fixing thread 	**8.0010.4700.0000**
Stator coupling, ø 63 mm [2.48“]		**8.0010.4D00.0000**

Cables and connectors		Order no.
Preassembled cables	M23 female connector with coupling nut, 12-pin, cw single ended 2 m [6.56‘] PVC cable	**8.0000.6E01.0002**
Connectors	M23 female connector with coupling nut, 12-pin, cw	**8.0000.5012.0000**

Further Kübler accessories can be found at: kuebler.com/accessories
Further Kübler cables and connectors can be found at: kuebler.com/connection-technology

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Standard
high temperature, optical | **5803 / 5823 (shaft / hollow shaft)** | **Push-pull / RS422**

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 ... +110 °C [-4 °F ... +230 °F]
hollow shaft IP66		-20 °C ... +90 °C [-4 °F ... +194 °F]
Material	shaft	stainless steel H7
Shock resistance acc. to 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	**RS422 (TTL compatible)**	**Push-pull**
Supply voltage	5 V DC (±5 %) or 10 ... 30 V DC	10 ... 30 V DC
Power consumption (no load)		
without inverted signal	–	typ. 55 mA / max. 125 mA
with inverted signal	typ. 40 mA / max. 100 mA	typ. 80 mA / max. 150 mA
Permissible load / channel	max. +/- 20 mA	max. +/- 30 mA
Pulse frequency	max. 300 kHz	max. 300 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 supply voltage	no; 10 ... 30 V DC: yes	yes

Approvals

UL compliant in accordance with	File no. E224618
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

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 +V = 5 V DC, short-circuit to channel, 0 V, or +V is permitted.
if +V = 10 ... 30 V DC, short-circuit to channel or 0 V is permitted.

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Standard
high temperature, optical | **5803 / 5823 (shaft / hollow shaft)** | **Push-pull / RS422**

Terminal assignment

Output circuit	Type of connection	Cable (isolate unused cores individually before initial start-up)											
1, 2, 3, 4, 5, 6, 7	5803: 1, 2, A, B	Signal:	0 V	+V	0Vsens [2]	+Vsens [2]	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5823: 1, A	Core color:	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	5803: 3, 5	Signal:	0 V	+V	0Vsens [2]	+Vsens [2]	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5823: 2	Pin:	10	12	11	2	5	6	8	1	3	4	PH [1]

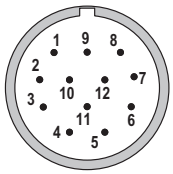
Output circuit	Type of connection	MIL connector, 7-pin											
7	5803: W	Signal:	0 V	+V	0Vsens [2]	+Vsens [2]	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5823: –	Pin:	F	D	–	E	A	–	B	–	C	–	G

Output circuit	Type of connection	MIL connector, 10-pin											
1, 2, 3, 4, 5, 6, 7	5803: Y	Signal:	0 V	+V	0Vsens [2]	+Vsens [2]	A	$\overline{A}$	B	$\overline{B}$	0	$\overline{0}$	⏚
	5823: –	Pin:	F	D	–	E	A	G	B	H	C	I	J

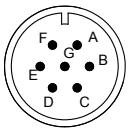
Using RS422 outputs and long cable distances, a wave impedance has to be applied at each cable end.

+V: Supply voltage encoder +V DC
0 V: Supply voltage encoder 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)

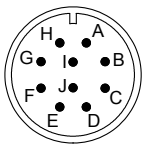
Top view of mating side, male contact base



M23 connector, 12-pin



MIL connector, 7-pin



MIL connector, 10-pin

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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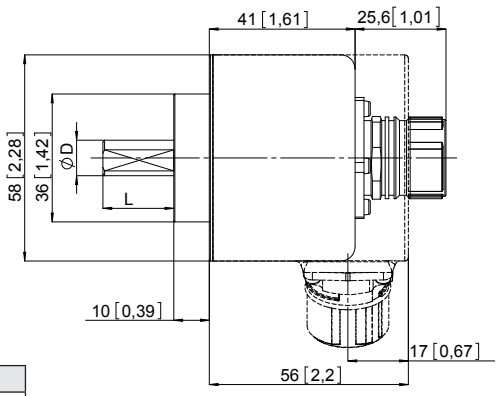
Standard high temperature, optical	5803 / 5823 (shaft / hollow shaft)	Push-pull / RS422

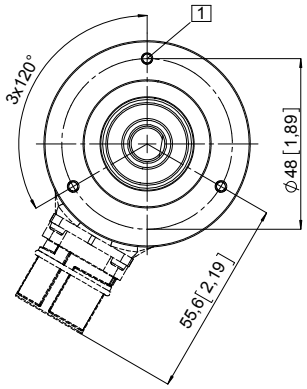
Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]
Flange type 1

