

Absolute encoders - singleturn

**Standard
optical**

5852 / 5872 (shaft / hollow shaft)

Parallel, highspeed



The singleturn encoders 5852 and 5872 with parallel interface and optical technology achieve a very high refresh rate of the position data of 40 kHz with a resolution of max. 14 bits.



High rotational speed



Temperature range



High protection level



High shaft load capacity



Shock / vibration resistant



Magnetic field proof



Optical sensor

Adaptable

- Power supply 5 V DC or 10 ... 30 V DC.
- Cable or connector M23.

Fast

- Refresh rate of the position data 40 kHz.

Order code Shaft version

8.5852

Type

. **XX XX** . **XXX 1**

a

b

c

d

a Flange, shaft

12 = clamping flange, ø 58 mm [2.28"]
with shaft 10 x 20 mm [0.39 x 0.79"]
21 = synchro flange, ø 58 mm [2.28"]
with shaft 6 x 10 mm [0.24 x 0.39"]

b Interface / power supply

1 = parallel (CMOS-TTL) / 5 V DC
3 = parallel / 10 ... 30 V DC

c Type of connection

1 = axial cable, 1 m [3.28'] PVC
2 = radial cable, 1 m [3.28'] PVC
3 = axial M23 connector, 17-pin,
without mating connector
5 = radial M23 connector, 17-pin,
without mating connector

d Code type and division

E03 = 360 gray-excess
E01 = 1000 gray-excess
E14 = 1440 gray-excess
E20 = 2000 gray-excess
G10 = 1024 (10 bit) gray
G12 = 4096 (12 bit) gray
G13 = 8192 (13 bit) gray
G14 = 16384 (14 bit) gray

Optional on request

- other code types
- other divisions

Order code Hollow shaft

8.5872

Type

. **X XXX** . **XXX 1**

a

b

c

d

e

a Flange

1 = with spring element, short
3 = with stator coupling, ø 65 mm [2.56"]

b Through hollow shaft

6 = ø 10 mm [0.39"]
8 = ø 12 mm [0.47"]

c Interface / power supply

1 = parallel (CMOS-TTL) / 5 V DC
3 = parallel / 10 ... 30 V DC

d Type of connection

1 = radial cable, 1 m [3.28'] PVC
2 = radial M23 connector, 17-pin,
without mating connector

e Code type and division

E03 = 360 gray-excess
E01 = 1000 gray-excess
E14 = 1440 gray-excess
E20 = 2000 gray-excess
G10 = 1024 (10 bit) gray
G12 = 4096 (12 bit) gray
G13 = 8192 (13 bit) gray
G14 = 16384 (14 bit) gray

Optional on request

- other code types
- other divisions

Reverse count direction

(Only with output type 3 and up to 13 bit gray code available)

Normal operation:

Rising code values when shaft turning clockwise (cw). Falling code values when shaft turning counterclockwise (ccw), top view of shaft.

Reverse operation:

Output MSB inverted (pin 16) instead of output MSB (pin 3) connected. Falling code values when shaft turning clockwise (cw). Rising code values when shaft turning counterclockwise (ccw), top view of shaft.

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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"]	8.0000.1102.0606
	bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]	8.0000.1102.1010
Mounting accessory for hollow shaft encoders		Order no.
Cylindrical pin, long	Dimensions in mm [inch]	8.0010.4700.0000
for flange with spring element (flange type 1)	with fixing thread 	
Connection technology		Order no.
Cordset, pre-assembled	M23 female connector with coupling nut, 17-pin 2 m [6.56'] PVC cable	8.0000.6741.0002
Connector, self-assembly (straight)	M23 female connector with coupling nut, 17-pin	8.0000.5042.0000

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			
Maximum speed	shaft version	12000 min ⁻¹	
	hollow shaft version	6000 min ⁻¹ 1)	
Mass moment of inertia	shaft version	approx. 1.8 x 10 ⁻⁶ kgm ²	
	hollow shaft version	approx. 6 x 10 ⁻⁶ kgm ²	
Starting torque at 20°C [68°F]	shaft version	< 0.01 Nm	
	hollow shaft version	< 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 version	IP65	
	hollow shaft version	IP66	
Working temperature range		-20°C ... +85°C 2) [-4°F ... +185°F] 2)	
Material	shaft / hollow shaft	stainless steel	
Shock resistance acc. EN 60068-2-27		2500 m/s ² , 6 ms	
Vibration resistance acc. EN 60068-2-6		100 m/s ² , 10 ... 2000 Hz	
Electrical characteristics (parallel interface)			
Power supply (+V)		5 V DC (±5 %)	10 ... 30 V DC
Output driver		CMOS-TTL	Push-pull
Power consumption (no load)	typ.	40 mA	100 mA
	max.	75 mA	159 mA
Permissible load / channel		max. +0.5 / -2.0 mA	max. +/- 10 mA
Refresh rate of the position data		40000/s	40000/s
Signal level	HIGH	min. 3.4 V	min. +V - 2.8 V
	LOW	max. 0.3 V	max. 1.8 V
Rising edge time t_r (without cable)		max. 0.2 µs	max. 1 µs
Falling edge time t_f (without cable)		max. 0.2 µs	max. 1 µs
Short circuit proof outputs 3)		yes	yes
Reverse polarity protection of the power supply		no	yes
UL approval		file no. E224618	
CE compliant acc. to		EMC guideline 2014/30/EU RoHS guideline 2011/65/EU	

1) For continuous operation max. 1500 min⁻¹.

