

# Absolute encoders – multiturn

**Compact  
electronic multiturn, magnetic**

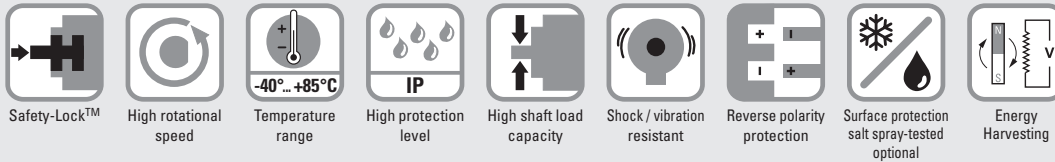
**Sendix M3668 / M3688 (shaft / hollow shaft)**

**IO-Link**



The Sendix M36 with Energy Harvesting Technology is an electronic multiturn encoder in compact design, without gear and without battery. It is characterized by robustness, reliability and cost-efficiency.

With Smart Sensor Profile for easy and fast integration into the application.



## Reliable and insensitive

- Sturdy bearing construction in Safety-Lock™ design for resistance against vibration and installation errors.
- Reduced number of components ensures magnetic insensitivity.
- IP67 protection and wide temperature range -40 °C ... +85 °C.
- Without gear and without battery, thanks to the Energy Harvesting technology.

## Up-to-the-minute performance

- Operation possible with any IO-Link master.
- Point-to-point communication in automation networks.
- Use of cost-effective unshielded cables possible.
- Automatic saving of device parameters.
- Firmware update via IO-Link.

**Order code** 8.M3668 . XX4X . 41 X 2  
**Shaft version** Type a b c d e f

If for each parameter of an encoder the underlined preferred option is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.



### a Flange

- 1 = clamping flange, IP67, ø 36 mm [1.42"]
- 3 = clamping flange, IP65, ø 36 mm [1.42"]
- 2 = synchro flange, IP67, ø 36 mm [1.42"]
- 4 = synchro flange, IP65, ø 36 mm [1.42"]

### b Shaft (ø x L), with flat

- 1 = ø 6 x 12.5 mm [0.24 x 0.49"]
- 3 = ø 8 x 15 mm [0.32 x 0.59"]
- 5 = ø 10 x 20 mm [0.39 x 0.79"]
- 2 = ø 1/4" x 12.5 mm [0.49"]

### c Interface / supply voltage

- 4 = IO-Link / 18 ... 30 V DC

### d Type of connection

- 3 = axial M12 connector, 4-pin
- 4 = radial M12 connector, 4-pin

### e Fieldbus profile

- 41 = IO-Link

### f Profile

- 2 = Standard Profile<sup>1)</sup>
- 3 = Smart Sensor Profile<sup>2)</sup>

Optional on request

- Ex 2/22

- surface protection salt spray tested

**Order code** 8.M3688 . XX4X . 41 X 2  
**Hollow shaft** Type a b c d e f

If for each parameter of an encoder the underlined preferred option is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.



### a Flange

- 2 = with stator coupling, IP65, ø 46 mm [1.81"]
- 3 = with spring element, long, IP65
- 5 = with stator coupling, IP67, ø 46 mm [1.81"]
- 6 = with spring element, long, IP67

### b Blind hollow shaft (insertion depth max. 18.5 mm [0.73"])

- 1 = ø 6 mm [0.24"]
- 3 = ø 8 mm [0.32"]
- 4 = ø 10 mm [0.39"]
- 2 = ø 1/4"

### c Interface / supply voltage

- 4 = IO-Link / 18 ... 30 V DC

### d Type of connection

- 3 = axial M12 connector, 4-pin
- 4 = radial M12 connector, 4-pin

### e Fieldbus profile

- 41 = IO-Link

### f Profile

- 2 = Standard Profile<sup>1)</sup>
- 3 = Smart Sensor Profile<sup>2)</sup>

Optional on request

- Ex 2/22

- surface protection salt spray tested

1) Delivered with default setting for Standard Profile (switchable to Smart Sensor Profile).  
 2) Delivered with default setting for Smart Sensor Profile (switchable to Standard Profile).

