

# Absolute encoders - singleturn

<b>Standard optical</b>	<b>5852 / 5872 (shaft / hollow shaft)</b>	<b>Parallel, highspeed</b>
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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

<p><b>Adaptable</b></p> <ul style="list-style-type: none"> <li>Supply voltage 5 V DC or 10 ... 30 V DC.</li> <li>Cable or connector M23.</li> </ul>	<p><b>Fast</b></p> <ul style="list-style-type: none"> <li>Refresh rate of the position data 40 kHz.</li> </ul>
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<b>Order code</b>	<b>8.5852</b>	<b>.XXXX</b>	<b>.XXX1</b>
<b>Shaft version</b>	Type	a b c	d
<b>a</b> Flange, shaft		<b>b</b> Interface / supply voltage	<b>d</b> Code type and division
12 = clamping flange, ø 58 mm [2.28"] with shaft 10 x 20 mm [0.39 x 0.79"]		1 = parallel (CMOS-TTL) / 5 V DC 3 = parallel / 10 ... 30 V DC	E03 = 360 gray-excess E01 = 1000 gray-excess E14 = 1440 gray-excess E20 = 2000 gray-excess
21 = synchro flange, ø 58 mm [2.28"] with shaft 6 x 10 mm [0.24 x 0.39"]		<b>c</b> Type of connection	G10 = 1024 (10 bit) gray G12 = 4096 (12 bit) gray G13 = 8192 (13 bit) gray G14 = 16384 (14 bit) gray
		1 = axial cable, 1 m [3.28'] PVC A = axial cable, special length PVC *) 2 = radial cable, 1 m [3.28'] PVC B = radial cable, special length PVC *) 3 = axial M23 connector, 17-pin, without mating connector 5 = radial M23 connector, 17-pin, without mating connector	<i>Optional on request</i> - other code types - other divisions
		*) 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.: 8.5852.121A.E031.0030 (for cable length 3 m)	

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<b>Order code</b>	<b>8.5872</b>	<b>. XXXXX . XXX 1</b>
<b>Hollow shaft</b>	Type	<b>a b c d e</b>
<b>a Flange</b>	1 = with spring element, short 3 = with stator coupling, ø 65 mm [2.56"]	<b>c Interface / supply voltage</b> 1 = parallel (CMOS-TTL) / 5 V DC 3 = parallel / 10 ... 30 V DC
<b>b Through hollow shaft</b>	6 = ø 10 mm [0.39"] 8 = ø 12 mm [0.47"]	<b>d Type of connection</b> 1 = radial cable, 1 m [3.28'] PVC 2 = radial M23 connector, 17-pin, without mating connector
		<b>e Code type and division</b> 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
		<i>Optional on request</i> - 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.

Mounting accessory for shaft encoders		Order no.
<b>Coupling</b>	bellows coupling ø 19 mm [0.75"] for shaft 6 mm [0.24"]	<b>8.0000.1102.0606</b>
	bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]	<b>8.0000.1102.1010</b>
Mounting accessory for hollow shaft encoders		Order no.
<b>Cylindrical pin, long</b>	with fixing thread	<b>8.0010.4700.0000</b>
for flange with spring element (flange type 1)		
Connection technology		Order no.
<b>Cordset, pre-assembled</b>	M23 female connector with coupling nut, 17-pin 2 m [6.56'] PVC cable	<b>8.0000.6741.0002</b>
<b>Connector, self-assembly (straight)</b>	M23 female connector with coupling nut, 17-pin	<b>8.0000.5042.0000</b>

Further accessories can be found in the accessories section or in the accessories area of our website at: [kuebler.com/accessories](http://kuebler.com/accessories).  
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: [kuebler.com/connection\\_technology](http://kuebler.com/connection_technology).

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## Technical data

Mechanical characteristics		
<b>Maximum speed</b>	shaft version	12000 min <sup>-1</sup>
	hollow shaft version	6000 min <sup>-1</sup> 1)
<b>Mass moment of inertia</b>	shaft version	approx. 1.8 x 10 <sup>-6</sup> kgm <sup>2</sup>
	hollow shaft version	approx. 6 x 10 <sup>-6</sup> kgm <sup>2</sup>
<b>Starting torque</b> at 20°C [68°F]	shaft version	< 0.01 Nm
	hollow shaft version	< 0.05 Nm
<b>Load capacity of shaft</b>	radial	80 N
	axial	40 N
<b>Weight</b>		approx. 0.4 kg [14.11 oz]
<b>Protection</b> acc. to EN 60529	shaft version	IP65
	hollow shaft version	IP66
<b>Working temperature range</b>		-20°C ... +85°C 2)
		[-4°F ... +185°F] 2)
<b>Material</b>	shaft / hollow shaft	stainless steel
<b>Shock resistance</b> acc. EN 60068-2-27		2500 m/s <sup>2</sup> , 6 ms
<b>Vibration resistance</b> acc. EN 60068-2-6		100 m/s <sup>2</sup> , 10 ... 2000 Hz