1 3 x M3, 5 [0.2] deep



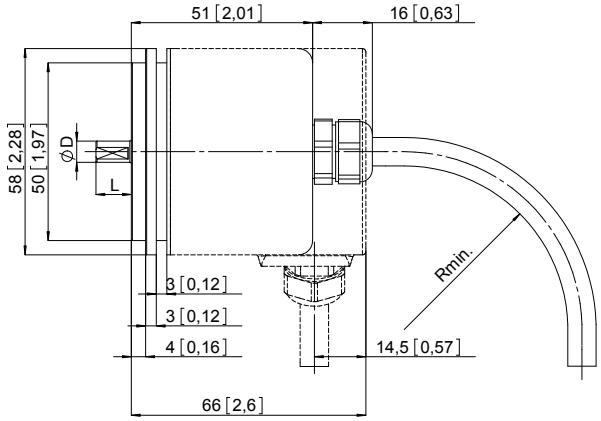


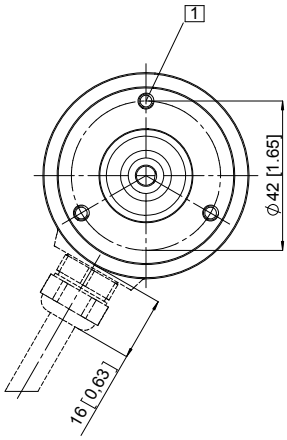
D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
3/8"	h7	7/8"

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]
3/8"	h7	7/8"

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Standard
high temperature, optical | **5803 / 5823 (shaft / hollow shaft)** | **Push-pull / RS422**

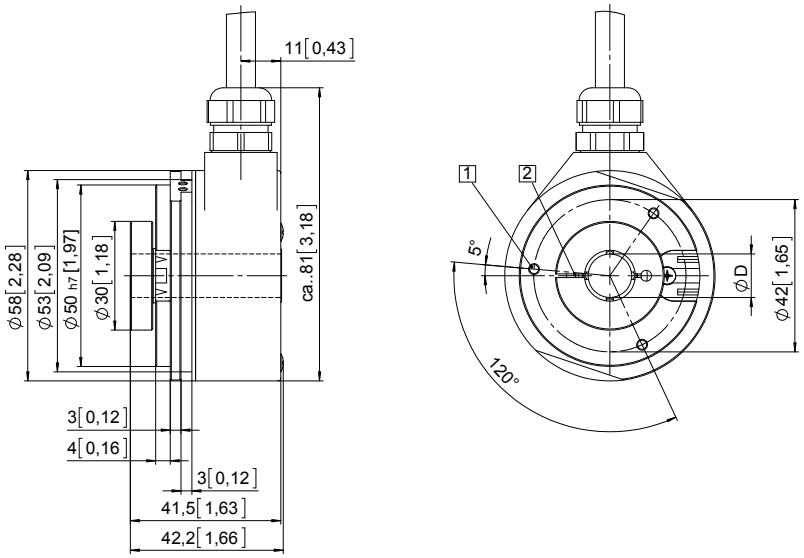
Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, short
Flange type 1 and 2

1 3 x M3, 5 [0.2] deep

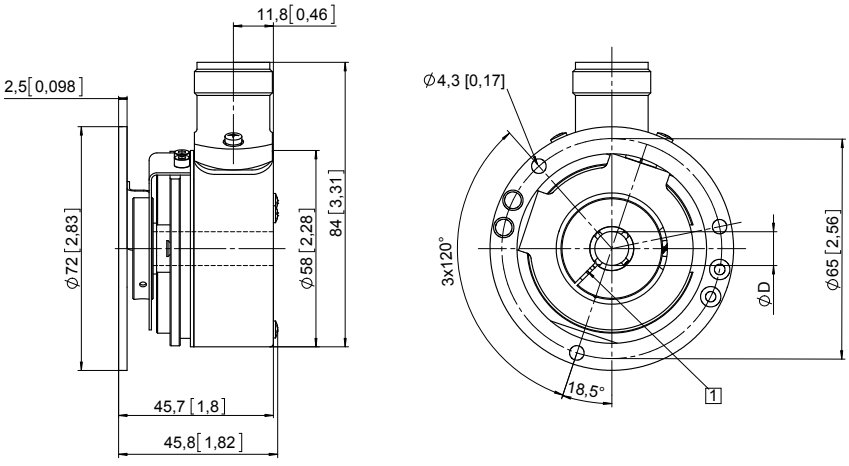
2 Recommended torque for the clamping ring 0.6 Nm



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"]	

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