# Absolute encoders – multiturn

<b>Compact electronic multiturn, magnetic</b>	<b>Sendix M3668 / M3688 (shaft / hollow shaft)</b>	<b>IO-Link</b>
<b>Mounting accessory for shaft encoders</b>		Order no.
<b>Coupling</b>	Bellows coupling $\varnothing$ 19 mm [0.75"] for shaft 8 mm [0.32"]	<b>8.0000.1102.0808</b>
<b>Mounting accessory for hollow shaft encoders</b> Dimensions in mm [inch]		Order no.
<b>Torque pin, <math>\varnothing</math> 4 mm</b> for flange with spring element (flange type 3 + 6)	with fixing thread 	<b>8.0010.4700.0000</b>
<b>Cables and connectors</b>		Order no.
<b>Preassembled cables</b>	M12 female connector with coupling nut, 4-pin, A coded, straight single-ended 2 m [6.56'] PUR cable	<b>05.00.6061.6211.002M</b>
<b>Connectors</b>	M12 female connector with coupling nut, 4-pin, A coded, straight	<b>05.B8141-0</b>

Further Kübler accessories can be found at: [kuebler.com/accessories](http://kuebler.com/accessories)  
 Further Kübler cables and connectors can be found at: [kuebler.com/connection-technology](http://kuebler.com/connection-technology)

## Technical data

Mechanical characteristics		Interface characteristics IO-Link	
<b>Maximum speed</b>		<b>Resolution singleturn</b>	1 ... 16.384 (14 bit), scalable default: 16.384 (14 bit)
shaft or blind hollow shaft version	6000 min <sup>-1</sup>	<b>Absolute accuracy</b> <sup>1)</sup>	$\pm 1^\circ$
without shaft seal (IP65)	3000 min <sup>-1</sup> (continuous)	<b>Repeat accuracy</b>	$\pm 0,2^\circ$
shaft or blind hollow shaft version	4000 min <sup>-1</sup>	<b>Number of revolutions</b> (multiturn)	1 ... 262.144 (18 bit), scalable only via the total resolution default: 262.144 (18 bit)
with shaft seal (IP67)	2000 min <sup>-1</sup> (continuous)	<b>Total resolution</b>	4 ... 4.294.967.296 (32 bit), scalable default: 4.294.967.296 (32 bit)
<b>Starting torque</b> at 20 °C [68 °F]		<b>Interface</b>	IO-Link version 1.1 acc. to IEC 61131-9
without shaft seal	< 0.007 Nm	<b>Profile</b> (details see manual)	Kübler Standard Profile or Smart Sensor Profile
with shaft seal (IP67)	< 0.01 Nm	<b>Port classe</b>	Type A
<b>Shaft load capacity</b>	radial 40 N axial 20 N	<b>Approvals</b>	
<b>Weight</b>	approx. 210 g [7.41 oz]	<b>UL compliant</b> in accordance with	File no. E224618
<b>Protection</b> acc. to EN 60529	IP65 or IP67	<b>CE compliant</b> in accordance with	
<b>Working temperature range</b>	-40 °C ... +85 °C [-40 °F ... +185 °F]	EMC Directive	2014/30/EU
<b>Materials</b>	shaft / hollow shaft stainless steel flange aluminum housing zinc die-cast	RoHS Directive	2011/65/EU
<b>Shock resistance</b> acc. to EN 60068-2-27	2500 m/s <sup>2</sup> , 6 ms	ATEX Directive	2014/34/EU (for Ex 2/22 variants)
<b>Vibration resistance</b> acc. to EN 60068-2-6	300 m/s <sup>2</sup> , 10 ... 2000 Hz	<b>UKCA compliant</b> in accordance with	
<b>Electrical characteristics</b>		EMC Regulations	S.I. 2016/1091
<b>Supply voltage</b>	18 ... 30 V DC	RoHS Regulations	S.I. 2012/3032
<b>Current consumption</b> (no load)	max. 40 mA	UKEX Regulations	S.I. 2016/1107 (for Ex 2/22 variants)
<b>Reverse polarity protection of the supply voltage</b>	yes		

1) Over the whole temperature range.

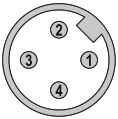
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## Terminal assignment

Interface	Type of connection	M12 connector, 4-pin				
4	3, 4	Signal:	Supply voltage +V DC	Reserved (no function)	Supply voltage 0 V (GND)	IO-Link communication (Data line)
		Abbreviation:	L+	res.	L-	C/Q
		Pin:	1	2	3	4

### Top view of mating side, male contact base



M12 connector, 4-pin

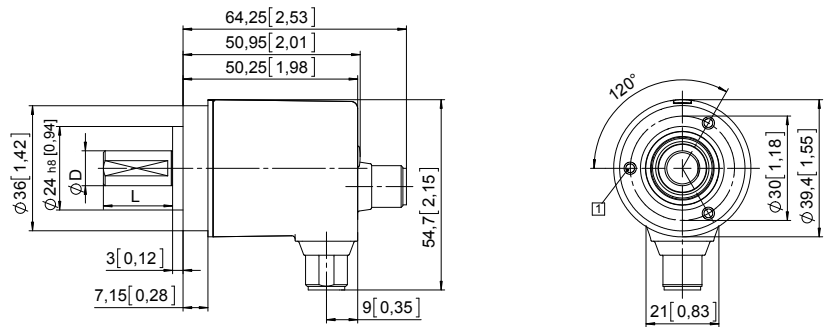
## Dimensions shaft version

Dimensions in mm [inch]