Electrical characteristics (parallel interface)		
<b>Supply voltage (+V)</b>	5 V DC (±5 %)	10 ... 30 V DC
<b>Output driver</b>	CMOS-TTL	Push-pull
<b>Power consumption</b> (no load)	typ.	40 mA
	max.	75 mA
<b>Permissible load / channel</b>	max. +0.5 / -2.0 mA	max. +/- 10 mA
<b>Refresh rate of the position data</b>	40000/s	40000/s
<b>Signal level</b>	HIGH	min. 3.4 V
	LOW	max. 0.3 V
		min. +V - 2.8 V
		max. 1.8 V
<b>Rising edge time t<sub>r</sub></b> (without cable)	max. 0.2 µs	max. 1µs
<b>Falling edge time t<sub>f</sub></b> (without cable)	max. 0.2 µs	max. 1µs
<b>Short circuit proof outputs</b> 3)	yes	yes
<b>Reverse polarity protection of the supply voltage</b>	no	yes
<b>UL approval</b>	file no. E224618	
<b>CE compliant</b> acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU	

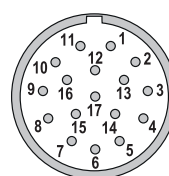
## Terminal assignment

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

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

- +V: Supply voltage encoder +V DC
- 0 V: Supply voltage encoder ground GND (0 V)
- Signal: 1 = MSB; 2 = MSB-1; 3 = MSB-2 usw.
- MSB: MSB inverted
- PH ⊥: Plug connector housing (shield)

Top view of mating side, male contact base



M23 connector, 17-pin (parallel)

1) For continuous operation max. 1500 min<sup>-1</sup>.  
 2) 70°C [158°F] for 14 bit version.  
 3) If supply voltage +V correctly applied.

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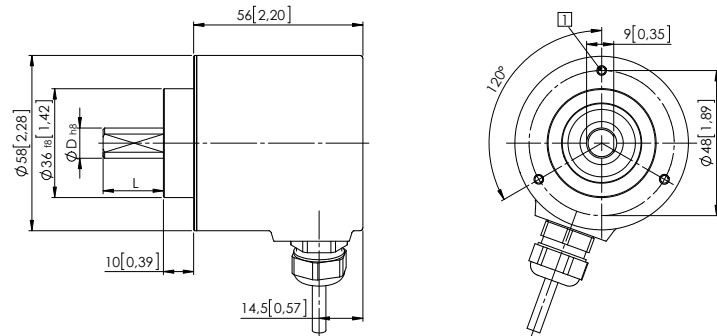
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## Dimensions shaft version

Dimensions in mm [inch]

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

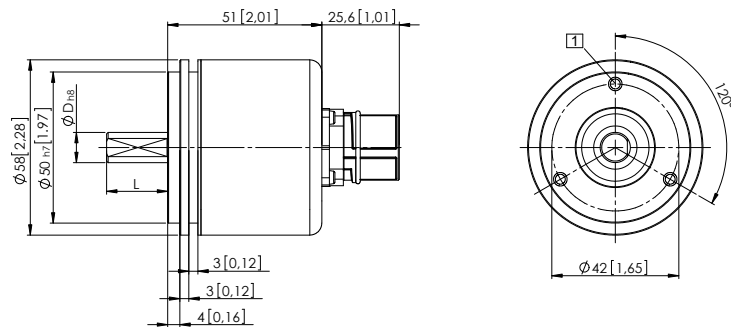
1 3 x M3, 5 [0.20] deep



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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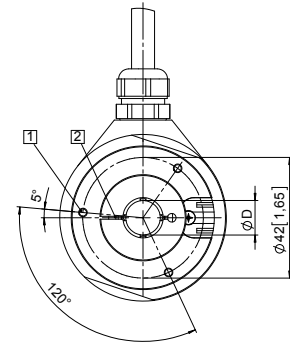
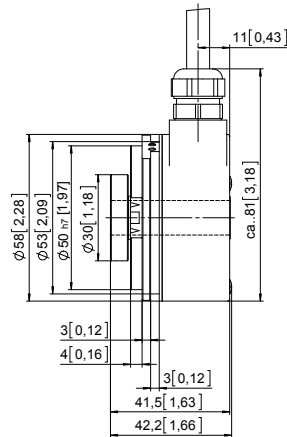
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## Dimensions hollow shaft version

Dimensions in mm [inch]

### Flange with spring element, short Flange type 1

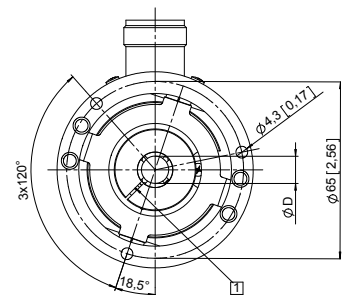
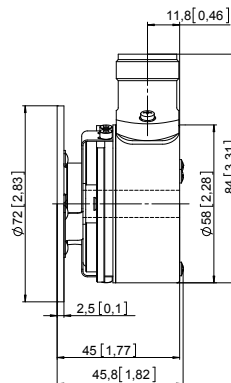
- 1 3 x M3, 5 [0.20] deep
- 2 Recommended torque for the clamping ring 0.6 Nm



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