2) 70°C [158°F] for 14 bit version.

3) If power supply +V correctly applied.

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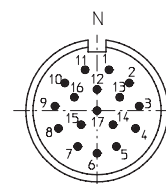
Terminal assignment

Interface	Type of connection	Cable (isolate unused cores individually before initial start-up)																
1, 3	5852: 1, 2	Signal	0 V	+V	1	2	3	4	5	6	7	8	9	10	11	12	13	14 (MSB)
	5872: 1	Core color:	WH	BN	GN	YE	GY	PK	BU	RD	BK	VT	GY PK	RD BU	WH GN	BN GN	WH YE	YE BN

Interface	Type of connection	M23 connector, 17-pin																
1, 3	5852: 3, 5	Signal	0 V	+V	1	2	3	4	5	6	7	8	9	10	11	12	13	14 (MSB)
	5872: 2	Pin:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

+V: Encoder power supply +V DC
 0 V: Encoder power supply ground GND (0 V)
 Signal: 1 = MSB; 2 = MSB-1; 3 = MSB-2 usw.
 MSB: MSB inverted
 PH $\perp$: Plug connector housing (shield)

Top view of mating side, male contact base



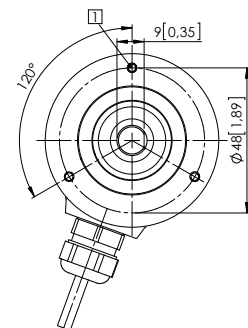
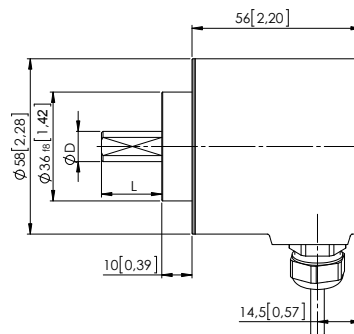
M23 connector, 17-pin (parallel)

Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, $\varnothing$ 58 [2.28]
with shaft, $\varnothing$ 10 [0.39]
Flange type 12

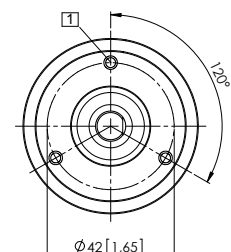
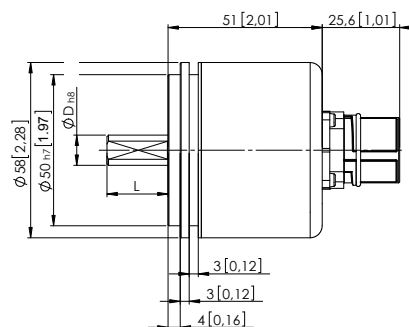
1 3 x M3, 5 [0.20] deep



D	Fit	L
6 [0.24]	h8	10 [0.39]
10 [0.39]	f7	20 [0.79]

Synchro flange, $\varnothing$ 58 [2.28]
with shaft, $\varnothing$ 6 [0.24]
Flange type 21

1 3 x M4, 10 [0.39] deep



D	Fit	L
6 [0.24]	h8	10 [0.39]
10 [0.39]	f7	20 [0.79]

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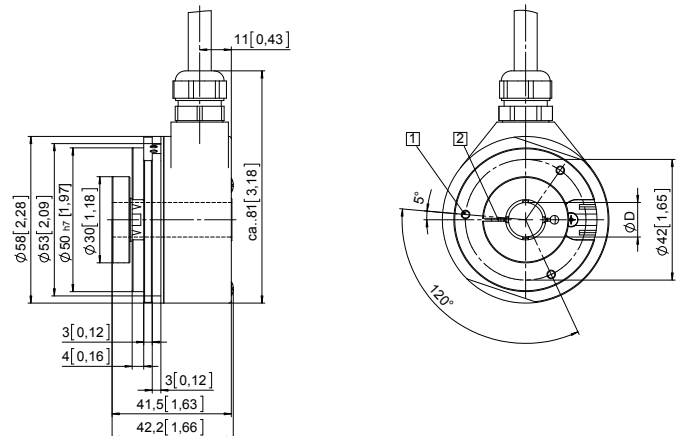
Standard optical	5852 / 5872 (shaft / hollow shaft)	Parallel, highspeed
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Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, short Flange type 1

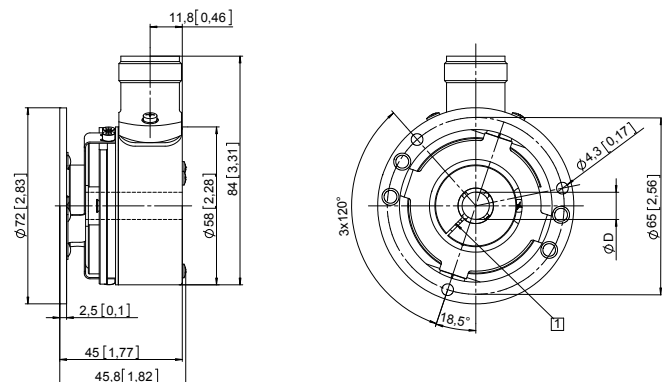
- 1 3 x M3, 5 [0.20] deep
- 2 Recommended torque for the clamping ring 0.6 Nm



D	Fit
10 [0.39]	H7
12 [0.47]	H7

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

- 1 Recommended torque for the clamping ring 0.6 Nm



D	Fit
10 [0.39]	H7
12 [0.47]	H7