

Absolute encoders – multiturn

Compact, robust electronic multiturn, magnetic

Sendix M3663R (shaft)

SSI



The Sendix M36 with Energy Harvesting Technology is an electronic multiturn encoder in miniature format, without gear and without battery.

The "R" obust version is particularly suitable for use in harsh environments. Protected up to IP69k, resistance against shock and extreme temperature fluctuations, the Sendix M36 encoder is suitable even for demanding outdoor applications.













seawater resistant







range







resistant





capacity

Reverse polarity protection

Highest robustness

- Sturdy bearing construction in Safety-Lockplus[™] design for particularly high resistance.
- · Extra large bearings.
- · Mechanically protected shaft seal.
- · Protection level IP66, IP67 and IP69k in one device.
- Wide temperature range -40°C ... +85°C.
- · Without gear and without battery, thanks to the Energy Harvesting technology.

Application oriented

- Absolute accuracy ±1°.
- Repeat accuracy ±0.2°.
- Short control cycles, clock frequency with SSI up to 2 MHz.
- Max. resolution 38 bit (14 bit ST + 24 bit MT).

Order code **Shaft version**

8.M3663R



a Version

- 1 = standard 1)
 - clamping flange ø 42 mm [1.65"]
- 7 = stainless steel V4A 2) clamping flange ø 42 mm [1.65"] all metal parts accessible from outside are out of stainless steel V4A
- **b** Shaft (ø x L), with flat
- $1 = \emptyset 6 \times 12.5 \text{ mm} [0.24 \times 0.49"]$
- $3 = \emptyset 8 \times 15 \text{ mm} [0.32 \times 0.59"]$
- $5 = \emptyset 10 \times 20 \text{ mm} [0.39 \times 0.79"]$
- $2 = \emptyset 1/4" \times 12.5 \text{ mm } [0.49"]$
- $E = \emptyset 10 \times 20 \text{ mm} [0.39 \times 0.79^{\circ}],$ stainless steel V4A

- C Interface / supply voltage
- 2 = SSI / 10 ... 30 V DC
- **1** Type of connection
- 2 = radial cable, 1 m [3.28'] PUR
- B = radial cable, special length PUR *)
- 4 = radial M12 connector, 8-pin
- *) Available special lengths (connection type 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.M3663R.132B.G322.0030 (for cable length 3 m)
- Code
- B = SSI, binary
- G = SSI, gray

- Resolution (singleturn)
- A = 10 bit ST
- 2 = 12 bit ST
- 3 = 13 bit ST
- 4 = 14 hit ST
- Resolution (multiturn)
- 2 = 12 bit MT
- 6 = 16 bit MT
- A = 20 bit MT
- 4 = 24 bit MT

Optional on request

- Ex 2/22 (only for connection type 4)
- other shaft diameters out of V4A stainless steel

¹⁾ Not in conjunction with shaft type "E"

²⁾ Only in conjunction with shaft type "E" + type of connection "4".



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Mounting accessory for sha	Order no.	
Coupling	8.0000.1102.0808 ¹⁾	
Cables and connectors		Order no.
Preassembled cables	M12 female connector with coupling nut, 8-pin, A coded, straight single ended 2 m [6.56'] PUR cable	05.00.6051.8211.002M ¹⁾
Connectors	M12 female connector with coupling nut, 8-pin, A coded, straight (metal)	05.CMB 8181-0 ¹⁾
	M12 female connector with coupling nut, 8-pin, A coded, straight (stainless steel V4A)	8.0000.5136.0000.V4A

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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Technical data

Mechanical characteristics		
Maximum speed	4000 min ⁻¹ 2000 min ⁻¹ (continuo	ous)
Starting torque at 20°C [68°F]	< 0.01 Nm	
Shaft load capacity radial axial	80 N 40 N	
Weight	approx. 250 g [8.82	oz]
Protection acc. to EN 60529/DIN 40050-9	IP66, IP67, IP69k	
Working townsysture rouge	4000 0500 [400	E 40505]
Working temperature range	-40°C +85°C [-40°	F +185°F]
Materials	version "1" (standard)	version "7" (stainless steel)
	version "1"	version "7"
Materials shaft flange housing	version "1" (standard) V2A aluminum zinc die-cast	version "7" (stainless steel) V4A V4A