### Clamping flange, $\varnothing 36$ [1.42]

#### Flange type 1 and 3

1 3 x M3, 6 [0.24] deep

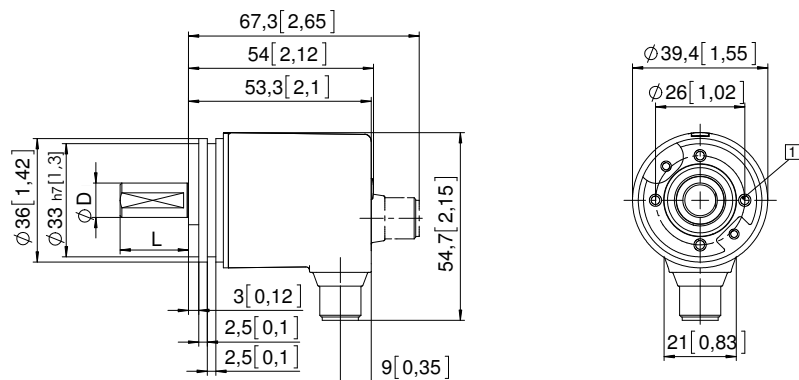


D	Fit	L
6 [0.24]	h7	12,5 [0.49]
8 [0.32]	h7	15 [0.59]
10 [0.39]	f7	20 [0.79]
1/4"	h7	12,5 [0.49]

### Synchro flange, $\varnothing 36$ [1.42]

#### Flange type 2 and 4

1 4 x M3, 6 [0.24] deep



D	Fit	L
6 [0.24]	h7	12,5 [0.49]
8 [0.32]	h7	15 [0.59]
10 [0.39]	f7	20 [0.79]
1/4"	h7	12,5 [0.49]

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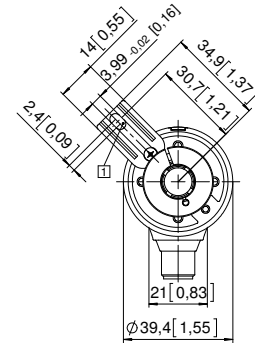
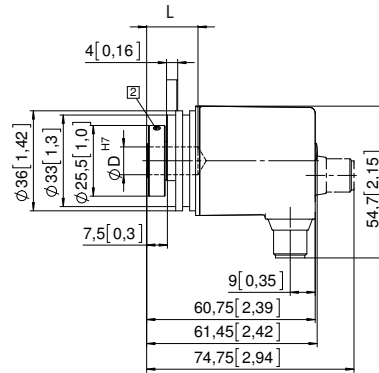
**IO-Link**

## Dimensions hollow shaft version

Dimensions in mm [inch]

### Flange with spring element, long Flange type 3 and 6

- 1 Slot spring element, recommendation: torque pin DIN 7,  $\phi$  4 [0.16]
- 2 Recommended torque for the clamping ring 0.7 Nm

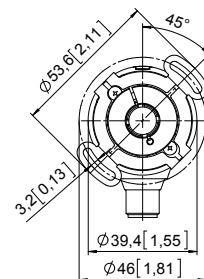
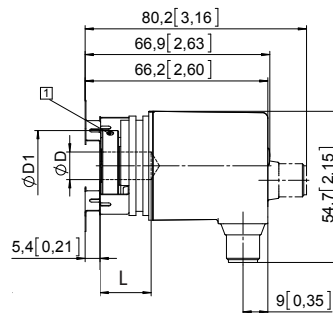


D	Fit	L	D1
6 [0.24]	H7	18,5 [0.73]	24 [0.94]
8 [0.32]	H7	18,5 [0.73]	25,5 [1.00]
10 [0.39]	H7	18,5 [0.73]	25,5 [1.00]
1/4"	H7	18,5 [0.73]	24 [0.94]

L = insertion depth max. blind hollow shaft

### Flange with stator coupling, $\phi$ 46 [1.81] Flange type 2 and 5

- 1 Recommended torque for the clamping ring 0.7 Nm



D	Passung	L	D1
6 [0.24]	H7	18,5 [0.73]	24 [0.94]
8 [0.32]	H7	18,5 [0.73]	25,5 [1.00]
10 [0.39]	H7	18,5 [0.73]	25,5 [1.00]
1/4"	H7	18,5 [0.73]	24 [0.94]

L = insertion depth max. blind hollow shaft