Electrical characteristics	
Supply voltage	10 30 V DC
Current consumption (no load)	max. 30 mA
Reverse polarity protection of the supply voltage	yes
Short-circuit proof outputs	yes 1)

SSI interface	
Output driver	RS485 transceiver type
Permissible load / channel	max. +/- 30 mA
Signal level HIGH LOW with $I_{Load} = 20 \text{ mA}$	typ 3.8 V typ 1.3 V
Resolution singleturn	10 14 bit
Absolute accuracy 2)	±1°
Repeat accuracy	±0.2°
Number of revolutions (multiturn)	max. 24 bit
Code	binary or gray
SSI clock rate	50 kHz 2 MHz
Data refresh rate	2 ms
Monoflop time	≤ 15 µs

Note: If the clock cycle starts within the monoflop time a second data transfer begins with the same data. If the clock cycle starts after the monoflop time the cycle begins with the new values. The update rate is dependent on the clock speed, data length and monoflop time.

SET input		
Input		active HIGH
Input type		comparator
Signal level (+V = supply voltage)	HIGH LOW	min. 60 % of +V, max: +V max. 30 % of +V
Input current		< 0.5 mA
Min. pulse duration (SET)		10 ms
Input delay		1 ms
New position data readable afte	r	1 ms
Internal processing time		200 ms

The encoder can be set to zero at any position by means of a HIGH signal on the SET input. Other preset values can be factory-programmed. The SET input has a signal processing time of approx. 1 ms, after which the new position data can be read via SSI. Once the SET function has been triggered, the encoder requires an internal processing time of typ. 200 ms; during this time the supply voltage must not be switched off. The SET function should be carried out whilst the encoder is at rest.

If this input is not used, it should be connected to 0 V (Encoder ground GND) in order to avoid interferences.

DIR input

Direction input: A HIGH signal switches the direction of rotation from the default cw to ccw. This inverted function can also be factory-programmed.

If this input is not used, it should be connected to 0 V (Encoder ground GND) in order to avoid interferences.

Response time (DIR input) 1 ms

Power-ON

After Power-ON the device requires a time of approx. 150 ms before valid data can be read.

Hot plugging of the encoder should be avoided.

File no. E224618						
2014/30/EU						
2011/65/EU						
2014/34/EU (for Ex 2/22 variants)						
S.I. 2016/1091						
S.I. 2012/3032						
S.I. 2016/1107 (for Ex 2/22 variants)						

¹⁾ Short circuit proof to 0 V or to output when supply voltage correctly applied.

²⁾ Over the whole temperature range.



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Terminal assignment

Interface	Type of connection	Features	Cable (isolate unused cores individually before initial start-up)								
2 2, B SET	CET DID	Signal:	0 V	+V	C+	C-	D+	D-	SET	DIR	Ê
	2, B	SET, DIR	Core color:	WH	BN	GN	YE	GY	PK	BU	RD

Interface	Type of connection	Features	M12 connector, 8-pin									
2 4 CET DID	SET, DIR	Signal:	0 V	+V	C+	C-	D+	D-	SET	DIR	Ŧ	
2	4	SEI, DIN	Pin:	1	2	3	4	5	6	7	8	PH

+V: Supply voltage encoder +V DC

0 V: Supply voltage encoder ground GND (0 V)

C+, C-: Clock signal
D+, D-: Data signal
SET: Set input
DIR: Direction input

PH ±: Plug connector housing (shield)

Top view of mating side, male contact base



M12 connector, 8-pin

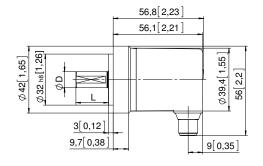
Dimensions

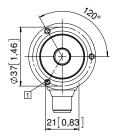
Dimensions in mm [inch]

Aluminum, clamping flange, ø 42 [1.65] version 1

1 3 x M3, 6 [0.24] deep

	D	Fit	L
ſ	6 [0.24]	h7	12.5 [0.49]
Γ	8 [0.32]	h7	15 [0.59]
Γ	10 [0.39]	f7	20 [0.79]
Γ	1/4"	h7	12.5 [0.49]





Stainless steel V4A clamping flange, ø 42 [1.65] version 7

1 4 x M4, 8 [0.31] deep

